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FOREWORD

Even though planning has been a central tenet of our approach to economic development since Independence, it has neither become ideologically rigid nor methodologically stultified. Each of our Plans has reflected the changing imperatives of the times and the theoretical and experiential developments from around the world. Some of the changes have been strikingly bold, while others somewhat modest. But change there has been. Never before has this inherent dynamism of the Indian planning process been more in evidence than in the past decade. The economic reforms that came in the wake of the crisis of 1991, and which have progressed steadily ever since, jettisoned some of the basic premises of our development paradigm and practically all of the instruments traditionally used for implementing our Plans. Nevertheless, the need for planning as a unifying strategic approach continued to be felt.

The Ninth and the Tenth Five Year Plans embody the process of transition from the traditional investment allocation form of planning to planning for a modern market economy. This transition involved not only a complete overhaul of planning methodologies, whereby more or less deterministic planning models had to be replaced by more behavioural systems which could better handle the nuances of

policy change, but also the incorporation of a number of issues which had traditionally never been an integral part of planning. Thus, for example, fiscal issues had to be integrated into the planning framework, as also financial markets and governance. By and large, it would be safe to say that the new planning system had to pay considerably greater attention to sectoral specificities and regional idiosyncracies than was the case earlier.

This shift from a directive to an indicative planning approach also required that the operational modalities of the Planning Commission undergo a radical alteration. In earlier years, it was sufficient for the Planning Commission to interact primarily with the Central Ministries and State Governments, which were responsible for the implementation of the Plan in terms of both investment allocations and projects and programmes. In the new economic environment, however, the Plan had to be communicated to a much wider constituency of stakeholders. Although the regular interaction with the various arms of the government at different levels continued to be of great importance, it was equally important that the other actors in the development process, such as industry, non-governmental organizations, trade unions, academics, etc. be made fully aware of the role that they were expected to play in the growth and development of the nation. Thus, wider consultative and communication processes had to be instituted in the functioning of the Planning Commission.

Much of these momentous changes in the Indian planning system were made under the stewardship of Shri K.C. Pant, who, as Deputy Chairman of the Planning Commission, guided the process for a period of over five years from February 1999 to June 2004. He was not only responsible for designing and piloting the reorientation of the Planning Commission, but was also its most visible public face. Along with his regular interaction with Central Ministries and State Governments, Shri Pant made it a point to participate in conferences, seminars and other functions organized by various stakeholder groups in order to explain the Plan in its many dimensions and to receive feedback. His speeches on these occasions explicate the complexities of planning in

India in terms which are accessible to the lay person. They also provide valuable insights into the analyses and thought processes that underlie our Plans and the manner in which our planning has evolved. The Planning Commission felt that compilation and publication of these speeches would be of immense interest, not only in terms of the issues covered, but also as a chronicle of one of the most dynamic periods of Indian planning.

This compilation is in three volumes, and covers speeches made by Shri Pant from April 1999 to December 2002. The first two volumes deal with a wide spectrum of socio-economic issues. They bring out with great clarity the magnitude and complexity of the problems that exist in Indian development, and which must be factored into our planning. The third volume is devoted to discussion of the annual plans of States and Central Ministries, which provides an insight into the way the government at various levels manages its finances and deploys its resources – material, monetary and human – to further developmental objectives.

This is the first time that the Planning Commission has brought out such a compilation. We hope that it will serve as a rich source of information for students, scholars, researchers, policy makers and the general public on the strategies followed by the governments at the Centre and the States, the problems encountered and constraints faced in the different sectors of the economy, and the remedial measures needed.



(Rajeeva R. Shah)

DEVELOPMENT OF CONSTRUCTION INDUSTRY*

I am happy that the Construction Industry Development Council (CIDC) has chosen infrastructure as its main theme for the conference. As you are aware, the Ninth Plan, which has been recently approved by the National Development Council, aims at achieving 6.5% annual rate of growth in the economy with agricultural growth at 3.9% and that of industrial sector at 7.6% per annum. In order to realise this growth rate in GDP and to accelerate it in the perspective period, a matching infrastructure will need to be created to cater to the requirements of different sectors of the economy. Infrastructure is a matter of concern to us as its shortage gets reflected both in the increasing costs and the lower levels of capacity utilisation of the user sectors affecting the future private investment behaviour.

The process of reforms, which has been under way for some years, involves a major reorientation of the role of the State. In fact, in many areas an increased involvement of the State is called for. An urgent priority for the State's role is the extension of social infrastructure facilities like health care, education, safe drinking water etc in rural areas, which is intrinsic to achieving the objectives of the Plan. Another area requiring substantial step-up in investment, in which the State will need to play a continuing role, is the provision of economic infrastructure such as power, roads, ports, railways, telecommunications etc. Notwithstanding the opening up of areas like power generation, telecom services, ports and even roads and airports for private investment, the State will have to continue to provide a large part of the investment needed, especially in those areas in which the private sector's contribution is likely to be limited or below expectation.

We are all aware that construction is a major component of infrastructure projects consuming a huge amount of funds. After

2 Development of Construction Industry

agriculture, trade and financial services, construction has the lowest Incremental Capital Output Ratio (ICOR) of 2.7% as compared to 13 to 16% in rail transport, electricity etc. as assumed in the formulation of the Ninth Plan. Therefore, even a small improvement in construction will go a long way to relieve the resource pressures that the country is facing today.

For many decades, the Planning Commission has been deeply concerned about the heavy time and cost over-runs on projects in every sector. The Planning Commission set up a high level Working Group on Construction, which recommended a nodal agency to examine comprehensively the problems of the construction industry with a view to enhancing the quality, speed and efficiency of construction and ensuring modernization and absorption of new technologies. In pursuance of this recommendation, the Planning Commission set up the Construction Industry Development Council with a wide participation of public and private sector entities, universities and training and research institutions.

I have been apprised of the activities of CIDC. I am happy to note that CIDC has been working in the area of modernisation and upgradation of the construction sector while at the same time targeting the problems of millions of construction workers, their training and skill upgradation, which will help in raising their earning potential and assessing opportunities for their future education and growth.

I congratulate CIDC for having selected the key infrastructure areas of power, roads, ports and urban infrastructure as the sub-themes of this conference. I am sure your deliberations will keep in view the long-term aspects of improvements in infrastructure in general, and construction in particular, and throw up useful suggestions. I wish you all success in your deliberations.

With these few words, I now request Krishna Kantji to inaugurate the Conference.

** Speech at the National Conference on Infrastructure 2000 organised by Construction Industry Development Council on March 6, 1999 in New Delhi*

ON ECONOMIC SANCTIONS

Introductory Remarks

We should thank Dr. Isher Ahluwalia and the Indian Council for Research on International Economic Relations for organising this lecture on Sanctions by Dr. Fred Bergsten, Director, Institute for International Economics, which has made a study of the effectiveness of economic sanctions. For us the subject is of more than an academic interest and we look forward to hearing the views of a person of Dr. Bergsten's stature on it.

There was a time when the words "economic sanctions" conjured up the image of a stern and exasperated international community asserting its authority to discipline a recalcitrant nation indulged in a behaviour contrary to the universally accepted principles and practices. A case in point is the imposition of sanctions against apartheid in South Africa. Here, the sanctions represented an expression of moral outrage.

Today, sanctions seem to have become a tool for furthering the foreign policy or the commercial interests of a group of nations. What is more, not even a fig leaf of rationalisation is considered necessary in case of inconsistent or discriminatory imposition of sanctions. Sometimes sanctions are used to destabilise a government. Past experience suggests that the sanctions alone may, in fact, strengthen an otherwise unpopular government by offending nationalistic sentiments.

Sanctions are also used to induce a country to change its policies. It is often forgotten or ignored or not taken into consideration that when a country's policies enjoy public support and are perceived to be in the national interest any appearance of external pressure in the form of sanctions may actually harden positions. This is especially true for

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democratic systems and even more so when the policies deal with security issues.

Technology embargoes in the past have met with some success. But our experience has been that such sanctions are not without side effect. For instance, they have spurred technological development and self-reliance in the targeted countries. They have led to a diversification of technology sources. This has meant loss of commercial transactions. Thus technology sanctions are neither an unmixed evil for the recipients nor an unmixed blessing for the 'donors'.

Violation of international law or accepted treaty obligations would attract the penalties prescribed in the instruments. But how would one define retaliatory action taken by a country, which is a non-signatory of a particular treaty or international convention? Would sanctions in such cases not be outside the ambits of international law? Would one country's domestic law be binding on another, which does not accept it? If not, the issue of legal or moral right to impose sanctions in such cases needs to be considered in greater depth.

It is suggested that unilateral action may actually be counter-productive since it gives the impression that the issue is not moral or ethical but merely an exercise of an unbalanced power equation.

I am sure Dr. Bergsten will throw light upon these and other aspects of the subject of sanctions.

Closing Remarks

We have heard from Dr. Bergsten about the effectiveness of sanctions in the course of the last 50 years. The one point that becomes strikingly clear is the common factor between successful sanctions as enumerated by Dr. Bergsten and the nature of sanctions as I had indicated in my opening remarks. This is that sanctions should reflect a collective disapproval of the action of a particular country and should be mediated through a well-accepted and established international organisation such as the United Nations.

It appears that it is primarily in the case of such multilateral sanctions that success has been achieved on a fairly regular basis. Unilateral sanctions are no more than an expression of political power or the means for satisfying certain domestic compulsions. These are not the proper grounds for taking punitive action against any country.

** On the occasion of Lecture on "Do Economic Sanctions Work?" organised by ICRIER & CII on March 11, 1999 in New Delhi*

STRENGTHENING INDO-JAPAN TIES*

It gives me great pleasure to be with you at the concluding function of the International Seminar on "Japan-South Asia Co-operation during the Post-Cold War Period". We have entered a new promising phase in the development of Japan-South Asia relations. With the end of the Cold War and peace in the Indian sub-continent, new horizons have emerged for strengthening these relations in the next century.

In South Asia, India's relations with Bangladesh, Nepal and Sri-Lanka have perceptibly warmed up in recent times, while the relations with Bhutan and Maldives are very close and those with China are on the mend. The winds of economic progress and the need to address the real problems like poverty and fiscal deficit may well catch up with India-Pakistan relations before long. SAARC looks more promising than ever before.

While India and Japan have always maintained good relations with each other, the three decades between the 1960s and the 1990s have seen a certain aloofness develop between the two countries, thanks largely to cold war considerations and different approaches to economic development. The situation is different today and both India and Japan now have the possibility to build a more rewarding relationship.

It is not difficult to forecast that the 21st century will see Asia become the focus of attention in the international system, both strategically and economically. Japan and China are already recognized as major powers. They could well be joined, among others, by India, Korea and Indonesia. It is equally evident that in the post-Cold War world, economic interests are likely to dominate the foreign policies of governments.

Japan has been a pre-eminent nation in the region as a source of capital and technology as well as an affluent market for raw materials and

manufactured goods. Today, its economy appears to have reached a plateau, as is the case with the economy of many other developed countries. India, on the other hand, provides a growing market for project and consumer goods and is a source for raw materials like iron ore and other minerals as well as a number of agricultural and marine products. In addition, India has a vibrant democracy, an independent judiciary, an international language like English as well as a thriving entrepreneurial class and skilled manpower, all of which qualify India as a prospective production base for Japanese industry. To Japan's great credit, when our balance of payments position was under severe pressure in 1991, Japan was foremost in coming to our assistance with quick-disbursing bilateral aid as well as through ADB, World Bank and IMF. Thus, India and Japan have a fund of past goodwill to build upon.

The 1980s marked the beginning of a new phase in India-Japan relations. One of the factors, which helped bring about a new approach, was the first major India-Japan venture—the Maruti-Suzuki plant to manufacture cars in India. The visit of Prime Minister Yasuhiro Nakasone to India in 1984—the first visit by a Japanese Prime Minister in 23 years—followed by PM Toshiki Kaifu's visit in 1990 and the visits of Prime Minister Rajiv Gandhi to Japan in 1985, 1987 and 1988 established a high political-level dialogue. The Festival of India held in Japan from April to October 1988 attracted 1.80 million visitors to its various events and brought Indian culture into living contact with the Japanese people.

India's adoption of the "Look East" policy and the launch of the economic liberalisation process in 1991 gave a further impetus to our relationship. India's policies became more outward looking and investor friendly. The encouragement and support of friendly countries like Japan have been a source of strength to India in implementing this policy. Japanese investment of \$ 1269.09 million in the Indian economy since 1991, covering sectors ranging from telecom and consumer electronics to automobiles, engineering and power, reflect the growing Japanese involvement. Big names of Japanese industry have now begun to invest in India. During 1997, the Government of

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Japan pledged about Rs. 3923 crore to support ten major projects in India in areas like power generation and transmission, development of ports, irrigation, afforestation, sericulture, development of small scale industries etc. However, Japan ranks only fourth in foreign direct investment in India.

One of the more important areas in bilateral co-operation is science and technology. The S&T Agreement signed during Prime Minister Rajiv Gandhi's visit to Japan in November 1985 led to several exchanges. The India-Japan Joint Committee on Science and Technology, established in 1985 between the Science and Technology Agency (STA) of Japan and the Department of Science & Technology (DST) of India, has finalised several projects for collaborative research, *inter alia*, in areas like meteorology and space research. Over a couple of hundred scientists have exchanged visits for carrying out joint projects and for attending seminars. Exchange of scientists is also taking place for periods varying from six months to two years at the university level. The Indian National Science Academy, the Council for Scientific and Industrial Research and the Department of Science & Technology have active programmes of co-operation with their counterpart institutions like Japan Society for the Promotion of Science (JSPS), Agency for Industrial Science and Technology etc. In addition, there are a number of inter-institutional and inter-university arrangements.

One aspect that does not appear to have received adequate attention in both countries is student exchange. There is a considerable body of scholarship on India in Japanese universities and institutions and there is an active Japan Association of South Asian Studies. Yet, there are barely a couple of hundred Indian students in Japan out of a total foreign student population of over 50,000. In India too, there is an active Japanese Studies programme. It is encouraging to note that the number of Indian students taking up Japanese studies in India is increasing. There is a great need for, and interest in, expanding the facilities for Japanese studies in Indian universities. Both sides need to take a fresh look at how this process can be expanded and expedited since this is a relatively easy, though long-term, measure through which

understanding of each other's societies can be enhanced. While it is entirely apposite that the two countries should focus on areas, which are of immediate concern, whether it be in politics or in the economy, it is also important to develop the process of understanding each other through a study of each other's languages, cultures, society and historic evolution.

Information technology is an area, which is being given special importance in India. It is likely to open up new opportunities for bringing Japan and India together. It is increasingly being realised that India can be a vital source of supply of IT software to Japan and that there is scope for developing joint ventures between Japanese and Indian companies and opening of offices by Indian companies in Japan. In fact, some Indian companies have already started building their business interests in Japan. I am sure this will be the forerunner of a much larger co-operation between the two countries.

India depends increasingly on trade and foreign direct investment (FDI) rather than aid. Japan today is only the fourth largest in terms of FDI in India. One of the major impediments in increased Japanese FDI is the lack of good quality infrastructure in this country. There is evidence now that the Central and State Governments are sincerely focusing on this problem and accepting the situation as a challenge rather than a hurdle.

Due note should be taken of the increasing Japanese interest in India. January 1995 saw the visit to India of the then MITI Minister, Mr. Ryutaro Hashimoto. Important in itself, a MITI Minister's visit is the best signal to Japanese businessmen. In 1997 Japan was the partner-country in our International Engineering Trade Fair and 135 Japanese companies participated in it. Two Japanese Airlines—Japan Airlines (JAL) and All Nippon Airways (ANA)—have commenced direct air services to India. There has been a constant flow of Japanese business delegations over the last few years, which is an important component of a growing co-operative relationship. All in all, Japan has the potential to become Number One among foreign direct investors in India.

It is time now to widen and deepen the scope of our bilateral relations beyond just economic interests. Both India and Japan practise open, democratic systems of government. Their cultural ties are age-old. There are also common concerns about the future security environment in Asia and an honest elimination of nuclear weapons. Both Japan and India are now more inclined to harmonise their policies with the economic rhythm of Asia. There is virtually no conflict of interest – political or economic – between the two countries. On the other hand, there is a great degree of convergence of interests. Given the geographical and economic complementarities it becomes obvious enough that this bilateral relationship should be one of the pillars of the foreign policies of the two countries. However, it would be realistic to acknowledge that this is not the case today and much more remains to be done before the full potential of Indo-Japanese co-operation can be realised.

It is important to provide for deeper and wider exchanges generally among young people and particularly among scholars, scientists and journalists of the two countries. The Foreign Minister of Japan is understood to have proposed the setting up of a "Japan-India Eminent Persons Committee for the 21st Century". The proposed committee would have intensive consultations over a limited period of time to prepare suggestions for a deeper comprehensive relationship between the two countries. He has also referred to the need for a "Japan-India Centre" as a permanent forum for wide-ranging exchanges and to serve as a base for those involved on both sides in strengthening bilateral ties in all spheres.

I would like to end with the hope and wish that Japan-South Asia co-operation will flourish in the years to come and will contribute to the prosperity and stability of the Asian region as a whole.

** At the International Seminar on "Japan-South Asia Co-operation during the Post-Cold War Period" in March-April 1999*

TRADITIONAL VALUES OF INDIA*

I am honoured to share some thoughts with you on the occasion of the 11th annual Convocation of Goa University. I have always enjoyed coming to Goa with its enticing natural beauty and cheerful people and I am thankful to the Governor Lt. Gen. J.F.R. Jacob for giving me this opportunity of being with you today.

I would like to congratulate the new graduates, especially those who have received awards and honours, and to wish them all a very bright future. Our nation and the world we live in are on the threshold of big changes. Only those nations, which are able to look ahead and equip themselves suitably, will be able to face the new millennium on their own terms. I hope that the education you have received at the University will help you to realise your full potential and at the same time enable you to play a role in transforming this ancient land into a modern nation.

India is one of the oldest civilisations of the world. The Rig-Veda is the most ancient scripture of the human race. The history of the past thousands of years has been one of triumphs and tribulations, highs and lows, conflicts and peace. At the end of it all, India still exists and is proud of an unbroken evolutionary history of customs and rituals, traditions and myths, flora and fauna, culture and spirituality.

If we sit back and analyze the past, we find it teaching us several lessons in what makes India so stable and indestructible in a world of constant flux and change. India stands for certain eternal values—*satya*, *dharma*, *prema*, *shanti* and *ahimsa* – and it has retained its loyalty to these values over the centuries without fear or favour. It is our good fortune that these eternal values also constitute the bedrock of what the modern world considers as the central concerns of present-day life.

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As you emerge from the portals of academy and face the realities of every day existence, it may not be apparent as to what role these values play in your lives. Scepticism and even cynicism may appear more relevant philosophies for survival in an imperfect world. I would only like to remind you that the world is no more imperfect today than it had been in the past. Yet these values have endured through the centuries. The reason for this is that all human beings need to aspire for something more than mere survival or even material success. Emotional wellbeing is just as important as physical wellbeing and these values define our emotional and spiritual aspirations.

Long ago our seers extolled the value of *satya* (truth). Very early they realized that no one person could hold a monopoly over truth. *Ekam sat vipra bahudha vadanti*. Truth is one but the wise ones interpret it differently. Thus we started the eclectic tradition in which it was held that all systems of thought lead to the same truth. That is why the earliest Christians, when they were persecuted in Syria and Rome, took refuge in Kerala and so did the Zoroastrians and the Jews. At various points of time, when they were persecuted in their native lands, people of diverse ethnic origins and religious beliefs sought and found shelter in India. India has never closed its doors to those seeking refuge from oppression and it never will.

That brings us to the second Indian value of *dharma* or righteous conduct. *Dharma* is not religion in the sectarian sense. It is the law that upholds the universe. It is the force, which creates balance, harmony and stability in the world. Indian thinkers realised long ago that political power or physical force alone could not uphold the State. The king held power only as long as he followed the path of *dharma*. He had to be righteous in his conduct. His taxes had to be moderate and his conduct impeccable. He was not allowed to take away the property of his citizens or cause physical harm to their person without following the due course of law. Although the king was supreme in the monarchical form of government, he was subject to *dharma*. If a king indulged in *adharma* the citizens had the shastric right to resist and even depose him from his office. *Dharma* also governed other

human relationships and enabled a human being to have a clearer concept of what was good and bad, moral and immoral, worldly and sacred.

The third ideal was *prema*—love. Love was the emotional bond that held together the diverse elements that constituted the framework of our material existence whether it was a group of human beings in a society or family, or man and his environment. This love was the logical consequence and a reflection of the philosophy that all life was essentially one. Thus there was no need to prove the Brotherhood of Man.² It was an axiomatic statement. From this flowed the all-embracing concept of *Vasudhaiva Kurumbhakam*—the whole world is one family.

It was therefore entirely consistent to have the fourth value of *shanti* or peace. If there is no stranger in this universe, how can there be conflict? As our philosophers have maintained, if I harm someone I demolish a part of myself. This ancient philosophy continues to guide the modern nation-state that is India. We have always used our armed forces for self-defence and never for offence. In the post-independence era, our wars with China and Pakistan have been conflicts where we defended our territorial integrity against an aggressor. But a commitment to peace does not mean turning a blind eye to the realities of a world, which has been characterised by wars and conflicts. It is entirely right that although we must abjure violence against others, we must also ensure that nobody dares to inflict violence against us. The development and possession of nuclear deterrent capabilities is thus fully consistent with our commitment to peace.

It is not strange then that this attitude to life has made India into a nation in which *ahimsa* or non-violence is part and parcel of the national ethos. Whether it was Buddha or Mahavira, *ahimsa* was always the ideal to strive for. This ideal has been extolled and upheld in our country and has survived through myriad trials and tribulations. Even Ashoka, the Great, embraced the cult of non-violence after the bloody Kalinga conflict. If Indians are true to this unique element in their cultural tradition, they will be solicitous of the welfare of animals and

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plants and aware of the unitive basis of the material world, which logically leads to the preservation of the environment and ecology as a central desideratum of life.

How did these great ideals of *satya*, *dharma*, *prema*, *shanti* and *ahimsa* serve us in the past? There is no doubt that it was these noble truths, again and again reiterated by a succession of seers, rishis, saints and kings which led India to its greatness and made it eclectic and tolerant. What became Greater India had not been the result of a military conquest but the onward march of culture and philosophy, religion and mythology, dance and drama, literature and poetry. Even in the modern age our greatest exports have been classical music and dance, vedanta and yoga, and the concept of Panchshila in international diplomacy.

There may be some who argue that India was subjugated by foreign invaders because of some inherent cultural weaknesses; that it was possibly the cult of non-violence or otherworldliness that led us to neglect the science of warfare and left us weak and unprotected against the onslaughts of outside aggression; that we developed our economy so well that our gold and silver and the temple treasures, the Kohinoor and the Takht-i-Tavoos became the magnet that attracted the rapacious but indigent invaders from the north and later the west; that it was our misplaced nobility that led Prithviraj Chauhan to defeat Mohammad Ghorī seventeen times and let him go alive each time. Even today there are those who argue that Indians do not possess the killer instinct, be it in chess, hockey, cricket or armed conflict. It is argued that having won the wars with Pakistan in 1965 and 1971, we refused to pursue our advantage and lost the initiative in the post-war diplomacy at Tashkent and Shimla.

I do not want to pursue these interesting questions of history at this point of time except to point out that India is not alone in having such unresolved conundrums. Even in Europe history is replete with instances of barbarians repeatedly invading the more advanced and peaceful kingdoms. That was how the Persian, the Roman and the Ottoman Empires fell. Perhaps a degree of effete-ness is the price one has to pay for the sins of prosperity.

One may note in passing that India obtained her freedom by pursuing the same ancient values of *satya* and *ahimsa*. Contrary to the experience of earlier conflicts, the mighty British Empire was humbled by the non-violent, non-co-operation of the tallest leader of our times, Mahatma Gandhi. It is not by accident that Jawahar Lal Nehru, heir to the legacy of the past, when confronted with the cold-war politics of the post-Second World War era, came up with the alternative Weltanschauung or world-view of peaceful coexistence and non-interference in the internal affairs of others.

If we look at the history of the last fifty years, again we are struck by the continuity of the past with our present. India took to democracy as a fish takes to water. Today, we are a bastion of democratic values and one of the greatest forces in our region for democracy. It is because of us that democracy has been resuscitated or nurtured in our neighbourhood. Not only have we given the vote to women without a suffragette movement and resorted to adult suffrage without a murmur, we have through the 73rd and 74th Constitutional amendments taken democracy to the grassroots. The strengthening of the Panchayati Raj institutions will lead to greater involvement of the people in the process of development. The participation of lakhs of women in the work of these institutions is in fact a silent revolution with far-reaching wholesome consequences.

The twin experiments of mixed economy and non-alignment were also the logical offshoots of our traditional values. History has proved us right. Communism failed because it did not pay sufficient attention to empowerment of the people and cold-war politics failed because it tried to talk of peace while sitting on the biggest stockpile of destructive weapons in the history of the world. Today, every country realises that mixed economy and peaceful co-existence are the only feasible options in the modern world.

Friends, let us not be dispirited by those who cavil at the so-called Hindu rate of growth or by the doomsday prophets who think that India is on the brink of balkanisation. If our rate of economic growth was slow, it was because we were trying to achieve several objectives

simultaneously. We implemented our land reforms without bloodshed; no kulak was massacred. We empowered the scheduled castes and tribes and the backward classes through constitutional and legal process. When you try to organise change without violence, the pace is always slower but the progress is surer. If there are conflicts of various kinds, whether it is the Naxalite movement or the language riots or other violent movements, these are symptomatic of the million tiny mutinies spawned by effervescent regional identity, repressed peasantry or disenfranchised dalits. After all, you cannot build a modern nation-state overnight out of the debris of your colonial past.

There are, however, two aspects of our colonial legacy, which represent to my mind the most important challenges for the future. The first is the divisiveness that has been engendered in our people through the policy of "divide and rule". The unity of our country demands that we extend to each other the same consideration we give to our neighbours. This requires a re-establishment of our historical ethos. The rich tapestry of India is woven from its numerous languages, religions, ethnic groups and ways of life. Its variety lends it beauty and strength. It is our duty to preserve it.

The second is that the pride we had in our moral and cultural heritage has been eroded by the growing disparity in economic matters between us and a number of other countries. This gap has to be bridged without compromising on our principles. To my way of thinking, the way forward is through technology. We are, in one sense, living in fortunate times. In the past, technology has been driven by a desire for self-aggrandisement, whether through military or economic means. Things are different today. Much of modern science and technology is driven by a quest for knowledge for its own sake—a concept inherent in our quest for "satya". We need to revive and revitalise our traditional values, not for the sake of nostalgia but as a potent source of re-establishing our sense of pride through knowledge and technology.

When I look at the next fifty years, I see a prosperous India emerging and taking its rightful place in the comity of nations. I see an India, which is fully capable of defending its borders, a nuclear power

committed to peace, a bulwark for a just and co-operative world order. I see an India in which democracy has taken deep roots, in which the disadvantaged sections have been empowered politically, socially and economically, be they women, dalits, tribals, landless labourers, backward classes or others. I see an India, which is great in terms of literacy and education with its universities and technical institutions being converted into centres of excellence and professionalism and with its manpower strewn all over the globe, enriching the countries of adoption as well as the mother country. I see a large nation joined together by a network of transport, communication, culture, technology, trade and commerce. I see a people who have material rich but do not consider their worldly possessions to be their greatest achievement—a people who are proud of being civilized human beings, caring, compassionate, tolerant and industrious. I see a nation of Indians who are citizens of the world and yet have not forsaken their traditional values.

In short, I see a great and vibrant India in the making. Friends, in the making of this great nation each one of us has to play his allotted role. That role may be exalted or humble but it can never be negligible, for it is the combined effort of all that makes up the glory of the whole. It is my fervent hope that each one of you play your role to the best of your ability and contributes to the greatness of this nation, which has such a hoary past and such a glorious future. Jai Hind

** Address at the 11th Annual Convocation of Goa University*

ISSUES IN DEVELOPMENT POLICY*

Sushri Uma Bharti Ji, Shri Sompal Ji, Prof. S. R. Hashim, Dr. S. P. Gupta, distinguished members of the General Council, Prof. Ashoka Chandra, Director and Faculty of the Institute of Applied Manpower Research, it gives me great pleasure to welcome you all to the 35th annual meeting of the General Council.

The IAMR is not new to me. I had been associated with this premier institution in the late 70s as its Vice-President. We are meeting at a time when we are about to step into the next millennium with about 50 years of experience in planned development after independence. The major issues of development policy at this juncture are poverty and unemployment; human development in all its dimensions such as education and skills, safe drinking water, health care, and housing; empowerment of women and other socially disadvantaged sections of the society, and balanced regional development. These concerns have been adequately reflected in formulating the Ninth Plan, which was recently approved by the National Development Council. These are also, I believe, the concerns of this Institute and as such they have a bearing on its work programmes. I would therefore like to use this opportunity to touch upon some of these issues primarily to reflect on what it could mean to the IAMR in terms of restructuring of its programmes of analytical studies, generation of information bases and dissemination of knowledge on these issues in order to facilitate the planning process.

Poverty alleviation has been a major concern of development policy in this country. Reduction in poverty, witnessed in the last two decades, is sometimes associated with the emphasis laid on the creation of employment opportunities since the beginning of the Sixth Plan. However, it is realised that employment creation by itself does not alleviate poverty. While employment creation is necessary for poverty

alleviation, many other initiatives are needed to ensure equitable access to the benefits, which result from economic growth. It is here that human development plays a role in improving access to the fruits of development. Human development is thus a basic tool to overcome any deprivations and discriminations that persist in the system whether these are caused by regional imbalances, widening economic inequalities or ethnic, social and gender biases. Experience has shown that market mechanism and private initiatives alone do not provide effective solutions to such problems. Therefore, state intervention is essential.

Realising the importance of relating development policy and action to ground-level problems and issues of the people, the Planning Commission has decided to support the preparation of State-level Human Development Reports, which would provide a window for the identification of areas for state intervention and formulation of schemes for human development. Such information base is needed at the district level as well.

Among the major concerns in the Ninth Plan are the magnitude and structure of the labour force, which is emerging. According to demographic trends, the rate of growth of labour force in the coming decade is estimated to be the highest so far, being of the order 2.8% per annum. The projected increase in labour force is likely to throw up more job seekers than job opportunities. In addition, there is a backlog of unemployment of the order of 7 million at the beginning of the Ninth Plan. The rate of growth in employment realised during the period 1978-94 has been only of the order of 2.36% per annum and it is projected to be of the order of 2.44% in the Ninth Plan. In the post-Ninth Plan period, employment opportunities will, therefore, have to increase at a still higher rate of 2.8%, if full employment is to be achieved by the year 2007. This is a major challenge for the planners.

The structure of employment as it is emerging has also numerous problems such as high level of underemployment; increasing casualisation; emergence of low productivity jobs; employment creation tending to be confined to some sectors and regions; and under-utilisation of educated persons. High incidence of underemployment

and increasing casualisation resulted from piecemeal approach to employment generation in the past. An integrated area development approach to employment generation, preceded by detailed analysis of techno-economic conditions and assessment of employment potential, should form the basis for employment planning.

The Institute's studies at the district level, I understand, have revealed that there is an untapped employment potential as numerous employment opportunities are not detected and availed of at the grassroots level. This Institute could consider conducting such studies on a much larger scale to support decentralised employment planning. A comprehensive database will also enable the planners to focus on specific regions or segments such as women and other disadvantaged groups.

Quality of employment is basically characterised by four features, namely, extent of security in employment, working and living conditions, extent and nature of social security and empowerment of workers to improve their ability to the extent that they are able to assert their legal rights and privileges. These features characterise, by and large, employment in the organised sector. But they are missing in the agriculture and informal sectors which together account for over 92 per cent of workers. Development of these segments calls for enhancing productivity of employment and incomes of these workers and strengthening support systems, which ensure a better quality of life for them. State intervention is imperative in this regard as the market mechanisms are not likely to address these issues of quality of life adequately due to numerous distortions.

Women account for nearly 50% of the population, while their proportion in employment is much lower. Also, the female labour force participation rates have been declining during the period 1978-94. Thus, the potential of a substantial population is yet to be tapped in the process of development. There is also evidence to show that women's contribution to work is often hidden and passed off as household work. Work done by females calls for recognition and their productive efficiency needs to be improved through education and

training. Simultaneously, efforts are needed to empower women and enhance their role in decisionmaking. This calls for action in political, economic and social spheres. The nation has already initiated the process of empowerment of women in the political sphere through the establishment of Panchayati Raj Institutions (PRI) and ensuring the participation of women in PRIs through specific reservation. To carry forward the process of empowerment, the Institute should take up specific studies focussing on areas of gender-based discrimination to identify specific aspects for State intervention.

Poverty eradication through employment generation, amelioration of human deprivation through social development and reaching the benefits to the beneficiaries equitably are all intimately associated with agriculture development. The Ninth Plan, accordingly, emphasises regionally differentiated strategies of agricultural development. Studies on decentralised agricultural development and implications of agricultural development on employment and poverty at the district level should receive due attention.

Availability of social and economic infrastructure is important for development as its shortage gets reflected in increasing costs and declining levels of capacity utilisation. Construction is a major component of infrastructure projects and it is also a labour-intensive sector. This is also a sector, which experienced a high rate of growth of employment in the past. Therefore the construction sector is strategic for growth with employment. The information base on employment and its structure, the skill-base of existing workers, the options for technology improvement and emerging skill requirements in the construction sector is, however, very weak. Information is also needed on the problems of millions of construction workers, who are largely unskilled and low-paid and on their training and skill upgradation, which would help in raising their earning potential and assessing the opportunities for their education and growth.

The Ninth Plan specifically focuses on delivering development through local infrastructure and community participation. A related issue concerns reform and development of the civil administration system in the country in order to make it consistent with the changing

responsibilities for public provision of social and economic services. Specific studies are needed to analyse the organisational structure at the PRI level and improve civil administration. I hope the Institute will explore some of these new areas through its academic activities and contribute to policy planning and delivery of development.

I have followed with keen interest the Director's account of the substantial progress achieved by the Institute during the decade of the 90s. The Institute's research studies are spread over a wide canvas encompassing various social and economic dimensions of human development. The training programmes of the Institute have even received international recognition. The Institute's foray into educational programmes in 1997 has also been very successful. I understand the Institute's International Post-Graduate Diploma Course in Human Resource Planning and Development has earned international acclaim and attracted wide participation from senior and middle level policy makers of different nations.

I would like to place on record our sincere thanks to the present and past Vice-Presidents of the Institute, the Chairmen of the Executive Council and the Chairmen of the Standing Committees on Research Programmes for their support and valuable contribution to the work of the Institute. They have helped the Institute substantially in expanding and diversifying its academic activities and in improving the quality of Institute's academic output.

I am sure members of the General Council will recognise the progress made by the Institute during the last year through the efforts of Prof. Ashoka Chandra, Director of this Institute, whom I have known since the mid 80s, and the staff of the Institute. I am confident that the staff of the Institute would continue to extend support and co-operation to the Director in sustaining the pace of development achieved and striving to set new landmarks in the path of the Institute's progress and development. With these observations, I have great pleasure in inaugurating the thirty-fifth meeting of the General Council.

** Welcome Address at the 35th Annual Meeting of the General Council of Institute of Applied Manpower Research (IAMR) held in New Delhi*

Y2K COMPLIANCE IN GOVERNMENT & PSEs*

I welcome you all to this National Seminar entitled "Y2K Compliance in Government and Public Sector Enterprises", which is the result of a joint initiative on the part of the Planning Commission and NASSCOM. The purpose of the Seminar is to create necessary awareness among Central Ministries, State Governments and public sector enterprises about the nature of the Y2K problem and its implications for India and to prepare a roadmap for the organisations to become Y2K compliant.

Due to lack of proper awareness and complete information on the subject, there is complacency in some quarters that the Y2K problem will not affect us in the same way as the developed countries. The basis of this misplaced optimism is that computer penetration is quite low and our industrial and economic systems are not totally computer-driven. I must emphasise that this sort of complacency could be disastrous. No country in modern times, irrespective of its computerisation and level of development, can wish away this problem so long as it has to deal with the rest of world. In fact, we in India are increasingly integrating ourselves with global forces, particularly in the economic field. We have today reached a stage where our development may well be influenced by economic prosperity of other nations. Our financial markets reflect the international fluctuations. Commodity prices have a direct linkage to international developments. Our industry is benchmarked against global best practices and we are striving to put in place an electronic and efficient governance system. Hence, it should leave no one in doubt that we as a nation are equally affected by the Y2K problem and have to tackle this problem on a war footing.

Information technology is a harbinger of future growth and index of competitiveness among nations and industries. India, having the largest

pool of skilled and trained manpower in the area, has a strong competitive advantage in this sector. Keeping this in view, the Government has resolved to make India a global IT super-power and a front-runner in the information revolution. Not only have all sections of the society to pool their resources to achieve this objective, but they have also to work systematically to derive benefit from this. With this end in view, the Prime Minister had set up a National Task Force on IT last year. Many of the recommendations made in the two reports of the Task Force have already been acted upon. The final report concerning the citizens-IT interface, strategic policies and other aspects is expected shortly. Two to three per cent of the Plan funds of Central Ministries have been earmarked to give a boost to IT-related applications in the Government.

The Y2K problem is both a major challenge and a great opportunity for the IT sector in the country. As per the IT Action Plan, the country should aim at an annual export target in excess of 50 billion US dollars for computer software and a target of 10 billion US dollars for computer and telecom hardware by the year 2008. The compound growth rate of more than 55% achieved by such exports between 1992-97 will have to be increased to 80% by 2008. It is encouraging to know that Indian software companies have already seized the initiative and garnered a chunk of global Y2K business. As per NASSCOM estimates, these companies have received orders worth more than 2 billion US dollars. I will urge upon the companies to take full advantage of the situation and the fresh incentives announced by the Government to emerge as one of the leaders of the Y2K solution providers in particular and of the IT industry in general. I hope that Indian industry would seize upon this opportunity and exploit the present conducive environment to throw up a number of strong Indian multinationals. The listing of M/s Infosys Technologies, Bangalore at NASDAQ in the US augurs very well for the future growth of the IT sector in India.

The recent policy statement by the Government has made very clear its intentions to develop IT as an accelerator of socio-economic change

and the leader in the export sector. The Prime Minister's Task Force on IT and Software Development has recommended the setting up of a corpus of Rs.700 crore. The objective of the fund is to facilitate initiatives in the government departments, public sector undertakings and other government-associated organisations to solve the Y2K problem. The Government has accepted this suggestion. In the latest budget (1999-2000) companies have been allowed to treat the entire expenditure incurred on making the systems Y2K compliant as revenue expenditure for purposes of tax liability. I hope these provisions would go a long way in boosting IT applications in various sectors including the Government.

The Government of India has already identified the resolution of the Y2K problem in the country as a priority item on its agenda. As recommended by the IT Task Force, a High Level Action Force on Managing the Impact of Year 2000 problem in India has been constituted under the Chairmanship of Shri M. S. Ahluwalia, Member of the Planning Commission, with representatives from various government departments, industry associations and financial institutions. The Action Force has requested all the Union Secretaries to set up a departmental Y2K Action Group for assessing the status of preparedness and initiating necessary action for handling the problem. I am glad that the majority of them have taken the first step in constituting Working Groups in the respective Ministries/ Departments. The progress in this regard would be monitored by the Action Force on a regular basis.

The Department of Electronics, NIC and NASSCOM have prepared excellent papers on the Y2K problem. The NIC is also monitoring Y2K compliance status in the government departments and organisations. I am happy to learn that NASSCOM has set up SIG-Y2K, a Special Interest Group for Year 2000 Solutions, for the promotion of Indian Y2K solutions in export markets as well as facilitating domestic Y2K compliance under its "I'm Y2K OK" campaign. It has also formulated a definition for Y2K compliance and published a directory of Y2K solution-providers in India. I also

understand that institutions such as Securities and Exchange Board of India, Reserve Bank of India, Institute of Chartered Accountants of India, Company Law Board, NASSCOM and others have already been issuing Y2K relevant guidelines.

In the developed world, the Y2K compliance programmes have reached an advanced stage. These countries have gone in for obtaining comprehensive disclosure statements from organisations about their Y2K status. The governments are making it mandatory for trading partners to achieve Y2K compliance. They fear that while they may have solved their internal Y2K problems, their trading partners may not be prepared. In other words, we are left with no choice but to redouble our efforts to address the Y2K problem.

From this platform I would like to appeal to the Chief Ministers of States to take the lead in identifying critical areas in which Y2K problems could crop up and set in motion action to resolve them. The state electricity boards, transmission systems, water supply and sewage treatment plants and other public utilities need to be taken up for priority Y2K audit. The Cabinet Secretary has already written a letter to the Chief Secretaries to initiate action on this front. The CMC, NIC and other such expert agencies in the central sector can be tapped for advice.

I assure you of the full support of the Planning Commission in this national endeavour. I strongly urge you to take all possible steps to create further awareness of this problem within and outside your organisations to achieve maximum effect. I also urge you to take advantage of the fiscal incentives announced by the Government of India and use them to commit adequate Y2K-related funds in your budgets. After all, there is no escape from solving the problem, nor is there any short cut.

Another objective of this Seminar is to pave the way for a networking platform for Government users and IT solution-providers. I strongly encourage you to use this opportunity to learn from each other's experiences, understand each other's expectations and forge

relationships. The Seminar is expected to take us a step closer to 'Y2K Compliant India for the New Millennium'.

I sincerely request all of you to give us your feedback on what more needs to be done for India's Y2K program. I wish to compliment NASSCOM for taking this initiative to address India's Y2K program. I also wish to thank all of you for taking time off to attend this National Y2K Seminar.

** Welcome Speech at National Seminar on "Y2K Compliance in Government and Public Sector Enterprises" organised by Planning Commission and NASSCOM in New Delhi*

EMPLOYMENT GENERATION STRATEGIES*

I am very happy to be here at the Seminar on "Strategies for Employment Generation: Futuristic Approach". It is very heartening to note that soon after the Ninth Plan was approved by the National Development Council, FICCI along with AIOE & ILO has taken the initiative to organise a discussion on strategies to generate higher employment in different sectors of economy. I welcome such initiatives.

We are now almost at the doorstep of the next millennium. The basic development issues at this juncture are rapid generation of employment, creation of productive avenues for employment, improving the quality of life and ensuring greater equity. These concerns have been adequately reflected in the Ninth Plan, which focuses on "growth with social justice and equity"

Growth by itself is not the only goal of development policy, which is concerned with the generation of gainful employment also. Despite the expected reduction in the growth rate of population to 1.58 per cent per annum by the end of the Ninth Plan, the labour force growth is projected to reach during the Ninth Plan period the peak level of 2.50 per cent per annum, the highest ever reached and ever likely to reach. The proportion of the population in the most active working age-group of 15 to 59 years is projected to go up significantly during the Plan period from 56.1 per cent in 1997 to 59 per cent in 2002. This is a reflection of the high rates of population growth observed during the late 1970s and early 1980s. The moderation in the growth of population, which has been brought about by a decline in birth rate in recent years, is expected to start getting reflected in the decline in labour force growth only in the post-Ninth Plan period. One of the most daunting challenges facing the Ninth Plan, therefore, is to accelerate the growth of employment opportunities to absorb this increase in labour force.

The structure of employment, as it is emerging, also has numerous problems, such as the high level of underemployment, increasing casualisation, emergence of low productivity jobs and underutilisation of educated persons. The strategy to generate more employment will be achieving higher growth rate of GDP using more and more labour-intensive technologies. This implies that jobs should be created in the growth process itself. However, sectors and sub-sectors, which have more potential for generating employment, will be strengthened. The Government has already identified a few such sectors and adopted a Special Action Plan for this.

The Ninth Plan identifies five special areas for action in this context. These are (a) doubling food production and making India hunger free in ten years; (b) expansion and improvement of social infrastructure such as housing, education, health care and sanitation and provision of drinking water to every settlement in the country within five years; (c) rapid expansion and improvement of physical infrastructure such as power, oil, petroleum, renewable sources of energy, roads, transport, ports, airports, telecommunications and financial services; (d) unveiling of a National Water Policy so that no water goes waste and the water resources are cleaned up; (e) making India a global information technology power and one of the largest generators and exporters of software in the world within ten years. These efforts will directly benefit employment generation.

While the strategy for employment generation has primarily to rely on the growth process, in the medium term there is a case for direct support to certain labour intensive sectors either by way of policy or by way of incentives. In the Ninth Plan 1 to 3 per cent of the budget for all the Ministries is being earmarked for expenditure on information technology applications. This is expected to generate about one million additional jobs every year. In khadi and village industries, additional 23 lakh persons are expected to be provided employment during the Ninth Plan. In the handloom sector the employment is expected to increase from 124 lakh persons to 173 lakh persons during the Ninth

Plan. In sericulture the increase of employment is targeted at 14 lakh persons during the Plan period.

There are evidences to show that informal sector employment has been growing. Another significant factor is that informal sector employment in smaller towns with a population of the order of one lakh has been growing at 12% per annum as per studies conducted by the Institute of Applied Manpower Research. These smaller towns account for about 40% of the urban population and are also the points of first migration for rural-urban migrants. If the rural-urban migrants are retained in the smaller towns by promoting productive employment in the informal sector, then it would be a boon to rural and urban poverty alleviation efforts. This has important policy implication for employment planning. Synergy between the formal and informal sector in economic growth and development is thus the primary imperative of the next millennium. Employment generation experiences in the South Asian countries amply demonstrate that the future of employment generation efforts will have to primarily focus on urban informal sector, small-scale industries and non-farm rural informal sector.

Formal sector employment is also undergoing a structural change. It is leading to the creation of high-skill intensity jobs. The HRD efforts to promote skill development to meet the challenges of the changing skill requirements, therefore, assume significance. This calls for closer interaction and collaboration between the corporate sector and the education and training institutions to bring about the required transformation in skill development.

Availability of social and economic infrastructures is important for development as its shortage gets reflected in increasing costs and declining levels of capacity utilisation. Construction is a major component of infrastructure projects and it is also a labour-intensive sector. This is also a sector, which experienced a high rate of growth of employment in the past. For growth with employment, therefore,

construction sector is strategic. The Government has thrown open the doors for private participation in infrastructure development. This is an area for increased participation by corporate sector in assisting the process of rapid employment generation.

While it may be feasible to attain the balance between growth in employment and growth in labour force for the country as a whole, this balance will vary across the regions. Over a perspective period of fifteen years (1997-2012), the labour force will be rising at an increasing or at a decreasing pace depending upon (i) the time at which changes in fertility have occurred in the respective States and (ii) the need and willingness of people to participate in, or withdraw from, labour force. It is also possible to have some indication of the trends in regional employment situation under certain specific assumptions. Of the 15 major States, 9 are likely to experience a reduction in unemployment, while 6 may witness an increase. These six States are Bihar, Rajasthan, Uttar Pradesh, Kerala, Punjab and Tamil Nadu.

The States, which face the prospect of an increase in unemployment in the post-Ninth Plan period (2002-07), are Bihar, Rajasthan, Uttar Pradesh, Kerala and Punjab. Of these, Bihar, Rajasthan and UP are the States in which the differential between the labour force and employment growth widens more in the post-Ninth Plan period than in the Ninth Plan. There is, therefore, a strong prospect of increasing migration from Bihar, Rajasthan and Uttar Pradesh. If the existing conditions of employment in Bihar, Rajasthan and Uttar Pradesh are to improve, any possibility of either realising a rate of growth of economy higher than the Ninth Plan target of 6.5 per cent per annum within the Ninth Plan or raising it later in the perspective period needs to be explored with a much sharper regional focus,

I hope that the participants in this Seminar will deliberate on some of these vital issues of crucial socio-economic significance and arrive at

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constructive recommendations for an effective partnership between the State and the corporate sector in achieving full employment by 2007 AD.

It is, indeed, encouraging to see that very senior experts on the subject drawn from various sectors have gathered here to express their views on the subject. I am sure, it would entail a lively debate and some concrete suggestions would emerge. With these words, I wish the Seminar a success.

** Inaugural Address at Seminar on "Strategies for Employment Generation: Futuristic Approach" held on March 26, 1999 in New Delhi by FICCI, AIOE and ILO.*

MANAGING FISCAL DEFICIT IN STATES*

Finance Minister, President of ASSOCHAM, distinguished guests and friends, I welcome the initiative of ASSOCHAM in organising today's Seminar on the topical and very important issue of managing the fiscal deficit. Considering the gravity of the issue there is a definite need for a wider and informed public debate on the subject.

Ensuring fiscal balance in the economy is of the utmost importance for several reasons. It is essential for containing inflation, reducing interest rates, enhancing investment and growth and promoting financial stability. Successful management of the macroeconomic aggregates is not possible without an improvement in the fiscal situation.

Unfortunately, the fiscal situation of both the Centre and the States is grim and calls for difficult decisions to be taken in the near future. The fiscal problems facing the Centre are widely known and discussed but the same degree of awareness is not there about the fiscal condition of the States. And yet this is, in fact, equally important.

There have been significant structural changes in State finances in the last few years. The relative share of States' own resources in Plan financing has gone down substantially and this has been compensated by heavy dependence on borrowings. One reason for the deterioration in the fiscal position of States is the decline in the buoyancy in tax and non-tax revenue. Another reason is the rapid growth of non-plan revenue expenditure. The combined effect of these two trends is that the revenue deficit is growing at a high rate and is being increasingly met by borrowings. The situation is akin to that of an individual or a household, which is borrowing even to meet present consumption needs.

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Plan expenditure as a proportion of total expenditure of the States has been declining with attendant adverse consequences. This is because of the mounting interest burden and the increase in other non-plan expenditure. The repayment liabilities of the States are mounting because of the increased level of borrowings. The interest payments as a proportion of total revenue expenditure have already crossed the danger mark in the case of a number of major States. Servicing of loans is creating problems as the revenue expenditure does not yield returns and even the capital expenditure is not generating the desired revenue.

The implementation of the Fifth Pay Commission's recommendations at the Centre has had a serious effect on State finances due to the tendency of the States to grant parity to their employees with the employees of the Central Government. This tendency has kept growing over the years unmindful of the State Government's capacity to pay. Each State must carefully ponder over the inevitable result of automatically applying the Central pay-scales at the State level and assess its impact on its finances in terms of lower expenditure on development and welfare.

Other actions of the States have also contributed to their worsening financial position. For instance, States have been indulging in tax competition to attract private investment. However such practices have only resulted in substantial revenue losses. Their effect on generating additional investment is doubtful. For, investors are more concerned about the state of infrastructure, the efficiency of administration and the quality of workforce, to mention a few factors, while deciding on the location of investment than mere tax sops.

The Budgets of the States are also burdened by growing losses on many economic services such as the provision of power, irrigation and transport, because the user charges for these services are being kept at very low levels, while the cost of providing these services keeps going up. The most glaring examples are the water and electricity charges. How long can a State sustain a situation where electricity and water are given away as virtually free? The States, which are indulging in

such populist measures, are not only creating future problems for themselves but are also making things difficult for their neighbours who may be inclined to pursue economically and financially sensible policies. Managing the existing fiscal situation clearly calls for a non-sense approach by States. The problem has to be tackled on a number of fronts simultaneously.

Non-plan expenditure must be curtailed, particularly the outgo on untargeted subsidies. The efficiency of public expenditure should be improved to give value for money to the taxpayers. There is an urgent need for toning up the administrative machinery and reducing the size of the bureaucracy. Subsidies should be given only in exceptional cases and even in such cases these should be transparent and targeted closely.

Many of the problems, which I mentioned earlier, like that of harmful tax competition and of competitive populism, unfortunately do not admit of any easy solution. The only remedy appears to be to build a national consensus not only on the solution to the problem but also on the will to implement the identified solution. For instance, at a conference of State Chief Ministers it was agreed, as far back as 1993, to levy a minimum tariff of 50 paise per unit for electricity supplied in the agricultural sector but the decision has remained only on paper in the case of most States.

Friends, we are in the midst of finalisation of the Annual Plans of the States for 1999-2000. We are taking this opportunity to persuade the States to move in the desired direction of fiscal consolidation. We are urging the States to go in for a realistic Plan size and reduce their undue dependence on borrowings. We are also pressing them for greater devolution of powers and resources to the Panchayati Raj institutions and urban local bodies. For, in the empowerment of beneficiaries of various programmes and in the active participation of the beneficiaries in the formulation, implementation and monitoring of the programmes, lies the best hope that funds allotted will be spent, and spent efficiently, for the purpose they are meant to serve.

I intend to make the planning process more focussed and meaningful so that it can address effectively the pressing problems of the day like the one on the fiscal front. In this context, the Planning Commission will be in close touch with the States all the year round persuading them, learning from them, publicising the local success stories and bringing all the States together if the need so arises. Indeed, I have no hesitation in saying that the Planning Commission is uniquely placed to help in forging a consensus on sensitive issues like the ones I raised earlier.

To conclude, I wish you all fruitful and enriching deliberations. I am sure that the Seminar will result in providing new insights into the problem and will come up with concrete and down-to-earth suggestions for solving it. Thank you.

** At the Seminar on "Managing the Fiscal Deficit" organized by ASSOCHAM on March 30, 1999 in New Delhi*

COMBATING INDUSTRIAL SICKNESS *

It gives me great pleasure to be here today on the occasion of the 35th Session of the Indian Labour Conference. The sessions of the Indian Labour Conference have provided a tripartite forum to discuss matters relating to labour in which the representatives of government, employers and employees have alike been afforded an opportunity to evolve a harmonious approach to labour issues in pursuit of the national goal of achieving rapid growth of the economy and of employment opportunities.

The two issues, which have been selected for discussion in this Conference, are both relevant and topical. As you know, the question of industrial sickness requires to be gone into in depth to identify the underlying causes and to determine the remedial and corrective measures to deal with this problem. At the same time the need to substantially augment the employment opportunities in all parts of the country has been a central objective of the process of planned economic and social development.

It occurs to me that discussions on these and other subjects may profitably take place in the context of the changing global and domestic environment, which is increasingly governed by considerations of competitiveness, quality of production, especially for the export markets and the induction of new and cost-effective technologies. In this situation, the long-term interests and prospects of the Indian working and entrepreneurial classes may best be served through a joint approach, which facilitates growth in output. The framework has to be one in which the employees, the employers and the official agencies together evolve solutions and methodologies, consistent with the priorities and imperatives of development, based on much higher standards of productivity.

I am told that in the data, which has been compiled by the Reserve Bank of India to ascertain the factors contributing to industrial sickness, the labour-related problems account for less than 10% of industrial sickness. The major reasons for this have been identified as deficiencies in the technical feasibility reports and management of projects and decline in the demand for some products. Another source of information in this regard, in relation to the Central public sector undertakings (CPSUs), pertains to the cases referred to the Board for Industrial and Financial Reconstruction (BIFR). An analysis by the Standing Conference on Public Enterprises (SCOPE) indicates that nearly half of the CPSUs referred to the BIFR were already sick at the time of nationalisation, which sought to protect the interests of workers.

While industrial sickness affects both the worker and the entrepreneur, the degree of flexibility in adjustment, which is available to the worker, is often much less than for the entrepreneur. The BIFR data, which pertains to the organised and the non-SSI units, shows that some 12 lakh workers were involved in the 3441 references of sick units received in the Board till the end of November 1998. Even though only 10% of the units affected were from the public sector (about 6% from the State public enterprises and about 4% from the Central public enterprises) the number of affected workers of sick public enterprises was nearly 50% of the total number of workers in such enterprises. Thus, the number of public sector undertaking workers affected by the incidence of industrial sickness is around six lakh.

It is imperative that the phenomenon of "industrial sickness" be addressed comprehensively so as to ensure that it does not impede economic growth. The Ninth Plan document, recently approved by the National Development Council, postulates an approach to more effectively tackle this problem. While it is recognised that the BIFR procedures have been time-consuming and require revamping for the quick disposal of cases, a large number of sick public sector enterprises (PSEs) have no potential for revival and may need to be closed. Given the constraint of resources to accommodate very substantial fund requirements in the Plan, the strategic sale, with transfer of

management, of potentially viable PSEs emerges as an option for which speedy decisions are called for. The Ninth Plan document, *inter alia*, notes that the response to voluntary retirement schemes (VRS) has not been satisfactory and that concerted measures are necessary to reduce the size of the work force.

Several State governments have since initiated reforms to curtail their budgetary deficits (by reducing support from the States' Budgets to sick enterprises) and to increase allocative efficiency. This process was started quite some time ago in the case of the Auto Division of M/s Allwyn Limited, a State Government unit at Hyderabad. The Ninth Plan document outlines the initiatives taken in various States, some of which have begun the implementation of voluntary retirement schemes, while others are carrying out studies on restructuring their enterprises, in association with the State Finance Commissions and are also pursuing the privatisation route. However, in regard to the Central public sector enterprises, an effective strategy has yet to be worked out. It now seems necessary not only to strengthen and consolidate the measures being taken in the States but also to evolve a practicable "plan of action" for the Central public sector units as early as possible.

The limitations of the fiscal situation, and hence the resources, necessitate appropriate prioritisation of plan investments among various sectors. Private participation in the social sectors being small, it becomes essential for the Government to direct more public spending to these areas like health, education and so on. Further, the private sector investment on expansion of economic infrastructure so far having been much less than what is needed for sustaining economic growth, the investment in physical infrastructure by government has a priority within the resources available for investment in public sector. Consequently, the funds available for investment in the public sector industrial production units have to be judiciously apportioned. A joint exercise could identify the public sector units, whose revival is feasible. It would, perhaps, be in the interest of all concerned to determine mechanisms whereby the workforce in such units as cannot be revived is suitably relocated. There would, no doubt, be certain

costs of adjustment, which ought to be minimised in favour of the work force.

The impact of industrial sickness on the workforce in the unregistered sector is not well documented even though their number is much larger than those in the registered sector. It is therefore necessary to consider how best the interests of unregistered sector workers can also be protected either through a suitable social security net or otherwise. I have specifically referred to this issue because what is not reflected in terms of data may be liable to be lost sight of.

The creation of employment opportunities is crucially linked to the overall growth of the economy and its sectoral composition. You will agree that employment, to be sustainable, has to be generated as part of the process of growth itself. The task before us is to significantly increase the rate of growth of the economy. During the Ninth Plan, the dimensions of this challenge would be even larger since the rate of growth of the labour force is expected to reach a peak level of 2.5% per annum during this Plan period, the highest that it has ever been.

While the generation of employment opportunities in numerical terms is of primary importance, another vital area of concern relates to the quality of employment as measured in terms of the income and productivity of workers. The considerable gap between the incidence of poverty and the incidence of unemployment is indicative of the relatively poor quality of employment. It has been estimated that about a third of those who are seen as being employed do not have enough work to keep them above the poverty line.

Increasing the income and productivity of workers merits immediate attention. Technological upgradation is often an imperative to effect cost reductions to meet the demands of competition. While at a micro level this might appear to be displacing labour, the resultant improvement in productivity would help enhance the income levels of the work force itself in the long run.

Concerted steps to improve the skills and knowledge base of the labour force are also relevant in this context. The educational profile of India's

work force broadly shows that about 80% of the workers are either illiterate or literate only up to the primary level. It needs to be recognised that equipping the labour force with basic education would provide the foundation on which the requisite vocational skills can be effectively developed over a reasonably short period of time.

An aspect, which in addition to the levels of income and earnings of workers impinges directly on the quality of employment, is that of the access of workers to various social security measures for countering exploitation. A fresh evaluation of the existing labour laws and social security measures may well be warranted so as to determine any changes that are necessary. But this ought not to be at the expense of the legitimate rights of the workers to a decent living and suitable working conditions. The Ninth Plan aims at reducing the number of laws, which determine the relations between workers and employers, with the objective of extending their reach to the entire work force. The existing arrangements in respect of labour welfare and social security also need to be progressively extended to those segments of the working class, which have largely remained uncovered by the same.

I understand that the data now available in regard to workers who are part of the trade union movement and thereby have some access to social security points to a strength of around one million, which in relation to a non-agricultural work force of about 150 million, constitutes a very small proportion. The coverage under the Employees' Provident Fund (EPF) Scheme and the Employees' State Insurance Corporation (ESIC) Scheme is reported to be limited to 19 million and 7 million respectively, which again is a small fraction of the non-agricultural work force. The approach of tripartism to discuss and resolve labour-related issues and problems should address these questions in detail in order to meet the genuine requirements of all sections of workers better and productively harness this national resource for the development of the country.

I should mention that the Ninth Five Year Plan assigns sizeable resources for generating employment through programmes to create employment directly and to support activities whose primary objective

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relates to the growth of labour-intensive sectors. While programmes like the Employment Assurance Schemes (EAS) and the Jawahar Rozgar Yojana (JRY) are designed to promote wage-employment, the Prime Minister's Rozgar Yojana (PMRY), the Integrated Rural Development Programme (IRDP) and the Swarna Jayanti Shahari Rozgar Yojana (SJSRY) encourage self-employment. The schemes of the Khadi and Village Industries Corporation (KVIC) will also sustain labour-intensive activities in the rural areas.

May I thank you for your attention and wish you all success in your deliberations.

* *At the 35th Session of the Indian Labour Conference held in New Delhi on April 3, 1999.*

PROBLEMS OF ADOLESCENCE*

The children and adolescents of today are the future citizens of the next millennium. India is in the midst of demographic transition. There will be a decline in the population of children, less than 10 years of age, from 243.23 million in 1996 to 219.27 million in 2006. In contrast, the number of adolescents, i.e. those between 10-19 years, will continue to grow at a relatively rapid pace. Adolescence is a critical and a formative stage of the life cycle. The adolescent population will increase from 200.27 million in 1996 to 237.91 million in 2006. Adolescents are in a major transitional stage in which they are likely to engage in risk-taking behaviour as they separate from their families and are eager to achieve independence through risky actions.

In the past, when early marriage was the norm, a significant proportion of girls got married and began child bearing in adolescence. Moreover, they moved from childhood to marriage without going through a long period of adolescence. In recent years, there has been a general increase in the age of marriage. Increasing mobility and migration of both adolescents and young adults away from the family and community, often from a rural to an urban setting, have important implications for adolescent social relations and behaviour. Some of the behavioural changes among adolescents are the use of alcoholic beverages, smoking and psychoactive drugs. Tobacco is the most commonly used drug in the world today, particularly for adolescent boys. The number of adolescents who drink alcoholic beverages has been increasing. Young women are much less likely to drink and smoke, but the percentage that does so is increasing.

The use of psychoactive substance has also increased significantly among the adolescent population. A number of adolescents, particularly males, are not only dependent on drugs but are also involved in drug trafficking. The problem is widespread among all

strata of society but perhaps more among the urban and the economically well off sections of society. Chronic drug users tend to be out of school, alienated from their families, and are likely to be a major social problem in the near future in many countries. The drug users are also at high risk of contracting HIV through the use of contaminated needles.

Prevention of accidents, violence and suicides also requires special attention since together they contribute significantly to adolescent suffering and death. Evidence of increased premarital sexual activity including increased incidence of STD/HIV, substance abuse, adolescent pregnancy and abortion, have important consequences for future social and economic wellbeing. The revolution in media and information technology also exerts both a positive and a negative impact on adolescents. While these changes are far-reaching, communication between parents and children and between teachers and students remains conditioned by traditions and practices from bygone era. To a large extent all these changes have a psychological origin and the reasons for this have to be clearly found out through research studies.

The adolescent period is characterised by relatively low mortality and morbidity and consequently the overall well-being of adolescents has not been on the agenda for discussion in any forum until recently. Interest in adolescent issues and problems has encompassed many disciplines and thus research on adolescence has flourished in the past decade. The extent and severity of the problems that adolescents encounter during this phase of their life need to be identified.

Education holds the key for increasing awareness of the methods for improving the quality of life of the population. The commitment for universal primary education in the Constitution itself has resulted in a marked improvement in the literacy rates over the last five decades. However, the target of universal primary education still eludes achievement. By the end of primary school, a significantly large proportion of children drops out of school. Unfortunately, this trend continues into secondary school.

It is not poverty alone, but rather a combination of factors including poor quality of education and parents' attitudes, that keeps children away from school. Creating widespread awareness for physical and mental fitness, starting from the school stage onwards, is one of the priorities in the Ninth Plan period. Thus, the educational priority in the coming years is to ensure that all early adolescents in the age group 10-14 remain in the education system in order to acquire better skills, which would help them to improve their overall wellbeing and future life. They should have access to education and appropriate skill development, which would enable them not only to secure gainful employment but also acquire the capability to cope with the ever-increasing competition and the stress of modern living. Co-ordinated efforts of educationists, counsellors, health professionals and employers from government, voluntary agencies and self-help groups are urgently required for this massive task.

School health programmes were started in the seventies as an important component of health care services so that school children could be screened for physical, mental and developmental problems and appropriate remedial measures initiated. However, both the reach and the quality of school health services in most areas have remained sub-optimal. Detection of even major physical disabilities and learning disabilities has not been possible in most settings. Even the most 'elite' schools have very limited ability to focus on emotional and behavioural problems of school children, such as conduct disorders, childhood depression, stuttering and stammering etc., and help children overcome them. Thus, a lot of research is required to assess (a) the causes of mental diseases and disorders among children and adolescents, (b) the factors, which promote mental health, (c) the personal and educational problems and (d) the genesis of unhealthy parent-child relationships.

I am glad that VIMHANS has initiated a school-based pilot project to address some of these issues. The deliberations in the Convention today on 'The Millennium Child and Adolescent - Stress and Coping' will enable the Institute to plan future directions for the project.

I wish the organisers success in this Convention so that they come up with school-based intervention strategies to improve mental health. As a result, the health care infrastructure would not be required to grapple with ever-increasing number of children for providing care but would be able to (a) concentrate on improving the quality of care, (b) focus on antenatal, intranatal and neonatal care aimed at reducing neonatal morbidity, (c) improve the coverage and quality of health care to vulnerable and under-served adolescents. (d) promote inter-sectoral co-ordination and (e) improve coverage for immunisation against vaccine-preventable diseases so that there is an overall improvement in the health and nutritional status of the population.

** At the Convention on "The Millennium Child and Adolescents—Stress and Coping" organised by VIMHANS in New Delhi*

MAKING PUBLIC SECTOR COMPETITIVE*

It gives me great pleasure to share some thoughts with you on the important and topical subject of public sector competitiveness. With the launching of the process of planned economic development in the early 1950s, the public sector acquired a prominent place in India. As many of you may be knowing, the roots of the public sector in our mixed economy concept can be traced back to the "Bombay Plan", which was made way back in 1944 by leading industrialists Shri J. R. D. Tata, Shri G. D. Birla, Shri Sri Ram and Shri Kasturbhai Lalbhai when they got together to prepare a blueprint for the development of the Indian economy after it was freed from the British yoke for which the year 1947 had already emerged on the horizon.

The economic rationale for the establishment of basic industries in the public sector was presented by our first Prime Minister Pt. Jawahar Lal Nehru in his inaugural address to the UN Seminar on Management of Public Industrial Enterprises in the ECAFE Region in 1959 when he spoke on the State's role in industrialisation and I quote: "In planning the under-developed economies, it becomes essential that the limited resources are used to the best advantage and that the strategic points of the economy are controlled. Among the strategic points are basic industries. We, therefore, come to the establishment of public enterprises."

India was not the only country to assign a dominant role for the public sector for its industrial development. As a matter of fact, the first UN report on the development of under-developed countries in 1951 by Arthur Lewis, D. R. Gadgil *et al* emphasised that deliberate policies of State action alone would ensure enhancement of the living standards of the people in economically backward countries.

The public sector was created not only to produce goods and provide services but also to meet other objectives of the State, namely to create

necessary infrastructure for economic development, to promote redistribution of income and wealth, to create employment opportunities, to promote balanced regional development, to assist in the development of small scale and ancillary industries and to promote import substitution. This was pursued as a matter of State policy to create social infrastructure etc.

You will agree with me that the public sector, by and large, achieved all the above objectives of the State. When we got independence, the private sector was not strong enough to shoulder the primary responsibility of achieving the above objectives and triggering development, particularly of industry. This responsibility fell on the public sector, which has done a commendable job and occupied the commanding heights of the economy.

As on 31.3.1997 there were 242 Central public sector enterprises with a total investment of Rs.1,93,121 crore. Out of these, 238 were operating enterprises with an investment of Rs.1,89,141 crore and employees' strength of 20 lakh. Of these, 129 were profit-making and 104 were loss-making enterprises. There were about 53 chronically sick public enterprises. Unfortunately, the public sector enterprises could not earn adequate returns on investments and thus generate resources for development. The reasons for this have been aptly covered in Dr. Arjun Sengupta Committee Report and in other similar studies on public sector enterprises. Among many factors some major ones have been that the public sector was expected to achieve a large number of objectives, some of which were mutually contradictory and they did not enjoy adequate autonomy.

A close analysis of the losing public sector enterprises shows that they fall broadly into four categories: (a) those in the core sector, (b) those taken over, (c) those in non-core and non-essential sectors like consumer goods, hotels, trading, marketing, etc., and (d) residual enterprises mostly engaged in promotional and developmental activities. There are about 50 units in the public sector, which were taken over as sick units from the private sector and these units have been a major factor

responsible for the overall unsatisfactory financial performance of the public enterprises.

In the liberalisation era, competitiveness of public sector enterprises assumes great importance because on the one hand they do not enjoy any special privileges or facilities and in fact have to bear the burden of past legacies and social obligations and on the other they have to compete with private enterprises offering goods and services that would now freely come into the country from abroad. Today private initiative is being encouraged even in the development of infrastructure like power, roadways, telecommunications, shipping and ports, airports, civil aviation, etc. Foreign direct investment is not only being allowed but also being actively encouraged.

A National Competitiveness Policy, I agree, is still to be evolved in its totality, which would cover infrastructure, financial sector, labour markets, fiscal and trade policies for competitiveness, reforms of the agriculture sector, education sector, corporate governance, competitiveness through quality and customer satisfaction, etc. While we have brought about many policy changes for moving the Indian economy towards globalisation, a lot more remains to be accomplished to enhance the international competitiveness of our economy, including that of our productive assets, which, *inter alia*, encompass both public and private sector enterprises.

I can see from the programme circulated that this Conference represents yet another feather in the cap of NPC, which has done a yeoman's service so far for increasing productivity of our economy, including the public sector enterprises. The reform of the public sector for competitiveness is but one of the important components of the National Competitiveness Policy, which the NPC has placed before you for discussion at this Conference. You will have to consider how best to harmonise the role of the public and private sectors and recognise the need for State intervention so as to ensure that there is progressive removal of poverty and regional disparities. One of the important elements of the balanced regional development will be industrialisation of the backward areas. One has likewise to balance

the need for upgrading technology at one level with the social necessity of providing employment at another. The Ninth Plan will witness an annual addition of 2.5% to the work force – the highest ever.

There is a need to be on guard and ensure that the process of divesting public enterprises does not lead in some cases to the creation of monopolies, which would be counter to the basic idea of a National Policy on Competitiveness. As you know, many studies have revealed that while measuring productivity of public sector enterprises the conventional approach of using financial ratios to evaluate the performance has not been quite appropriate on two counts. One is that the public enterprises carried out a number of social obligations. The second is that they were also constrained by Government controls in crucial matters like investment and pricing decision, recruitment, etc. Thus, they were not in a position to perform on the same commercial lines as a private sector enterprise. Though reforms have already been brought about and the public sector enterprises have been given greater freedom, it is still really not adequate and public enterprises continue to be under the influence of the politico-bureaucratic control in one form or the other. Efforts will have to be made to do away with this mindset and see that the number of persons employed in an enterprise is no more than required for a given level of output at internationally competitive prices.

In the Ninth Plan, which has been approved by NDC recently, we have set the objective for public sector to become internationally competitive for which an enabling environment would be created through appropriate, comprehensive and dynamic policy changes. This is a must if our economy is to be internationally competitive because the public sector is providing basic goods and services and will have to be ready to build the infrastructure even while welcoming the private sector investment in this crucial sector.

In general, the National Competitiveness Policy must promote broad public interest as well as satisfy socio-political objectives like regional development and promotion of employment. It should also promote welfare. A developing country like ours should have an industrial policy

that would have the State pick winners over losers, future sunrise industries over those at the sun-setting stage. The State must ensure a fair and free market and identify the industries that are strategically important, as has been done in the case of information technology and biotechnology.

There should be clarity of objectives, framework of policies and laws for competitiveness and competition in order to maintain and encourage competition to help promote economic efficiency and consumer welfare. I am sure, given the freedom that private enterprises enjoy, the public sector enterprises will also contribute in a great measure in achieving these objectives. I may add that we may have to evolve such a National Policy of Competitiveness as would enable us to realise objectives such as regional development, employment fairness, pluralism, diffusion of economic power through promotion of small and medium enterprises, etc. Compromises may have to be made here and there but equilibrium can still be achieved through higher efficiency by maintaining a balance and consistency in the total policy framework. An internationally competitive public sector can contribute in achieving this equilibrium.

I think there is a need for an independent competition agency, which would foster competition at all levels of government and industry and coordinate efforts for evolving a coherent National Competitiveness Policy. This independent agency should also have jurisdiction over the public sector in its entirety so far as its competitiveness is concerned.

** As the Conference on National Competitiveness Policy organised by National Productivity Council on April 6, 1999*

ISSUES IN EFFECTIVE GOVERNANCE*

I am, indeed, very happy to be invited by the Madras Chamber of Commerce to speak on the important subject of "Effective Governance in India - Present and Emerging Political Compulsions". This subject is of great significance in the context of the existing political and social compulsions. However, any deliberation on the subject needs to be seen in the background of the past 50 years. As you are aware, nearly one and a half years ago we celebrated the 50th anniversary of our Independence. In less than nine months' time we are entering into the 21st century.

It is a matter of common knowledge that during the period of our freedom struggle we were guided by distinguished leaders who were men of extraordinary intelligence and courage. They not only fought for the independence of the country but also contributed intellectually through books and public speeches and participated in all major areas of concern - social, cultural, political and economic. It is a matter of common knowledge that their vision and perception provided guidance on many complex problems during the time of making of the Indian Constitution. The Indian Constitution is not merely a document dealing with the responsibilities and the powers of the Union and the States but it also reflects to a great extent the idealism and the vision of its founding fathers. The preamble to the Constitution, the Fundamental Rights and the Directive Principles of State Policy epitomise the thinking on the type of the society and the State that was envisaged.

These views were articulated and got reflected in various statutes as well as in our development plans. It will not be out of place to say that this vision and idealism helped the leadership after Independence and solved many complex social, cultural, political and economic problems of the society. As a matter of fact, this thinking provided

crucial guidance to nation-building activities at least in the early phase of our economic development. In pursuance of these goals many changes were made through the instrumentality of public policies and planning along with necessary institutional set-up.

I hope all of you would agree with me that this model of development provided a new outlook and a new pattern of thinking on the issues of national importance, which resulted in setting the country on a path of agricultural self-sufficiency, significant achievements in science and technology and a diversified industrial base. We all dealt with complex problems like language and re-organisation of the States, which helped in integrating a large part of the country with the mainstream. However, there is another side. That is our failure in a large number of areas of concern such as rising population, illiteracy, poverty, unemployment, lot of the weaker sections, pollution, deforestation, etc. Our past record on effective governance would have to be judged on these successes and failures.

The concern for effective governance has been expressed at different times in different fora by political leaders, administrators and academics. Effective, responsive, transparent and accountable administration has been the goal towards which our administrative and political systems together have been striving since Independence. In the well-known Vohra Committee report it was mentioned that the Conference of Chief Secretaries in November 1996 drew attention to the fact that despite recognition of the critical role of responsive administration for achieving the goal of growth with equity, the public administration and the civil services at all levels are passing through difficult times in terms of eroded credibility and effectiveness of the civil service and to the increasing criticism of the low level of honesty, transparency and accessibility to the political and bureaucratic elements in charge of administration. The Conference also laid emphasis on the importance of Government being more caring and responsive both to the needs of a growing economy and to the concerns of the relatively non-served sections.

There is no denying the fact that in spite of all our efforts we are still quite a distance away from effective governance. The time has come to analyse the reasons and identify the factors, which obstruct effective governance besides the short-term and long-term policy measures and administrative steps to be taken to achieve the same. The problem has become much more crucial and complex in view of the fast-changing political scenario in the context of the present and emerging political compulsions.

Some scholars may imply that the concept of effective governance is derived from the West but this may not be wholly correct. As far back as circa 300 BC Kautilya in his treatise Arthashastra had in his own way propounded the traits of good governance by the Ruler as follows: "In the happiness of his subjects lies his happiness, in their welfare his welfare, whatever pleases himself he shall not consider as good but whatever pleases his subjects, he shall consider as good". Another interesting facet of Kautilya's framework of governance is that it included programmes for advancement of the weaker and vulnerable sections of the society and this in some ways was a fore-runner of our present concerns.

Despite some semblance of effective governance the primary purpose of the British Colonial Raj was consolidation of the British rule and exploitation of resources for strengthening the British Empire. The Administrative Reforms Commission also noted that the pre-Independence governance was concerned mainly with the enforcement of law, maintenance of order and the collection of revenue. Involvement of the government during the British Regime in the economic and social spheres was confined mainly to tasks like building and maintaining a modest transport and communication system, regulation of indigenous trade and commerce and providing a modicum of facilities in the fields of education and health. The developmental perspective of Governance was obviously missing. It was neither welfare-oriented nor change-oriented.

The first inking of the fundamental principles of effective governance can be gleaned through the Preamble, the Directive Principles of State

Policy, the Fundamental Rights and the Fundamental Duties enshrined in our Constitution. The "Welfare State" as a modern concept came into existence during the period between 1947 and 1952 with the establishment of a national government in a free and republican India and the establishment of the Planning Commission in the Central Government. From the very beginning we in India have regarded the bureaucracy as a major instrument of effective governance. This has presented its own problems vis-a-vis their role and relationship with the political masters. If accountability is the core characteristics of a democratic system it is necessary that control be exercised over those to whom power is delegated. In the administrative state, however, this simple equation of accountability has undergone radical changes. The business of modern politics is executed through public bureaucracies. So long as we continue to depend on public bureaucracies any effort towards effective governance would willy-nilly depend on the nature of control, which political masters exercise over the bureaucracy. Since independence we have attempted operating on the traditional Westminster model of parliamentary government, i.e. exercising political control over government machinery. It would be worth examining whether we have conformed to this model and what have been the points of departure, which have negatively affected governance in India.

An objective analysis would possibly reveal that the concept of accountability based on the twin principles of ministerial responsibility and civil service anonymity is becoming increasingly unworkable in our parliamentary system. Some instances can illustrate how during the last few years the doctrine of ministerial responsibility has weakened as the practice of ministerial resignation for misdeeds of civil servants has almost become extinct. On the other hand, there has been continuous erosion of the anonymity of the civil servants. For example, the despatch of Central teams consisting of senior bureaucrats to the States as well as the association of top civil servants with the working of the parliamentary committees have brought them into political limelight. An objective analysis of the system of Governance during

the last few decades would indicate that the increasing politicisation of civil service has greatly hampered the task of effective governance. This is the dilemma of a parliamentary system of Government where the political bosses, i.e. Ministers, have to depend a lot and work in close collaboration with top bureaucrats. Under these circumstances how does one insulate the bureaucracy from the bane of politics?

Another important issue would be whether it is really possible or feasible to provide effective governance in the emerging political scenario where the prospect of a single political party dominating the national scene has greatly diminished. The coming decades could well be the coalition era. The moot point is whether under a coalition dispensation, with all its pushes and pulls and the compulsion of meeting the requirements of divergent political agenda and philosophies, effective governance is possible or not. We have positive examples of many West European countries like France, Germany and Italy where effective governance has not been hampered despite occasional periods of political instability and coalition governments.

In the context of the emerging political scenario, economic reforms and imperatives of the growing emphasis on market economy, downsizing of bureaucracy has come to be an important concern. In my view downsizing of bureaucracy should not be an objective in itself. It must be seen in the context of what impact it would have on effective governance. If downsizing is accompanied by a change in the role of the bureaucracy and its style of functioning and if it leads to less interference by the bureaucracy and greater emphasis on strategic planning and promotion of development, it could lead to more effective governance. If, on the other hand, the orientation with micro-level control and authority continues and the role and style of functioning do not change, downsizing may not lead to effective governance. Instead, greater delays and disruption may be encountered. What is really needed is a change in the orientation and style of functioning of public bureaucracies. There would be an increasing need for professionals in the civil services. In my view, increasing professionalism among the public servants would also be an effective antidote to

politicisation of the bureaucrats. Furthermore, with the ever increasing complexity of economic and social problems and the emerging role of technologies in development, the 'generalist' administrators would have to be replaced by more professionals.

Effective governance in days to come has to be perceived as a joint endeavour of government organisations, NGOs, private sector and institutions. We will have to shed off some of our earlier inhibitions in involving these organisations and give up stereotyped images of government and business organisations. Why should they see each other in an adversarial role? Why should not we follow the example of Japan's MITI? Instead of a 'public and private sector' approach, why should not we follow a 'national sector' approach? The role of government in economic development has shifted to giving more space to the private sector. As a matter of fact, the role of Government has become promotional. For this purpose there is a need for timely clearance of private investment proposals. However, no amount of policy change will produce the expected results unless the bureaucratic mindset is in tune with the new liberalisation policy.

I must touch on another important issue. In our system of governance there is an increasing trend of citizen alienation. As a matter of fact, the human aspect is still a missing attribute of our administrative system. There is also a need to evolve ways and means to fight corruption in public administration. As a matter of fact, over the years corruption had the most damaging effect on the functioning of public institutions and administrative structures. In this connection, Professor Gunnar Myrdal has rightly said that where corruption is widespread, inertia and inefficiency as well as irrationality impede the process of decisionmaking and plan-fulfilment. There is a serious need to bring about a suitable change in our laws and institutions to fight the menace of corruption at all levels. Effective governance faces new problems and challenges apart from the changing role and orientation of public administrators. Some of the specific critical areas requiring attention are creating a citizen-friendly administration, reducing corruption, increasing efficiency and developing result-oriented systems.

Simultaneously, there is a need for greater political decentralisation by empowering local institutions with authority and responsibilities in areas of local importance. Although we have introduced the 73rd and 74th Constitution Amendments, the functioning of these institutions still needs changes in terms of finance, devolution of authority etc. What we need is a fresh look into many of the problems of effective governance, which we are facing today.

"As a Seminar on "Effective Governance in India - Present and Emerging Political Compulsions" organised by Madras Chamber of Commerce & Industry at Chennai on April 7, 1999

STRATEGIES FOR GROWTH*

May I begin by first complimenting the organisers of this Seminar for selecting a particularly apposite topic, at least as far as far as I am concerned? As you must be aware, the Ninth Five Year Plan received the approval of the National Development Council on 19th February of this year. The development strategy and policies outlined in the Ninth Plan document will see the country into the early years of the next millennium and, I am hopeful, perhaps even longer. It has been particularly gratifying to me that the Ninth Plan document has received unqualified support from practically all the political parties, indicating a convergence of views on developmental issues across a wide ideological spectrum. This gives me confidence that there are unlikely to be sudden and abrupt changes in the development strategy followed by the country, whatever be the ruling political configuration.

I do not intend this talk to be an exegesis on the Ninth Plan. The Plan document is in the public domain and I would invite you to go through it with some care. I will restrict my observations to some of the trends that have influenced our thinking in the course of formulating the Plan and the impact that these have had on the development strategy that we have articulated. As you may appreciate, it is not possible to outline in a Plan document all the assumptions and analyses that lie behind the evolution of a coherent development strategy. The Plan is long enough as it is. Some of these assumptions and projections, particularly those that are critical, are indeed mentioned but much has to be left unstated. I would like to take this opportunity to discuss some of these.

As a starting point, let me bring to your notice one specific trend that perhaps forms the pivot of our entire strategic approach. The demographic projections made for the Plan indicate that although there is likely to be a steady reduction in the rate of population growth

in the country, the growth rate of the labour force would attain a historical peak during the Ninth Plan period at about 2.5 per cent per annum and decline only gradually thereafter. This is the highest rate of growth of the labour force that the country has ever experienced and it originates from the high rates of population growth experienced in the late 1970s and early 1980s.

Such growth rates in labour force need to be seen against our past record in the creation of work opportunities. During the 1980s and the early part of the 1990s, the average rate of growth of employment, which is a proxy for work opportunities, has been around 2 per cent per year. Therefore, if the past trends in work creation continue into the future, the country would face the possibility of adding half a percent of the work force, i.e. about 20 lakh people, to the ranks of the unemployed each year. Such a situation is clearly insupportable. As we are all aware, unemployment not only entails high human costs but also imposes significant costs on society in terms of social unrest and deterioration of law and order.

On the other hand, the high rate of growth of the labour force, taken with the declining growth rate of population, implies that the "dependency ratio", which is the number of dependants per working person, will also be declining. This creates a window of opportunity during which, if gainful employment is provided to all job seekers, the average family incomes can increase faster than ever before, thereby leading to a rapid decline in the incidence of poverty. The calculations underlying the Ninth Plan indicate that, given current trends, in order to create the necessary work opportunities the economy will have to sustain growth rates of GDP of above 7 per cent per annum for the next 15 years or so.

This is only the macro picture. The national demographic trends hide wide variations in the regional distribution and skill composition of the emerging work force, which are critical components in devising an appropriate development strategy. The process of demographic transition has begun in most of the States of the country and it appears that the bulk of the future growth of population will be concentrated

in only four or five states – Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan, and perhaps Orissa. Therefore, the geographical pattern of work creation will have to be such that these States register significantly higher growth rates of labour absorption than the national average. Attainment of the national target without appropriate regional distribution will lead to a situation in which we will soon be faced with certain parts of the country experiencing labour shortages and others having high unemployment. The inevitable widening of the disparities in wages and standards of living across regions, that is entailed, can lead to serious social tensions as migration pressures increase.

It also has to be noted that the emerging work force reflects the skill distribution arising from the spread of the educational and training systems in the past and it has to be ensured that the pattern of work opportunities is consistent with the skill profile. In this context cognisance has to be taken of the fact that nearly 80 per cent of the emerging work force will have little or no literacy skills. Therefore, the pattern of work opportunity creation must be such that it absorbs a large number of persons whose skills are of a traditional nature. On the other hand, there is also a growing trend of educated unemployment in the country, particularly in some of the States, which have attained relatively high educational levels in the past. Most of the southern and western States, particularly Kerala and Goa, and almost all the North Eastern States fall into this category. Although migration is somewhat less of a problem in such cases, the development strategy cannot ignore the need to create work for the educated labour force of these States in a manner that is least disruptive.

Thus, the demographic trends in the country set the essential parameters of our growth strategy. At the overall level it becomes essential to target a GDP growth rate of 7 per cent per year and at another level it is also essential to ensure that the structural and regional pattern of growth meets the demands of the work force. Let me first address the issue of the aggregate growth rate. At the trend value of the incremental capital-output ratio (ICOR), which is around 4, plus or minus 0.2, a sustained 7 per cent growth rate demands that the

investment rate should be in the range of 27.5 to 28.5 per cent of GDP. With the household sector savings expected to be about 19 per cent of GDP and the corporate savings a little above 4 per cent, the public savings and external capital inflows together will need to be somewhere around 5 per cent of GDP. It is the distribution of this 5 odd per cent between the two sources that needs careful consideration.

The current trends in public savings do not give cause for any great optimism in the near future. Although the savings of the public sector undertakings have more or less remained constant at around 3.5 per cent of GDP, the savings of the government, Centre and the States together, have been falling steadily and stand at about minus 2 per cent. Although efforts are being made to reverse this declining trend, not too much can be expected in the immediate future. Thus considerable reliance will have to be placed on external capital inflows for financing the desired growth target.

As far as external capital flows are concerned in the past the country has relied primarily on external debt. Even when a fair component of this debt was concessional the country slid inexorably into an external debt trap, exemplified by the crisis of 1991. The situation is worse now. Over the past two decades the share of aid and concessional debt in international financial flows has been steadily declining and there is cause to believe that this trend is unlikely to be reversed. Shifting entirely to external commercial debt would be a very dangerous strategy indeed, given the relatively high interest costs on such debt, particularly with India's external credit ratings as they stand at present. The solution really lies in accessing higher inflows of non-debt external capital.

In one sense we live in relatively fortunate times. The demographic trends in the developed countries represent a sharp contrast to our own and thereby raise the possibility of complementarity. While the age profile of our population is leading to a decrease in the dependency ratio, that of the developed countries is moving in the opposite direction with the dependency ratio, particularly the old-age ratio, increasing rapidly. As a result, these countries will have to look towards countries

with younger populations to support the consumption needs of their own ageing population. This can only be accomplished by "buying into" the future growth prospects of the developing countries through transfer of capital resources. Large developing countries such as India and China provide the perfect complementarity. Thus, I believe that availability of non-debt external capital resources may not pose any serious problem in the future, provided we can create the appropriate economic environment for investor confidence.

Attracting external investment will require us to focus attention on a number of issues, which are central to international competitiveness. In any case, we would have to address these issues as part of our development strategy for the next millennium and the need to attract external resources only adds to the urgency. I would like to draw attention to a few of these. The first and foremost is the need to develop both the spread and the quality of our education and training systems. No country can progress to any appreciable extent with widespread illiteracy and inadequate productive skills. A related factor is technology. While it may be possible for us to pull along for some time with technology obtained from abroad, it is not a long-term solution. It is imperative that we create a climate, which is favourable to innovation and not merely to imitation. The information technology sector in general, and software in particular, demonstrates the innate creativity that exists and can be brought to full flowering with the right kind of incentives.

In our attempts to attract foreign investment, however, we should not lose sight of the need to protect our environment and the unique ecological endowments of the country. Environmental degradation is already a serious problem in parts of the country and strenuous efforts are being, and need to be, made to reverse the trend. It would not be advisable to permit the inflow of "dirty" industries and technologies merely to augment the flow of external resources. But such external resources, regardless of their quantum, do not entirely solve our problems. There is no reason to believe that the deployment of such funds will necessarily be consistent with our regional and skill profile needs.

This takes us to the second plank of our development strategy. The geographical concentration and low literacy attainments of our emerging work force compel us to focus on the two sectors that have the greatest potential to address both the issues – agriculture and construction. There is no doubt that there is an enormous scope for expanding these activities in the States that I have mentioned and in the other backward areas of the country. But there is a catch. Both these activities, at least at the current state of play, are dependent on high levels of public investment, which is presently constrained by the fiscal problems of the government. The possibility of high levels of private investment in these sectors in the near future also appears remote. This provides perhaps the most compelling argument for fiscal reform in the country. We need to recognise that the future costs of existing populism can be enormous and that we need to start the process of reorienting public expenditure patterns towards investment in backward areas of the country right away.

The issue of educated unemployment is not quite so intractable in the sense that if the target rates of investment and growth are realised there should be enough work opportunities to absorb our educated work force. The problem lies in ensuring that these investments take place in locations where such educated unemployment is high. By and large, if market forces operate, such activities should naturally gravitate towards those States, which have high literacy rates and adequate availability of the necessary skills, unless they are constrained by policy factors and the availability of infrastructure. The onus for this is by and large on the State governments. They have to ensure that the investment climate in their respective States is conducive to attracting private investors in adequate measure. The Centre of course does have a supportive role to play, particularly in creating certain kinds of infrastructure. However, the role of the Central Government is critical in the north-eastern States, whose locational disadvantages and financial fragility call for special focus. We are well aware of our responsibilities in this context.

The final trend that I would like to highlight is that our social indicators, which measure the physical quality of life of our citizens, have not kept pace with the economic development of the country. A

similar situation also exists with respect to the non-material factors, which affect quality of life, such as justice, safety and security and social harmony. This should be a cause for deep national concern. Although these problems have been recognised for some time our efforts have been hampered partly by the lack of adequate resources with the government and partly by institutional inefficiencies. Social infrastructure and the law and order system are areas in which it is very difficult, if not impossible, to expect the private sector to contribute in any substantial measure. The burden has to be borne by the government. With the fiscal constraints that are being experienced at all levels of government, the short-run solution appears to lie in institutional reform. It is our belief that a number of these services are of a localised nature and the responsibility for their provision should be vested with the local bodies. This will ensure that not only the services are consistent with the local needs but also greater accountability. The Centre is already moving in this direction and it is imperative that the States join us in this effort wholeheartedly.

At the end of the day, however, no governmental effort is likely to succeed without the full involvement of the people. Every segment of our society, whether individuals, political parties, corporate entities or civil society organisations, will have to subscribe to a shared vision of our economic and social future and work in concert to make that vision a reality. The Ninth Plan is only one small step in evolving such a consensus.

** As the Seminar on "Emerging Economic Trends: Strategies for Growth in the New Millennium" organised by United Writer's Association on April 7, 1999 in Chennai*

ELIMINATING HUNGER *

As we stand at the threshold of the next century and look back upon the first fifty years of our existence as an independent nation, whatever may have been our failures, we can take pride in having eradicated the scourge of famines from the face of our country. This is only partly due to our success in increasing food production at a rate faster than the growth rate of our population. Perhaps even more important has been our resolve to ensure that nobody dies for lack of food and the institutional mechanisms that we have evolved to give effect to our resolution.

But the eradication of famines is by no means synonymous with the elimination of hunger. The human organism can survive for extended periods of time with inadequate nutrition but surviving is not the same as living a healthy productive life. Although in recent years we have started to measure the incidence of hunger through sample surveys on "having two square meals a day", I am not sure about the utility of these estimates in the coming years. As you must be aware, the measured incidence of hunger in India has declined quite sharply in recent years from 18 per cent of the population in 1987-88 to 6 per cent in 1993-94. This 6 per cent is concentrated in three States—Bihar, Orissa and, strangely enough, West Bengal. But other collateral indicators of under-nutrition and malnutrition tell an altogether different story. Anthropometric measures, such as weight at birth and height to weight ratios of children in particular, suggest that under-nutrition is much more pervasive than what the "hunger index" indicates. I am, therefore, not certain that we are indeed at the final milestone. We may yet have a long way to go.

A situation of pervasive under-nutrition is both invidious and insupportable. It has to be redressed in the shortest time possible. Greater and more balanced availability of food is clearly a *sine qua*

non, but it is by itself not sufficient. We must all be grateful to Prof. Amartya Sen for having driven home the simple but stark fact that availability is not the same as access. There must not only be more and better food but every person in the country must have the wherewithal to get the nutrition he or she needs and deserves. Our development strategy must be predicated on ensuring this.

As a starting point, let me bring to your notice one specific trend that perhaps forms the pivot of our entire strategic approach in the Ninth Plan and for the perspective period. The demographic projections made for the Plan indicate that although there is likely to be a steady reduction in the rate of population growth in the country, the growth rate of the labour force would attain a historical peak during the Ninth Plan period at about 2.5 per cent per annum and decline only gradually thereafter. This is the highest rate of growth of the labour force that the country has ever seen and it originates from the high rates of population growth experienced in the late 1970s and early 1980s. The emerging labour force is also characterised by extremely low levels of literacy and other industrial skills.

Much as we may deprecate our past failures on the educational front, we have to live with them and do the best we can under the circumstances. An assessment of the possibilities for creation of work opportunities commensurate with the magnitude and skill profile of the future labour force indicates that agricultural growth will have to continue to play a significant role. Thus, at one level there is a happy confluence between the employment requirements and the need to increase food production. At another level, however, it has to be recognised that Indian agriculture in the past has not been able to afford an adequate standard of living to those who depend on it for livelihood. This must be changed as urgently as possible through rapid increases in agricultural productivity. Calculations indicate that agricultural output will need to grow at about 4.5 per cent per year on a sustained basis in order to not only absorb the available work force but also provide sufficient income to it for meeting its basic needs. Such a growth target will not be easy to achieve.

The solution appears to lie in the geographical diversification of agricultural growth so that the areas of low agricultural productivity catch up with those that are already advanced. This again is consistent with our nutritional needs since the incidence of poverty in the country is more or less geographically congruent with low agricultural productivity. But, for this to happen, a number of measures have to be taken concurrently. The first imperative of course is to reduce the impact of the vagaries of nature, especially in the rain-fed areas of the country. For this there is no alternative to proper development of watersheds. Although there has been considerable emphasis on this issue in the recent past, the track record has not been particularly good. The problem does not appear to be so much the non-availability of resources as the lack of requisite skills in watershed design and inadequate involvement of the people themselves in developing and managing their water resources. Institutional arrangements for training watershed developers and organising water users need to be evolved urgently.

Geographical diversification apart, diversification of agricultural activities with greater focus on horticulture, animal husbandry, poultry and fishery is also necessary for a number of reasons. First and foremost, balanced nutrition requires dietary patterns, which cannot be met from crop activities alone. Second, it is becoming clear that the crop sector, in particular cereals, does not require the degree of labour intensity necessary to fully absorb the additions to the labour force. Third, the productivity per person, measured in terms of income, in the non-crop sector is significantly higher than in the crop sector. Finally, diversified agricultural activities lend a degree of stability to rural incomes, which is not possible with excessive focus on one or just a few products.

The second area of focus has to be technology. Agriculture, including its allied sectors, today is just as much a high technology activity as any segment of industry. But our technology dissemination methodologies have not evolved in any meaningful manner. A major stumbling block, of course, is the low educational attainment of the average Indian farmer. While any industrialist, no matter how small,

can get whatever technological information he needs from the Internet, the Indian farmer still has to depend on the word-of-mouth and other audio-visual means. There is not much that can be done about this state of affairs in the short run and, therefore, the focus has to be on institutionalising methods to bring technology closer to the farmer. The extension worker has by and large fulfilled his mandate admirably, but the demands of modern agricultural technology may be beyond his capacity to handle. He needs to be assisted and supplemented by professionals of much higher degrees of sophistication. The Krishi Vigyan Kendras are only the first step in this direction. We will need to strengthen them and expand their capabilities considerably in the future and will perhaps also have to evolve other mechanisms for technology dissemination and referral.

While addressing the technological needs of our farmers care must be taken to integrate the issues of environmental and ecological sustainability with the pressing need to increase production and productivity. The "more the better" syndrome, particularly when it comes to chemical fertilizers, herbicides and pesticides, is already having serious deleterious effects in substantial tracts of the country, especially those which have advanced agriculturally. We cannot allow the same mistakes to be repeated in the more ecologically fragile regions from which the future growth of food production will have to come. Concerted research will need to be carried out in developing eco-friendly technologies, which would be just as productive as the technologies existing today.

The issue of hunger and under-nutrition, however, does not end with the adequate availability of food and the sufficiently wide spread of "entitlements". The evidence indicates that intra-family distribution of the available nutrition can be skewed so that even if adequate income is available, certain members of the family, particularly women and children, may remain undernourished. Malnutrition of expectant and lactating women and its consequences on the infant are particularly tragic dimensions of such skewed intra-family nutritional patterns. This phenomenon arises partly out of sociological factors and conditions and partly from the persistence of traditional dietary

patterns, which may not always be appropriate in the light of advances in knowledge about nutritional requirements. These sociological and psychological factors are much more difficult to address than the more physical issues of production and distribution. To my mind, these may indeed be the final milestones.

Finally, there are international dimensions to the issue of food and nutritional security that we can ignore only at our peril. Let me highlight two issues. First, the rapid advances in agricultural technology during the 1950s, 60s and 70s were mostly in the public domain, fuelled by strong ideological commitments by governments, international agencies and individual scientists to forestall the Malthusian inevitability. This approach is now in retreat and the property rights to most new technology advances, and indeed on some older and even traditional knowledge, are held by commercial agencies for whom elimination of hunger and deprivation is of lesser relevance than generating profits. "Doing well by doing good" is a perfectly acceptable ideological precept but when doing well is at the cost of the wider good, things cannot be allowed to pass. It is necessary for the international community to recognise that hunger and malnutrition are not just localised problems but problems of all humanity, and every effort needs to be made to re-establish the primacy of social responsibility.

Secondly, as international trade in agricultural commodities becomes more open under the aegis of WTO with the attendant trend towards equalisation of prices across countries, there must be a certain degree of sensitivity to the specific needs of labour-surplus countries like India. As I have already mentioned, agriculture is not only a source of food production but equally importantly it is also the principal source of livelihood for the vast majority of our people and will continue to be so in the foreseeable future. This is in sharp contrast to agriculture in most developed countries, which supports a relatively low proportion of the population. Therefore, even if the productivity per unit of land is identical in the two sets of countries, the income per person dependent on agriculture will be far lower in the former at the same set of prices. If it is lower than the threshold required for meeting

the minimum nutritional needs of the agricultural populace, then there may be no alternative but to deliberately alter the terms of trade in favour of agriculture by either providing higher prices or by subsidising the inputs. Both these alternatives are under attack, which reflects an excessively economic view of things and neglects the social and humanitarian considerations that must guide all policy—national and international.

Although we shall press to present our viewpoint at the various international fora, the trends are not propitious for success. We may need to plough a lonely furrow, both literally and metaphorically, and we will do so if need be. But I sincerely hope that the international community understands our imperatives and shows sensitivity to our needs.

* At an International Seminar on "Towards A Hunger-Free India: the Final Milestone" held on April 7, 1999

ISSUES IN IMPROVING HEALTH CARE*

I am very glad to be in your midst at the Sixth Conference of the Central Council for Health and Family Welfare. This is a momentous occasion. We will be reviewing the progress achieved in the last five decades and discuss the lessons learnt. Based on these, we will recommend future policies, draw up strategies and set goals to be achieved in the first decade of the new millennium.

India is a pioneer in health service planning. Over the last five decades a massive infrastructure manned by a large number of medical and paramedical persons has been created by the Government, voluntary agencies and the private sector to provide primary, secondary and tertiary level health care services to urban and rural population. We can truly feel proud of the steep decline in the Crude Death Rate from 25.1 in 1951 to 9.0 in 1996. Life expectancy rose from 32 years in 1947 to 61.1 years in 1991-96.

In spite of these achievements India ranks as low as 138th among the 174 countries in terms of the Human Development Index, which includes health as one of the indicators. The morbidity due to common communicable and nutrition-related diseases continues to be high. The morbidity due to non-communicable diseases is showing a progressive increase because of increasing longevity and alterations in life-style. We must address these areas of concern and rapidly improve the health status of the population.

First, let us look at the primary health care. India perhaps has the largest primary health care network manned by professionals and paraprofessionals. However, there are substantial differences between the States and between the districts in the same State in the availability and utilisation of the health care services and in the health indices of the population. It is a matter of concern that gaps in functional infrastructure are widest in districts where health care needs are the

greatest and private sector health care services are not readily available. Emphasis in the coming years should be to optimise the coverage and quality of care by identifying and rectifying the critical gaps in the existing infrastructure, manpower, equipment, essential diagnostic reagents and drugs. Efforts will have to be directed to improve the functional efficiency of the health care system through training and deployment of health manpower with requisite professional competence and skill up-gradation of all categories of health personnel through structured continuing education.

Every major programme spends considerable part of the funds available on IEC activities using all the media of communication. It is important to review all the ongoing IEC activities, make them reliable and relevant and avoid unnecessary duplication. Optimum use may be made of the on-going advances in information technology to improve the quality and reduce the cost of the training and IEC programmes.

With the 73rd and the 74th Constitution Amendments the Nagar Palikas and Panchayati Raj Institutions are becoming operational in many States. It is important to involve these institutions in local planning and monitoring by making use of the available local and community resources and co-ordinating the programmes of related sectors such as sanitation, safe drinking water and women and child development so that optimal benefit from all these programmes become available to the community and the vulnerable segments receive the attention that they need.

Nearly 30% of India's population lives in urban areas. In many towns and cities the health status of the urban slum dwellers is worse than that of the rural population. There is either non-availability or substantial under-utilisation of the available primary care facilities along with over-crowding at the secondary and tertiary care centres. This problem should be sorted out by appropriate reorganisation and restructuring of the existing institutions and re-deployment of the existing manpower. These should be linked with the existing secondary and tertiary care institutions in the same geographically delineated areas for referral services.

At the secondary and tertiary care level there is an ever-widening gap between what is possible and what is affordable either for the individual or for the country. The majority of these institutions in the governmental sector lack adequate manpower and facilities to meet the rapidly growing demand for increasingly complex diagnostic and therapeutic modalities. Development and utilisation of appropriate technologies for diagnosis and management of patients at all levels are essential pre-requisites for improvement in the quality of health services without unnecessary escalation in the cost of health care.

Several States have started levying user charges for the diagnostic and curative services offered in the secondary and tertiary care institutions from people above the poverty line to meet some of the recurring costs in providing such services. Some of the States are also taking up experimental projects of establishment of "pay clinics" or "pay cabins" for generating funds required by the institutions. Necessary amendments are being made to enable these hospitals to retain the funds generated by these activities so that they could be utilised to improve the quality of services available. If found successful it might also be possible to use the income from such "pay clinics" as a cross subsidy for the treatment of patients below the poverty line.

Let us now take up the problems posed by the ongoing demographic transition. India's planners recognised the necessity of attaining population stabilization and in 1952 India became the first country to adopt a National Family Planning Programme. Over the years, improvement in quality and coverage of health care has resulted in a rapid decline in the death rate. The decline in birth rate was less steep. As a result the average annual growth rate of population during the last three decades has been over 2 per cent. In the nineties the decline in birth rate was steeper and the population growth rate had dropped to below 2 per cent. However, in the next few decades the population would continue to grow in spite of the decline in the birth rate because of the large and growing reproductive age group in the population. At present 20% of the population growth is due to unmet needs for contraception and another 20% due to high wanted

fertility rate due to prevailing high infant mortality. These wanted but unmet needs exist in all segments of the population irrespective of religion, caste, education and income status. The Reproductive and Child Health (RCH) programme should strive to meet all these felt needs, achieve a rapid decline in birth rates and enable the country to achieve the replacement level of fertility by 2011. The country's medium and long-term efforts should be focussed on bringing about an accelerated convergence of ongoing demographic, socio-economic, educational and information technology transitions, enable the increasingly literate and knowledgeable families to achieve their reproductive goals and the country to achieve rapid population stabilisation, sustainable development and improvement in the quality of life.

There are massive inter-State differences in birth rate, infant mortality rate, population growth rate and the time by which the replacement level of fertility is likely to be achieved. The five States, namely Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar and Orissa, which accounted for 44% of India's population in 1996, will contribute 55% of the population growth during the period 1996 to 2016. By 2016 nearly 50% of India's population will live in these five States. These States have been facing severe resource constraints and have been performing poorly both in the social and economic sectors. Continued high population growth without commensurate economic development and growth in employment potential and social sector programmes would further aggravate the situation. Energetic steps will have to be taken to avert this dangerous build-up, which will affect not just the people living in these States but the whole country.

There is, however a small ray of encouragement. An analysis of 1991 Census data as well as the district surveys commissioned by the Department of Family Welfare has clearly shown that even in the poorly performing States many districts are doing well. The infant mortality rates in Almora and the birth rate in Kanpur urban district are lower than the national levels. These successes should be replicated in other districts and simultaneously all the districts should strive for

incremental improvement in performance so that the overall performance of the State improves.

The Planning Commission has implemented the recommendation of the NDC Committee on Population and has provided additional assistance to poorly performing districts. However, apart from funds, additional capacity building and monitoring assistance would be required to improve the performance. In view of the inter-district variation in vital indices, the Family Welfare Programme has embarked on community need assessment at the PHC level and plans to meet these needs by improving the access to comprehensive high-quality health care services to women and children through the Reproductive & Child Health (RCH) Programme.

If the RCH programme caters to the felt needs for health, nutrition and contraceptive care it will be possible to rapidly achieve the replacement level of fertility and a steep reduction in under-nutrition and infant mortality rate. It is imperative that we take effective steps to achieve rapid population stabilisation, reduction in morbidity and mortality, sustainable development and improvement in the quality of life. As the size of the under-15 years population is reduced as a result of the ongoing demographic transition, the opportunity should be utilised to improve the quality and coverage of immunisation, health and nutrition services and improving the access to education and skill development.

Family Welfare Programme is not the sole responsibility of the Department of Family Welfare. Inter-sectoral co-ordination between departments having allied programmes such the Department of Health, ISM&H, Women and Child Development and Human Resource Development would enable sustainable improvement in coverage. Departments such as Railways and Defence can provide RCH services for their employees and their families. The Tripartite Committee meetings provide a mechanism for increasing participation of industry, labour leaders and self-help groups in improving access to RCH services. After nearly two decades, the Family Welfare

Programme is currently getting visible support from opinion leaders and the society. States like Rajasthan have implemented legislation providing for the elected representatives to set an example by adhering to small family norm. It is imperative to utilise all the favourable factors and transform the Family Welfare Programme into a people's programme.

Even though health is a State subject, the Central Government has over the last forty years provided additional funds through Centrally Sponsored Schemes (CSS) for control of some of the major public health problems. Increasing longevity, demographic transition resulting in rapidly rising numbers of the aged population, urbanisation, increasing pollution, change from traditional diets, sedentary life-style and increase in the stress of day-to-day living have all led to an increase in lifestyle-related disorders and non-communicable diseases.

In order to prevent delays in the release of funds and improve monitoring many of the on-going national-level programmes have created State or district-level societies. In order to ensure effective integrated functioning, it may be preferable to utilise a single Health and Family Welfare Society at the State or district level. This step would also promote delivery of integrated health and family welfare services at and below the district level. Efforts should be made to integrate the existing vertical programmes at the district level and ensure that the primary health care institutions provide comprehensive health and family welfare services to the population

Tribal population is not homogenous. There are massive differences in the health status of the tribal population in the North Eastern States and those in States like Orissa. Tribal population outside the North Eastern States has higher disease burden. Factors that contribute to increased disease burden in these communities include poverty and consequent under-nutrition; poor environmental sanitation; poor hygiene and lack of safe drinking water, leading to increased morbidity from water and vector-borne infections; lack of access to health care

facilities resulting in increased severity and duration of illness and social barriers preventing utilisation of available health care services.

During the Ninth Plan period the norms for the establishment and the staffing pattern of Sub Centres and PHCs will be specifically relaxed in the tribal areas taking into account the difficulty in terrain and the problems in health care delivery. The implementation of all the ongoing programmes will be intensified and closely monitored in these areas. The NMEP provides 100% assistance to the North Eastern States and to tribal districts in other States. Specific projects are being evolved to meet the requirements for RCH care of the tribal population in States such as MP, Bihar and Orissa. The Planning Commission has provided additional central assistance for addressing the special needs of KBK districts of Orissa and of the North Eastern States.

Surveys carried out by the National Sample Survey Organisation (NSSO) indicate that the high cost of hospitalisation is one of the factors leading to indebtedness especially among the low and middle-income group population. Health insurance to meet the cost of hospitalisation for major illness will ensure that health care costs do not become a major financial burden or cause of indebtedness among these patients or their families. Over the last two decades several health insurance schemes have been introduced. There are individual, family and group insurance schemes for health care, senior citizens insurance and insurance for specific diseases. The experience gained in the implementation of these schemes will provide useful inputs for planning health insurance schemes. The health insurance premium may have to be adjusted on the basis of the health status of the person and the age of the person and his /her family at the time of entry into health insurance. Yearly 'no claim bonus' or adjustment of the premium could be made on the basis of previous year's hospitalisation cost reimbursed by the insurance agency. This would be a mechanism through which health education messages regarding the importance of remaining healthy through optimum utilisation of the preventive and promotive services as well as adopting a healthy life style get reinforced by economic incentives. Guidelines for determining the services for which the cost will be reimbursed by the insurance

company may have to be discussed, drawn up and implemented. Appropriate mechanisms through which insurance premiums for people below the poverty line are to be met will have to be evolved, tested and implemented.

Disasters, both manmade and natural, keep happening in the country. The earthquake in UP was the most recent natural disaster faced by the country. Prediction and prevention of disasters might be difficult. However, disaster risk assessment and preparedness for disaster management are feasible and would go a long way in reducing deaths and suffering. Technological advances in the last twenty years have made it possible to substantially reduce mortality, morbidity and disability due to disasters, accidents, trauma and poisoning. This area requires increasing attention.

Efforts will have to be made to improve the availability and utilisation of emergency care services at all levels of health care. Adequate training of medical and paramedical staff in emergency management at each level of care, provision of transport facilities for transfer of patients and suitable strengthening of emergency and casualty services in tertiary care centres so that they could handle the workload should be initiated. Rehabilitation services for those who have residual disabilities also will have to be strengthened. Steps to improve public awareness about the available services and the means of accessing them should also be taken up so that the population can fully utilise the available services.

Increasing incidence of hospital-acquired infection and accidental infection among health care providers and waste disposers renders it imperative that efforts are made to improve infection control and waste management through utilisation of appropriate and affordable technology at all levels of health care. During the Ninth Plan period, infection control and waste management in all health care institutions should receive due attention and adequate funding.

There are over 6 lakh ISM&H practitioners in the country. Many of them work in remote rural and urban slum areas. They are close to the community, not only in the geographical sense but also in terms

of cultural and social ethos. Hence, these systems have wide acceptance among all segments of the population. They should be optimally utilised to improve access to health care and the potential of ISM&H drugs and therapeutic modalities should be recognised. There is a need to create herbal farms in public, private and joint sectors to ensure that essential plants and herbs of appropriate quality are produced in adequate quantity to meet the growing demand and the cost of drugs is maintained at affordable levels. Research and development programmes will have to be strengthened with focus on development and testing of formulations especially for illnesses for which there is no effective remedy in the modern system of medicine: Formulations found useful should be patented.

Rapidly growing population, urbanisation, changing agricultural, industrial and water resource management and increasing use of pesticides and fossil fuels have all resulted in a perceptible deterioration in the quality of environment and attendant adverse health consequences. So far, the major focus in the health sector has been on communicable disease burden due to poor environmental sanitation in urban areas and improper disposal of human excreta, garbage and wastewater in rural areas and methods to tackle these. Emerging problems of arsenic in drinking water in West Bengal and increasing incidence of fluorosis have added a newer dimension to water quality and health consequences. There is an urgent need to tackle the health consequences of environmental deterioration.

Major developmental activities in any field such as agriculture, industries, urban and rural development may result in environmental changes, which could have adverse health implications. The Department of Health has suggested that health impact assessment should become a part of environmental impact assessment of all large developmental projects. The feasibility of making appropriate provision for the health care of people involved in developmental activities and prevention and management of the health consequences of developmental activities on the population living in the vicinity of the project as a part of the project budget may have to be explored.

A healthy work force is an essential pre-requisite for agricultural and industrial development. Efforts to provide health care to workers through schemes such as ESI, creation of health care facilities in industrial towns and use of the existing public and private health care services have continued over the last five decades. However, both coverage and quality of care have remained sub-optimal. There is no attempt to link the existing data from ongoing environmental monitoring in the work place with the health status of workers and initiate appropriate intervention as and when required. Workers in agricultural and unorganised sectors have so far not been covered under any programme. Increasing use of mechanisation, induction of poorly trained workers who operate machines with which they are not familiar, and use of insecticides, pesticides and chemicals by persons without appropriate knowledge of the precautions to be taken are resulting in increasing health hazards to workers in these sectors.

It is essential that adequate attention is paid to monitoring the safety of work environment and workers' health status, both in the organised and unorganised sectors of industry and in agriculture. The health problems of vulnerable groups such as women and children should receive special attention with focus on prevention, early detection and prompt treatment.

At the request of the Planning Commission the Department of Family Welfare had constituted a Consultative Committee to review the existing norms for family welfare infrastructure and suggest rationalisation and restructuring of the infrastructure on the basis of current needs. The report will be ready shortly. It is essential that the States and the Centre carry out the suggested restructuring in a time-bound manner. The Department of Family Welfare is currently utilising over 70% of Plan funds for meeting non-Plan costs and has approached the Finance Commission for funding these through non-Plan funds. The Planning Commission has supported the Department's request and had indicated that non-Plan activities should be supported with committed funds so that the Plan funds could be utilised for Plan activities.

I have shared with you our thoughts and concerns on some of the major areas in family welfare, health and ISM&H sectors. You have before you an extensive agenda starting with consideration of the draft National Health Policy. I am sure that over the next two days you will have excellent in-depth discussions and evolve recommendations on policy, strategies and programmes, which will enable the country to achieve a substantial improvement in health and demographic indices in the very first decade of the new millennium.

** Inaugural address at the Sixth Conference of the Central Council for Health & Family Welfare held on April 8, 1999 in New Delhi.*

ISSUES IN SOCIAL SECTOR DEVELOPMENT*

I am very happy to participate in this conference of media persons devoted to issues in the social sector. I want to compliment the organisers for arranging this conference devoted to an area that is normally out of the media headlines.

Several of our leaders who fought for our freedom were also champions of reforms in the socio-economic sectors. Leaders such as Bal Gangadhar Tilak, Gandhiji and others not only directed their efforts at winning political freedom but also educating generations of us on the need to strive for socio-economic emancipation. They started their own publications to propagate their views and win support for the causes that they held dear to their hearts. The political system and the media, both during the independence struggle and in the post-independent India, had always shown concern for accelerating the pace of change in the social sector. Your participation in such large numbers in this conference is indicative of the continuing media concern for this vital sector.

As we look back at the first fifty years of our development experience as an independent nation, we can be justifiably proud of many of our achievements. The worst inequities of our colonial heritage are behind us. The long period of decline in our per capita incomes that characterised the first fifty years of this century has been decisively reversed with steady and accelerating economic growth, based predominantly on our own resources. We have eliminated the scourge of famines from the face of our country and are moving steadily towards emerging as a net exporter of food and other agricultural products. We have developed a diversified industrial base on the strength of our own entrepreneurial talents. Our technological achievements, both military and civil, are not inconsiderable and in certain areas are of world class. And, most importantly, all of this has been achieved in a

framework of a vibrant pluralistic democracy, overcoming divisive trends and setting an example for others to emulate.

In the euphoria of these achievements, however, we should not lose sight of our inadequacies and our failures. Too many of our people still live below a modestly defined poverty line. Although we may have virtually eliminated hunger, malnutrition and under-nutrition continue to be a source of concern. But our most glaring failures have been in the sphere of the social indicators of quality of life. This fact has been driven home most forcefully with the inter-country comparison of the Human Development Index (HDI) brought out by the UNDP, in which India's position ranks at a lowly 139th out of the 174 countries considered. There has been quite a furore at India being ranked lower than Pakistan. Whatever be our public posture and whatever may be our criticism of the UNDP methodology, the hard fact is that in some of the objectively verifiable social indicators India ranks below even the world's poorest and most backward countries of sub-Saharan Africa. This should lead us into introspection and not into fruitless argumentation.

It is a sad commentary that although the attention of the world has been drawn to the importance of the social conditions of life by intellectuals from the sub-continent, it is here that these issues have received less attention than they deserve. I would like to make it perfectly clear, however, that we have not entirely ignored these issues. A perusal of India's Five Year Plans reveals that social infrastructure has figured prominently in practically all of them, particularly since the Fifth Plan. The failure has been in achievement. This is not to say that we have not progressed. Quite the contrary, we have recorded significant progress in practically all the social indicators, whether it be birth and death rates, life expectancy, infant and maternal mortality rates or literacy rates. However, many other developing countries have done better. Our inadequate progress on this front should be a cause for national concern.

Since this conference will be addressed by Ministers and other senior functionaries of the ministries concerned with most of the social sectors, I will not go into the details of each of these sectors. My principal objective is to put before you the wider dimensions of social development, the nature of inter-linkages between the different social sectors and, most importantly, the measures that would be required to improve our social indicators as rapidly as possible.

There can be no two opinions about human development being the ultimate goal of all public action. The principal responsibility of the State is to improve the quality of life of its citizens. Quality of life is multi-dimensional encompassing not only the economic opportunities available to the people but also their ability to take advantage of these opportunities and the existence of living conditions, which permit a healthy and productive life. No development process can be sustainable unless it leads to visible and widespread improvement in these areas. Economic growth and reduction in poverty are only two facets of the wider concept of human development. It is sometimes believed that high incomes and high levels of social indicators are inextricably linked. This is not necessarily the case. Both international experience and the experience of different States of our country clearly demonstrate that high levels of income are not pre-conditions to substantial social attainments. Sri Lanka and our State of Kerala, despite being relatively poor in terms of income, display levels of social development, which compare favourably with some of the most developed nations of the world. Conversely, there are parts of the country where success in the economic sphere has not led to commensurate improvement in social indicators.

Despite this recognition there is a tendency both among our politicians and economists to focus excessively on the economic dimensions of our existence. There is a good reason for this. Social indicators by their very nature tend to move very slowly over time, almost imperceptibly during the short-time horizon that characterises most of our decision-making processes. Economic variables on the other hand tend to respond much more quickly. As a result, the need to show results within the operative time horizon leads to relative neglect

of these social variables in favour of economic variables. The second characteristic of social sectors is that they are by and large in the nature of public goods and therefore cannot readily be identified as bringing benefits to identifiable sections of the populace. Economic measures on the other hand are much more focused and therefore there is a perceptible nexus between the intervention and the beneficiary and due credit can readily be claimed. In my opinion, these differences in characteristics between economic and social interventions have led to a situation where the former tends to take precedence over the latter in our operative political priorities. One particularly important facet of this differential evaluation of the two modes of intervention in India is that the quantum of public resources used in providing a large number of non-transparent and non-targeted subsidies is significantly higher than the resources used in augmenting and maintaining our social infrastructure.

What is surprising, however, is that such behaviour exists despite the fact that there is a considerable degree of awareness regarding the importance of the social sectors among the top echelons of our political leadership. In a meeting of Chief Ministers convened in 1996, there was almost complete unanimity on the overriding importance of developing our social infrastructure. Seven sectors were identified for special focus as 'basic minimum services' (BMS), which formed the central plank of both the Approach Paper to the Ninth Five Year Plan that was approved by the National Development Council (NDC) in January 1997 and the first draft Ninth Plan prepared by the United Front government. The present government took a considered decision to continue with the Plan that had been formulated by the previous government so that there was no disruption in the process of economic and social development of the country. It is our belief that political considerations should not be allowed to disturb the development strategy. Indeed, the Prime Minister's special action plans (SAPs), which are an integral part of the Ninth Plan, gave further importance to basic services by providing action-oriented, time-bound programmes of implementation with earmarked funds. This approach has received the endorsement of the NDC through its unanimous approval of the

final Ninth Plan document and it is a clear indicator of the convergence of views on development issues across wide political and ideological spectra.

Despite the convergence of views on the importance of social sectors, there is considerable reluctance to re-orient our public expenditure patterns away from maintaining large administrative establishments and providing subsidies and towards providing more and better social infrastructure. This reluctance is unlikely to be overcome unless the recognition of the importance of social services permeates down to the average citizen and voter. It is ultimately they who have to convince the political leadership that the trade-off between investment in social sectors and other components of public expenditure, including subsidies, must be decisively determined in favour of the former. Only such pressure from the people themselves will succeed in converting what is now merely a part of our political agenda to an agenda for political action.

Once the importance of social development is recognised, it becomes necessary to evolve a yardstick by which progress on this front can be measured. This is required not only over time but also across regions. To draw an analogue from the economic sphere, we need the social equivalents of the gross domestic product and the State domestic products. Such measures enable us both to track our progress over time and to identify those regions of our country, which need greater focus. A readily available measure is the Human Development Index used by the UNDP to which I have already referred. This measure, however, may not be entirely adequate. Even the original developers of the HDI have recognised the limitations of this measure and have evolved complementary measures such as the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM). But the issue is somewhat more complex than that. Measures of social development by their very nature need to be sensitive to the cultural and social milieu to which they are applied. Since the HDI and also its complements, the GDI and GEM, were meant to draw comparisons across a wide and diverse range of countries, they had to focus on a very limited number of indicators and combine them in a manner

which would be as culturally neutral as possible. For our purposes, however, we need to develop indices, which are relevant to our specific conditions.

In developing an appropriate index of social achievement there needs to be recognition of the strong inter-linkages that exist between the different components of social wellbeing. These inter-linkages vary from country to country, society to society, in both the intensity and the effect. Since any meaningful index can accommodate only a few and readily verifiable indicators, it becomes necessary to identify those indicators, which have the strongest linkages with the others in the specific social and cultural context. There is therefore reason to carefully deliberate on the indicators that should be included in developing a Human Development Index for India. In this context I would like to bring to your notice that the Planning Commission has already initiated such a process. Since time is short and it would not be advisable for us to delay matters further, every State of the Union has been encouraged to develop a State Human Development Report. As you are perhaps aware, the Government of Madhya Pradesh has already prepared such a Report and a few others are in the process of doing so. However, in order to facilitate inter-temporal and inter-State comparisons in the levels of development it is proposed to convene a workshop of experts in this field to deliberate upon the indicators, which should be used to develop a meaningful Human Development Index for Indian conditions. I should make it clear, however, that such an index would be of use only within the country to measure our progress over time and across regions but would not be appropriate for making comparisons with other countries.

Let me now turn to the issue of the effectiveness of our interventions in the social sectors. As you are aware, the prime responsibility for the provision of most social infrastructure lies within the jurisdiction of the States. The Centre can only play a supportive role in such matters. An assessment of the resources devoted to the social sectors by the State governments and the assistance given by the Centre indicates that collectively we devote a fair share of our available resources to these sectors. While there is certainly scope for increasing the allocations

by a suitable reorientation of expenditure patterns, as I have discussed earlier, the achievements are not commensurate even with the resources that have been deployed. The principal problem appears to be the institutional mechanism and delivery systems that have been developed to provide these services to the people. In particular, there is excessive centralisation in the delivery systems by which the institutions responsible for these services do not view themselves as being accountable to those whom they serve in terms of their output but only to those whom they serve as their employers. This is most unfortunate. Although it is axiomatically true that in a democracy the government reflects the will of the people, the present structure introduces a buffer between the people themselves and those who are employed to serve their needs. This is by and large undesirable since it breeds an attitude of indifference in the public employees who are charged with delivering social services to the people. In my opinion the only credible way to improve matters would be to introduce direct accountability of the public employees in social sectors to the people whom they serve and who are ultimately also their employers.

Since most social services are localised in nature, such accountability would involve devolution of responsibility for provision of these services to local bodies. I use the term local bodies in its widest sense, which would include the Panchayati Raj institutions established under the 73rd and the 74th Constitutional amendments and other forms of civil society organisations such as user groups, co-operatives and the like. Some States have already started experimenting with such alternative forms of responsibility and the initial results are extremely encouraging. There will of course be certain forms of social infrastructure, which would have to be provided through higher tiers of political and administrative organisations. To give an example, while primary health care and primary education are clearly functions, which should be carried out at the local level, secondary and tertiary health care and higher education may need to be taken up at the district or even the State level. The short point is that the institutional structure in terms of responsibility and accountability should be consistent with the nature of services being delivered and it would be wrong to club them all in one limited straight jacket.

There is one other dimension of social progress that I would like to highlight. As you are all aware, the prime responsibility for social development in the country is in fact borne not by the government but by our women who make great sacrifices to ensure the wellbeing of their families. We believe that their contribution should not go unheralded. On the contrary, the value of caring and sharing that they embody should be utilised to enhance the quality of delivery of publicly provided social services. To this end we propose that to the extent possible control over, and responsibility for, a number of social infrastructure should be vested in women's organisations, such as Mahila Mandals and all efforts should be made to build up such organisations across the length and breadth of our nation.

The Central Government is already moving in this direction and so are a few of the States. But in a number of other States there is strong resistance against such decentralisation of responsibility and accountability. This resistance can be overcome only through wide public debate and discussion over the merits and demerits of different forms of organisation for delivery of social services. This conference is the first step towards taking our views to the people in order to evolve a popular consensus, which would direct the course of our future development in the social sphere. I am certain that my colleagues, the Ministers of the different departments, would be able to give you the detailed measures that we propose to take during the course of the Ninth Five Year Plan and which hopefully would be carried on in the years beyond.

** Inaugural Address at the First Editors' Conference on Social Sector Issues organised by Press Information Bureau on April 9, 1999 in New Delhi*

PROMOTION OF KHADI & VILLAGE INDUSTRIES*

Hon'ble Prime Minister, Shri Atal Behari Vajpayee ji, Industry Minister, Shri Sikander Bakht, Dr. Mahesh Sharma, Chairman (KVIC), invited guests of honour, ladies and gentlemen,

I am very happy to be with you at the National Convention on Rural Industrialisation organised by the Khadi & Village Industries Commission. I see from your programme that you have had a very intensive discussion on various facets of the subject of rural industrialisation.

This government attaches high priority to employment generation. Recently, the National Development Council has approved the Ninth Five Year Plan of the country for the period 1997-2002. One of the most daunting challenges facing the country is not only to provide employment for the additions to the labour force during the Plan period but also to reduce the backlog of unemployment accumulated from the past. Despite the expected reduction in the growth rate of population to 1.58 per cent per annum by the end of the Ninth Plan, it is expected that the labour force growth would reach a peak level of 2.51 per cent per annum due to the high growth rate of the population in the seventies and eighties. In view of this, employment generation is one of the key objectives of the Ninth Plan.

If we look at the structure of employment of around 400 million persons today, 60 per cent are deployed in agriculture, 15 per cent in industry and 25 per cent in the services sector. As the economy grows and diversifies the work opportunities have to be created more and more outside the agriculture sector. While it is true that among the non-agricultural avenues for employment the services sector provides large employment, it exists only to support the real production activities, which are done in manufacturing and agriculture sectors.

Apart from this, a sizeable part of employment in the services sector is today provided by the public sector, in particular the Government. However, there are two constraints to a substantial increase in such employment. First, the need to improve the financial position of the governments at the Centre and States requires that productivity be increased so that more and better services can be rendered by a much smaller increase in employment than in the earlier years. Second, to deliver better services to the large number of consumers some degree of computerisation and modern communication technologies are needed.

I would dwell somewhat at length on the structural composition of employment to highlight the role, which the manufacturing sector needs to assume in future in regard to employment. The manufacturing sector is not homogeneous either in terms of scale of output or of employment. The large and medium industries, which are identified in the National Accounts as a registered manufacturing sector, contribute about 65 per cent of the gross domestic product of manufacturing industries but only about 16 per cent of the employment opportunities exist here. Even this small share is not likely to expand very much because in an environment of competitiveness better technologies, which are more likely to be capital-intensive, have to be resorted to by the large and medium industries. Even in the modern small-scale industries if exports have to be promoted, labour intensity of output may not increase substantially.

The decentralised segment of manufacturing industries, which comprises modern and traditional manufacturing activities, provides 84 per cent of the work opportunities that exist in the manufacturing industries. Even within the decentralised segment we have the modern small-scale industry and the powerlooms, which have 56 per cent share in employment and the rest 28 per cent is in the traditional manufacturing activities. Thus, about 120 lakh employment opportunities exist in the traditional activities segment of manufacturing. While the large, medium as also the modern segments

of manufacturing will have to respond to the demands of competitiveness and globalisation, the traditional segment of manufacturing will need to be nurtured to facilitate further expansion of the work opportunities.

The khadi and village industries (KVI) sector is having a very large potential to generate new jobs with low investments. This sector has a unique capacity to generate large employment opportunities in rural areas by utilising local skills and resources by adoption of simple techniques. This also prevents migration of rural population to urban areas in search of employment and thus decreases the pressure of increasing urbanisation and provision of required services in the urban areas. Each new job in khadi requires an investment of Rs.56,000 while in the village industries the requirement is estimated at Rs.28,000. Creation of each new job in the SSI sector would need about Rs.1 lakh and in the organised sector the investment required would be many times more. The KVI sector, therefore, occupies an important place in the national economy and our development plans. We have, therefore, been strongly supporting, and will continue to support, this sector.

The High Powered Committee set up under the then Prime Minister to look into the problems of the KVI sector had, in its report of July 1994, recommended generation of additional two million jobs in the KVI sector. An investment of about Rs.5,600 crore was envisaged out of which one-third was to come from budgetary sources and the balance was to be provided by banks and financial institutions. The Rural Employment Generation Programme (REGP) of Khadi and Village Industries Corporation (KVIC) was approved by the Government in 1995 and the KVIC is being provided Plan allocation of the order of Rs.350 crore annually. So far, about 5 lakh new jobs were reported to have been created in the KVI sector. For the Ninth Plan the Planning Commission has provided an outlay of Rs.1990 crore for the KVI sector against an outlay of Rs. 900 crore in the Eighth Plan. This is a very substantial increase and there are hardly any other sectors, which have got an increase of this magnitude. The Planning Commission

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has accorded a high priority to the KVI sector and is providing maximum possible outlays for this programme in spite of resource crunch.

In view of the above, I would suggest that the KVIC should play a more active role in the development and promotion of khadi and village industries. Reorientation of the attitudes and activities and strengthening of expertise of KVIC officers in the relevant fields would be imperative. The KVIC should provide technological support, marketing support, market intelligence feedback, training, human resource development, infrastructural facilities, etc. to the village industries so as to enable them to achieve a quantum jump in their level of production, which was of the order of Rs.3,800 crore in 1997-98.

The major share of the Village Industries Programme under KVIC is implemented by the State Khadi and Village Industries Boards (KVIB). The State KVIBs normally account for a major share of the loans disbursed to village industries, the production and the employment generated in village industries. In view of this, there is an urgent need for the respective State Government to strengthen the State KVIB suitably.

One of the problems faced by the village industries is use of traditional and obsolete machines and equipment, besides outdated manufacturing techniques. The KVIC should endeavour to modernise the village industries by providing technical know-how and low-cost and easy-to-operate machines and equipment, training to rural artisans and workers etc., which would result in products of better quality from the village industries and lead to higher earnings of workers and artisans.

A major problem being faced by the village industries sector is that it is not getting adequate credit facilities from banks and financial institutions. As per the recent policy guidelines given by the Government, the SSI and tiny units are eligible for credit under priority sector up to 40 per cent of the total priority sector lending. This earmarking of credit to the tiny and SSI sectors is expected to result in

greater credit flow to the village industry units. The banks should take a realistic view of the working capital requirements of the village industries. I would suggest that the KVIC and the KVIBs approach specialised branches set up by the banks for SSI and tiny units as the village industries would be covered under the SSI sector.

In this context I would like to emphasise that there is an urgent need to bring profit-making culture in the manufacture of khadi cloth and reduce dependence on rebates and subsidies. Khadi manufacturing was started on the principle of "no-profit-no-loss". Over the years, khadi cloth manufacturing has become more dependent on interest subsidy, rebate and grant. This needs to be changed gradually and the KVIC and khadi institutions should consider this matter urgently. The KVIC and KVIBs will have to become more professional to promote large-scale employment in the village industries.

The KVIC and many other khadi institutions have developed modern varieties of charkhas and looms for efficient production of khadi. I understand that the KVIC has already taken up a programme to provide new model charkhas (NMCs) to lakhs of artisans all over the country. Urgent attention needs to be given to improve productivity and wages of khadi artisans by using NMCs and modern looms. The KVIC is doing considerable research and development (R&D) for the KVI sector. The KVIC should have greater interaction with the CSIR and other organisations to introduce simple-to-use techniques and adaptable technologies in this traditional sector.

The world over, and especially in the developed countries in the West, there is today a much greater interest in, and attraction for, eco-friendly products. Khadi is a fabric with all these unique qualities as it is hand-spun and hand-woven. The khadi sector should fully exploit this advantage. With the use of vegetable dyes, it should be possible to export khadi cloth all over the globe. The KVIC should focus upon these aspects and provide contemporary designs and fashion inputs to khadi cloth manufacturers to enable them to export khadi products and in the process contribute to improving the living standards of khadi workers.

I am sure the deliberations of this National Convention on Rural Industrialisation would take into account the various problems of the village industries sector and concretise the steps to be taken to give a big fillip to the development of khadi and village industries. The KVIC should now formulate a concrete action plan based on these steps so as to enable this sector to grow faster and create more and more employment opportunities in the rural areas. Thank you.

**As the valedictory session of the National Convention on Rural Industrialisation held in New Delhi on April 10, 1999*

ISSUES IN FARM SECTOR DEVELOPMENT*

I am very happy to be with you here this morning. The subject of this Workshop, 'Reforms in Agriculture for Growth, Efficiency, Equity and Sustainability', is very important for vast numbers of our people. The background papers have highlighted not only the most crucial aspects of Indian agriculture but also aspects that together make development of Indian agriculture both a complex task and an opportunity.

Agriculture and allied activities make the single largest contribution to our country's GDP, accounting for almost 27% of the total, provide employment to around 65% of our total workforce and contribute 21% of the total exports of the country. Agricultural growth has a direct impact on poverty eradication. It is thus an important factor in promoting employment generation and economic development and containing inflation.

During the last five decades the country has made a very significant progress in the field of agriculture. The production of foodgrains has increased from 50.8 million tonnes in 1950-51 to 203.6 million tonnes in 1998-99. Rice production has gone up four times. Wheat production has gone up more than 10 times. Oilseeds, cotton and sugarcane have also registered appreciable gains in production and productivity. The country is now the largest producer of milk in the world and the second largest producer of fruits and vegetables.

While we have every reason to be proud of such significant achievements, there are serious areas of concern. Population pressure is leading to rapid fragmentation of holdings. Consolidation of land holdings remains restricted to a few States. While the Green Revolution imparted dynamism to growth in the production of foodgrains, it remained confined to certain areas. Rain-fed areas have been largely bypassed. In the Green Revolution areas also there are stresses and

strains, physical and environmental. A breakthrough in the case of crops like pulses and coarse grains is yet to come. The gap between potential and actual yields of many crops points to the gap between research and extension. Lack of balanced growth and skewed progress over regions in the case of agriculture and its sub-sectors continues. The overuse of chemicals in certain areas has had its adverse impact. The growth of infrastructure has not been satisfactory. While globalisation seeks to integrate the economy with the international market with a view to opening up new opportunities for agricultural exports, it also brings with it the possibility of severe competition.

The agricultural sector operates under several constraints. There is first the question of adequate flow of capital. There are constraints of infrastructure, such as marketing, transport and communication. There are institutional constraints. For instance, the participation of Panchayati Raj institutions and co-operative institutions in agricultural and rural development programmes has still a long way to go. Then there is a shortage of enough technology packages for rain-fed agriculture. Concerted action on all these fronts is necessary if Indian agriculture has to gather the momentum required to satisfactorily address the food security concerns as also the concerns of equity, employment generation and poverty alleviation.

At another level, however, Indian agriculture in the past has not been able to ensure an adequate standard of living to all those who depend on it for livelihood. This must be changed as urgently as possible through rapid increases in agricultural productivity. Calculations indicate that agricultural output will need to grow at about 4.5 per cent per year on a sustained basis in order to not only absorb the available work force but also provide sufficient income for meeting their basic needs. Such a growth target will not be easy to achieve.

The solution appears to lie in the diversification of agriculture, both geographically and across commodities. This again is consistent with our nutritional needs. For this to happen, a number of measures have to be taken concurrently. The first imperative, of course, is to reduce the impact of the vagaries of nature, especially in the rain-fed areas of

the country. For this there is no alternative to proper development of watersheds. Although there has been considerable emphasis on this issue in the recent past, the track record has not been particularly good. The problem does not appear to be so much the non-availability of resources as the lack of requisite skills in watershed design and inadequate involvement of the people themselves in developing and managing their water resources. Institutional arrangements for training watershed developers and organising water users need to be evolved urgently.

The second area of focus has to be technology. Agriculture today is just as high technology an activity as any segment of industry. But our technology dissemination methodologies have not evolved in any meaningful manner. A major stumbling block, of course, is the low educational attainment of the average Indian farmer. While any industrialist, no matter how small, can get whatever technological information he needs from the Internet, the Indian farmer still has to depend on word-of-mouth and other audio-visual means. There is not much that can be done about this state of affairs in the short run and the focus has to be on institutionalising methods to bring technology closer to the farmer. The extension worker has by and large fulfilled his mandate admirably but the demands of modern agricultural technology may be beyond his capacity to handle. He needs to be assisted and supplemented by first-rate professionals. The Krishi Vigyan Kendras are only the first step in this direction. We will need to strengthen them and expand their capabilities considerably in the future and will perhaps also have to evolve other mechanisms for technology dissemination.

While addressing the technological needs of our farmers, care must be taken to integrate issues of environmental and ecological sustainability with the pressing need to increase production and productivity. The "more the better" syndrome, particularly when it comes to chemical fertilisers, herbicides and pesticides, is already having serious deleterious effects in substantial tracts of the country, especially

those which have advanced agriculturally. We cannot allow the same mistakes to recur in the more ecologically fragile regions from which the future growth of food production will have to come. Concerted research will need to be carried out in developing eco-friendly technologies, which would be just as productive as the technologies existing today.

The development of high yielding varieties, especially of rice and wheat, and improved crop production technology, ushered in the Green Revolution, except in the rain-fed areas. Much of the future gains in food production can be expected to come from increase in productivity in these areas. Rain-fed areas, therefore, clearly merit the focussed attention of agricultural scientists, administrators, extension workers, and all those concerned with allocation of resources.

While the country has developed one of the largest irrigation systems in the world, the potential to be exploited yet is very large. Lack of adequate investment in irrigation is causing concern. Government has taken certain initiatives to step up the flow of resources in this sector but more needs to be done. Equally important is the question of efficiency of use of irrigation resources. Indiscriminate and excessive use of water in certain places has already caused soil health problems and if not checked in time this could have far-reaching consequences. It is, therefore, necessary not only to develop irrigation resources but also to promote need-based, efficient use of water. This will be facilitated by levying appropriate user charges and checking wastage and over-exploitation. There is a need to closely monitor the exploitation of scarce ground water resources with a view to arresting further depletion.

Before I conclude I would like to flag some of the major issues relating to Indian agriculture which are uppermost in my mind:

- how to optimise the land-use pattern to ensure food and nutritional security for our people

- how to ensure remunerative prices by strengthening marketing institutions and infrastructure and creating a favourable economic environment for the growth of the agriculture sector;
- how to reconcile the needs of efficiency and equity, given the situation and circumstances of Indian agriculture;
- how to effectively address the problems of rain-fed areas;
- how to deal with the contentious issue of subsidies for agriculture;
- how to promote efficient use of inputs, especially of water,
- how to control loss of top soil and reclaim recoverable wasteland;

I am sure that this gathering of eminent economists, agricultural scientists and other experts will be able to throw light on these and other related questions and come up with implementable answers. I look forward to your recommendations.

* At the International Conference on "Reforms in Indian Agriculture for Growth, Efficiency, Equity & Sustainability" organised by NCAER-Ig-Wb on April 15, 1999 in New Delhi

ENSURING SOCIAL SECURITY*

I congratulate the Institute of Human Development and the Indian Society of Labour Economics for organising this important Seminar. I am sure that the deliberations and recommendations of this Seminar will be useful for making our public policy relating to social security more effective.

The term 'social security' is relatively new in India. Its origin lies in the western societies, where the societal structures do not necessarily support individuals in need and the over-arching structure of the State takes the responsibility of providing such support. In the Indian context, however, the exclusion of individuals from the normal social organisations such as the tribe, the village, the mohalla and, most importantly, the family is unthinkable. This is deeply rooted in a cultural tradition that has been reinforced through centuries of practice and experience.

I think that this point should be at the back of our minds as we deliberate upon the nature and form of social security systems that need to be evolved or strengthened in the Indian context. In particular, I would like to emphasise that the design of our social security systems should not be such as to militate against the social support systems that arise from our cultural ethos.

We must, however, recognise that the pressures of modernisation have undoubtedly led to a weakening of these social support systems. This is particularly evident in our urban areas. The large-scale migration that has taken place over the years from our villages to the cities has moved the people away from their social milieu and placed them in a situation where there is little that they can count upon. Therefore, there is need to take steps to ensure that in this period of rapid transition, in which disruption and displacement are natural consequences of a process of economic growth, we can provide support

to the people. At another level we need to deliberate upon the integration of social groups who are being marginalised in this process of development.

About forty eight years ago we embarked upon a phase of planned development of the country with the goal of accelerating the rate of development and ensuring that its gains percolate to the poor and weaker sections of the society. Over the years, we have made a significant progress in different spheres of activity, about which all of us can be justifiably proud. But there is something, which must be of deep concern to us all. That is the hard fact that one-third of our population continues to live below the poverty line. Further, people in large numbers still remain unemployed and under-employed. Special efforts, therefore, need to be made to promote and develop the potential, the skills and the capabilities of these people to enable them to live a dignified and meaningful life by providing them adequate protection against all forms of deprivation and exploitation. It is in this context that social security measures assume the utmost importance and relevance today.

Viewed narrowly, social security means provision of support to those who are unable to earn a living because of various structural reasons. This would include old-age pension, unemployment dole, social insurance, employees' provident fund, etc. In the Indian context, provision of social security in this sense has been largely confined to labour in the organised sector, which constitutes only a fraction of our workforce. However, there are instances where special labour welfare funds have been created even in the unorganised sector such as for the bidi workers and various categories of workers in the mining sector. Further, in certain industries support to workers is provided either by sustaining the demand for their output or by making available their inputs at reasonable prices. These include weavers and workers in the handloom, coir, sericulture and silk industries and in handicrafts. Again, in some States like Kerala welfare funds have been set up for a large number of workers in various activities in the unorganised sector. Such examples apart, the fact is that the gap in access to social security

between the organised and unorganised sectors is widening and it appears that most of the new employment in future may take place in the unorganised sector characterised by lack of any social security.

Social policy cannot be unconcerned about the workers who are displaced in the process of economic restructuring. It remains an important concern of the policy makers to help those, who are displaced, to get into better adjustment paths and are meaningfully re-deployed. Even though there has not been much displacement from the Central public sector undertakings in the first wave of restructuring, they may also be affected in future. It is, therefore, important to provide entrepreneurship development training and job-search training to the displaced workers.

In the broader context social security is needed by all vulnerable groups. The most vulnerable group consists of those who have neither physical endowments nor financial resources for gainful employment and therefore do not have the purchasing power to afford a minimum standard of living. Even though India has achieved self-sufficiency in food production at the national level, food and nutrition security at the household level is yet to be achieved. This is the new challenge. In recognition of this fact, a targeted public distribution system was introduced with the objective of providing access to food to the people at prices they could afford, particularly in deficit and inaccessible regions of the country with a concentration of the poor. In addition, pre-school children and pregnant and lactating mothers receive supplementary nutrition through the ICDS and a new mid-day meal programme has been introduced to provide nutritional support to school-going children. In order to enhance the incomes of rural people supplementary wage employment programmes like Jawahar Rozgar Yojana and Employment Assurance Scheme are in operation. These schemes ensure that in the lean agricultural season casual manual employment is made available in public works to those who are in need of work. A National Social Assistance Programme for the poor consisting of an Old Age Pension Scheme, Maternity Benefit Scheme and Family Benefit Scheme was introduced a few years ago to provide

relief to those living below the poverty line. A Rural Group Life Insurance Scheme was also introduced, though on a limited scale. Despite these, the problem of poverty is still daunting. People have to be made 'employable' and the productivity levels of the 'employed' need to be enhanced.

Women and children are also vulnerable to violence against the girl child and women both within and outside the family and a comprehensive approach, including legislative measures, needs to be adopted to deal with this problem. Discrimination against the girl child would require sensitisation of the community and strong measures would have to be taken to ensure that the girl child does not suffer from problems like child marriage, child abuse, child labour, child prostitution etc. Special facilities for the education of the girl child need to be given top priority. There is a growing concern for the development of the socially disadvantaged and the handicapped. Several programmes and policies have evolved over time to facilitate social integration of the scheduled castes, scheduled tribes and other backward classes and minorities but many of them continue to lag behind the rest of the society and need our special attention. In so far as the handicapped are concerned, all efforts should be made to ensure that they receive their due share in educational institutions, training programmes and in employment.

Finally, to make people more employable, it is necessary to ensure that they have access to basic minimum services, particularly to primary health care and primary/elementary education. In addition, shelter, safe drinking water and sanitation need to be provided in order to improve their quality of life. As Prof. Amartya Sen has stated, public action is required in order to protect the majority of our people against risks such as unemployment, illness, disability, and violence as also against contingencies such as drought, flood and epidemics. Beyond the economic activity, livelihood and social security, there are issues of bargaining strength and empowerment, which would need to be supported by social and political instrumentalities. Both the Central Government and the State Governments have to plan for the social

sectors and to provide adequately to meet the requirements of the people. The Panchayati Raj institutions and the non-governmental organisations would also have to participate at the grass roots in the process of fostering economic development with social justice. People's involvement itself will ensure greater success in the implementation of various programmes for their betterment. In short, the whole issue of social security in India is a vast one and provides a challenge to planners, policy makers and all those who are concerned with the wellbeing of the people.

This Seminar would, I am sure, analyse the concepts, problems, policies and effectiveness of the programmes relating to the whole spectrum of social security in India. As such, I look forward to the suggestions emanating from the Seminar and hope that they will provide action-oriented insights for policy makers.

**Inaugural Address at the Seminar on "Social Security" organised by Institute of Human Development and the Indian Society of Labour Economics on April 15, 1999 in New Delhi*

BUILDING DESIGN & ENERGY MANAGEMENT*

It gives me great pleasure to be here with you at this inaugural session of the International Seminar on "Environmental Sustainability through Architecture and Energy Management in Building".

Although the issue of environmental sustainability has formally entered the international agenda only after the Earth Summit, which was held in Rio de Janeiro in 1992, it has been an integral part of Indian planning and policy-making for at least two decades prior to that. The Fourth Five Year Plan, which was launched in 1969, clearly articulated the need to harmonise our development plans with the preservation of the environment. Subsequent Plans have reaffirmed and given concrete shape to strategies for addressing this concern. Indeed, Agenda 21 of the Rio declaration, to a substantial extent, reiterates and emphasises an approach, which has been articulated in Indian Plans for quite some time. This approach, in its essence, states that environmental concerns must be integrated not only with the development strategy of the country but more importantly with the social and economic conditions of living, or 'life-styles', if you like.

The fact that Indian planners and policy-makers had expressed concern about environmental issues long before it became fashionable to do so is not strange or unusual since it is deeply rooted in our cultural traditions. Two central tenets of Indian culture and philosophy, namely, the unitive basis of the material world and non-violence, lead logically to solicitousness for all life, animal and plant, and to the preservation of environment and ecology as central *desiderata* of existence. According to Indian philosophy, the bounties of nature are as much to be nurtured as used for the benefit of mankind. Protection and regeneration are inherently more desirable than destruction and exploitation in Indian ethos.

But philosophy and ethics, while important in determining attitudes, are subservient to survival instincts, on the one hand, and conditioned

by emulative behaviour, on the other. The noble sentiments expressed by our philosophers and saints, and embodied in our development Plans, have been overtaken by the pressures of population growth and subverted by the insidious attraction of alternative, albeit exploitative, life-styles that came as part and parcel of our colonial history. Much as we would like to deprecate these developments, we cannot shut our eyes to their reality. Our best-laid plans and comprehensive legislative framework for environmental protection have not succeeded in reversing the deterioration in our environmental endowments of air, water, soil and life forms.

Population pressure and poverty together is a potent combination, which can undermine all ethical considerations and can severely distort the relative valuation of the interests of present *versus* future generations. The resultant severe shortening of the operative time horizon and the ready availability of technologies, which can quickly and cheaply meet immediate needs through exploitative use of resources, form an unholy nexus, which is difficult to resist, particularly in democratic societies, which, by their nature, are answerable to the extant constituency. This is reinforced by the well-known "tragedy of the commons", whereby natural and ecological resources are considered as 'free goods' to be exploited at will. Degradation of land quality through excessive use of chemical inputs and alarming depletion of water-resources through unrestrained use of tube-wells are consequences of such behaviour, which are being experienced in large parts of India.

Environmental degradation arising out of survival needs can, however, be understood and even sympathised with, if not actually condoned. The same cannot be said of the effects that arise from emulative aspirations. In recent years, the standards for material well-being the world over are increasingly being defined in terms of life-styles and consumption patterns prevalent in the developed western countries. The spread and reach of electronic media propagate and reinforce this tendency. As a consequence, notions of growth and development are centred around reduction in the differential levels of material consumption between the haves and the have-nots. If these trends

continue, developing countries including heavily populated countries such as India and China, will seek, in the first instance, the average standards of living, which exist today in the developed world with similar per capita intensity of usage of energy and other environmental inputs.

Against this, however, is the issue of sustainability, if not survival. The obvious and increasingly compelling connection between pollution of all kinds and health, on the one hand, and the growing scientific evidence regarding global warming and consequent climate change, on the other, have forced a reappraisal of the environmental intensity of western life-styles. Much of the considerable scientific talent and technical expertise, which were once directed towards creating new needs and fulfilling them at the cost of the environment, have started to be reoriented towards improving the efficiency of resource usage and conservation. There is also some evidence of questioning of the desirability of current life-styles within the western establishment itself, and not merely by what was considered once to be the "lunatic fringe". These are favourable auguries for the future of humankind since the possibility exists that we may yet evolve an acceptable standard of living for all, which would be environmentally sustainable.

It is in this context that an international Seminar of this nature gains considerable relevance and importance. Dwellings and habitats are the most proximate and visible symbols of life-styles and much of our material aspirations are inextricably linked to making these as comfortable and convenient as possible. They also symbolise, perhaps more than any other, the dramatic shift that has taken place in humankind's attitude towards nature, especially in the past hundred years or so. In common with most life-forms man has for thousands of years attempted to adjust to nature in her myriad forms and manifestations. The difference has only been in the form that this adaptation has taken. We have, to a large measure, substituted technology for physical evolution. Now, however, technology has reached levels whereby we no longer merely adapt to nature but we defy her. There is a cost to this defiance and the cost is in terms of increasing imbalances in the global eco-system and entropy. We have

perhaps nearly reached the limits of the possible and it is time to turn again to adaptation.

If it is accepted that the way forward has to be through adaptation to natural conditions with a certain degree of manipulation through advanced technology, it logically follows that architecture and habitat design cannot follow a "one size fits all" approach. Unfortunately, in India we have to a large extent borrowed notions of planning and architecture and continue to look towards western concepts of habitat design as solutions to our problems. There is thus a growing trend of uniformity in our architecture and construction methods, which is a cause of some concern in a country with the wide range of geo-climatic variations that we have in India.

Adaptation to local specificities appears to pose a formidable challenge to the architectural profession in that it becomes difficult to conceptualise an appropriate educational curriculum, which would provide an answer to all needs. But this is not really the case since we are by no means writing on a clean slate. There is a wealth of indigenous architectural knowledge, which can be gainfully tapped. The example of *vaastu shastra* springs readily to mind and there is evidence that it is being rediscovered in various parts of the country. However, *vaastu* too is codified knowledge and, although more appropriate to Indian conditions perhaps than western concepts, it has similar limitations in its application to the diverse local conditions. The solution, I believe, is to draw upon the vast amount of local indigenous knowledge and practices, which may not be codified and documented but whose examples and even practitioners are to be found across the length and breadth of this country. It must be realised that centuries of adaptation to local conditions through both trial and error and rigorous empiricism have generated wisdom and skills, which cannot entirely be substituted by advanced science and technological development.

This is not to mean, however, that the traditional designs, materials and methods cannot be improved upon. They can, and they must. Our indigenous architects and artisans were forced to work with the limited science at their disposal and with materials that were readily

available at hand. In addition, notions of aesthetics and utility have undergone significant change over the years and it would be futile to pretend that they can be readily reversed. The short point that I would like to make is that as we move to a more adaptive notion of architectural design, we could do a lot worse than tap into indigenous knowledge and wisdom. This requires a certain degree of humility and intellectual flexibility, which must be inculcated as an integral part of our professionalism.

Let me move briefly to the central theme of this Seminar, i.e. environmental sustainability and energy management. There is no doubt that much of our environmental damage can be traced directly to excessive use of energy, particularly fossil fuels. It is therefore entirely appropriate that energy conservation should be the focus for habitat design. This is a highly technical field and I am sure that I can add but little to the collective knowledge that is before me. I would only like to bring to your notice two issues, which I believe to be of some importance. First, assessment of energy inputs in building and construction must take both a life-cycle and a life-style view of energy usage. For instance, such an assessment must begin not only with the nature and source of the building materials but also with the amount of energy that is used in procuring that material. Similarly, cognizance should also be taken of the fact that buildings are durable in nature and the life-styles of its occupants are likely to change over its life-time. Thus what may be energy-conserving for a particular standard of living may not be so as the economic status of the occupants improve. This is not a trivial task and presents a challenge to our creativity and imagination.

Second, while it is well accepted that the environmental effects of different sources of energy are very different and all efforts need to be made in minimising the use of non-renewable energy sources, particularly those which also tend to be highly polluting, advances in technology and in resource management are rapidly changing the nature of the decision criteria. For instance, wood and bamboo have been prime candidates for exclusion as building materials in India because of the severe ecological damage that has resulted from

indiscriminate felling of forests. This, however, could change with improvements in social forestry and perhaps even in commercial forestry in the future.

Finally, I would like to draw your attention to the fact that the most compelling environmental problem in India is not so much energy, which is certainly important, but water. Studies indicate that at current rates of growth of population and per capita water consumption almost all the urban agglomerates in the country will face acute shortage of even drinking water within the next decade. Architecture and building design must take into account this reality, since methods of augmenting urban water supply are limited and recourse will have to be taken to developing suitable water harvesting and recycling systems within the design of urban habitats. In this area too there are indigenous practices and experiments, which can be studied and improved upon. I would earnestly request this august gathering to expand the agenda if possible and deliberate on this most pressing issue. Thank you.

** Inaugural Address at the Seminar on "Environmental Sustainability through Architecture and Energy Management in Building" held on April 26, 1999 in New Delhi*

STRENGTHENING TIES WITH ASEAN COUNTRIES*

The India-ASEAN Eminent Persons Lecture Series was launched in December 1996 with a Lecture by Hon'ble Dato Seri Dr Mahatir Bin Mohamad, Prime Minister of Malaysia. Since then we have had seven lectures in India under the series by very distinguished personalities from the ASEAN countries. From the Indian side some of our leading scientists and thinkers like Prof. U.R. Rao and Dr. R.A. Mashelkar have visited the ASEAN countries under this series.

These lectures are serving a very useful purpose of strengthening the linkages between India and the ASEAN economies and helping the opinion makers in the respective economies to acquire a better appreciation of the contemporary issues and the policy options open to the governments. The essence of the objectives of the Lecture Series is best summed up in its motto viz. 'Renewal and Symbiosis through Knowledge'. We in RIS are proud to be associated with this prestigious programme.

Dr Mohamed Ariff has chosen to speak on a very topical subject. The financial crisis of July 1997 that has affected some of the best performing Asian economies and its handling by different countries, in particular by Malaysia, have been a subject of intense debate. It has provoked a rethinking all around on the risks and benefits of liberalisation of financial and capital markets and of global integration especially in the developing countries. It has also highlighted the importance of prudent regulation of domestic financial and banking sector. Finally, it has exposed some of the weaknesses of the existing approaches to handle the crisis such as those enforced by the IMF.

The Malaysian experience of handling the crisis needs to be studied and analysed in great detail. This is because Malaysia has adopted an unorthodox approach for dealing with the crisis unlike other affected

countries that have followed the orthodox package of reforms proposed by IMF. The Malaysian approach has included the imposition of capital controls, although temporarily, and adoption of a fixed exchange rate regime. More importantly, it has also included lower interest rates and fiscal expansion or pump priming by the government, while belt-tightening measures and balancing of budget form the core of the IMF package. The Malaysian Government has also embarked on a comprehensive reform and restructuring of Malaysian banking and industrial sectors. The Malaysian approach provides an alternative way of handling the crisis to policy makers. In that context, I am sure that Dr Ariff's lecture and analysis would be found very interesting and useful.

It is relieving to note that the worst is over and Malaysia is slowly coming out of the crisis. Most other affected economies are also showing signs of emerging out of the crisis. It is good news for every one. In this globalized and increasingly interdependent world economy, fortunes of all the countries are linked. This is clear from the performance of the Indian economy over the past couple of years. India escaped a more direct effect of the contagion primarily because of our cautious approach to liberalisation of the capital account. Nevertheless, the growth performance of the Indian economy has been adversely affected by the crisis in a number of respects. The East Asian countries are our important trade partners and our exports to the region have been affected by the turmoil. The affected countries have also emerged as important sources of foreign direct investment (FDI) inflows in India over the 1990s. A decline in the FDI inflows to India in the past year is to some extent due to the crisis in the East Asian countries. Finally, the substantial depreciation of the East Asian currencies over the past two years may have caused problems of competitiveness to some of the Indian goods that compete with the East Asian supplies in the world markets. A rapid recovery of the affected economies is, therefore, to be welcomed as it will bring prosperity all around.

The crisis has also underlined the importance of international co-operation to build a new international financial architecture for

preventing the re-occurrence of such a crisis. The challenge is to evolve mechanisms to facilitate longer term and more stable forms of capital inflows to developing countries. The excessive volatility of capital movements needs to be curbed either through an international intervention or by the host government policies. There is a need for greater co-operation in money and finance in Asia. We should seriously consider the proposal of setting up an Asian Monetary Fund (AMF) that was first proposed by the Japanese Government in 1997. The AMF could monitor the region's economies and provide early warning to respective governments on any impending crisis. It could also provide speedy assistance to deal with the crises in their early stages so as to prevent them from spreading. The AMF could also be a significant step towards decentralisation of international monetary and financial decision making that is presently concentrated in Washington, D.C.

Besides sharing mutual experiences in crisis management, we in India wish to build on our centuries-old cultural links with the ASEAN countries and intensify our co-operation with them as part of a policy adopted a few years ago, which has come to be known as the 'Look East' policy. We wish to share experiences, technology, capital and markets with ASEAN countries in a mutually rewarding manner. India is now a Full Dialogue Partner of ASEAN and is also a member of ASEAN Regional Forum. A structured programme of co-operation between India and ASEAN has started through Joint Co-operation Committees, Working Groups on Trade and Investment, Science and Technology, ASEAN-India Business Council and Task Forces on Human Resource Development, Tourism, Information Technology and frontier Science and Technology. The India-ASEAN Eminent Persons Lecture Series is also a part of this process.

In the context of the East Asian crisis, India has offered a package of measures to help the ASEAN countries facing the crisis. This includes continued and liberalized market access, credits—both government to government as well as from EXIM Bank—to deal with transitional liquidity problems, counter trade and non-dollar based trading arrangements with affected ASEAN countries and a significantly

increased technical training and HRD assistance. India has also resisted the temptation to undertake competitive devaluation of rupee in order to regain our international competitiveness. We, at the RIS, firmly believe that the economic co-operation among developing countries in Asia could help in rapid recovery of the affected economies. With these words, may I now invite Dr Mohamed Ariff to present his lecture.

** At a Lecture by Dr. Mohamed Ariff, Executive Director, Malaysian Institute of Economic Research under the India-ASEAN Eminent Persons Lecture Series held in New Delhi on May 10, 1999*

ISSUES IN INFRASTRUCTURE DEVELOPMENT*

Let me begin by congratulating the Institute of Cost and Works Accountants of India for organising a Seminar on the important subject of infrastructure. The availability of infrastructure like power, telecommunication and transport is absolutely vital for accelerated development and modernisation of a country. Our resolve for achieving a sustainable rapid growth in India is bound to generate heavy demand for infrastructure in the country.

The gains, which have been achieved by India in the provision of infrastructure services since Independence, have been impressive but not adequate. Traditionally, investment in infrastructure has mostly depended on public funding and has not been able to keep pace with the growing demand. This is a major challenge for the economy and a great opportunity for investors.

Infrastructure sectors may not always be an engine of growth directly but they are essential rails on which the wheels of economic progress can proceed with sustainable speed. Without a strong and viable infrastructure, it is difficult to achieve rapid and sustained growth of the order of 7 to 8%, which is necessary for progressively eradicating poverty. The task is not an easy one. For example, even though on paper the length of roads in India has increased eight-fold between 1950-51 and 1995-96, only 20% of the surface roads are actually in good condition as against 70% in Korea and 80% in Japan and USA. The rural scene is also not satisfactory. Of the nearly 6 lakh villages only 60 percent are known to be connected by all-weather roads. Even so, it is noteworthy that the number of bus passengers has gone up 13-fold during the last four decades.

Similarly, while the Railways have maintained their dominance in the transportation system in continental economies like USA, China

and former Soviet Union, in India they have yielded place to road transport so much that the share of road transport in freight traffic has increased from 11% in 1951 to 60% in 1996 and its share in passenger traffic has gone up from 32% to 80% during the same period.

Recognising the need to attract greater investment in infrastructure as a part of the economic reform programme initiated in 1991 India has gradually opened up the infrastructure sectors to private investment. In addition to providing an additional source of financing, the privatisation and deregulation have made possible the introduction of competition, thereby promoting improvement in efficiency and service quality.

Eight years after the initiation of reforms the Indian economy stands transformed to a great extent. The reforms have removed policy distortions and hurdles and improved access to factors of production such as technology and capital. The Ninth Five Year Plan has also given an important thrust to private sector participation in infrastructure. The measures taken by the Government include a series of tax and other concessions and simplification of regulations and procedures. Most foreign investment proposals are now automatically approved. Others are considered by the Foreign Investment Promotion Board within fifteen days of a proposal reaching its Secretariat.

In the telecommunication sector the investment made by the private sector has been quite impressive. There are 22 private companies offering cellular telecom services. A total of six privately financed independent power projects are in operation. There has been some private investment in the roads and ports sectors and a privately funded airport is also being developed.

Various assessments have been made about the investment required over the next decade to keep the development of infrastructure on track with the projected growth of the economy. The Expert Group on the Commercialisation of Infrastructure Projects estimated that to meet the projected demand growth (based upon real GDP growth

rate of 7% per annum up to 2000-01, increasing later to 8% by 2005-2006, India would need to invest a total of \$115-130 billion in infrastructure over the period 1995-96 to 2000-2001 and \$215 billion in the following five years. Keeping in view the demands of various priority sectors on the public exchequer, resources of this order cannot be expected to be earmarked for the infrastructure and, therefore, new ways and means of financing such projects will have to be explored.

As we are about to enter the 21st century we have a vision to connect Kashmir with Kanyakumari on the one hand and Saurashtra with Silchar on the other through well-developed highway systems. These North-South and East-West corridors along with a golden quadrangle linking Delhi, Mumbai, Chennai and Calcutta form the National Highway Development Project. This integrated project is being taken up for development on a priority basis. The large volume of investment for this project is proposed to be financed partly by levy of a cess on fuel and partly from budgetary funds or private funding. We also propose to upgrade at least five airports to international standards. Steps have been taken to corporatise major international airports so as to facilitate the flow of funds for their development.

A Task Force on Infrastructure has been constituted under my Chairmanship with the prime objective of attracting investment to specific projects of national and regional importance. To begin with the Task Force would concentrate on the implementation of the above mentioned projects.

The crux of the problem lies in not having adequate resources for strengthening the infrastructure. The main difficulty is that unlike commercial projects, infrastructure development projects are quite often not bankable. In order to achieve the desired levels of investment, both public and private, in infrastructure, it is important that the issues of appropriate pricing and cost recovery are tackled at the earliest. Appropriate pricing policy enhances the resource availability with the public authorities for undertaking maintenance and upgradation of

the existing facilities and providing resources for fresh investment. At the same time it makes infrastructural projects viable and attractive for the private sector.

In the Planning Commission we have made it a point to refer to this aspect during my discussions with the State Chief Ministers in order to ascertain what the State Governments are doing with respect to rationalisation of tariffs for power, transport, irrigation, etc. It is encouraging to note that most of the State Governments have responded positively, and some have already initiated steps in this respect. Currently, the States are busy signing Memoranda of Understanding with the Union Finance Ministry detailing the various measures they plan to take to improve their finances in the medium term. We are also preparing a new initiative for monitoring the progress of these reforms.

Another important aspect is to keep in view the legal impediments to privatisation or outsourcing many of the services traditionally provided by the State. The labour laws, for example, forbid the engagement of contract labour in perennial services and judicial pronouncements have strengthened these legal provisions. The time has come to examine whether these provisions are coming in the way of efficient construction and maintenance or flow of investment.

However, reforms in infrastructure development can come about only with adequate safeguards for the labour force and the extent of privatisation will vary from sector to sector. While it has been quite easy to farm out cellular telecom services to private companies, it may not be that easy to streamline the State Electricity Boards and privatise some of their operations or offer "concessions" and "maintenance contracts" in respect of roads or urban water supply schemes.

Infrastructure is critical for economic growth. Its development is a matter of national priority. It is to be hoped that with a proper policy focus, an integrated approach and a pooling of public and private resources there will be a major thrust in all infrastructure sectors.

With their wide experience in the field of industry and commerce the cost and work accountants have an important role to play in helping to develop a cost-effective infrastructure. I have no doubt they will do their bit in accomplishing this task.

I am sure that the deliberations in this Seminar will provide a clear understanding of the issues and facilitate the formulation of policy initiatives for the development of infrastructure facilities in the next millennium.

** Inaugural Address at the Seminar on 'Infrastructure - Managing Change in Next Millennium' organised by Institute of Cost and Works Accountants of India on May 14, 1999.*

LAND TRANSPORT FACILITATION*

Ladies and gentlemen, it gives me great pleasure to be with you all at this National Workshop on International Conventions on Land Transport Facilitation.

You are aware that reductions in cost and improvements in efficiency of transport and communication systems the world over have made a significant contribution to facilitating cross-border movements of commodities, services, finance and factors of production. It is now widely accepted that the growing international co-operation between countries is a positive development because the resultant increase in trade leads to a higher GDP growth in all the member countries of the trading arrangement. This, however, calls for availability of a modern, efficient and reliable transport system, which can meet the large and complex requirements of such an arrangement. There is, therefore, a need for the policy-makers to keep the regional and international perspectives in consideration while planning the domestic transport network.

Even as the availability of adequate transport infrastructure is a necessary pre-requisite for promoting cross-border movements, considerable scope exists for further cost reduction and efficiency improvements through the introduction of new technologies and mitigation of non-physical barriers such as customs and visa formalities, regulations on transshipment of goods, vehicles in transit etc. The impediments that exist in several forms include variations in the design standards of roads and bridges and differences in the gauge size in rail tracks across the neighbouring countries. There are variations in domestic regulations on vehicle dimensions including the weight and loading, which affect the overall loads on the vehicles. The safety issues relating to road-worthiness and technological standards of the vehicles are other impediments to free flow of international traffic.

In order to ease the flow of traffic the trading procedures will have to be streamlined. There is a need for rationalisation, simplification and standardisation of the procedures and the documentation system for reducing the costs related to procedures. What is needed is a systematic and concerted common effort to standardise and harmonise the documentation procedures and increased co-ordination among the countries in inspection and control measures to reduce the processing time. Uniform traffic rules and regulations, besides proper road signs, will have to be considered for facilitation of land transport.

While it is a fact that trading arrangements greatly differ in their scope, coverage and motivation, it is important to bear in mind that there cannot be a "one-size-fits-all" model. Nevertheless, over the last decade or so some common features have emerged. Perhaps the most important of these, particularly in the light of the increasing significance of international investment flows, is the need to not only put the right policies in place but also to provide certainty and credibility to the direction of future policies. In practical terms, this means that it may not be always possible for countries to fashion a regional trading arrangement, which contains all the elements necessary to make it a success. Social, cultural, economic and, above all, political constraints often stand in its way. A good example of this can be found in South Asia.

It may not, however, be possible to fashion complete solutions from the very beginning. These need to evolve. In the interim period it is important to look for partial solutions. I am happy to say that South Asia has begun doing just that instead of waiting for a grand solution to emerge.

One important landmark in the field of international road transport network is the Asian Highway Project. India is a founder Asian Highway member-country since 1959 and has actively participated in the development of the Asian Highway and facilitation of international land transport. It has unequivocally supported the Asian Land Transport Infrastructure Development (ALTID) project, which was endorsed by the ESCAP at its 48th Session held in 1992. There

are two Asian Highway routes in India. One is A1, 1995 km long, which starts from the Pakistan border at Attari and terminates at the Bangladesh border at Petropol after covering Amritsar, Delhi, Agra, Kanpur, Varanasi, Barhi, Raniganj, Asansol and Calcutta. The second is A2, 328 km long, which starts from Delhi and enters Nepal at Banbasa via Ghaziabad, Hapur, Moradabad and Rampur.

South Asia is rich in natural and human resources. As a result, there exists considerable potential for developing these resources and widening the market opportunities through increased co-operation. There is a need to strengthen and expand the transport infrastructure along the corridors linking the countries, both within the region and with the rest of the world. But, more importantly, the focus now has to be laid on initiating measures for mitigating the non-physical barriers. This, however, requires an increased awareness of the benefits of their removal and political commitment to carry through the required measures.

The wisdom of fostering mutual co-operation among the developing countries becomes even more manifest when it is recognised that not only do all these countries face common problems but the policies and strategies followed by them and the major goals each of them is professedly striving for are virtually identical. The goals are to eliminate poverty, improve the quality of life and promote technological transformation and structural changes with the objective of harnessing the natural and manpower resources to their best advantage.

A number of studies of the South Asian region have shown that there are ample opportunities for economic co-operation among the countries in the region. There is thus a strong case for expansion of trade among the countries in the region. But a basic pre-condition for this to happen, assuming general political sanction, is the development of an accelerated and sustainable transport and communication network. Fortunately, regional trade in South Asia has started receiving greater attention with the creation of SAARC Preferential Trade Agreement (SAPTA).

But this is not enough by itself. South Asia has, by and large, adopted conservative trade and transit policies. Consequently, the documentation and the procedures are restrictive, complicated, cumbersome and time-consuming. These act as disincentives to the traders, add to the cost and make trade less competitive in the global market. In this scenario there is clearly an urgent need to rapidly promote the active functioning of the South Asian regional trading arrangements as embodied in the SAARC for addressing these problems.

I trust that you will be able to arrive at an agenda for transport and transit facilitation, which increases the social and economic welfare of the people of South Asia. I am sure that the deliberations of this Workshop will throw up positive and practical suggestions, which would help countries in the SAARC region towards facilitation of land transport with the objective of promoting mutual trade arrangements.

It is now my pleasure to inaugurate this Workshop on Land Transport Facilitation. I wish you every success in your deliberations. Thank you.

** Inaugural address at the National Workshop on "International Conventions on Land Transport Facilitation" held on May 19, 1999 in New Delhi.*

IMPLICATIONS OF TRIPS*

It is a matter of great pleasure for me to inaugurate this one-day Symposium on intellectual property rights.

During the decade of the 90s we have witnessed major changes in the world economy. One development that has contributed to the changes is the Final Act signed at Marrakesh in April 1994 on the conclusion of the Uruguay Round of Trade Negotiations establishing the World Trade Organisation. This has been a major step in the process towards globalisation of world trade and strengthening of the multilateral trading system.

I am glad that Chemtech Foundation has organised this one-day Symposium on one of the major WTO agreements, i.e. the agreement on trade-related intellectual property rights (TRIPS). In recent months we have signed the Patent Co-operation Treaty (PCT) and issued the Patent Amendment Rules and the Parliament has passed the Patents (Amendment) Bill. I hope the experts will analyse in detail the implications of these steps taken towards meeting our international commitments in this important area.

The *raison d'être* of protecting intellectual property rights (IPRs) flows from the natural law that a person creating a right owns that right. While international co-operation in recognising, protecting and enforcing intellectual property rights dates back to 1883, TRIPS is a phenomenon of recent origin.

You are well aware that at the initial stage of the Uruguay Round India strongly resisted the move to impose any major discipline on TRIPS. This was partly because we opposed restrictive and anti-competitive practices that curbed free flow of technology and partly because the norms and standards of protection envisaged in the TRIPS agreement in certain cases were significantly different from our own.

In essence our basic objection was that India's substantive norms and laws were not negotiable. However, of all the seven categories of intellectual property covered by the TRIPS agreement it is only in the area of patents that the norms and standards of protection envisaged in TRIPS agreement were significantly different from our own policies, laws and regulations. It is, therefore, somewhat unfortunate that we have created an impression in the world that India does not believe in, or respect, intellectual property rights, more so as we claim to possess the second largest reservoir of scientists, engineers and skilled technical manpower in the world. The rest of the world finds it difficult to understand the dissonance between the assertion of our brain power strength and our aversion to the protection of intellectual property.

More over, the legal rights and obligations arising from the TRIPS agreement should not be seen only in terms of their being a burden on our society. For example, protection of intellectual property in software, sound recordings, films, literary works, geographical indications and protection of bio-diversity are widely recognised as being beneficial to Indian interests. While our legal standards are already up to international norms in the case of several of these, the Government, prior to its fall, was to introduce a Bill before Parliament to provide protection to geographical indications and bio-diversity. The legal framework for providing IPR protection to these two could help us to achieve some important national objectives, an issue that I shall later address in greater detail.

Some of the main issues that suggest themselves for discussion in this Symposium are as under: product patents in all fields of science and technology; uniform term of 20 years for all patents; protection of micro organisms and new varieties; the nature of exclusions needed in the IPR regime; and difficulties in implementing the provision on compulsory licensing.

The provisions of the TRIPS agreement have to be adhered to by 2005. The Patents (Amendment) Bill, 1999 allows exclusive marketing rights (EMR) to foreign drug and agro-chemical companies. The Bill incorporates necessary safeguards relating to pricing,

compulsory licensing and powers to revoke EMR licences. The Government is aware of the need to restructure the pharmaceutical industry before product patenting is taken up in this sector. At the same time corporate governance in the pharmaceutical sector needs to take note of these developments.

It needs to be recognised that pharmaceutical products have a dimension beyond mere commercial production and sale of a product. The intrinsic link between pharmaceuticals and life introduces an ethical dimension, which has very strong emotional overtones. In such a situation if an adequate IPR regime is perceived to be detrimental to social well-being there is likely to be a surge of public opinion, which may be difficult for national governments to resist. In order to forestall such an eventuality it is imperative that pharmaceutical manufacturers recognise their social responsibility and the unique nature of their products. There is already considerable discussion around the world on issues of corporate governance and more particularly of corporate ethics. I believe that the pharmaceutical industry should take a lead in these debates in order to convince the society at large that they are aware of their social responsibility and are committed to evolving standards of behaviour, which would give meaning to this concern. I firmly believe that unless the campaign for better IPR protection is combined with a determined and well-publicised campaign of corporate ethics, the longer-term development of the industry may be in jeopardy.

The Symposium must also address the practical problems involved in implementing the provision of TRIPS, as well as our procedures, which create obstacles for our scientists to obtain IPR at home or abroad. The compulsion for bringing in the TRIPS in the Uruguay Round, even though at the initiative of the industrialised countries, is understandable. The increasing role of science-based industries in agricultural and industrial production and the growing challenges of environment management mean that it has become necessary to impart dynamism to the functioning of R&D laboratories. This calls for a more vigorous effort not only for generating technologies but also protecting them from being copied or piracy. However, the huge gap in technology development between the developed and the developing countries and the restrictions imposed on technology

transfers by the former call for review of TRIPS so that binding commitments in favour of the latter group of countries are possible. This in effect means giving teeth to Article 67 of the TRIPS agreement, which provides for technology transfer to developing countries. In this context I would like to quote the WTO agreement on TRIPS that "would provide technological and financial co-operation in favour of developing and least developed country members" [Article 67]. The main issue relevant for us is how governments of developed countries would ensure that the technology available with private firms is made available to the developing countries that seek it. In many instances even compulsory licensing cannot adequately address this problem. This is particularly true of situations, in which it is not easy to efficiently copy and operate any particular technology and the co-operation of the technology owner is needed for its proper use.

Unfortunately, there is a growing feeling among the developing countries that the special and differential treatment that has been proposed under the various WTO agreements has not been given full effect. Indeed, the impression is that there are efforts to dilute and undermine these special provisions. This view also applies to the provisions of Article 67. So long as Article 67 remains only a statement of intent without combining modalities for its operation, the implementation of Uruguay Round would remain incomplete. In such a situation it would be problematic to proceed with the millennium round since the new round cannot properly take place when the commitments of the previous round have not been implemented in their entirety.

Then there are important issues pertaining to patenting of micro-organisms under Article 27.3 of TRIPS due for review this year. This article is the first step towards patenting life forms. It may be mentioned that hitherto bio-technological inventions were excluded from patentability. The implications of a move towards accepting patents for plants or plant varieties could be far-reaching for genetically diverse and rich countries like India. The extension of patent protection over the plant kingdom would have several implications.

There are three major areas of concern to us relating to IPRs on biological material. The first is how to strengthen the provision of geographical indication with a view to protect our traditional products

such as basmati rice, Darjeeling tea, varieties of mango and leechi etc. The use of the term 'Basmati' for rice grown elsewhere is an infringement of geographically indicated rights of India and Pakistan where the traditional variety of that rice is grown. We may have to take appropriate action to retain our rights over our traditional varieties.

Secondly, the patenting of micro-organisms like bacteria, algae, fungus and virus may have far reaching consequences as it may affect our ability to develop bio-fertilisers and bio-pesticides. This is an issue, which deserves further examination.

Thirdly, in pursuance of a *sui generis* system for the protection of plant varieties, the basic objective of retaining our rich bio-diversity should be kept in view. For this, we should follow a system, which ensures promotion of high-quality seeds and planting materials with a broad and diverse genetic base, stimulation and diffusion of R&D and recognition of the rights of farmers, breeders and researchers.

These are critical issues, which the Symposium must address. Answer to these issues will also help in meeting the requirements of a stronger patent regime whether coming through WTO agreements or through the Patent Law Treaty currently being negotiated. What needs to be kept in mind is that biotechnology has progressed in much the same way as most of the technologies of the earlier vintages and that there remains a huge imbalance in the generation of technologies as between the developed and developing countries. Biotechnology in fact covers a span of economic sectors such as mining, feedstock chemicals, energy, pharmaceuticals, enzyme-mediated processes and agriculture. It may constitute a majority of the global GDP in decades to come.

Bridging the technological gap is of the foremost concern to the policy makers in our country. Earlier, we made attempts to bridge this technological gap by adopting a process patent regime covering pharmaceutical and agro-chemical industries. The principal motivation in doing so was to encourage the development of indigenous technologies in these areas. The TRIPS agreement, however, no longer allows continuation of an exclusive process patent regime in selective fields. This implies that even if innovative processes are developed for

the production of specific products, which may be under patent protection, the production of such products would be deemed to be a violation of patent rights. Process patents have, in fact, been further discouraged through the use of the provisions on reversal of burden of proof.

India's rich bio-diversity is a great asset not only for her growth process but also for the environment world-wide. Regrettably, attempts have been made in the recent past, particularly in some western countries, to take away our inherent property rights by grant of patents on products-such as rice and turmeric powder. While we did win the case of turmeric powder and got the patent granted in USA cancelled, we had to incur a cost in the litigation. Since many more such cases may come up in future, we have to take effective steps by which our inherent rights in the public domain are not violated. I feel the basic step in this direction is to inventorise our rich bio-diversity and protect our traditional medical systems.

Only recently we, in the Planning Commission, met various experts and decided to set up a Task Force to co-ordinate the efforts made by different agencies with regard to inventorisation, development and conservation as well as cultivation of medicinal plants. This Task Force will also prepare an Action Plan to increase India's share in the global trade in medicinal plants as well as take steps for legal protection of IPRs in respect of medicinal plants.

Protection of our rich bio-diversity does not mean any weakening of support to technological development in critical areas like agriculture. Our scientists have achieved a remarkable degree of success in this area but at the same time we have encouraged international co-operation in technology transfer. The critical question is whether we should allow large-scale entry of multinational companies engaged in genetically engineered seeds. This issue needs to be debated dispassionately.

Our policies must be geared to achieve higher efficiency and productivity across the sectors. As I have mentioned, the trade-related aspects of intellectual property rights are of critical importance, as our

decisions in this area would have a significant bearing on our development process. At the same time, certain developments are now taking place, which point to the possible emergence of an even stronger international regulatory mechanism. Similarly, our increasing inter-linkages with the emerging regime would require urgent steps to enhance our competitiveness across the sectors.

In the international arena, the most worrying aspect is the continuation of a receding growth rate of world output from a high of 4.3% in 1996 to 2.5% in 1998 and a projected 2.3% in 1999. As we are marginal exporters, these trends are going to put further pressure on us as the developed countries are increasingly resorting to protectionism through measures such as anti-dumping. In the backdrop of such an international economic scene, the third Ministerial Conference of WTO will be held in November 1999, even though there is no clear consensus on a long-term agenda or on the so-called Millenium Round. Issues concerning TRIPS along with negotiations on Agreements on Agriculture and Services as well as trade-related aspects of investment, competition and environment, will be coming up for discussion.

The immediate challenge before us is to strengthen our industry to meet the WTO requirements of removal of quantity-based restrictions on our imports. Our skepticism about the so-called Millenium Round arises primarily because India is still coping with the results of the Uruguay Round as in the case of our import regime.

Our industrialists, scientists and intellectuals, many of whom are present here, must provide concrete suggestions to the policy makers on these aspects of our international engagements. We have to put our act together and come up with major second-generation reforms to meet the new challenges before us. I wish the Symposium all success.

** Inaugural address at the Symposium on Intellectual Property Rights held in Mumbai on May 21, 1999*

PLANNING IN THE NEXT MILLENNIUM*

I am indeed very happy to be invited by the All India Association of Industries to speak on this very important topic of "India's Planning in the next Millennium." The issue is important not only for the Indian economy in general and the Indian industry in particular but also for the whole world since large developing countries such as India and China are destined to play a major role in the world economy in the next century.

As you may be aware, the Ninth Five Year Plan received the approval of the National Development Council on the 19th of February this year. The development strategy and policies outlined in the Ninth Plan document will see the country into the early years of the next millennium and, I am hopeful, perhaps even longer. It has been particularly gratifying to me that the Ninth Plan document has received unqualified support from practically all the political parties, indicating a convergence of views on developmental issues across a wide ideological spectrum.

However, in recent years planning has come under attack from a number of quarters. Much of the criticism, I believe, is misinformed since it represents not a criticism of planning *per se* but of a particular form of planning, namely, investment planning, whereby the government determines the quantum of investment that will go into any sector or even industry. The argument appears to be that the central planners are less competent to take, and direct, investment decisions than the entrepreneurs operating under the discipline of market forces. While this view is certainly true at the present stage of development of the Indian economy, there are two points that need to be made to place the issue in perspective.

First, it needs to be realised that investment planning in its pristine sense has not existed in India at least for the last fifteen years when

the dilution and eventual dismantling of the licensing regime was initiated. Secondly, investment planning in the sense of working out the investment requirements of different sectors of the economy in order to ensure inter-sectoral consistency continues to be valid and will be so until such time as India becomes a capital surplus country and the importance of public investment diminishes significantly. Indeed, the experience of the past two years has underscored this point quite effectively and the criticism of planning and public investment appears to have become considerably more muted. Moreover, our experience at the Planning Commission indicates that the single largest user of the Plan projections is, in fact, the private corporate sector, which recognises the value of sectoral forecasts made in a consistent, economy-wide framework for its own investment decisions.

This is not to say, however, that the planning methodology should not change so as to reflect the new economic realities and the emerging requirements. It must, and it will. A significant beginning has been made in the Ninth Plan document itself. In sharp contrast to the past, the Ninth Plan does not lay down investment patterns in a deterministic manner. It indicates the sectoral investment requirements, the investment that is likely to occur and thereby the areas, which may receive excessive or insufficient resources. Such an analysis focuses attention on the sectors, which require policy change in order to achieve the desired targets. To my mind this approach is what policy planning is all about. In future years this approach will need to be strengthened and made more precise and accurate.

The other principal function of planning in a federal system is to evolve a shared vision of, and a shared commitment to, the national objectives and the development strategy not only in the Government at all levels but also among all other economic agents. No development strategy can be successful unless each component of the economy works towards a common purpose with the full realisation of the role that it has to play within an overall structure of responsibilities. This function will always remain valid and its proof is that there is no

country in the world, which does not have such a vision articulated at the highest level of government.

The third function of planning, which needs to be recognised, is that in a dynamically evolving world the conditions change continuously and the development strategy also has to evolve in a consistent and pro-active manner. This can only be done through a system, which tracks the emerging trends both in the international and the domestic economies, analyses the opportunities and dangers and indicates the direction for policy change.

As we prepare to move into the next millennium, one of the issues raised is whether there is still relevance for the Planning Commission in the new scenario or can the functions be carried out by some other agency. My answer would be that there are certain functions, which the Planning Commission is best equipped to perform. For instance, a body like the Planning Commission is required in order to address the national objectives of poverty alleviation, population control, employment generation and balanced regional development in a holistic manner. Leaving these issues to the sectoral Ministries runs the danger of the inter-linkages and synergies being overlooked. The Planning Commission is also best equipped to evolve a long-term economic strategy for the development of the country. At present it is trying to work on a Vision 2020 Document outlining the priorities for the country in the next century.

Another area where the Planning Commission is relevant is in co-ordinating the economic activities of the Central and State governments and among the Central ministries. There is no other agency, which is better equipped to play this role. As you may be aware the Government of India is now signing agreements with the State governments under which the States agree to a programme of restructuring their finances to make them better equipped to meet the challenges and financial requirements of the future.

Let me now turn to what I perceive to be the major planning issues that are likely to arise in the next millennium. First, it is quite clear that the single biggest challenge to Indian planners and policy makers

at least for the first decade of the next century will be to provide employment to a labour force, which is growing faster than ever before. The demographic projections made for the Ninth Plan indicate that although there is likely to be a steady reduction in the rate of population growth in the country, the growth rate of labour force would attain a historical peak during the Ninth Plan period at about 2.5 per cent per annum and decline only gradually thereafter. This increase in the labour force originates from the high rates of population growth experienced in the late 1970s and early 1980s. The growth rate of the labour force needs to be seen against our past record in creation of work opportunities. During the 1980s and early 1990s the average rate of growth of employment, which is a proxy for work opportunities, has been around 2 per cent per year. Therefore, if the past trends in work creation continue into the future the country faces the possibility of adding about 20 lakh people to the ranks of the unemployed each year. Such a situation is clearly insupportable. As we are all aware, unemployment not only entails high human costs but also imposes significant costs on society in terms of social unrest and deterioration of law and order. It should be realised however that creation of work opportunities by itself would not solve the problem of poverty. It is imperative that the productivity of our labour force, particularly in the traditional occupations, such as agriculture, increases sufficiently in order to provide adequate incomes to the people employed. The area of central focus for ensuring such rates of productivity growth has to be technology. While it is accepted that the Government may not be the best judge of technological requirements of the country and that these decisions should be left to the private sector, there are areas where there may be no alternatives to government intervention. Agriculture technology is clearly one such area. In addition, it is also clear that the environment for technology development by the private sector is inadequate. It would be too much to expect dramatic increases in innovation in the absence of a conducive policy regime. The planning system will have to get actively involved in developing such an environment even though the actual technology development would be through private initiatives.

Another major planning issue, which has received less than adequate attention so far, is that of the environment. This is an area where the market not only has failed all over the world but has even led to perverse outcome. Public intervention is of the essence. In this case too it is preferable to integrate the policies for preservation of the environment with the overall development strategy rather than treating them in a compartmentalised manner. There are too many instances where environmental regulations have retarded development and *vice versa*.

Another area, which will have to be of prime concern for planners in the next millennium, is the integration of the domestic financial system with the international. The developments in the western countries are such that the number of people dependent upon past savings will be going up rapidly in these countries. As a result, the availability of investible capital will far exceed the ability of these economies to absorb their productivity. Such resources will have to find productive use in the developing countries, which would have a higher proportion of younger people. As the Indian financial sector becomes more integrated with the global system, the pressures on the system are likely to increase. Therefore, although there will be vast opportunities in terms of availability of external capital, there will also be serious threats to the stability of the financial system. The dangers that are present can be seen from the disruptions that have taken place in East Asia during the last two years.

Finally, the next century will also witness changes in our own demographic structure. As our rate of population growth declines, the percentage of old people in the population will go up. In such a situation it will be imperative for us to devise systems of social security, which can sustain this demographic profile. At the moment insufficient attention has been paid to this issue. We continue to rely extensively on the support structures provided by families. While this is certainly to be preserved and strengthened, we would also have to consider devising suitable formal structures of old-age support to take care of those who may be excluded. While this possibility may seem remote in terms of time, it needs to be understood that social security systems

also need a considerable period of time before they can be established in a manner, which is self-sustainable. This would be particularly difficult for us in view of the fact that the developed western countries would have reached this stage considerably long before us and, as a result, there may be severe competition for the limited investment opportunities that may exist.

It may therefore be appreciated that the coming millennium holds several challenges, which we will have to meet through suitable evolution of our development strategy. Such an evolution is unlikely to happen by itself and would require a strong and technically competent planning system, which can look at the issues in an integrated manner.

** Address at a meeting organised by All India Association of Industries in Mumbai on May 21, 1999*

LESSONS FROM EAST ASIAN ECONOMIC CRISIS*

The growth experience of the East Asian economies during the past two decades has significantly changed the perceptions on development theory and practice world over. The considerable body of literature, which has come up in just two years on the so-called "East Asian meltdown", is rivaled only by that which earlier sought to analyse the "East Asian miracle". There is no doubt that our knowledge of development theory and practice is richer by these contributions. It is, however, ironic that our gain in knowledge has been at the cost of immense human suffering that has been experienced by the people of these countries. It would be a travesty if this suffering is left to be in vain and we do not draw the lessons, which would prevent its recurrence in any part of the world. It is in this context that I wish to commend the ILO for organising this Workshop.

The issues arising from the East Asian crisis appear to fall into two broad categories, namely (a) identifying the causes of the crisis and the transmission mechanism and (b) evaluating the nature and appropriateness of the response to the crisis, both national and international. These are certainly important issues in that they lay the groundwork for devising systems and structures, which could prevent recurrence. However, although I am no expert in these matters, it appears to me that there is certain incompleteness in the analyses that have come to my notice. I would like to take this opportunity to place my misgivings in front of this distinguished gathering of economists and experts.

In the first instance, it appears to me that there has been an excessive focus on the role and structure of the financial sector as the principal causal factor in the crisis and in the transmission mechanism. Unbridled flows of short-term capital and "crony capitalism" appear to have been identified as the two main culprits. While this diagnosis may be

correct, I am not certain that there are too many lessons to be learnt by us in this regard. As far as short-term capital flows are concerned, the dangers were brought home to us starkly during the crisis that we faced in India during 1990-91. It may be recalled that the Gulf War triggered off an outflow of short-term debt from India in late 1990 and early 1991, which precipitated a serious balance of payment crisis. At that time the only feasible response was a severe compression of imports through administrative measures. The resulting recession was extremely painful and we have learnt our lesson well. Today there are strong controls on short-term debt and certain limitations on the inflow of foreign portfolio investments. The experience has also raised doubts in our mind regarding the desirability of moving to capital account convertibility at our present stage of development and preparedness. Indeed, it can be postulated that if other countries had learnt from our experience the East-Asian crisis may not have been as severe.

As far as "crony capitalism" is concerned, it is extremely difficult to determine where selective promotion of economic activities and sectors ends and where "crony capitalism" begins. Although orthodox economics suggests that the selection of sectors of focus should be left to the market, the East Asian miracle, including that of Japan, appears to suggest otherwise. The adverse impact of "crony capitalism" lies not so much in the selectivity that is involved but in the non-transparency that gets introduced in the operation of the financial system. In any case, our attention had been drawn to the need for greater transparency and better supervision of the financial sector well before the East Asian crisis came into existence. The growing non-performing assets of our commercial banks and financial institutions were the primary factors in precipitating our financial sector reforms.

While the financial sector issues are certainly of importance and relevance, there appears to be almost a complete neglect of the issues relating to the "real" economy. A question that has been nagging my mind since the collapse of the East Asian economies is whether or not these economies grew faster than could be sustained. In other words, I have been wondering whether the high-growth strategy of these

economies contained the seeds of its own destruction. It appears to me that any high-growth strategy would need to be predicated on rapid growth of demand. If excessive reliance were to be placed on domestic demand, it is very likely that the country would run high current account deficits, which would sooner or later become non-sustainable. This was a feature of the Latin American debt crisis of the early 1980s.

In contrast to the Latin American story, the East Asian growth strategy was based on high rates of domestic saving, with the principal source of demand growth being exports. However, it appears to me that maintaining the growth rate of exports significantly above the growth rate of world trade may sooner or later become difficult. After all, while other countries may tolerate erosion in their market shares for some length of time, there is bound to be some reaction beyond a point. There is after all a certain element of "beggar-my-neighbour" behaviour inherent in a high export growth strategy and companies and countries, which are adversely affected, will eventually take steps to forestall further erosion. The resultant slow-down in the export growth is bound to have a backlash effect on the capacities that have been created on the assumption of continued acceleration of exports. At this point it may not be possible to reorient the production pattern to cater to domestic demand and recessionary conditions may set in. This seems to be at the root of the East Asian crisis.

One possible implication that arises from this way of looking at things is that there may be a maximum growth target, which can be sustained on the strength of domestic savings, a reasonable current account deficit and a rate of growth of exports somewhat above the growth rate of world trade. The question, however, is what happens if this rate of growth is insufficient to meet the pressing requirements of the economy, particularly in terms of employment generation. This is the context in which we find ourselves. The projections made for the Ninth Five Year Plan suggest that the growth rate of labour force will be around 2.5 per cent per annum for the next decade and more. At the present elasticities of employment creation the economy will need to grow at over 7 per cent per annum to absorb the emerging labour

force. Acceleration of growth is, therefore, a must for us and we need to develop a suitable strategy. There must surely be a middle path, which would blend a little bit of the two polar strategies and which can be sustained with a reasonable degree of confidence. This Workshop would have done a singular service if it can lay down the contours of such a middle path.

Nevertheless, all high-growth strategies are inherently risky and there is always the possibility of an external shock, which can destabilize the economy. The issue in such a situation is how we can minimise the impact on the workers. This is not only an ethical issue but an economic one as well. It appears evident to me that the severity of a recessionary cycle would be determined largely by the extent to which labour incomes are reduced either through reductions in the real wage bill or through lay-offs. Domestic consumption demand, which is significantly influenced by labour incomes, can lend a great deal of stability to an economic system if it is adequately protected.

However, it appears to me that there is also a trade-off involved in the issue of protection of labour. On the one hand excessive protection of labour can lead to rigidity in the labour markets and thereby reduce the ability of firms to adjust to changing market conditions. On the other hand insufficient protection to labour creates excessive vulnerability and can lead to the burden of adjustment being passed down almost entirely to labour. The East Asian experience has highlighted the ills associated with the latter but I fear that at least as far as the organised sector in India is concerned we embody the former. In fact, we may be suffering from the worst of both worlds in that we have segments of a labour market, which are excessively rigid, whereas the rest exhibit excessive vulnerability. There must surely be a middle path in this case too, which would reduce the sensitivity of the entire economy to external shocks through a reasonable sharing of the adjustment burden between labour and capital.

Labour regulations apart, protection of real wage incomes can also come about through a proper social security system. I would venture to guess that Singapore has come out relatively unscathed through the East Asian crisis because of its fairly comprehensive social security

system. This is an area, however, where there has been relatively little discussion and debate in the country. The issues are undoubtedly complex, since social security in such a scenario has to perform not only the role of an income annuity but also the role of insurance. In a situation where the domestic financial sector is vulnerable to external shocks even a fully funded social security structure may not be able to cope with the shocks, since even these funds would be affected by the problems of the financial sector. A risk minimisation strategy for social security funds in a relatively open economy would, among other things, involve diversifying the portfolio of such funds in foreign assets. Such a strategy would appear to have two problems. First, it may not be possible to permit such portfolio diversification in the absence of capital account convertibility. Secondly, under normal circumstances the outflow of investment funds would necessarily reduce the aggregate availability of investible resources in the country and thereby the growth prospects.

It is my belief that the nature and structure of social security systems for the developing countries during their period of high-growth strategy, along with its attendant risks, would have to be significantly different from the systems, which prevail in more mature and stable economies. I am not sure as to the exact nature of these differences but it would appear to me that the Government would probably have to play a much larger role than is commonly recommended by liberal economic thought. If this Workshop can throw light upon the role and nature of social security systems for economies in our stage of development, it would have gone a long way in removing an important lacuna in our knowledge.

I have tried to convey the concerns that are preoccupying those of us who are in the business of formulating economic strategies and policies for the country. I am certain that the deliberations of this Workshop will be of immense benefit to us and I look forward to the proceedings. I wish the Workshop all success in tackling an issue, which is both of great importance and eminently topical.

** Inaugural address at the Workshop on "Economic Reforms and Labour: Lessons for India from the East Asian Experience" organised by ILO in New Delhi on May 25, 1999*

FORECASTING THE STATE OF ECONOMY*

It gives me great pleasure to inaugurate this Seminar on "The State of the Indian Economy" organised jointly by the National Council for Applied Economics Research (NCAER) and the Confederation of Indian Industries (CII).

As we move progressively towards a more market-oriented economy, where decisions will increasingly be taken by non-governmental entities, the need for appropriate information will grow significantly. The development of the statistical system in India has been basically to cater to the information needs of government. There have been two broad dimensions to this. The first was the information primarily required for planning purposes, which did not require any great promptitude, and the second was the information required for exigencies, which were restricted to a few critical areas.

The market, however, requires data across a wide array of variables and with much greater frequency than what we have been accustomed to. Reorienting the statistical system to meet these requirements will be a protracted process and efforts are currently under way to do so. Certain kinds of information are now regularly available with greater frequency and shorter time lag than before. In particular, our decision to subscribe to the IMF's Statistical Data Dissemination Standards (SDDS), which requires quarterly data on the major macroeconomic variables to be published with no more than one quarter lag, has given considerable impetus to this change.

Even with the availability of better, more frequent and prompter data the market yet requires information on what is likely to obtain in the future. Most private sector companies in India do not have the expertise to make forecasts. Until quite recently, and even today to some extent, the main source of such projections were those made by

the Planning Commission. However, since the Planning Commission projections were done mainly for its own purposes, these forecasts were made for the medium term with little emphasis on short-run variations. In the absence of anything better the private sector had to make do with this information and carry out whatever adjustments they could with the information available with them. Things have changed now. As the extent of competition increases in the Indian economy, the private sector requires relatively accurate forecasts, which would take into account the various cyclical and seasonal variations that are inherent in the working of any market economy. Indeed, the Government too is recognising the need for such short-term forecasts. Sensitive handling of fiscal and monetary instruments for bringing about stability in the economy involves not only forecasts but also a methodology by which variations in different policy parameters can be assessed in terms of their macroeconomic impact. It is only by such means that the appropriate policy package can be fine-tuned.

It is in this context that I congratulate the NCAER for taking the initiative to bring out their estimates of the current state of the economy and its likely progress in the immediate future. I am aware of the fact that there are a number of similar initiatives that are being taken by different institutions in the country but this should not detract from the importance of the efforts made by NCAER. I do not think that the complexity of an economy like India's can be captured by any single model or methodology. There are also differences in the way that different economists view the working of the economy. As a consequence, it is both natural and desirable to have a multiplicity of efforts, which aim towards providing the decision-makers a range of possibilities within which the economy may operate.

It is not within my competence to deal with the pros and cons of the NCAER model in comparison to the other existing models. These matters best left to professional economists and eventually to the only real test, which is the test of time. I would, however, like to emphasise that a projection by itself has only a limited value to the decision-

maker. Economic forecasts are different from the astrological in that there is no deterministic relationship, which mandates the evolution of the economic future. All forecasts are necessarily based on a critical set of assumptions regarding a variety of parameters, some quantifiable and others not. Changes in any of these parameters are bound to change the trajectory of the economy and the value of any forecasting methodology lies in its ability to be able to indicate how the projections would change if the initial assumptions are altered in a specified manner. Therefore, I believe that efforts such as these will become meaningful only when the eventual users, namely decision-makers in both public and private sectors, demand alternative scenarios, which emanate from their own view of these critical pre-conditions.

One of the most critical assumptions, which underlie any economic model, is the nature of the markets that are involved and the kind of competition that exists. Until very recently, and perhaps even now, the characterisation of such issues was perhaps relatively simple in the Indian context. Although ours has never really been an autarkic economy, our interface with the international economy has been relatively limited. The high protective walls, both tariff and non-tariff, have insulated our domestic economy from any significant external influence. Our need for exports too has been constrained by our limited import requirements and by the nature of the external capital flows that were received in earlier years. Things, however, are now changing. On the one hand as a part of our economic reforms we have significantly reduced our tariff rates and our non-tariff barriers are also likely to be dismantled at the latest by 2003. On the other hand it is increasingly being realised that it would not be possible for us to attain and sustain real growth rates of GDP of above 7 per cent per annum without exports growing at almost 15 per cent per year. Thus, both the nature of the markets and the degree of competition are likely to change significantly in the coming years. Since much of this change is likely to be fairly sharp, I do not know the extent to which they would be amenable to being captured by models, which are based on past behaviour.

It is against this background that I particularly look forward to the second component of the Seminar, namely the analysis of the competitiveness of Indian business in the global market place. In the past, there have been numerous attempts in India to assess the competitiveness of different sectors of the Indian economy. Almost all of these exercises, however, have taken a somewhat limited view of the broader idea of competitiveness, namely competitiveness in cost. We recognise today that cost competitiveness is only one element and in certain cases perhaps not even the most important. Unfortunately, methodologies for evaluating non-price competitiveness are still in a relatively nascent stage. In addition, I believe that in a situation where there is likely to be a rapid structural change, a somewhat greater focus on qualitative and intuitive elements may yield better dividends than a high degree of rigour based on past experience. We in the Planning Commission have started the process of trying to assess the competitiveness of Indian industry in a broader framework but we have yet to hit upon a satisfactory methodology for doing so. I sincerely hope that Dr. Fosler will be able to give us pointers as to the direction that we should take.

In a sense this takes us into the third component of today's Seminar, namely the second wave of reforms. The imperatives of global competitiveness are now on us and it is becoming increasingly clear that significant changes will have to take place in the manner in which the Indian economy operates in order to face the challenges and to take advantage of the opportunities. There is no doubt that considerable progress has been made during what I presume is being termed as the first wave of reforms. But this is not enough. Although the limitations that exist at present are more or less widely recognised, there is as yet no real blueprint regarding the course of future reforms.

The Ninth Five Year Plan does embody a vision as to the broad directions of policy and procedural changes that are required both in the macro economy and in some of the major sectors. We are now in the process of converting these directions into more specific points of action for policy change. This is, however, not a trivial task. On the

one hand the same broad policy objectives can be realised in a variety of ways and it is not easy to choose between the alternatives. On the other hand attention has to be paid to the proper sequencing of the reforms since it is quite likely that certain measures will have to be pre-conditions for others. The complexity of our economic and administrative system makes it difficult to assess the nature and intensity of these linkages.

It is becoming increasingly apparent that many of the elements of the so-called second wave of reforms will have to be on issues, which are in the domain of the States. As you may be aware, the Central Government has embarked upon an experiment of entering into memoranda of understanding (MoUs) with the State Governments, whereby some component of central assistance is made contingent upon the States undertaking certain critical policy reforms. At the present, the focus is primarily on short-term fiscal issues and the consequent corrective action. However, I believe that this type of an arrangement may have to become an abiding feature of future Centre-State fiscal relations if further reforms are to progress smoothly. Designing the contours of future Centre-State MoUs will become very difficult in the absence of a well-articulated blueprint for reforms not merely at the national level but also at the level of each individual State. The complexity of issues and the range of alternatives are no doubt formidable but every effort will need to be made to arrive at an acceptable methodology.

It would be ideal if there is a model framework in which these different options and their manner of sequencing could be evaluated through simulation. But this may perhaps be too much to hope for. As I have mentioned earlier, I do not believe that there can be any model, which at once would be both tractable and capable of handling the wide range of options. Such a model, however, may not be necessary if a somewhat less comprehensive model structure is coupled with a high degree of economic intuition in an interactive manner. I believe both these attributes are available at the NCAER and I look forward to the presentation by Dr. Rakesh Mohan on this issue.

The ideal ending to the Seminar would be if the three components could be brought together in an integrated manner in order to shed light on the burning issues of the day. I am certain that the panel discussion, which follows Dr. Mohan's presentation, will be able to integrate the various strands of thought and give directions towards future work in this area.

** Inaugural Address at the Seminar on "The State of the Indian Economy" organised by NCAER and CII on June 1, 1999 in New Delhi*

ENVIRONMENTAL PROTECTION & MANAGEMENT*

Let me congratulate the World Environment Foundation for organising its first World Congress on Environment Management. I am happy to be amongst an august gathering of learned scholars with whom I share one common concern—conservation and protection of the environment. It is significant that the inaugural day of this Congress coincides with the World Environment Day.

Much water has flown since the Earth Summit in 1992 at Rio de Janeiro where the Heads of State of many countries made a commitment to check the indiscriminate deterioration of the environment and adopted Agenda 21 to work towards a future of sustainable development. Though there is a growing realisation that the very survival of mankind is linked with the well-being of the environment, globally more hazardous wastes are being dumped on land, most of the coastal areas and deep seas are being polluted, more and more pesticides and other chemical pollutants are finding their way into the rivers and ground water and more noxious gases are being spewed into the atmosphere. The fossil fuel resource base, which took millions of years to develop, is being eroded in a matter of decades now. Every undesirable residue and by-product of economic activity is available in the environment in an abundant measure.

At the dawn of a new century, as human population continues to expand and the resource base continues to shrink, a new challenge is facing the humanity. Evidence now suggests that water scarcity will be a leading issue of the twenty-first century. Tropical forests are depleting at an alarmingly high rate. We are losing traditional crop varieties that are indispensable for global food security. Many floral and faunal species are threatened by habitat degradation and conversion. The climate is reported to be changing. In fact, leading experts are apprehensive that global climate change may impact almost

all sectors of economy. Unfortunately the activities that contribute to environmental degradation are still continuing at a feverish pace, including the introduction of new products in the market place, which impact adversely on the environment. There are genuine concerns that already we may be facing an ecological disaster. There is a definite need to understand what has gone wrong. Only then can we take corrective measures to improve our environment.

The basic causes of environmental degradation are complex. They include the tendency to emphasize quantitative growth at the cost of the qualitative dimension, the failure of the economy to account for the social cost of environmental damage, institutional inadequacies to deal with problems that cut across traditional political boundaries and the failure to perceive the environment in its totality. We should keep in mind that such deep-rooted causes cannot be corrected overnight. Merely enacting a new legislation will not drive them away. What we need is a change in attitude, that has the support of new knowledge and technology and helps reform the way society and individuals think about and tackle environmental problems.

Environmental protection constitutes a major challenge for emerging economies like India. We have to very carefully balance the growth and development needs of our people with the pattern and rate of resource consumption. As a developing nation we have our own economic aspirations, which are essentially aimed at providing all our people a better quality of life. As a nation we also have to take care of the problem of poverty. Environmental degradation has been linked with poverty. In fact, any deterioration in the environment has a direct adverse effect on the poor and their living conditions. The challenge, therefore, is to design and build a new model for economic growth and development that must sustain human growth without destroying its support systems.

The Government of India has taken various measures that reflect its will and commitment to protect the environment. Our plans and policies strive towards ensuring a healthy environment that sustains

economic growth. The National Conservation Strategy and the Policy Statement on Environment and Development serve as a template for integrating environmental concerns in sectoral development policies and programs. Indeed, the Ninth Plan places great emphasis on integrating energy, environment and economic policy decisions for sustainable development. Environmental concerns are being integrated into development projects through mandatory Environmental Impact Assessments. Leaded petrol has been phased out from the major cities and efforts are continuing to phase it out from the entire country. Similarly, efforts are on to supply High Speed Diesel with low Sulphur content (0.25%) throughout the country. Submission of an environmental statement by the polluting units has been made mandatory. In India, we have enacted a number of laws for the protection of the environment. The Government policies are now promoting, in addition to regulatory mechanisms, market-based economic instruments in economic and environmental planning. This includes enhancing the cess rates on water consumption, duty concessions on import of certain pollution control equipment, accelerated depreciation on pollution abatement equipment etc. Many more such economic instruments are needed in different sectors, which should supplement and complement the regulatory measures.

As you are all aware, the far-reaching consequences of global warming have focused international attention on this problem. To study the likely impact of climate change on important sectors and to work out policy initiatives to deal with them the Planning Commission has set up a core group on climate change under the Member (Environment). We are also in the process of preparing a national database of climate research scientists and a data bank of information on climate change.

Recently, the Planning Commission has initiated a process of regular interaction with the Central Pollution Control Board (CPCB) with a view to lend its support to the policy of pollution control. The CPCB has also been asked to prepare a time-bound environmental action plan for sectors contributing to pollution, such as energy, power, oil and petroleum.

For effective monitoring and implementation of the National River Conservation Plan (NRCP) – the erstwhile well-known Ganga Action Plan— a Monitoring Committee has been set up in the Planning Commission under the Member (Environment). One of the reasons for the poor quality of water in our rivers is the non-availability of adequate flow of water. It is felt that unless a minimum flow is ensured in the river it will not be possible to maintain the quality of water at desired levels. Keeping this in view, a High Powered Committee on Maintenance of Minimum Flow of River Yamuna has been set up under the chairmanship of Member (Environment), Planning Commission.

It is obvious that the Government alone cannot protect the environment. There has to be a meaningful participation from the public as well as the business community. Industry can play a vital role in protecting the environment. It is, of course, necessary to monitor the compliance of industrial units with pollution control norms. But industry has to realise that it not only has a legal obligation to comply with environmental laws and rules but also a social responsibility and duty to protect the environment. Compliance with norms may not always impose additional costs. In many cases it may make industry more competitive. Measures for improving productivity by more efficient energy use, recycling of wastes etc can lead to savings, besides yielding environmental benefits. The international scene and the growing awareness regarding use of harmful chemicals like azodyes should also motivate the industry to become more environment-friendly and make use of tools like environment and energy audit. Technology upgradation can result in impressive cost savings. Waste minimisation is another area, which can yield profits while protecting the environment. There is a need to undertake awareness and training programmes to promote the concept of waste minimisation. Industry should consider preparing sector-specific manuals on waste minimisation. Industry can also consider setting up waste minimisation circles among clusters of small-scale industries of the same category. The concept of protection and management of environment must be institutionalised within the industrial sector.

Greater awareness and consciousness have to be built up in the general public also as people's participation and support are vital for achieving environmental protection. The Government encourages ever-increasing participation of civil society organisations in decision-making. The Panchayati Raj institutions have already been given a constitutional status. The Government of India is emphasising the importance of empowering them with suitable administrative and financial powers. We have seen over the years that public opinion and participation can put pressure on policy-makers to be more effective in dealing with the problem of environmental degradation. Concerned people and NGOs have also involved the judiciary in their efforts to protect the environment. But people can play a much more important role individually and collectively than just protest and put pressure. In their day-to-day activities they can be custodians of their environment. For example, they can help in solid waste disposal by segregating the biodegradable from non-biodegradable waste right at their doorstep, within their houses. They can be more careful in not littering around. They can consciously not use plastic bags that are a big environmental hazard. Careless throwing of these plastic bags results in choking of sewerage system and drains. Simple and small things, such as regular tuning of engines of their motor vehicles, can help in a big way in combating air pollution. People need to be made more law-abiding. Take, for instance, the anti smoking law. How many people in Delhi abide by this law and not smoke in public places? Mobilisation and involvement of people in environmental protection is a challenging task and events like this must aim at spreading the message that educated, informed and knowledgeable citizens can play a very positive role in managing and protecting the environment.

There is an urgent need to create awareness regarding environmental protection and management. There are many organisations working in this direction. Yet there is a wide gap that needs to be covered. The success of the World Environment Congress, in which we have guests from other nations as well, ultimately lies in highlighting the importance and urgency of environmental protection and management to the millions around the globe. This Congress must create

opportunities for making people more aware about the potentially crucial role that they can play in protecting and managing the environment. It should convey the message that the benefits of science and technology have been accompanied by frightening changes in ecological balance. It must identify the gaps that still plague our understanding of the environment. It must also carry in its mandate the evolution of policies to avert an ecological disaster. The World Environment Congress should lay emphasis on the fact that individuals, communities, local bodies, national governments and international co-operation, all have to work in tandem to obviate the ecological catastrophe that threatens the survival of human and other species that together inhabit the earth.

I am sure this Congress must have enriched you all over the last two days of deliberations and you must be carrying back some new ideas for managing the environment in your respective countries. I look forward to receiving the proceedings of this Congress. Thank you.

**Valedictory Address at the World Congress on Environment Management organised by World Environment Foundation on June 6, 1999 in New Delhi.*

VISION OF INDIAN DEVELOPMENT*

I am happy to have this opportunity of sharing some thoughts with you on the vision of Indian development and the role of the Planning Commission in it. To highlight the main features of that vision one must concentrate on some of the most essential goals, the strengths and the emerging challenges. The Planning Commission has the role of preparing the necessary ground for this nation to realise the full potential of its strengths, devising effective strategies to meet the emerging challenges and thus enabling the nation to achieve its goals. This is not a one-time task. This is a continuous process of evaluation of possibilities, options and challenges and evolution of strategies and policies.

Our national goals are a reflection of our collective aspirations as translated into achievable targets. Towards the end of a decade we would like to see ourselves as a nation completely free from the scourge of poverty, illiteracy and unemployment. We would like to emerge as a nation in which every young person looks forward to, and is assured of, a fulfilling and gainful activity to engage in. We would like to see a social system and an economic environment in which there are plenty of choices and full freedom of choice is made available to every individual for the fuller development of his/her human potentials. This is possible only with a decent standard of living for all, diversified possibilities of education, decent health services and a minimum of social security accessible to all. In order to achieve these basic human goals we will have to achieve and sustain an economic growth rate of at least 8 per cent in the larger part of the coming decade. Our immediate challenge is to lay down the necessary foundation for this higher growth path within the early years of the next decade.

Let us, in the first instance, count the points of our strength. We have a competent and a large entrepreneurial class. There was a time when

the existence of sources of raw material was considered to be the base of comparative advantage in industrial development. It is not so any more. Today, the comparative advantage lies in entrepreneurship, innovation and knowledge. And, all these are related to the quality of human material. I think our national asset in this type of human material is of high value. Another point of strength is that we have a large body of trained technical and skilled manpower and we are adding constantly to this pool of resources. We have to make sure that the quality of addition to this pool is not only maintained but also improved with every new addition. We have a large and a diversified industrial base, which has contributed a lot to the acquisition of technical know-how. Given a conducive and supportive environment, I am sure that out of this large industrial and knowledge base a segment can emerge, which can take a lead in the world. In the modern era of growing competition we do need some segments of industry to become world leaders. Our particular proficiency and potential in information technology and related industries is emerging as a bright spot in the national industrial and business scene.

Information technology is fast emerging as the technological infrastructure for global integration and rapid development of all sectors of the economy. IT broadly includes all sub-sectors dealing with generation, transmission and utilisation of information like telecommunications, computers, consumer electronics, media infrastructure, etc. Recognising the impressive growth the country has achieved in IT since the mid-eighties, its immense potential for future growth and its importance as an agent of transformation of every facet of human life, a high priority has been accorded to the development of this sector in the Ninth Plan. The aim of the Ninth Plan is to make India a global IT super-power and a front-runner in the information revolution. To help devise the appropriate policy towards achieving this objective, a National Task Force on Information Technology and Software Development has been set up under my chairmanship. Expansion of the telecom network and its transformation into a modern and efficient system are the two thrust areas during the Ninth Plan. Universal coverage of telephones on demand, universal

and easy accessibility, services of world standard to consumers at affordable prices, demand-based provision of existing value-added services and introduction of new services are the major objectives of the Ninth Plan.

We are a nation with a high propensity to save and invest. Even through the period of meagre per capita income, which was hardly increasing at the rate of one per cent per annum, our saving rate was decent and was increasing. The average saving rate during the Eighth Plan was nearly 24 per cent. During the Ninth Plan we expect to maintain an average of over 26 per cent and during the post-Ninth Plan period our saving rate is expected to be between 27 and 28 per cent, which is adequate to give an investment rate of nearly 30 per cent and a growth rate of 8 per cent. It is to be noted that East and South East Asian countries have had much higher rates of saving and investment. We too have the potential of raising our saving and investment rates beyond 30% and some experts think it is realisable towards the terminal years of the next decade.

The attainment of relative self-sufficiency in food grain production as a support to 'food security' and our capability to maintain this self-sufficiency should be considered to be yet another source of strength. Since 1950-51 we have grown by a little more than 2.5 times in numbers but our food grain production has gone up by almost four times. Food grain production today is over 200 million tonnes and, as per the latest indications, it could even be 203 million tonnes. This has enabled us to meet the effective demand for food grains in the market without having to resort to imports except for marginal balancing in some years. The potential of growth in the production of food grains can be judged from this simple fact that in 1997-98 the average food grain yield per hectare in the country as a whole was 1551 kg, while in Punjab it was 3597 kg (i.e. 2.3 times). This shows that even with the given technology the yield can be raised considerably if we provide the necessary inputs and infrastructure of high quality all over the country. We are still maintaining our thrust on agricultural sciences. In fact, we would accelerate the research thrust during this and the next Plan. Improvement in agricultural technology still has vast realisable potentials.

Over the years we have evolved a structure of the economy, which has lent a degree of stability to the system. The peasant farming system, based on small land holdings, the existence of a large informal sector and a large class of small traders are our traditional economic institutions, which have survived through the processes of industrialisation and modernisation and have contributed to growth. These traditional institutions lend stability to the economic system. There is a strong survival instinct in the "small" and a degree of adjustability to adverse situations, which the larger entities do not possess. It is perhaps a contribution of our democratic system that these traditional economic agents have not been wiped out. They have also acted as absorbers of the growing labour force. Hence, it is not a surprise that even though the labour force has been growing at over 2 per cent per year, the unemployment rate for the country as a whole has remained rather low and constant over the years. It may be argued that the apparently high levels of employment do hide a degree of under-employment and provide low levels of income. But the possibility of employment itself is an asset. Income is an issue we have to address now. We have to see that in the wake of globalisation also, these institutions remain and contribute to growth as a whole. Otherwise, the total unemployment situation would get out of hand with all its consequences of social tension and chaos. The demographic projections made for the Plan indicate that although there is likely to be a steady reduction in the rate of population growth in the country, the growth rate of the labour force will attain a historical peak during the Ninth Plan period at about 2.5 percent per annum and decline only gradually thereafter. This is the highest rate of growth of the labour force that the country would have ever experienced and it originates from the high rates of population growth experienced during the seventies. We must create a supportive environment for these traditional sectors to survive and raise their productivity. They have been a source of strength.

Let me now do some loud thinking on the challenges ahead and how we propose to meet them. I have mentioned the food security and the capability to maintain that food security as strength. But in realising

the potential of our strength in this respect we will have to face the challenges. The spectacular achievement in the expansion of food grain production is not at all uniform either across crops or across regions. Thus, for instance, the production of wheat has gone up by more than 10 times, that of rice by 4 times, coarse cereals by about 2 times and pulses by less than even 2 times. Similarly, one can easily identify the few regions of high productivity – Punjab, Haryana, Western Uttar Pradesh, deltaic West Bengal, coastal Andhra Pradesh, Tamil Nadu, Kerala, coastal and eastern Karnataka and parts of Maharashtra. These high productivity regions are skirted by medium productivity regions followed by regions of abysmally low agricultural productivity such as South Deccan and the middle Ganga Plains. In order to realise the full potential of agricultural development, regional imbalances in infrastructure and inadequacies in access to input and markets and dissemination of technology will have to be corrected.

With the growing pressure of population on agriculture for purposes of food security, employment and income, the question of sustainability acquires critical importance. We need to obtain productivity growth in agriculture from a net cultivable area, which would not expand beyond the present 143 million hectares. This would require delicate and efficient handling of available ecological, land, energy and water resources. It would require conservation and even augmentation of these resources through meaningful application of science and technology.

Let us take the case of water, the most important resource for agriculture after land. Though the water resource available for the country as a whole is abundant, its utilisability is restricted by storage and diversion possibilities. Its seasonal variability and unequal spatial distribution cause acute scarcity and non-availability in some areas in the face of abundance in some other areas. What adds to the difficulties and problems is the increasing mismanagement of this resource by way of wastage, pollution and disregard for financial viability. To correct this trend is a challenge.

Globalisation is another challenge we have to meet. Our agriculture, particularly the food economy, has developed so far in an environment

largely insulated from the global situation in respect of production and prices. However, the WTO agreements have already modified the situation, the implications of which will unfold over time, particularly after the year 2000. The commitments made by the members in respect of the agriculture sector basically relate to market access in terms of curtailment of import restrictions, domestic support to producers and export subsidy. The implementation period for the developing countries is 9 to 10 years from the beginning of the year 1995.

Our industries too have to meet the challenges of globalisation. Providing employment to the growing work force is another challenge. The Ninth Plan envisages an industrial growth rate of 8.50% per annum and an export growth of 11.8% per annum. For achieving this growth, special measures have been suggested to ensure adequate availability and requisite quality of infrastructure and to create conditions conducive for unthindered growth of such industries, which can produce products at internationally competitive prices. Internal aberrations in the policies are proposed to be removed and special measures are envisaged to promote the development of industries in backward areas. Special emphasis has been laid on the industrial and economic development of the North Eastern Region by evolving a special package, which, *inter alia*, includes changes in the funding pattern for growth centres and integrated infrastructure development centres, extension of transport subsidy scheme, strengthening of institutions concerned with entrepreneurship and human resource development etc., various physical concessions and incentives and specific measures for development of industrial sub-sectors like agriculture, handicrafts, handloom etc. It is also proposed to review the working of BIFR and bring about necessary changes to make it an effective instrument for reviving the sick industrial units. The scheme of National Renewal Fund is also proposed to be recast through appropriate modifications to make it more effective and achieve the objectives of providing a social safety net as originally envisaged.

Today's youth is coming to the job market with growing aspirations. There is an emerging trend that more among the unemployed are non-poor and also more among the unemployed are educated. In the past the overwhelming emphasis on the part of the State has been on the creation of additional work opportunities for the most unskilled type of workers, i.e., work opportunities in earth work and construction etc. There have been limited programmes to assist the educated urban youth by way of subsidised investment loans to help them get into some remunerative economic activity. But these programmes have had limited success. I think we will have to move from direct subsidy type of incentives to efforts aimed at creating the infrastructure and a supportive environment for self-employment for the educated. In this context a big thrust on promoting information technology and creating the right type of infrastructure and supportive environment for this is a move in the right direction. One could think of systematic promotion of many other service-oriented activities for self-employment of the educated unemployed.

Adequate spending on human development will have to be maintained. Human development and improvement in the quality of life are the ultimate objectives of planning. This is to be achieved through policies and programmes aimed at promotion of both equity and excellence. The benefits of national economic programmes reach different segments of the population through different channels and at different rates. Economic growth improves employment opportunities and employment improves income and purchasing power. But the market mechanism may not improve access to available facilities or fully meet the essential needs of the population with inadequate purchasing power. Social sector planning, therefore, ensures that appropriate policies and programmes are formulated and adequate investment provided by the State so that the poor and the vulnerable segments of the population can access essential commodities and facilities based on their needs and not on their ability to pay.

Perhaps, the most important challenge for achieving a higher rate of growth would be the creation of adequate and high-quality fiscal infrastructure, particularly in the area of energy and transport

development. The major thrust of the on-going reform process in the energy sector has been to make it commercially viable as also to attract private sector participation. The Ninth Plan lays emphasis on bringing about a commercial outlook among the PSUs, attracting private sector participation in the development of the energy sector, encouraging the environment of competition not only between the public and private sectors but also among the public sector units, setting up regulatory agencies for fixation of tariffs, conservation of resources, safeguarding the interest of consumers and protecting the environment. Energy-economy interaction, viz. the demand for energy in the economy, the sources from which this demand is met, the changes in the pattern of energy consumption from non-commercial to commercial, changes in the composition of commercial energy use and energy-GDP elasticity along with some policy measures have been discussed. New policies have been considered in the Ninth Plan for getting the private sector to invest in electric power generation, transmission and distribution, in coal mining and in petroleum exploration, production and arrangement of supply of liquefied natural gas. Restructuring of the electricity supply system to make it commercially viable, bankable and professional and a rapid increase in oil and coal production by deregulating the industry in a short period of time are some of the aspects, which will receive due consideration.

The country's transport system, which is comprised of rail, road, sea and air, is facing capacity saturation. Inadequacies and imbalances in transport threaten to constrain economic growth and the quality of life in both urban and rural areas. A large number of villages lack a reliable all-weather connection with nearby markets and towns. Areas, like the North East and Jammu & Kashmir, have remained physically and emotionally isolated because the transport system has not linked them with the rest of the country. Environment-friendly and socially cost-effective means of transport like coastal shipping, inland water transport and non-mechanised transport etc. also remained undeveloped. Distortions in the inter-modal mix of transport, environment and energy linkages, safety and technology upgradation

have been noted. The diverse issues facing the transport sector require a comprehensive policy package. Strengthening of the Indian railways in its reach and capacity is necessary so that it effectively links the distant parts of the country, helps to develop the economic potential of the backward areas and carries the bulk of the nation's long or medium-haul traffic. Similarly, road networks need to be expanded and strengthened. There is also a need to modernise our seaports and airports with a view to augmenting their capacity and bringing them up to international standards.

The Government will have to play a major role in the area of social and physical infrastructure. But the fiscal capability of the Government for meeting this challenge is weak and has been further eroding in recent years. Therefore, the biggest challenge before the Planning Commission is to see that fiscal reforms are undertaken, particularly by the State governments, where the situation is worse. Fiscal reforms have also to go along with improvement in governance. The governments have to augment their tax and non-tax revenue. Non-tax revenues can be increased by revision of user charges on public services. The growth of non-plan revenue expenditure needs to be arrested and the efficiency and accountability of public expenditure need to be enhanced. In particular, there is an urgent need to control the fast-growing burden of subsidies by ensuring that these are transparent and closely targeted. Public enterprises must also make their due contribution to the resource mobilisation efforts of the government. Restoration of financial help to State Electricity Boards and improvement in the functioning of State Road Transport Corporations are necessary.

The Planning Commission is seriously engaged in working out the modalities and institutional arrangements and sharpening the instruments of incentives and disincentives for achieving these objectives.

* Speech at a meeting organised by the Merchants Chamber of Commerce, Kolkata on June 7, 1999.

DIMENSIONS OF IT & TELECOM REVOLUTION*

Shri Jagmohan, Shri K.P. Singh, Shri P.K. Sandell, Shri Zutshi, Shri Anil Kumar, ladies and gentlemen, I am indeed very happy to be invited by ASSOCHAM to share some thoughts with you at this National Seminar on "Internet Service Providers (ISPs) and New Telecom Policy (NTP-1999)".

In the year 1998 the Prime Minister had constituted a National Task Force on IT and the Task Force has submitted its reports. Looking at the importance of this sector, the Government has implemented/notified the recommendations of the Task Force.

This country being vast and diverse, it is practically impossible for a limited number of players to promote connectivity to the net in an effective manner. Hence, the Government in its recent efforts has allowed private ISPs. This will definitely improve the percolation of the use of this technology in the most efficient manner. Private participation in Internet services was a part of the Task Force recommendations. The ISP licence agreement was finalised by DOT in consultation with the Task Force and the first private sector ISP was given a licence in the month of November 1998. You will all agree with me that the Government has done a commendable job in a very short period and time-bound manner.

The evolution and persistent growth of the Internet and related applications have taken the front stage in the development of corporate networks. It is very important that if a corporate body has to improve productivity the information movement within and out of the corporate body should be made feasible by connecting its offices in the most effective manner. This makes possible (a) integrating data from diverse sources, (b) providing access instantaneously, (c) presenting information in various desired options and (d) guaranteeing performance.

To enable these, the Government has already taken steps to strengthen the national communication backbone or you may call it National Information Infrastructure (NII). Along with this, the Regional and State Information Infrastructure and Local Information Infrastructure have to be built up. This will enable all the districts and remote areas to be connected to the highway and thereby help them to access the information in the same way as one does from major cities.

The knowledge explosion in the first decade of the next millenium is expected to give information technology a radical role comparable to that of the industrial revolution one and a half century ago in Europe. Along with natural resources and availability of cheap labour, knowledge and information are becoming key factors of production. Information technology and telecommunication are empowering national development leading to the evolution of competition-based societies. In a world faced with depleting natural resources, increasing manpower costs and impact of development on the environment, the importance of sustainable development is getting increased attention.

There are several interconnected dimensions underlying sustainable development. Each of these is supported by IT and telecommunication. Environmental sustainability calls for safeguarding the integrity of eco system and protecting biological diversity. Irresponsible strategies of development may lead to environmental disasters. Information systems over wide area networks (WAN's) can offer early warning of the degradation of the land environment, climatic deterioration and ocean pollution.

Economic sustainability is based on efficient and equitable allocation of resources to the people and investment on making the poor sections of the society economically productive. The Nineties have seen an explosion of globalisation of telecom and informatics. Electronic commerce is transforming the way business operates. Prodded by IT and telecom, the gap between knowledge haves and havenots will increase and the "have not" countries are likely to get marginalised.

Social sustainability results in systems, which can show equitable income distribution among the people, gender equality and optimal investments in healthcare and education. In all this the

telecommunication is playing an increasing role. Information highway can trigger a host of new beneficial applications like distance learning, tele-medicine, tele-banking and tele-shopping.

Political sustainability pre-supposes the promotion of good governance, respecting human rights and fostering democracy. Reliable international communication and broadcasting are increasingly breaking political boundaries as is witnessed with Internet.

The universal telecom service is a public policy to make telecom accessible and affordable to all the people irrespective of their economic and social strata in the society. When a monopolistic telecom system prevails, the universal service function can be imposed as an obligation over that organisation. The DOT's Rural Telecom Project was a step in that direction. With the on-going structure of several telecom operators and ISPs, the fund generation ability comes down because of the razor-edge competition among the service providers. This results in a progressively narrow margin, which cuts into the internal cross-subsidies for social obligations for rural development. Therefore, in a competitive environment, the various service providers carry equal rights and equal burdens. The level-playing ground usually calls for several types of neutrality among various service providers including the public sector service providers.

In competitive neutrality a new financing system should not disturb relative market strength of any service provider. Structural neutrality can be realised by not favouring or disfavouring integrated or unbundled provision of a service. Technological neutrality comes from desisting from favouring any particular technology over others. Content neutrality does not unduly favour any particular use of telecom. Geographical neutrality requires that one State is not preferred over the other. Transitional neutrality avoids disaster and windfalls to any service provider when the country is undergoing a transition to a new system.

The new Telecom Policy has made provisions by which it allows investments in the sector for creation of communication infrastructure by leveraging on technological developments.

In this era of Internet, it will be unfair on the part of the Government if it is unable to provide the infrastructure to people of this country to connect to the vast network in their day-to-day life. This has become more important with the World Wide Web (WWW) having a huge information source waiting to be tapped on a click of a mouse. Though I don't say that anything available on the Net is authentic, a good amount of information can be retrieved. This has become one of the most economical ways to disseminate information. With the evolution of e-commerce it has become all the more attractive and important for the users to hook on to the Net as they can virtually market on the Net. One of the foremost things that comes to my mind immediately is the last mile problem, which is still a major hurdle. One of the prime objectives of the new Telecom Policy is to provide telephone on demand by the year 2002 to eliminate the last mile problem and thereby allowing the people of the country to easily access the Net.

The exponential growth of Internet has attracted many advertising agencies to advertise on the web and already a trend has started in the global market to transfer the benefits to the subscribers in terms of lower connectivity charges. I was informed that there are companies, which credits your account if you browse the network after loading a small software on your computer, which displays some advertisements on the bottom of the screen.

Another major step the Government has taken is regarding the personal computer penetration. The reduction of Custom Duty and other incentives have been provided in order to increase the PC penetration in the country, as this is one of the most important factor to promote IT culture in SOHO (small office home office), schools and colleges.

The major decisions are inter-connection with other networks and setting up its own External Gateway for providing Internet services. It is almost seven months since the Internet services have been privatised but both Private ISPs and Internet subscribers have not shown much growth. There are only a couple of players like MTNL and Satyam online who have really begun extending the services, apart from the existing providers like VSNL, NICNET, ERNET. With such activities

on the Internet, cyber crime is also on the increase and already the Government is working on the enactment of Cyber Laws.

Call centres are creating new market opportunities for ISPs. Computer and telephone system can be fused into a single device over a single integrated network. Several applications are waiting for the "call centre" concept to be implemented in the country like automatic screen-based dialing, call conferencing, call routing and screen popping (call and information integration). The "call centre" solutions facilitate business applications, which depend on the effective use of the telephone and the computer for accounts management, tele-sales and tele-marketing.

Internet for global telecom, Intranet for corporate-level private telecom and Extranet, national network of networks, can all use the same Internet protocol. Convergence is taking place forging Internet, Intranet and Extranet into just an IPnet. This convergence gives the national networks a new flavour and a new economics. All the software over Internet, which is characterised by high quality and low cost because of the large market created by the tens of millions of Internet users around the world, are now available with the same advantage for Intranet and Extranets. This is developing a seamlessness between the three networks and is fast creating a Global Information Infrastructure (GII). In this context, the "call centre" advantages of the Internet can also be extended to the corporate-level and national-level Intranet. The concept behind web-based call management is the opportunity of turning a web "hit" into an actual sales call. This is accomplished by giving the web site a 'call made' button, which renders site in the network into an IPNET telephony-enabled network. Such features help a customer to order a product or service over a network.

Within the next few years, we can create video-enabled "call centres" where the operators can see and hear callers using video-enabled kiosks in real time, enabling them to share information or demonstrate the products more easily. This face-to-face interaction allows organisations to offer customers a more personalised service and a better access to information than is now available through the telephone.

The "call centre" concept is still in an evolutionary stage. It is at this point in time that we should pump in a lot of R&D money not only into our national laboratories but also R&D-oriented commercial enterprises. Such R&D investment will be highly productive because we can bring in national and international IT-enabled services at the same time as, or earlier than, the developed countries.

The new Telecom Policy 1999 is closely coupled to privatisation of Internet services as data communication and voice communication are progressively converging. I understand that the licence agreement of ISP prohibits voice over Internet Protocol (IP) at present but there are a number of countries, which are using this technology and providing international voice calls at very economical rates. Discussions on this have taken place in various forums and the Government will take the necessary steps at the appropriate time.

I am sure that the deliberations of this National Seminar on Internet Service Providers and New Telecom Policy 1999 would take into account the various problems of both Internet services and the telecom sector and concretise the steps to be taken to overcome them. This will give a great boost to this technology of the century and thereby enable the common citizen and millions of our school and college-going students to derive the best out of this revolution. Thank You.

** Special Address at the National Seminar on Internet Service Providers and New Telecom Policy 1999 held on June 9, 1999*

ISSUES IN DEVELOPMENT OF POWER MARKET*

I am, indeed, very happy to be invited by the Associated Chambers of Commerce and Industry of India to speak on an important subject—"Developing Power Market in India By 2010". The subject is of great significance for a developing economy like India. Electricity is one of the key inputs for the overall socio-economic development of the country. The electricity sector has registered a rapid expansion since the country gained Independence in 1947. It has grown from approximately 1300 MW in 1947 to 93253 MW by the end of March 1999. Despite the significant progress in capacity addition, the demand for electricity continues to outstrip the supply with the result that energy and peak shortages continue to plague the economy.

The development of the power sector was given importance in every Five Year Plan and the overall growth rate of the electricity sector has been higher than the GDP growth rate. The elasticity of electricity generation and consumption with respect to GDP for the period 1980-81 to 1995-96 was 1.6 and 1.59 respectively. This implies that for every 1% increase in the GDP growth, electricity generation and consumption have increased by 1.6% and 1.59% respectively during this period. The best performance was witnessed during the Seventh Plan period (1985-90) when 21051 MW were added as against the target of 22245 MW. However, the capacity addition during the Eighth Plan was only 16423 MW against the target of 30538 MW. The share of hydel capacity in the total installed capacity is only 24% as compared to 46% at the end of Third Plan.

The Ninth Plan programme envisages a capacity addition of 40245 MW during the period 1997-2002, out of which 11909 MW will be in the Central sector, 10784 MW in the State sector and 17588 MW in the private sector. The capacity addition proposed in the private sector, if materialises fully, would be quite significant in the Ninth

Plan compared to the earlier Plans and would work out to 0.78 MW of capacity addition for every one MW capacity added in the public sector. As against the average capacity addition of around 8000 MW per year programmed, the capacity addition during the first two years of the Ninth Plan was only 7528.3 MW.

The power supply position as on March 1999 indicates an energy shortage of around 6% and a peak shortage of around 14 per cent. Though the capacity addition fell short of the Plan targets, the peak deficit and energy deficit were restricted to the figures as indicated above mainly due to the marked improvement in the Plant Load Factor (PLF) of the thermal plants and the concrete efforts made for the renovation and modernisation of old plants. The all-India average PLF of the thermal plants increased from 55.3% at the beginning of the Eighth Plan to 64.3% by the end of 1998-99.

The 15th Electric Power Survey Report projects a peak demand of 176647 MW by the end of the Eleventh Plan (2011-12). As per the Report on Fuel Map of India published in August 1998, the Central Electricity Authority has projected a capacity addition requirement of 57139 MW in the Tenth Plan period (2002-2007) and 58564 in the Eleventh Plan period (2007-2012). This would call for higher investment and greater mobilisation of resources, both from the private and the public sectors. As far as the public sector investment is concerned, there has been a trend of increase in the Plan outlay by 1.46 times from the previous Plan. However, investment in the Ninth Plan has been exceptional and the increase was 1.56 times compared to the Eighth Plan. If we follow the trend of the Ninth Plan investment for the power sector, the fund requirement in the Tenth and Eleventh Plans may be of the order of Rs. 195000 crore and Rs. 305000 crore respectively compared to Rs. 124526 crore during the Ninth Plan in the public sector.

As in most developing and many developed countries, power development has taken place in India almost wholly in the public sector. The power sector being highly capital intensive, the private sector was not able to raise large funds for investment in the early

50's. Because of this, the responsibility of power development remained with the public sector both under the Central and State Governments. It is also true that for a country like India electricity is not just an input for productive economic activity but is also a policy instrument, which can be utilised to further the goals of welfare and equity. The focus was to enlarge the access to electricity and make it affordable so as to improve the quality of life, particularly of the weaker sections of the society. With this objective, massive rural electrification programmes were carried out and the tariff for domestic consumers had been well below the cost of supply. This has affected the financial health of SEBs. Despite the significant progress achieved in the development of the power sector, the per capita consumption in India continues to be low at 338 Kwh in 1996-97 compared to 773 Kwh in China and 1805 Kwh in Malaysia in 1994.

In spite of significant achievements in the rural electrification programme, the household electrification in rural areas is yet to reach a satisfactory level. Only 31% of the total 1116 lakh rural households have been electrified so far. Out of the 5.87 lakh villages, 5.05 lakh (86%) have already been electrified. Out of the balance 8200 villages, 15000 are located in far-flung and inaccessible areas. Extending the conventional electricity grid supply to these areas may not be economical and efforts must be made to provide electricity from the non-conventional sources of energy.

The State Electricity Boards' financial performance continues to deteriorate over the period. The commercial losses without subsidy increased from Rs. 4560 in 1992-93 of the Eighth Plan to Rs. 13808 crore at the end of 1998-99 (Revised Estimates). The ROR for the year 1998-99 (RE) was -21.2 per cent. The agriculture and domestic sectors continued to be subsidised heavily. The average tariff charged from these categories of consumers was projected to be 30 paise and 131 paise respectively in 1998-99 compared to an average cost of supply of 243 paise per unit. A part of the subsidies is recovered by cross subsidisation from commercial and industrial consumers. Because of the poor financial health, the SEBs have been unable to raise the resources for funding their on-going schemes.

At the beginning of the Eighth Plan it was realised that the Government could no longer finance the incremental capacity requirement of the country. In order to supplement the Government efforts and bridge the gap between the demand and availability of power, a policy to encourage private sector participation was initiated in 1991. The objective was to mobilise additional resources for power generation, transmission and distribution, to introduce competition in the sector to improve the financial health of SEBs and to allow them to function as commercial entities. The response to the privatisation policy was encouraging and a number of private investors came forward to invest in the sector. The generating capacity added since the introduction of this policy as on March 1999 is 4222.5 MW and a capacity of 553 MW is likely to be added during 1999-2000. Another 40 projects with an aggregate capacity of 20200 MW have been techno-economically cleared by the CEA and are in the process of tying up all the required inputs. The CEA has also given in-principle clearance to 25 projects with an aggregate capacity of 14310 MW.

1 MW

It was realised that adequate private investment will not flow and not many generation projects could come up unless the important issue of commercial viability of SEBs—the monopoly purchaser of power—is addressed properly. It is realised that restructuring of SEBs and establishment of regulatory institutions is a must to attract the required investment in the sector. The Government has amended the Electricity Act and introduced further reforms for the restructuring of SEBs to make them economically viable. Recognizing the fact that continued development of the power sector, along with the other infrastructure sectors, is critical to the success of India's economic liberalisation efforts, the following reforms were introduced recently:

- a) The Electricity Regulatory Commission Act, 1998 provides the legal basis for setting up Regulatory Commissions at the Central and State levels. Section 17(1) of this Act empowers the State Governments to establish a separate Electricity Regulatory Commission for each State. These efforts will be helpful in

rationalising tariff for all categories of consumers and may improve the quality of power supplies to the consumers. The Union Government has already established the Central Electricity Regulatory Commission at the national level. The State Governments of Orissa, Haryana and Andhra Pradesh have already restructured the State Electricity Boards by unbundling the generation, transmission and distribution of electricity and have set up separate corporations. They have also set up the State Regulatory Commissions. Other States are in the process of restructuring the State Electricity Boards and propose to set up independent State Electricity Regulatory Commissions.

- b) The Government has also amended the Electricity Act and made transmission a separate activity for facilitating more investment in the transmission sector as well as for coordinated operation of the grid system.
- c) The Government has introduced a policy to develop mega sources of power utilising economies of scale to obtain lower tariffs and produce power at most economical locations. Mega projects are proposed to be set up in both the public and private sectors. Specific incentives have been identified, which would ultimately help to bring down tariffs and at the same time protect the interest of domestic manufacturers.
- d) **Power Trading Corporation:** A Power Trading Corporation is being set up primarily to facilitate single-point purchase of power from mega power projects under long-term Power Purchase Agreements (PPAs) and sale of power to the beneficiary States under long-term agreements.
- e) **New Hydel Policy:** To augment hydel capacity and increase the declining share of hydel generation in the generation mix so as to meet peak demand a new hydel policy has been introduced. It lays down the mechanism for increasing investment in this sector to harness the untapped hydel potential.

The pace of reforms needs to be continued further to create a healthy power market, which would encourage private investment and act as a catalyst resulting in a continuous cycle of improvement in the quality of power supply and adequate returns for the investors. The plans for State-level power sector reforms will address three basic issues, viz. rationalisation of tariff, privatisation of distribution and establishment of independent regulatory commission. Uniform set of reform and restructuring proposals may not give perfect solutions for all the States considering the differences existing across India in various States. Therefore, the suggested reforms must suit the needs of each particular State and a dynamic approach is needed to develop a healthy power market in India.

It has been observed that investment in transmission facilities has not kept pace with investment on generation. The shortages in energy and peak demand are well known but the deficiencies in transmission also continue to limit the ability of regional despatch operations to transfer the bulk power from one region to another and to operate the transmission network in a secure condition at the lowest possible cost. For this purpose it is essential that transmission should be planned in an integrated manner on State and Central levels so as to obtain the maximum economic benefits from scarce financial resources. The need for a national grid for integrated operation of the power system is well recognised and efforts to make the national grid functional in a time-bound manner have to be expedited. The Government has already amended the Electricity Act to consider transmission as a separate activity and facilitate the private investment in this sector.

The benefits of unbundling may not accrue fully unless the distribution of electricity is privatised. Investments in distribution will increase reliability of power supply and reduce the losses and theft of power. The Government policy should be focussed on marking out the composite zones of distribution, which should include the rural areas. With proper tariff to various categories of consumers, adequate returns on investment can be ensured to the private investors. However, the economic regulation of the sector must take care of the interest of the consumers and ensure that there is no misuse of monopoly by the distribution companies. Provision of electricity even

at economic pricing to rural areas or areas with low level of household connections and low load factor may not be profitable for a private firm. Given the opportunity, in a franchised area, the utility would be reluctant to supply power to consumers in such areas or the firm may resort to cherry picking tactics. The policy needs to be focussed on such issues while framing the rules of the game for private distribution.

The need to introduce competition and promote more investment, wherever possible, has been the driving force behind the reform and restructuring of the power sector in India. A number of initiatives to accelerate the process of reform both at the Central level and the State level are under consideration. These are the setting up of a wholesale electricity market and introduction of competition and efficiency in the electricity market through (a) economic dispatch system, (b) compulsory access to the grid to the generators and distributors subject to availability of capacity on pre-fixed wheeling charges, (c) encouraging direct agreements between large consumers, generators and distant distributors, (d) easy entry into the sector of different players in competitive market conditions supervised by the regulators and (e) determination of generation tariff in a competitive market environment through the creation of a pool/wholesale market.

The Central Government has to take effective steps to set up the wholesale power market, create an electricity pool and enforce market-like competitive pressures. Such initiatives at the Central level will force the States to create similar conditions. The federal structure of the Indian State and the power sector is very similar to the structure as it existed in pre-reform USA and Australia. Experience of these countries may be helpful in the future reform initiatives to complete the missing links in the reform chain. These can be achieved by Government initiatives and through regulation by CERC. Increased interaction by the Government of India and CERC with the Governments and Regulatory Commissions of USA and Australia may be helpful in accelerating the reform process.

The second-generation reforms should focus on open access to transmission and distribution system. The CERC has already notified

grid code for the control and despatch of power from one system to another and sought suggestions from the various players in the sector. Open access to the transmission and distribution facilities by various utilities will enable wheeling of power from one region to another at the lowest cost to the consumers and would further encourage investments into transmission network and generating capacities. This will introduce competition not only among various generating companies but also at the distribution level and will enable improvement in revenue collection with adequate tariffs. This will further enable expansion and operation of a total electricity system in which outages will be a rarity and in which the voltage and frequency will be maintained at nominal levels. Only then India will be able to reap the fullest benefits of power pooling.

The reforms should aim at allowing freedom to the consumers to get power from any distributor or generating company of his choice and also introduction of differential pricing of power according to the time of the day, giving incentives to users to shift their demand to the off peak period. There should be a mandatory provision to encourage use of solar energy for heating, say water heating, in certain categories of buildings.

The future power markets will involve a number of players including the State utilities, Central utilities, IPPs and various transmission and distribution companies. The second-generation reforms should also focus on the power pooling arrangements and the possible market structure for such power pools. The pooling infrastructure, i.e. regional grid, is already in place in India. The issues for the future are: "What further improvements should be taken to realise additional economic and operational benefits through power pooling? Is there any need of an independent system operator to control the transfer and trading of power? Which model is relevant for Indian power system?" The power pool structure concept is complex and dynamic and requires a careful analysis of the operation and associated cost of transactions within the pool and shared savings among buyers and consumers. These issues need to be resolved as the markets grow.

**Inaugural Address at the Seminar on "Developing Power Market in India by 2010" organised by the Associated Chamber of Commerce and Industry of India held on July 8, 1999 in New Delhi*

CARE OF THE ELDERLY*

I am happy to be with you at this Seminar organised by the Population Foundation of India. There is widespread awareness about population growth, its potential adverse consequences and the need to achieve rapid population stabilisation. However, less is known about the ongoing rapid changes in the age structure of the population and their consequences. The present Seminar, being held in 1999, which the United Nations has declared as the International Year of Older Persons, is a timely effort to focus on this dimension of demographic transition. The demographic transition from a high mortality and high fertility scenario to one of low mortality and low fertility is a universal phenomenon. During this period there has been not only a rapid population growth but also massive changes in the age structure of the population.

The population of India was 846 million in 1991 and is projected to grow to 1263 million by 2016. If the current trend of population growth continues, India is expected to achieve the replacement level of fertility only by 2026. Over the next two decades, at the national level, there will be a reduction in the proportion and the number of children under fourteen, a massive rise in the number and proportion of persons in the 15-59 age group and a small but significant increase in the population of those above 60 years of age.

There are, however, substantial differences between States in the rate of demographic transition, size of the population and age structure of the population. This is only to be expected in a country of our size and diversity. It is, therefore, essential to realise that although policies and broad strategies can, and need to, be formulated at the national level, the relative emphasis in application will have to vary from State to State. Consequently, the needs, aspirations and, indeed, the role of

different age groups have to be anticipated and dovetailed into a comprehensive development strategy for the nation and its constituent parts.

The decade between 1996 and 2006 is expected to witness a reduction in the under-10 population from 243 million to 219 million. For the first time in several decades there will be a respite from the ever-growing numbers. This possibility, however, should not detract from the focus that this age group rightly receives at present. I hardly need to underline the fact that we cannot be satisfied with the present pace of movement towards the goal of population stabilisation. All efforts have to be made to accelerate the current trends and in this respect the welfare of this age group is essential to our strategy. The health care providers should take full advantage of the respite to improve the quality and coverage of immunisation, health and nutrition services. Improving the access to education and skill development should receive due attention.

The next decade will witness a massive increase in the number of adolescents in the 10-19 age group from 200 million to 239 million. This age group has in the past received very little attention. It needs to be understood that this age group represents the most potent source of social change in any society and therefore considerable attention needs to be devoted to providing an environment conducive to its development. There is an urgent need to improve the access to a wide range of services including those for skill development, vocational training, health care and counselling to those in this vulnerable age group so that they are able to make use of these facilities and emerge as capable adult citizens.

The population in the 15-59 age group will increase from 519 million in 1996 to 800 million in 2016. Thus, the dependency ratio will be low and the working age population will be more during the next two decades. The challenge is to ensure appropriate skill development and employment of the workforce, which in turn will stimulate economic growth. One of the major factors responsible for the rapid economic growth of the East Asian countries was improved productivity due to

the development and utilisation of innovative technologies by the rapidly growing young educated population. India should also successfully utilise the demographic transition and the population growth to power economic growth and development.

This age group has the lowest morbidity and mortality rates. Appropriate small inputs into essential health care would therefore result in a substantial improvement in the health indices of the population in the next two decades. The reproductive and child health initiative aims at a rapid reduction of population growth rate by meeting all the felt needs for contraception and reducing infant and maternal morbidity and mortality so that there is the desired reduction in the level of fertility. It is imperative that we make optimal use of this window of opportunity to achieve rapid population stabilisation, reduction in morbidity and mortality, sustainable development and improvement in the quality of life.

The expectancy of life at birth will increase from 62.3 years in 1996-2001 to 68.8 years by 2011-2016. Over the next two decades the country will be facing a progressive increase in the proportion of elderly persons from 6.8 to 8.9% and the number of persons beyond 60 years will nearly double. Further, the longevity at birth among women, which at present is only marginally higher than that among men, will increase comparatively more rapidly over the next decade. The majority of such people will be physically and psychologically fit and would like to participate in both economic and social activities. They should be encouraged and supported so that they lead productive lives and contribute to national development. So far, the family members have been sharing the major responsibility in caring for the elderly. This would remain the ideal method. However, there is a growing number of elderly without family support. Improved health care has added "years to life" and it is important that we make efforts to add "life to years."

Realising the emerging needs of this segment of the population, a National Policy for Elderly Persons had been approved by the Cabinet in 1998. The National Policy seeks to assure the older persons that their concerns are national concerns and they will not live unprotected,

ignored or marginalised. The Policy visualises that the State will extend support for financial security, health care, shelter, welfare and other needs of the older persons, provide protection to them against abuse and exploitation, make available opportunities for the development of their potential, seek their participation and provide services so that they can improve the quality of their life.

The Policy also advocates bridging the generation gap in the family through two-way interactions and strengthening the bonds between the young and the old. It believes in the development of a social support system, informal as well as formal, so that the capacity of families to take care of the older persons is strengthened and they can continue to live in their family. The Policy emphasises the need for expansion and improved access to social and community services for the older persons, particularly women, through removing the socio-cultural, economic and physical barriers and making the services client-oriented and user-friendly. Special efforts will be made to extend the coverage to rural areas, where more than three-fourths of the older population lives. The Policy has identified financial security, health care, nutrition, shelter, welfare and protection of life and property as the major areas requiring intervention.

The wellbeing of the older persons has been mandated in the Constitution of India. Article 41 has directed that the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to public assistance in cases of old age. Social security has been made the concurrent responsibility of the Central and State Governments. Several States have ongoing schemes for providing pension for elderly persons. The centrally sponsored National Old Age Pension Scheme was launched in 1995 to supplement the efforts of the State Governments. For the elderly persons below the poverty line the old age pension provides some succour. The coverage under the old age pension scheme for poor persons will be significantly expanded from the January 1997 level of 2.76 million with the ultimate objective of covering all the older persons below the poverty line. The paramount considerations in regard to the pension scheme are total security, flexibility, liquidity and

maximal returns. The pension funds will function under the watchful eye of a strong regulatory authority, which will lay down the investment norms and provide strong safeguards.

Currently several region-specific and culture-specific innovative interventions to provide the needed care to this population are under way. Among these are efforts to reverse the trend of the break-up of joint families. If these efforts succeed, it will be possible to provide necessary inputs for the care of the rapidly increasing population of senior citizens in the subsequent two decades.

It is necessary to educate the older persons and their families that diseases are not a corollary of advancing age nor is a particular chronological age the starting point for decline in health status. On the contrary, preventive health care and early diagnosis can keep a person in reasonably good health and prevent disability.

The significant increase in the elderly population in the next two decades, coupled with the changes in the lifestyles of the population, is likely to result in a substantial increase in the health care needs of the elderly, especially for the management of non-communicable diseases. The increasing availability and awareness about the technological advances for management of these problems, the rising expectations of the population, the ever-escalating cost of health care and the increasing gap between what is possible and what is feasible within the resources available for the individual and the country are some of the challenges that the health care system has to cope with. Health care delivery systems will have to be geared to take necessary steps for prevention, promotion, treatment and rehabilitation of this population segment. For the old people, who are chronically ill and are deprived of family support, hospices, which are supported or assisted by the State, public charity and voluntary organisations, will be necessary.

The next two decades will witness the beginning of a rapid rise in the elderly population in the country. The country has to utilise them as a human resource, which is rich in experience and wisdom, keep them healthy and happy in their own family milieu and provide for those

that need help. I am sure the Seminar will review the progress achieved in our efforts to provide the needed care to all the age groups with special focus on the growing elderly population and make recommendations on future policies, draw up strategies and set goals to be achieved in the first two decades of the new millennium. I wish the Seminar all success.

** Inaugural Address at the Seminar on "Towards a Society for All Ages - with the Focus on the Elderly in India" organised by the Population Foundation of India on July 9, 1999 in New Delhi*

ISSUES IN POPULATION STABILISATION*

I am very happy to be with you at this Seminar on "Population Dynamics in the Next Millennium – Choices and Challenges" jointly organised by FICCI & UNFPA. As we approach the next millennium, we should review the progress achieved in our efforts during the last five decades to decelerate the rate of growth of our population and attain the replacement level of fertility. You will find an objective analysis of the experiences of this period useful while deliberating on the policies, strategies and goals to be achieved in the new millennium.

Demographic transition from a scenario of high mortality and high fertility to one of low mortality and low fertility is a universal phenomenon. While population stabilisation occurs on completion of the transition, there is a rapid population growth during the earlier phase of transition. There are substantial differences between countries or States in the rate of demographic transition and the ultimate size of the population when population stabilisation is finally achieved. Let us first review India's status in this transition.

India is the second most populous country in the world and is on its way to overtake the first, China. With no more than 2.5% of global land, India is the home of one-sixth of the world's population. Given this high population density, our leaders recognised the need to forestall the adverse impact of rapid population growth on development activities, availability of food, environmental deterioration and, indeed, on the quality of life. In 1952 India became the first country in the world to adopt a national family planning programme with the objective of "reducing the birth rate to the extent necessary for stabilisation of the population at a level consistent with the requirements of the national economy".

Improvement in the quality and coverage of health care services has led to a steep fall in the crude death rate from 25.1 in 1951 to 9.8 in 1991. The reduction in the crude birth rate has been less steep from 40.8 in 1951 to 29.5 in 1991. As a result, the annual exponential population growth rate has been over 2% in the 60s, 70s and 80s. During the 90s, the decline in the crude birth rate is steeper than the decline in the crude death rate and, therefore, the annual population growth rate has fallen below 2 per cent. The decline in population growth is likely to be further accelerated during the Ninth Plan.

There are substantial differences between States in demographic transition. At one end of the spectrum is Kerala with health and fertility indices comparable to the developed countries. At the other end are States, like UP, MP and Bihar with high fertility and mortality. However, even in these States many districts have the birth rate and the infant mortality rate well below the national levels. For instance, the infant mortality rate in Almora and the birth rate in Kanpur urban district are lower than the national levels. It is imperative that the factors responsible for these successes are identified and replicated in other districts of the State.

The Technical Group on Population Projections has made population projections for the period 1996–2016. The population of India was 846 million in 1991 and is expected to grow to 1263 million by 2016. If the current trend of population growth continues, India is expected to achieve the replacement level of fertility only by 2026. Reduction in the population growth rate has been recognised as one of the priority objectives during the Ninth Plan period. The Planning Commission has provided Rs. 4700 crore under the Special Action Plan for implementing the Reproductive and Child Health Programme. With effective implementation of this programme and meeting all the felt needs for reproductive and child health care it is expected that the Total Fertility Rate can be brought to 2.6 by 2002 and the replacement level of fertility can be achieved by 2011.

There are substantial differences between States in the size of population, population growth rates and contribution to the country's

population during the next two decades. Five States, namely Bihar, UP, MP, Rajasthan and Orissa, accounted for 44% of the total population of India in 1996. These States are expected to contribute 55% to the total increase in the population of the country during the next two decades. By 2020 every alternate Indian will be residing in these five States.

Urgent effective steps to assess and fully meet the unmet needs for maternal and child health care and contraception through improvement in the availability and access to family welfare services are needed in the States of UP, MP, Rajasthan and Bihar in order to achieve a faster decline in their mortality and fertility rates. The performance of these States would determine the year and size of the population when the country achieves population stabilisation.

Steps are being taken to improve the infrastructure and manpower in these States through additional central assistance. The debate whether incentives and disincentives at individual or community level would accelerate the progress toward rapid population stabilisation continues.

In order to give a new thrust and dynamism to the Family Welfare Programme the National Development Council set up a Subcommittee on Population to recommend policies and strategies to improve the performance. In 1993 the NDC endorsed the recommendations of the Committee, which had laid emphasis on decentralised, area-specific need assessment and improvement in quality and coverage of reproductive and child health services. The International Conference on Population and Development in Cairo also advocated a similar approach. The concordance between the national and international efforts has improved the funding and accelerated the pace of implementation of the Family Welfare Programme. The Department of Family Welfare has drawn up a Population Policy to provide a reliable and relevant policy framework for improving family welfare services and measuring their impact in the new millennium. The Policy is being considered by a Group of Ministers constituted by the Cabinet.

Effective implementation involves a great deal of inter-sectoral co-ordination. Empowering women through education of girl child, skill development and employment as well as raising the age at marriage would enable women to plan their families. There is a need for ownership of this programme by all the organisations to enhance the status of women, particularly women's literacy and raising their age at marriage. The Balika Samridhhi Yojana has been recently modified to provide certain incentives to meet this objective. There should be a convergence in the activities of all concerned departments engaged in the general development and welfare, especially among village-level functionaries, to achieve optimal utilisation of available services.

Population growth and its relation to economic growth have long been debated. The East Asian countries like Malaysia have achieved rapid demographic and socio-economic transition in spite of growing population. India will be going through a phase of demographic transition with low dependency ratio and high working age population during the next two decades. The challenge is to ensure appropriate skill development and employment of the workforce with adequate emoluments. This will promote savings and investment, which in turn will stimulate economic growth.

There are also marked differences between States in socio-economic development. Increasing investments and rapid economic development are likely to occur in the States where literacy rates are high and there is ready availability of skilled work force and adequate infrastructure. In these States the population growth rates are low. If equitable distribution of the income and benefits generated by development is ensured, a substantial increase in per capita income and improvement in the quality of life could occur in these States in a relatively short time.

In the majority of States with high population growth rates the performance in the social and economic sectors has been poor. The poor performance could be the outcome of a variety of factors including paucity of natural, financial or human resources. Poverty, illiteracy and poor development co-exist and reinforce each other. Some States

have received substantial investment to improve health infrastructure but both the utilisation of funds and the improvement in services have been sub-optimal.

Given the combination of high population growth, low literacy and lack of employment opportunities in the poorly performing States, there may be increasing rural to urban migration as well as inter-State migration, especially of unskilled workers. Such migration may, in the short run, assist the migrants in overcoming economic problems associated with unemployment. However, the migrant workers and their families may face problems in securing shelter, education and health care. It is essential to put in place a mechanism for monitoring these changes and initiate appropriate interventions to provide for the minimum essential needs of the vulnerable migrant population.

The ongoing demographic transition poses challenges and provides opportunities for improving the health indices of the population. There will be a reduction in the under-10 population from 243 million in 1996 to 219 million in 2006. The health care providers should take full advantage of the respite from the ever-increasing numbers to improve the quality and coverage of immunisation, health and nutrition services. Special attention should also be paid to improving access to education and skill development.

The next decade will witness a massive increase in the number of adolescents in the 10-19 age group from 200 million to 239 million. This age group has in the past received very little attention. There is an urgent need to improve the access of this vulnerable age group to a wide range of services in the field of social development, counselling and health care.

The population in the 15-59 age group will increase from 519 million in 1996 to 800 million in 2016. This age group has the least morbidity and mortality rates. Appropriate inputs into health care would therefore result in a substantial improvement in the health indices of the population in the next two decades. If all the needs for contraception are met it will be possible to achieve rapid population stabilisation.

Striving towards population stabilisation is not the sole responsibility of any one agency. Panchayati Raj institutions, Nagar Palikas, NGOs and the private sector will have to play a pivotal role in decentralised planning, monitoring of the programmes and improving people's participation in these efforts. The Ninth Plan recognises that the private sector, which accounts for more than three quarters of all health care expenditure in India, represents an untapped potential for increasing the coverage and improving the quality of reproductive and child health services in the country. The challenge is to find ways and means to optimally utilise their potential.

The NDC Committee on Population had recommended the harnessing of the managerial capability of the corporate sector for improving the social marketing of contraceptives, streamlining of health services and improving material and manpower management. During the Ninth Plan the participation of the organised and unorganised sectors of industry, trade and labour unions in the Family Welfare Programme will be further strengthened.

The industry can, and should, play a major role in hastening our progress towards population stabilisation. In addition to providing family welfare services to their employees, they should reach out to the needy in the locality. Health and demographic indices of the population in Jamshedpur is an example of what can be achieved by such an approach. A beginning in this direction at the national level has been made through the tripartite meetings on family welfare. But these meetings take place only once a year and after nearly two decades the Family Welfare Programme is currently getting visible support from opinion leaders and the society. Certain States have already enacted legislation that only those with small families can contest in elections to Panchayats and local bodies. All these favourable factors should be optimally utilised to hasten the pace of demographic transition.

It is obvious that the current phase of demographic transition is both a challenge and an opportunity. The opportunity is that the country has the right combination of factors, which if properly utilised will

enable us to vault to a higher socio-economic status in the next two decades. The challenge is to ensure that optimum use is made of the human resources to hasten the completion of the demographic transition and achieve rapid improvement in the quality of life. I am sure that you will be discussing all these issues in detail. I wish the Seminar all success and look forward to receiving its recommendations.

** Inaugural Address at the Seminar on "Population Dynamics at the wake of the next Millennium - Choices and Challenges" organised by FICCI-UNFPA on July 12, 1999 in New Delhi.*

MEASURING HUMAN DEVELOPMENT*

It gives me great pleasure to be here at this meeting organised jointly by ICRIER and UNDP to discuss the Human Development Report 1999. It is an occasion for us to remember with gratitude the contributions of the late Dr. Mehboob-ul-Haq, who pioneered the efforts to bring a wider concept of human development to the forefront of policy debates. The recognition that human existence has dimensions over and beyond the economic conditions of living had been introduced into mainstream economic thought by Professor Amartya Sen who, I noticed, has contributed significantly to this HDR. But the credit for operationalising this concept in the domain of development policy and planning must go to Dr. Haq and to the support that he received from the UNDP.

Over the years there has been some criticism of the human development index (HDI) on the ground that it is too simplistic and limited a measure of the extremely wide range of factors that determine a person's quality of life. While such a criticism may be valid in terms of the academic appropriateness of the index, it completely misses the true utility of the concept. The average human mind, despite its potential to handle a wide range of concepts, feels most comfortable with a simple and intuitive idea even while recognising its limitations in representing complexity. It is perhaps for this reason that a summary measure like the per capita income has captured the thought processes not only of the average person but even of the academic world. Any effort to supplant this measure in a manner, which would bring in the social aspects of human development, would necessarily have to devise a measure, which is equally simple and easy to understand. The HDI, in my opinion, has served this purpose admirably and has been instrumental in bringing about a significant shift in development perspectives.

I noticed with some satisfaction that India's position has improved quite significantly in this HDR as compared to earlier years. That we have made progress on this front is a cause for some gratification but it is tempered by the sobering reflection on how far we yet have to travel. There is an unfortunate tendency to use the HDI not so much to measure progress over time but more in comparison to where other countries stand. To me personally there is cold comfort in knowing that we are placed better off than many other countries and especially in comparison to any specific country. In matters concerning the well-being of human beings I believe that the absolute is at least as important as the relative. I would rather that we came last at high levels of human development than first at low levels. Perhaps the tendency to compare is natural but I also believe that the manner of presentation of the HDR is responsible to some extent. This is an aspect that the UNDP may like to examine so that the presentation focuses more on absolute levels of development and improvements over time instead of engendering comparisons.

It is a sad commentary that although the attention of the world has been drawn to the importance of the social conditions of life by intellectuals from the sub-continent, yet it is here that these issues have received less attention than they deserve. I would like to make it perfectly clear, however, that we have not entirely ignored these issues. A perusal of the Indian Five Year Plans reveals that social infrastructure has figured prominently in practically all of them, particularly since the Fifth Plan. The failure has been in achievement. This is not to say that we have not progressed. It is quite the contrary. However, many other developing countries have done better. Our inadequate progress on this front should be a cause for national concern.

There can be no two opinions about human development being the ultimate goal of all public action. The principal responsibility of the State is to improve the quality of life of its citizens. Quality of life is multi-dimensional, encompassing not only the economic opportunities available to the people but also their ability to take advantage of these opportunities and the existence of living conditions, which permit a healthy and productive life. It is sometimes believed that high incomes

and high levels of social indicators are inextricably linked. This is not necessarily the case. Both international experience and the experience of different States of our country clearly demonstrate that high levels of income are not pre-conditions to substantial social attainments. Sri Lanka and our State of Kerala, despite being relatively poor in terms of income, display levels of social development, which compare favourably with some of the most developed nations of the world. Conversely, there are parts of the country where success in the economic sphere has not led to commensurate improvements in social indicators.

Despite this recognition there is a tendency both among our politicians and economists to focus excessively on the economic dimensions of our existence. There is a good reason for this. Social indicators by their very nature tend to move very slowly over time, almost imperceptibly during the short time horizon that characterise most of our decision-making processes. Economic variables on the other hand tend to respond much more quickly. As a result, the need to show results within the operative time horizon leads to relative neglect of these social variables in favour of the economic.

What is surprising, however, is that such behaviour exists despite the fact that there is a considerable degree of awareness regarding the importance of the social sectors among the top echelons of our political leadership. In a meeting of Chief Ministers convened in 1996 there was almost complete unanimity on the over-riding importance of developing our social infrastructure. Seven sectors were identified for special focus as 'basic minimum services' (BMS), which formed the central plank of both the Approach Paper to the Ninth Five Year Plan that was approved by the National Development Council (NDC) in January 1997 and the first draft of the Ninth Plan prepared by the United Front Government. The present Government took a considered decision to continue with the Plan that had been formulated by the previous Government so that there was no disruption in the process of economic and social development of the country. The Prime Minister's special action plans (SAPs), which are an integral part of the Ninth Plan, gave further importance to basic services by providing action-oriented and time-bound programmes of implementation with

earmarked funds. This approach has received the endorsement of the NDC through its unanimous approval of the final Ninth Plan document and it is a clear indicator of the convergence of views on development issues across wide political and ideological spectra.

Once the importance of social development is recognised it becomes necessary to evolve a yardstick by which progress on this front can be measured. This is required not only over time but also across regions. Such measures enable us both to track our progress over time and to identify those regions of our country, which need greater focus. A readily available measure is the HDI in its pristine form. This measure, however, may not be entirely adequate for our purposes. Even the original developers of the HDI have recognised the limitations of this measure and have evolved complementary measures such as the Human Poverty Index (HPI), the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM). But the issue is somewhat more complex than that.

In the first place, measures of social development by their very nature need to be sensitive to the cultural and social milieu to which they are applied. For our purposes, therefore, we need to develop indices, which are relevant to our specific conditions. This would require reconsideration not only of the exact variables contained in the HDI but also of the weights accorded to each of them.

Secondly, in developing an appropriate index of social achievement there needs to be recognition of the strong inter-linkages that exist between the different components of social well-being. These inter-linkages vary from country to country and society to society in both their intensity and effects. There is, therefore, reason to carefully deliberate on the indicators that should be included in developing a human development index for India so that it captures the inter-linkages in the best possible manner.

Thirdly, an important characteristic of the existing HDI is that since the variables capturing the social dimensions tend to move only slowly over time, its inter-temporal movement is determined primarily by the income variable. To this extent, at least, its utility in guiding public action is not significantly different from the present per capita income indicator. To my mind there is need to have somewhat more

sensitive measures of social development so that the national or State-level HDIs can not only be used as an objective function of planning and policy but also as a measure of progress.

Finally, I believe that in the national context the HDI needs to be supplemented by an assessment of the intensity of effort going into social development. In other words, it is not enough for us to know where we stand and how we progress. It is equally important to analytically identify the causal linkages. A summary measure of inputs in social development would be a useful complement to the summary measure of social development output represented by the HDI. This is an area, which has not been addressed by the HDR and would have to be taken up *ab-initio*. This is not a criticism of the HDR. I understand of course that the input measures are necessarily country-specific and it may not be very meaningful to develop a single cross-country index.

In this context, I would like to bring it to your notice that the Planning Commission has already initiated a process of developing a suitable HDI for the country. Since time is short and it would not be advisable for us to delay matters further, every State of the Union has been encouraged to develop its own State Human Development Report using whatever variables they deem appropriate for their specific conditions. As you are perhaps aware, the Governments of Madhya Pradesh and Karnataka have already prepared such Reports and a few others are in the process of doing so. However, in order to facilitate inter-temporal and inter-State comparisons in levels of development, it is proposed to convene a workshop of experts in this field to deliberate upon the indicators, which should be used to develop a meaningful human development index for Indian conditions taken as a whole. I should make it clear, however, that such an index would be of use only within the country to measure our progress over time and across regions but would not be appropriate for making comparisons with other countries. It would therefore be a complement to the UNDP HDI and not a substitute.

**Address at a Seminar on 'Globalisation and Human Development' organised by ICRIER & UNDP on July 14, 1999 in New Delhi*

ISSUES IN ERADICATING RURAL POVERTY*

It gives me great pleasure to be with you at this annual Conference of the Project Directors of District Rural Development Agencies (DRDAs). We have many unique institutions in our country created in response to our felt needs and I regard the DRDA as being one of them. It is central in our fight against poverty and deprivation and much rests on the manner in which DRDAs carry out their mandate. There is no doubt that the DRDA has immense potential. Only it needs to be properly focused. I am glad that the Ministry of Rural Development is taking steps to strengthen this institution, orient it and equip it better for the task of alleviation of poverty and enhancement of the quality of life of our rural population. I wish the Ministry and all of you all success in this endeavour. Your success will mean the success of India.

Poverty eradication has been a central objective of planned development since Independence. Programmes targeted to the rural poor have been implemented in our country for a long time. However, as you all know, since the 1980s there has been a significant increase in both the number of such schemes and the outlays for them. In the Ninth Plan the Central Sector outlay for rural development is Rs. 42,278 crore. A sum of Rs. 2790 crore has been earmarked for schemes under the Prime Minister's Special Action Plan included in the Ninth Plan. This is apart from the expenditure by the State Governments. The PM's Special Action Plan also lays special emphasis on rural development and poverty alleviation. This provides some idea of the resources being devoted to rural development programmes, in particular to those designed for alleviation of poverty.

However, it is necessary to evaluate objectively whether all these schemes have yielded the desired results. Although we have witnessed a more or less steady reduction in the incidence of poverty in the country since the early 1970s, it is a sobering thought that over one-

third of our people continue to live under conditions of poverty and deprivation. The correlates of poverty, such as health, literacy and social and economic inequality, too remain at unacceptable levels. The latest Human Development Report brought out by the UNDP indicates that according to the overall Human Development Index (HDI) India stands at the 132nd position among 174 countries. The fact that we have moved up from the 139th position since the previous year should encourage us to put in greater effort because we still have a long way to go.

Planning is an essential ingredient of success. There is a need for convergence of different schemes being implemented not only by you but also other government agencies, all targeted to the poor and the vulnerable sections with the objective of bringing about an improvement in their quality of life. This convergence is required at the district and sub-district levels and must be brought about through the mechanism of village, block and district plans. The Ninth Plan has specifically talked of the need for decentralisation of planning and development within the framework of democratically elected local bodies. Therefore, the responsibility for the effective management and efficient utilisation of available resources for the benefit of the poor is reposed in you.

As you are aware, the various poverty alleviation programmes have been revamped in order to remove some of the inherent shortcomings. A review of these programmes was undertaken by the Ministry of Rural Development and the Planning Commission and I am glad that, based on the recommendations of a Committee headed by Prof. Hashim, who is here with us, the Ministry of Rural Development has ushered in a number of far-reaching and much-desired changes in the different programmes. These are aimed at improving their effectiveness. I am sure it will now be easier for the field-level functionaries to understand and implement the programmes more efficiently. Let me briefly touch upon some specific features.

In so far as self employment programmes are concerned, these have all been merged into a single programme – Swarnjayanti Gram Swarozgar

Yojana (SGSY) – with a shift towards a group/cluster approach with a view to ensuring adequate levels of investment and availability of necessary linkages and infrastructural facilities. You, as Project Directors, must identify economically viable activities and provide the necessary linkages to make a concerted effort to give sustained income to the poor. You would also have to provide access to a range of facilities to the beneficiaries including inputs, credit, marketing and other support.

The Jawahar Gram Samridhi Yojana (JGSY) is the restructured JRY. It will no longer be solely an employment programme but will now be a village infrastructural development programme and works should be taken up according to the felt needs of the people to meet their local requirements. Wage employment would be provided under the Employment Assurance Scheme (EAS). This too is being revamped. I hope that programmes under this scheme create rural infrastructure and assets, which would provide the basis for sustainable employment. I would, in particular, recommend that works, which facilitate agricultural development, like soil and moisture conservation, minor irrigation and rural roads, be given priority as these will contribute materially to sustained poverty reduction.

The single most important requirement today is to ensure that full value is obtained for every rupee of public money spent. This means acknowledging and removing the weaknesses and leakage in the delivery system. As Project Directors are you prepared to accept this challenge in respect of your area of responsibility? I hope and trust that you will do so.

One practical step to promote transparency and invite social audit is the publication of schemes and periodic reports on their implementation so that the people at large are suitably informed about them. In our large country there are many success stories in different regions and sectors. There are different models for people's participation. The common factor in success stories is the removal of constraints and inertia of the rural people. This is an important lesson underlining the need for social mobilisation of the people.

In spite of the existence of an elaborate monitoring and evaluation system in the country its findings are not put to use because the indicators to be monitored have not been clearly brought out. Impact studies of various schemes must be designed with a view to making full use of their findings. To the extent agencies outside the Government are used to carry out these impact studies they may yield useful insights.

Professionalism among the DRDA functionaries is equally important. Poverty reduction is not a matter of general administration. It requires attributes and attitudes, which are not necessarily inculcated in the course of administrative experience. It calls for enthusiasm, dedication and a sensitive commitment to the well-being of the poor and the deprived.

It is clear that financial outlays by themselves cannot ensure results. Realisation of the objectives calls for imagination and flexibility and to this end you, as Project Directors, have a pivotal role to play. If the objectives of these programmes are fully realised, we can confidently expect considerable reduction in the poverty levels in our country. This is the true measure of your challenge and your opportunity.

In the end I would like to remind you of what Swami Vivekananda had once said. "Our great national sin is the neglect of the masses and that is the cause of our downfall And so long as the millions live in hunger and ignorance, I hold every man a traitor who, having been educated at their expense, pays not the least heed to them". Gandhiji had set before us the goal of service to Daridranarayan, i.e. wiping every tear from every eye. Your position as the Project Directors gives you the unique opportunity of contributing to the realisation of the dreams of these great visionaries.

Can anything be more worthwhile and more appealing to your sense of idealism than to know that you have given relief and hope to those who need and deserve it the most? I wish this Conference all success.

** At the DRDA Project Director's Conference held on July 19, 1999 in New Delhi.*

DEVELOPMENT STRATEGY*

I am happy to be here today with you all. I am told that Lal Bahadur Shastri Institute of Rural Management and Rural Development was established in 1982-83 by the efforts of serving and superannuated civil servants, academicians and intellectuals. The book is dedicated to the memory of Shri Ranchor Prasad. I recall his concern for, and dedication to, the development of Bihar.

A Workshop on "Development at the Crossroads: the Case of Bihar" was organised by this Institute on 15th and 16th November 1997 at the A.N. Sinha Institute of Social Studies in Patna. I understand that the recommendations of this Workshop had been sent to various Ministries of the Government of India and to all the Departments of the Government of Bihar, NABARD etc. I would like to know the present status in this regard.

The book is a collection of papers presented at the Workshop. The papers cover issues related to the critiques of the current path of development, the relevance of models of growth based on market forces and integration with the industrialised world and the need for development of an alternative path of development in order to reduce inter-regional and inter-personal disparities, as also to avoid the harmful effects of globalisation.

The papers are contributed by bureaucrats, administrators, economists, technocrats, academicians, social scientists etc. The crux of almost all the papers is that the planning process has not reduced inter-personal and inter-regional disparities in any appreciable manner. The global market forces, if not guided and regulated by the planning process, would worsen the situation. The need for changing the approach towards implementation of development schemes is emphasised. The role of bureaucrats needs to be minimised and the main stakeholder, i.e. the people, must be brought to the forefront in formulating and

implementing the development schemes. In this connection the role of Panchayati Raj institutions and local bodies is crucial.

It is true that the planning process has not been able to remove inter-personal and inter-regional disparities as originally anticipated. The first emphasis in our Plans has been on economic growth combined with a stipulated pattern of development. This implied, in the earlier years, intensive agricultural development for ensuring self-sufficiency in foodgrains and adequate supply of agricultural products for industry and exports and expansion of heavy and basic industry, so as to achieve greater self-reliance in industrialisation. During the period 1951-74 it was simply assumed that with the increase in the rate of growth of GDP and with the increase in infrastructure and industrial base, necessary changes in income distribution in favour of the poor will automatically follow. This "trickle down effect" did not materialise. Corrective measures were, therefore, introduced in the development strategy of the country. Emphasis was placed on providing more consumption benefits to the poor people and on a large number of poverty alleviation and area development programmes designed to transfer additional purchasing power to the poor.

This was followed by a phase in which growth with redistribution became the core of the development strategy. This took shape in the form of various direct targeted anti-poverty programmes starting with the Fifth Five Year Plan. The results were mixed. In fact it was only in the eighties that these targeted poverty alleviation programme started showing visible results with a marked step-up in the growth rate.

The experience gained indicated that only an exclusive welfare strategy, indifferent to any productivity improvement, would not result in removing poverty or improving the standard of living. It was felt that for reducing poverty effectively a significant improvement in the efficiency of resource use would be necessary. This resulted in the enunciation of a large number of schemes for increasing the productivity of capital via improvement in technology.

The Indian development strategy, therefore, has evolved over successive Plans reflecting the strength of the economy and the structural

transformation that was taking place in the economy. In the past, the Government remained very active in industry and relatively less so in the areas relating to social development. This was reflected in a very slow pace of improvement in the critical social indicators, which is to a large extent responsible for the inter-personal and inter-regional disparities. In the early 1990s and, particularly in the Eighth Plan, efforts were made to reform the system by decontrolling and debureaucratising the economy. We realised an impressive rate of growth but the performance in many areas had been much below expectation. The higher rate of growth did not reduce poverty as much as it should have. The number of jobs created could not absorb the increasing number of educated youths. The realisation of the objective of balanced regional growth remained a distant dream. The deficiencies in social indicators also continued.

Our past failures prompted us to introduce corrective measures in the development strategy and identify areas of special importance for State intervention. The Ninth Plan identified these special areas which include better quality of life of citizens, improvement in productivity and reduction in regional imbalances. The Ninth Plan has not only emphasised the achievement of a higher growth of output and employment but also put a special emphasis on all-round human development with stress on the social sectors and thrust on eradication of poverty. Some specific areas have been selected by the Prime Minister for special focus in the Ninth Plan. For these areas a Special Action Plan has been evolved in order to provide action-oriented time-bound targets with adequate resources. Broadly, the Special Action Plan covers specific aspects of social and physical infrastructure, agriculture, information technology and water policy.

Our development strategy must focus on the development of agriculture. This sector has not benefited as much as it should have from the policy of economic liberalisation. The phased reduction in the high levels of protection given to the industry and the opening of the export market for agricultural products will help to shift the terms of trade in favour of agriculture and this should help to raise rural incomes. The Ninth Plan places special emphasis on providing the

requisite economic infrastructure for the development of agriculture as this sector provides livelihood for the largest number of our people and its development is the best guarantee for achieving the objective of balanced regional growth and reducing inter-personal disparities.

One of the important objectives of the Ninth Plan is to provide the basic minimum services of safe drinking water, primary health care facilities, universal primary education, shelter and connectivity to all, extension of mid-day meal programme in primary schools to all rural blocks and urban slums and disadvantaged sections and streamlining of the Public Distribution System in a time-bound manner. Special Central Assistance is given for the implementation of these seven basic minimum services. The need for formulation and implementation of the Plan schemes through Village Panchayats and Gram Sabhas has been emphasised in the Ninth Plan document.

It is hoped that with the new strategy enunciated in the Ninth Five Year Plan it would be possible to reduce the inter-regional and inter-personal disparities existing in the country.

Bihar with its ancient capital Pataliputra was the centre for ancient Indian civilisation and its rich cultural heritage is a proud legacy of our nation. Our history abounds in rich references to Bihar in Vedas, Puranas etc. Bihar has remained the centre of learning for quite a long time. The great religions of Buddhism and Jainism originated and flourished in Bihar. For quite some time Pataliputra remained the Capital of ancient India.

In more recent years, Gandhiji started the satyagraha movement against the British rule in Champaran in Bihar. Bihar produced a number of stalwarts during the freedom struggle. Dr. Rajendra Prasad became the first Indian President after Independence. The State was put on sound footing under the able leadership of the Chief Minister Shri Krishna Sinha. During that period, governance in Bihar was among the very best in the country. In the turbulent period of 1970s, Shri Jayaprakash Narain had emerged as the conscience keeper of the nation. Unfortunately, however, the State's economy has now fallen in a bad shape. It is the most backward in terms of indicators of development

and social indices. Its per capita income is less than half the average of all States and it has the highest level of poverty.

However, the situation was not always so dismal. Bihar's growth rate of GDP during the 80s was 5%, only marginally less than the average national growth rate of 5.6 per cent. During the Eighth Plan, while the rest of the country achieved a growth rate of around 6.5%, the average of Bihar was hardly 0.5%, the lowest in the country. At present, Bihar has the unique feature of a negative growth rate. This is further characterised by less spending and non-utilisation of the Plan funds. The indices in human development are also dismal. It is time that the people of Bihar strive to lift themselves out of this morass.

The Planning Commission would like the State Government to introspect on these issues. We have already offered to provide assistance for a Vision 2020 Document. Perhaps, the gathering here can help in this effort and ponder over the three basic questions of where are we now, where do we want to go and how are we going to reach our goal. The answers to these would help us in defining our ambitions and assist in identifying the correct process to reach the desired goal. The rules, procedures, delegations of power and other constraints could be easily removed once we have this vision.

Speech on the occasion of the release of the book "Development at the Crossroads" on July 28, 1999 in New Delhi.

EVALUATION STUDIES AND PLANNING PROCESS*

As you know, the Plan schemes are designed and implemented on the basis of certain assumptions about availability of resources and manpower, procurement of materials, grassroots level institutions and the behaviour of the delivery system and target groups. Thus, we cannot say *ex-ante* if the laudable objectives of Plan schemes would actually be achieved. Quite early in the planning process our planners realised that regular monitoring and evaluation is the only way of knowing if the objectives of Plan schemes are being realised. That is why, as early as 1952, the Programme Evaluation Organisation was established as an adjunct to the Planning Commission. Subsequently, State Evaluation Organisations were put in place. These organisations were required to assess the process of implementation and impact of Plan schemes. Such evaluation was meant to help the planners and implementing agencies to ascertain if their assumptions about parameters of the schemes were justified, and the efforts were adequate. This feedback was to enable them to take the necessary corrective steps for improvement in performance of the schemes and for efficient utilisation of public resources.

However, these expectations have not been fulfilled. Time and cost overruns of projects are substantial. It is common knowledge that benefits meant to be delivered to the people have not fully reached the intended beneficiaries. Does it mean that the evaluation studies have not come up with useful lessons? Some evaluation studies were reviewed by the Planning Commission on the eve of the Ninth Plan to see how this feedback from the grassroots was used for development planning and administration. It was found that while

the evaluation studies threw up enough lessons, action to put these lessons into practice was not satisfactory.

What went wrong? The Ninth Plan document has deliberated on the issue of inadequate use of the results of monitoring and evaluation. The most important reason for low demand for evaluation studies is the non-adherence to the "accountability" criteria by planners and administrators. It is well known that implementing agencies can easily get away with time and cost overruns or non-fulfilment of targets by attributing these to factors beyond their control.

It would, however, not be appropriate to say that this is the only factor responsible for the inadequate use of the findings of evaluation studies in planning. There are a number of deficiencies in the evaluation organisations themselves. It has been noted that evaluation organisations, in the past, took unusually long time to complete a study. I am told that some studies took more than two years to complete. In such cases, the findings of studies may lose relevance. Secondly, the evaluation reports often lack a user-friendly orientation. As a result, policy makers, planners and administrators may not be able to derive from them the kind of action points they are looking for. Thirdly, one way of sensitising the planners and implementing agencies to the utility of the findings and suggestions of evaluation studies in actual decision making is to involve them in the design and implementation of such studies. I do not know whether this is being done by the PEO and SEOs.

We must also examine whether the evaluation organisations are currently endowed with the necessary inputs and official support to discharge their responsibilities satisfactorily. Reforms are needed in certain areas to equip them adequately for this purpose. The following weaknesses need immediate attention: (a) lack of staff

with adequate technical competence; (b) lack of training facilities for the staff; (c) inadequate infrastructure and (d) ineffective, and, sometimes, non-functional, evaluation committees/ boards.

I am sure the deliberations of this conference will help to further identify the specific areas requiring reform. However, it is ultimately up to the evaluation organisations themselves to enhance their capability and effectiveness so as to promote demand for evaluation studies.

Even though thousands of evaluation studies have been conducted, at present there is no data bank on evaluation, which can be accessed by planners and policy makers and even by the evaluators for their literature survey. Lessons from the evaluation studies conducted by Central and State evaluation organisations must be systematised and put in a data bank for easy access. I have asked the PEO to put their reports on the Internet. They should now make arrangements to put other evaluation studies in the web site. We propose to put this on the Planning Commission's web site. I would ask PEO to initiate this and work out the operational details in consultation with the State Governments. The Planning Commission will bear the entire expenses including those incurred by the State Governments on this activity. This data bank, apart from being useful for designing and implementation of new schemes, can be used as an input to the Annual Plan discussions with the Ministries and the States.

I understand that no regular training courses are being organised for the staff of the PEO and the State organisations. This is essential to keep pace with the latest development and to bring in efficiency in the organisations. I would ask PEO to make arrangements with reputed training organisations for conducting regular training programmes for the staff of the PEO and the SEOs. The Planning Commission will bear the expenses on such training programmes.

It may not be possible to add to the strength of the field staff of PEO and SEOs in the near future. However, the deficiency, if any, can be made good if well-organised and systematic use is made of the services of university students and research organisations for field surveys and analysis. Appropriate mechanism should be evolved to give these organisations the necessary funds, guidance and flexibility to do so.

I understand that the PEO has only a small office at Guwahati for the entire north east region. It should be enabled to effectively cover the whole region. I suggest that the Secretary, Planning Commission should look into this aspect.

I feel that co-ordination among evaluation organisations can help avoid duplication of work and inappropriate use of resources. It would be useful, in my opinion, if the broad areas of evaluation work for every year are identified in a meeting of the evaluation organisations before the commencement of every Annual Plan. Perhaps, this meeting under the Chairmanship of Secretary, Planning Commission can decide on one or two programmes for joint evaluation each year with a larger sample from each State. This would help identify State-specific features in the implementation and impact of programmes and hence, give more insight into the working. The meeting can also identify the broad areas for evaluation work for each year. The respective State Government may decide on the specific programmes to be evaluated within these broad areas.

I also suggest that Secretary, Planning Commission should look into the infrastructure needs of evaluation organisations particularly their software needs.

I hope the deliberations of this conference will bring the Central and the State evaluation organisations closer to each other and ensure harmonious and effective working. This will certainly enhance their contribution to the planning process.

We have recently had a meeting with some non-governmental organisations, which are also carrying out evaluation studies and impact assessments. There should be better co-ordination between these and the government agencies.

The success stories should also be evaluated in an objective way. This would not only encourage agencies involved in development and welfare but would also provide an opportunity to neighbouring districts to learn from these successes. I wish the Conference all success. Thank you,

** Inaugural address at the Conference of State Evaluation Organisations held on July 28, 1999 in New Delhi*

HUMAN DEVELOPMENT INDICATORS*

It gives me great pleasure to be here at this Workshop, organised jointly by the UNDP and the Planning Commission, for the express purpose of deliberating upon an appropriate Human Development Index for India. The recognition that human existence has dimensions over and beyond the economic conditions of living had been introduced into mainstream economic thought by Professor Amartya Sen but the credit for operationalising this concept in the domain of development policy and planning must go to the late Dr. Mehboob-ul-Haq. This is an occasion for us to remember his contribution with gratitude.

The fact that the attention of the world has been drawn to the importance of the social conditions of life by intellectuals from the sub-continent is not coincidental. Its genesis lies in the development experiences of the South Asian economies. In the early years of planned development in our country, immediately after Independence, the basic focus of development policy and strategy was on rapid growth of incomes, practically to the exclusion of all else. This was, perhaps, entirely understandable in the particular context. It must be remembered that the country had experienced a 40-year period of stagnation, if not actual decline, in per capita incomes between 1911 and 1951 when the rest of the world was forging ahead. Reversing this trend was naturally foremost in the minds of our policy-makers. It was believed at that time that economic growth by itself would almost automatically take care of the other problems besetting our nation, such as high levels of poverty and poor social indicators.

The facts, however, were otherwise. Despite fairly steady growth of per capita incomes through the 1950s and 1960s, the incidence of

poverty in the country actually increased, thereby belying the 'trickle down' theory that had been in currency until then. This recognition too was due to seminal research work carried out by Indian academicians who developed the methodologies for defining and measuring poverty. Due to these academic efforts and their impact on public perceptions it was realised that endemic poverty could not be tackled by the growth process alone and poverty alleviation would have to form a distinct and separate objective of State policy. It is, therefore, not to be wondered at that "Garibi Hatao" became possibly the most potent political slogan in post-Independence India.

The situation was somewhat different in the case of social indicators. Despite the increasing trend in poverty over this period, most social indicators actually showed slow, but distinct, improvement at least for the country taken as a whole. This was, perhaps, the reason why less than adequate emphasis was placed on measuring our progress on this front. I would like to make it perfectly clear, however, that we did not entirely ignore these issues. A perusal of the Indian five-year Plans reveals that social infrastructure has figured prominently in practically all of them, particularly since the Fifth Plan, when the 'Minimum Needs' programme was introduced. The failure has been in achievement.

This is not to say that we have not progressed. Quite the contrary, we have recorded significant progress in practically all the social indicators, whether it be birth and death rates, life expectancy, infant and maternal mortality rates or literacy rates. However, many other developing countries have done better. Our failure, therefore, is not so much with respect to where we were but to where we should have been. This is, perhaps, a subtle shift in perspective but its implications are far-reaching. The social sectors have always been important in the government's scheme of things and a considerable amount of resources has flowed to them. However, the focus has traditionally been on allocations and on specific schemes or programmes. Now, however, the focus has had to be shifted to

outcomes and to issues of effectiveness. This is an important change in perspective and we owe much to the UNDP Human Development Report (HDR) in bringing about this shift.

I would also like to draw your attention to the fact that there is a considerable degree of awareness regarding the importance of the social sectors and the need to improve our social indicators among the top echelons of our political leadership. In a meeting of Chief Ministers convened in 1996 there was almost complete unanimity on the over-riding importance of developing our social infrastructure. Seven sectors were identified for special focus as 'basic minimum services' (BMS), which formed the central plank of the Approach Paper to the Ninth Five Year Plan that was approved by the National Development Council (NDC) in January 1997. This has been reinforced by the Prime Minister's special action plans (SAPs), which are an integral part of the Ninth Plan, and which gave further importance to basic services by providing action-oriented, time-bound programmes of implementation with earmarked funds. This approach has received the endorsement of the NDC through its unanimous approval of the final Ninth Plan document and it is a clear indicator of the convergence of views on development issues across wide political and ideological spectra.

In view of the demonstrated political support for social development issues, the time is ripe for encouraging the required shift in perspective across a wider front. India is a large and heterogeneous country and the national indicators hide the considerable variations that exist from State to State and region to region. Therefore, the perspective that was gained from placing India in comparison to the rest of the world through the UNDP HDR needs to be extended to the sub-national levels as well. This is the task that we have set for ourselves.

Once the importance of social development is recognised as an essential target of public policy and it is also recognised that the link between social development and economic well-being is somewhat

tenuous, it becomes necessary to evolve a yardstick by which progress across this broad front can be measured. This is required both over time and across regions. Such measures enable us both to track our progress over time and to identify those regions of our country, which need greater focus. A readily available measure is the HDI in its pristine form as presented in the UNDP HDR. This measure, however, may not be entirely adequate for our purposes. Even the original developers of the HDI have recognised the limitations of this measure and have evolved complementary measures such as the Human Poverty Index (HPI), the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM). But the issue is somewhat more complex than that.

In the first place, measures of social development by their very nature need to be sensitive to the cultural and social milieu to which they are applied. Since the HDI and also its complements, the HPI, GDI and GEM, were meant to be applied across a wide and diverse range of countries, they had to focus on a very limited number of indicators and combine them in a manner, which would be as culturally neutral as possible. For our purposes, however, we need to develop indices, which are relevant to our specific conditions. This would require reconsideration not only of the exact variables contained in the HDI but also of the weights accorded to each of them.

Secondly, in developing an appropriate index of social achievement there needs to be recognition of the strong inter-linkages that exist between the different components of social well-being. These inter-linkages vary from country to country and society to society in both the intensity and effects. Since any meaningful index can accommodate only a few and readily verifiable indicators, it becomes necessary to identify those indicators, which have the strongest linkages with the others in the specific social and cultural context. There is, therefore, reason to carefully deliberate on the indicators that should be included in developing a Human Development Ind

for India so that it captures the inter-linkages that exist in our socio-economic context in the best possible manner.

Thirdly, an important characteristic of the existing HDI is that since the variables capturing the social dimensions tend to move only slowly over time, its inter-temporal movement is determined primarily by the income variable. To this extent, at least, its utility in guiding public action is not significantly different from the present per capita income indicator. To my mind there is need to have somewhat more sensitive measures of social development so that the national or State-level HDIs can not only be used as an alternative to income as the objective function of planning and policy but also as a measure of progress.

Finally, I believe that in a national context the HDI needs to be supplemented by a measure that captures the intensity of effort going into social development. In other words, it is not enough for us to know where we stand and how we progress; it is equally important to analytically identify the causal linkages. A summary measure of inputs in social development would be a useful complement to the summary measure of social development output represented by the HDI. This is an area that has not been addressed by the UNDP HDR and would have to be taken up *ab-initio*. This is not a criticism of the HDR. I understand, of course, that input measures are necessarily country-specific and it may not be very meaningful to develop a single cross-country index. Indeed, I would submit that an inter-country input index may lead to serious distortion in social intervention efforts and it may, therefore, be preferable to leave it to be developed by each country on its own. For the individual country, however, some measure of effort has to be evolved as a guide to public policy.

In this context, I would like to bring to your notice that the Planning Commission has already initiated a process of developing a suitable HDI for the country. Since time is short and it would not have been

advisable for us to delay matters further, every State of the Union has been encouraged to develop its own State Human Development Report using whatever variables they deem appropriate for their specific conditions. As you are perhaps aware, the State Governments of Madhya Pradesh and Karnataka have already prepared such Reports and a few others are in the process of doing so. The efforts that have been made by the States are indeed commendable and I have noted that considerable thought and ingenuity have gone into them.

However, in order to facilitate inter-temporal and inter-State comparisons in levels of development it is necessary to deliberate upon the indicators, which should be used to develop a meaningful Human Development Index for Indian conditions taken as a whole. There are a number of reasons for this. First of all, although India is a single unified nation, it is by no means a homogeneous country as far as socio-cultural patterns are concerned. It is, therefore, necessary that we debate the choice of variables and the weighting patterns in depth so that we can arrive at a reasonable degree of consensus. Secondly, it is apparent that data limitations may force us to select, or even develop, proxies for the variables that we would ideally like to use. For this, the methodology must be uniform across all the States. This is not a trivial issue. Even in the case of State Domestic Products, which are reasonably easy to harmonise, there are significant differences in methodology between States, which lead to non-comparability. Finally, and perhaps most importantly, since the HDI we propose to develop is to be used for policy planning purposes, it must be sensitive enough to policy influence even in the relative short-run. I recognise that developing such an index may involve considerable analytical work and that it may not be possible to arrive at a solution by the end of this conference. But I sincerely hope that we can narrow the scope of debate considerably. I wish this Workshop all success in this nationally important endeavour.

** Inaugural address at the Workshop on "Core Indicator for Human Development" organised by Planning Commission and UNDP on July 30, 1999 in New Delhi*

PREPARATION OF HUMAN DEVELOPMENT REPORT*

It gives me great pleasure to be here with you at the release of the India Human Development Report prepared by NCAER. Recent years have seen a shift in the development perspective from just economic growth to human development, encompassing improvements in both the economic and social well-being of people. The UNDP Human Development Report, which was first presented in 1990, was instrumental in placing the objective of development in its proper perspective. These reports, which are published annually, have evoked a great deal of interest and debate not only on the elements constituting human development but also on the parameters suitable for comparing and assessing the attainments in this sphere over space and time. Given the limitations of any single composite index of human development, attempts have been made to develop alternative indices incorporating measures of poverty, deprivation as well as gender differences. As we are all aware, despite 50 years of planned development, one third of India's population continues to live below a modestly defined poverty line. This is despite the fact that we have achieved selfsufficiency in production of food at the national level. But this has not been fully translated into food security at the household level, which is clearly attributable to the lack of purchasing power in the hands of the poor. Therefore, the generation of greater productive employment is at the heart of development planning and making the poor more employable requires greater investment in human capital, particularly in education and health.

The experience of several countries in South East Asia has demonstrated the interrelationship between human development and material progress. Greater access to education, including skill endowment, vocational training and apprenticeship, enhances the

incomes of people already employed and widens the opportunities for those who are not. It is well recognised that in our country, while the rate of unemployment is very low, the levels of poverty are high, which is partly explained by the fact that people work at very low levels of wages and productivity. Despite the recognition that greater investment in education and health is required, given the competing demands for the limited resources available in the country, inadequate funding of these sectors has led to low levels of achievement. The problem is compounded by the inefficiencies in the institutional structures and delivery mechanisms that have been set up to provide the necessary infrastructure and services.

This does not, however, imply that we have not made progress. There has been considerable improvement with respect to social indicators with a perceptible decline in death rates and infant mortality and an increase in life expectancy and literacy. Access to safe drinking water, sanitation and shelter has also improved. There are a plethora of schemes in various sectors specially designed for the well-being of our people. Yet, we recognise that better targeted programmes and better delivery mechanism with greater accountability of those who administer these programmes are required to improve the impact of these programmes. In the short run, purchasing power is sought to be transferred into the hands of the poor through targeted antipoverty programmes and efforts are being made to make available food to the poor at prices they can afford through the targeted Public Distribution System. Yet, these are short-term measures, which cannot be sustained indefinitely. Therefore, an employment-intensive growth strategy, which focuses on sectors and geographical areas with both output and employment potential, has to be pursued. The success of this strategy would depend crucially on the efforts that are made to improve the impact of our policies and programmes in the field of education and health on the people, particularly the poor and disadvantaged.

As you are aware, the Planning Commission, in collaboration with the UNDP, organised a Workshop last week to discuss the preparation of both the national and State-level Human Development Reports. The idea was to have an interaction between State Governments, Central departments and experts on the indicators on which the Human Development Report should focus and also to give shape to a Human Development Index, which meets the requirements of our specific conditions. The availability of adequate and reliable data in various sectors was also a subject of considerable discussion. The limitation placed by an inadequate database on efforts to analyse human development in a consistent and comparable manner at the sub-national level was recognised as a major handicap. Although State-specific HDRs, utilising whatever database exists, are undoubtedly useful as a starting point, we will eventually need to standardise some of the measures. Data limitations will, therefore, have to be overcome. However, I do not believe that it is essential to fully integrate national, State and sub-State measures of human development since the nature and purposes of comparison will necessarily be different for the different levels.

In this context, I must compliment the NCAER for conducting a special sample survey drawn from 15 States and the North Eastern region. Though the number of households is only around 33,000, the sample has been chosen so as to permit inter-State comparisons. The available information permits categorisation by specific population groups like the land-holding class, literate households, poverty groups, Scheduled Castes and Tribe etc., which makes possible a much more detailed analysis across different socio-economic groups. Further, the study helps in understanding the factors that affect access to basic amenities both from the supply and demand side. Rural-urban disparity, male-female disparity, relative income inequalities and inter-State differences are issues, which impinge on the development of a nation and reductions in

all forms of inequities to manageable and acceptable levels would make for a much better society.

Despite the distinct advantages that accrue from the specific survey conducted by the NCAER, I feel that it is necessary to point out that such data can only be a complement to the national statistics and not a substitute. It would be most useful if the NCAER could compare the estimates arising from this survey with those derived from national data. I do not believe that any data source can claim perfection or infallibility. It is, therefore, in the interest of transparency and a more open and informed debate that such a comparison should be made and the causes of differences, if any, identified. One positive fall-out from such an exercise could be the identification of areas where data collection needs to be strengthened, which would benefit both the official system and the NCAER.

It should be our collective endeavour to work for the overall development of our people, particularly those who have been bypassed in the process of economic growth, with a focus on areas, which remain backward and inaccessible. The preparation of Human Development Reports would help to bring to the forefront the areas of concern and the regions that are lagging behind. Greater decentralisation of decision making and the involvement of the poor in the process of development are essential prerequisites for sustainable development. Greater transparency and accountability have to be built into the process so that the funds spent on improving the quality of life of our people are indeed well spent and the benefits accrue to those for whom these programmes are meant.

We have only just embarked on this process. As the HDR becomes widely accepted as a potent tool for directing policies and programmes, it is necessary to preserve its credibility. It is essential, therefore, to ensure independence of the agency or agencies entrusted with the task of formulating the HDRs. In this context, I would

suggest that the NCAER and the Planning Commission should work closely together.

I hope that the NCAER, with its unique advantages, will continue to work in this area and update the survey from time to time in order to see whether the households covered in their present survey have been able to improve their living conditions. This would truly help in understanding changes in the quality of life of people through re-surveys of the same households.

In the end, let me once again compliment the NCAER on the preparation of an excellent Human Development Report.

"On the occasion of the release of book "India : Human Development Report" on August 2, 1999 at NCAER, New Delhi

WATER RESOURCE MANAGEMENT*

I am very glad to be here with you at this National Conference, organised by the CII. It provides an opportunity to focus on the problems thrown up by the constantly growing demands of various sectors on the available supplies of one of the basic needs of human civilisation. As we move into the 21st century, the management of its water resources to cater to the requirements of growing numbers, economic development, rising living standards and urban migration will be one of the critical challenges facing the world community.

India is among the countries, which are well endowed with water resources, but the distribution is uneven. Even today many parts of the country, like Western Rajasthan, suffer from water scarcity. Water pollution is on the rise. Apart from dealing with the current problems, we have to evolve a long-term strategy for water management, involving the Central and State governments, local bodies, civil society associations and the private sector.

At the time of our Independence in 1947 the per capita water availability in our country was as high as 5750 cubic metres per year. This level has come down to 2370 cubic metres at present and by 2050 it is expected to drop further to 1403 cubic metres for an estimated population of 1.4 billion.

One of the key objectives of the Ninth Plan is to provide safe potable water to all the rural and urban settlements in the country. Though the coverage with regard to drinking water supply in the urban areas is reported to be about 90%, the service levels of water supply in most of the cities and towns are far below the desired norm and in some cases, particularly the small towns, even below the rural norms. To upgrade and provide water for ensuring 'Health for All' as also to remove inter-State and regional disparities new strategies will have to

be encouraged, especially with regard to public-private participation, community participation, access to institutional finances, market borrowings, removal or reduction of subsidies etc.

An innovative approach would require to be adopted. The strategies that could be considered are (i) democratic decentralisation through municipalisation of the responsibility for water supply services, including an enhanced role for civil society associations; (ii) commercialisation and private participation in service provision, both for municipal and multi municipal schemes; (iii) market-oriented financial systems, including development of direct access to capital markets through bond issues, new forms of financial intermediation and leveraging public resources; and (iv) adoption of the concept of user chargers and recovery charges aimed at meeting the O&M expenditure through the water tariff collected. Adoption of appropriate institutional and technological arrangements is a necessary part of the long-term strategy.

The 1.4 billion population of India in 2050 – half of them urban and half of them rural— would need 77 billion cubic metres of water to meet their domestic needs based on conservative estimates. Surface waters should be harnessed to meet the urban requirement, keeping in view the fierce competition between, and sometimes the conflicting demands of, the irrigation and domestic sectors. Giving the first priority to drinking water in the National Water Policy (NWP) does not mean unlimited quantities being appropriated by this sector. Only 20% of the urban demand has been for consumptive use. A major concern would, therefore, be treatment of urban domestic effluents, which could make or break the system.

The availability of water to urban agglomerations will become a critical problem by 2050. Most of the metro cities in the country have more or less tapped all the existing water sources in and around them and are now compelled to bring water from long distances leading to high costs. The water resources available in the vicinity of the metro cities must be reserved, to the extent possible, for domestic use on a priority

basis. The State Governments and the concerned urban local bodies must take effective steps to control indiscriminate and unauthorised extraction of ground water. The water supply utilities must adopt water conservation methods. Re-use and re-cycling of treated domestic and industrial effluents will go a long way in reducing the pressure on fresh water sources. Where feasible, artificial re-charge of ground water and rainwater harvesting may also be practised.

Let me now turn to something of direct concern to many of you, *viz* the industrial use of water. I am sure you would agree that a major industrial thrust to steer the economy is only a matter of time. By 2050 India should be a major industrial power in the world. Industry needs water—fresh or re-cycled. Processed industries depend on an abundant supply of water. It is estimated that 64 billion cubic metres of water will be needed by 2050 to sustain industries. The actual consumptive use of water by industries is only about 20% of their demand. New technologies of treatment, like anaerobic sludge blanket, biogas generation from waste, use of oxygen bleaching to replace chlorine in the pulp and paper industry, use of cartridges for treatment of electroplating wastes etc., are well known. They aim at resource conservation, water minimisation and recovery and re-use of wastes to the extent possible. They improve the financial viability of the industry and reduce possible conflict with public interest. Experience in the industrialised nations has proved that the anti-pollution technology has also been cost-effective in terms of preventing health, property and environmental damages.

In fact, the pollution due to industrial effluents is a far more serious problem than the one due to domestic effluents because of their higher potential to damage the natural land-water resource system. Once it is realised that pollution is a cost and a symptom of inefficiency in production, it will motivate investments in clean technology, thus reducing waste and pollution. Proper raw material, water and energy pricing policies can make water minimisation more economical. Financial incentives, such as investment and depreciation allowances, reinforced by disincentives, such as pollution or waste charges and

non compliance charges, should be considered for encouraging industries to adopt clean technologies for reducing their fresh water requirement and also for waste minimisation. Re-cycling and re-use of water should form part of water auditing in all industries. The concept of "the polluter pays" or "polluter gets punished" should gather momentum.

Now I turn to irrigation. India has created a total irrigation potential of 89.56 million hectares and ranks among the top with a net irrigated area of about 55 million hectares. The expansion of the irrigation system along with the increased use of fertilizers, seeds of high yielding varieties and modern agronomic practices has contributed enormously towards the achievement of the green revolution leading to a phenomenal four-fold increase in foodgrain production from 50.82 million tonnes in 1950-51 to 202.54 million tonnes in 1998-99.

However, there is no room for complacency in view of the fluctuations in our food grain production during the last 10 years, despite a row of consecutive good monsoons. In fact, nearly 65% of net cropped area in the country is still rain-fed where the agricultural productivity is quite low. For feeding a population of 1.4 billion about 370 million tonnes of food grains would be required in 2050, production of which would be a challenging task considering the constraints being faced in the irrigation sector.

The demand for irrigation water will multiply with increased crop intensity in future but the escalating competition from industrial, power and domestic use will drastically reduce the availability of good quality water for agriculture from 85% in 1990 to about 73% in 2025 and then to about 65% in 2050.

At present, water is a highly subsidized commodity and gross under pricing leads to tremendous wastage through seepage, percolation, runoff etc. and consequent low irrigation efficiency, thereby severely limiting the sustainability of irrigated agriculture. About 30% to 40% of the water delivered from the reservoir is actually available for plant

uptake. There is, therefore, an urgent need for a rigorous economic analysis of irrigated agriculture and massive water literacy awareness in order to mitigate the damaging effects.

While there is a need and sufficient justification for increasing the water rates, there is likely to be resistance and reluctance against such an increase on the part of the users. To make the price hike more acceptable, the supply needs to be concomitantly upgraded, both in terms of quality and quantity.

Another serious problem of water management arises from uncontrolled and excessive exploitation of ground water. There is no rational scientific pumping consistent with the annual recharge rate of aquifer, resulting in a negative water balance and rapid lowering of water table to the extent of complete drying and non-functioning of the village wells. In certain coastal areas, like Saurashtra of Gujarat, over-withdrawal of ground water with consequent inflow of saline sea water has impaired the ground water quality, affecting crop productivity. All these are multi-dimensional problems with wide socio-economic and environmental concerns. Of late, arsenic contamination of ground water due to indiscriminate pumping has become a cause of great concern to environmental quality and human health in parts of West Bengal.

The gap between the creation of irrigation potential and its actual utilization is 8.81 million hectares at the end of the Eighth Plan (1992-97). This under-utilisation of the created irrigation potential is mainly a managerial problem. The reason is the absence of a management-relevant analytical approach. Engineers are predisposed professionally to see problems and solutions in terms of physical works. Agronomists are concerned with study of crop water requirements. Economists think in terms of costs and benefits and are inclined to recommend regulation through water pricing. Sociologists study water issues at the community level but not at the systemic level. There is no professional discipline for holistic systems management.

The financing of irrigation in India is almost entirely dependent upon the State exchequer and the absence of linkage between revenue earned

and expenditure incurred makes for highly inefficient functioning of the irrigation system in this country. The need of the hour is restructuring and handing over the entire operation of the systems to the users as represented by groups or co-operatives. Some isolated efforts have been made in some irrigation schemes, for example in Andhra Pradesh, Gujarat, Maharashtra, but these have experienced only limited success mainly because of their inability to function effectively once Government support has been withdrawn. Attention thus needs to be focused on development of institutions or organisations that can carry on their functions independently, especially on a long-term basis.

One of the ways in which involvement of farmers' groups would serve to cut down the cost is reduction in the wage bill. Indeed, an overwhelming part of the operation and maintenance expenses of the irrigation system is the salaries and wages paid to the functionaries of the irrigation departments, which, in turn, are grossly overstaffed. With the function of distributing irrigation water to individual users and collecting dues thereby being delegated to users' groups, this inflated wage bill gets cut substantially and makes more funds available for the actual maintenance of the system.

In the next few decades advances in the fields of science and technology might transform the course of water planning. Significant changes may occur in the food habits, indeed the entire living style, leading to changes in water consumption pattern. Feasible technologies may be evolved to economically treat the water even at micro level, which could mean redefining the scope of water availability, thus leading to reassessment of water demand scenario. However, for the present, planning and development of water resources must be pursued vigorously keeping in view the multiple problems that confront the water sector at present.

Failure to evolve appropriate strategies and implement suitable measures to keep pace with the actual demand of water might throw the whole process of water resource development out of gear and precipitate a serious crisis. We need to promote innovative water

management techniques, including scientific rainwater harvesting, watershed management and revival of traditional wisdom of water storage and conservation practices. Since water resource projects usually have a fairly long gestation period, it is important to underline the need for having a proper vision and prepare ourselves with a blueprint of long-term planning for the development and management of our water resources.

** Inaugural Address at National Conference on "Synergisation of Water Management - Expanding the Scope of Private-Public-People's Participation" organised by CII in New Delhi on August 30, 1999*

R & D THRUSTS IN AGRICULTURE*

Dr. Hashim, Dr. Swaminathan, Dr. Dasgupta and distinguished participants, I am glad to be associated with this one-day Seminar on 'Research and Development Thrusts in Indian Agriculture in the Wake of Globalisation' being hosted by the Planning Commission. I welcome all of you and in particular Dr. M.S. Swaminathan who, I understand, has agreed to spend his whole day with you.

Indian agriculture has made rapid strides and has shown a great degree of resilience over time. After Independence, foodgrains production has increased substantially from 54.9 million tonnes in 1949-50 to 202.53 million tonnes in 1998-99. At the present level of demand the country is self-sufficient in foodgrains. Of course, the demand will rise as the population increases and the incomes rise. Hence, we will have to maintain a considerable growth in food production.

Our prime concern is to ensure food security and rural employment. The issue of food security involves not only access to food but also adequate supply of food, stability in its supply and the availability of foodgrains to the underprivileged sections at reasonable prices.

The Ninth Plan aims at doubling of food production in the coming 10 years so as to ensure food security and alleviate hunger and poverty. It envisages a growth rate of 4.5% per annum in agricultural production as against 3.7% per annum achieved during the Eighth Plan period.

Although the contribution of agriculture sector in our GDP has been going down, the number of persons depending on it for livelihood has not gone down significantly. Our farm holdings are generally of small size. About 78% of the total 106.6 million farm holdings are less than 2 hectares in size. This means that the research and development thrusts in agriculture have to keep the interests of this segment in mind. This also means the adoption of such growth

strategies, which are relevant not only to small and marginal farmers but also to the vast army of agricultural labourers. To the extent that multiple cropping and crop diversification is introduced and the infrastructure is developed, employment in agriculture will significantly improve. This in turn will help reduction in poverty levels. Agriculture has to become an engine of growth for the economy.

The achievements of the green revolution were the result of a well-conceived and well-executed strategy. The propagation of high-yielding varieties through effective machinery of agricultural extension was an important element of this strategy. Today also we need to spread the coverage of high yielding varieties to new areas. For this the extension machinery will have to be re-vamped.

Some years ago agricultural scientists took up the challenge of raising the production of oilseeds and pulses to catch up and keep pace with the growing demand. The production of oilseeds has increased substantially. However, research work on pulses needs to be intensified. We continue to be in short supply and have to resort to imports. Specific pulses, which are liked by people, are often not available in the international market. Our research scientists have come up with some good varieties but the yield levels, I understand, are not good enough.

The world economy is gradually getting integrated. Tariff walls are getting lower and lower. We are one of the founder members of the WTO, which favours globalisation of trade. In the context of the globalisation debate we, however, have to be especially conscious of our responsibilities towards food security. With a billion plus population to feed and with a large animal population to be looked after, we cannot afford to be complacent. Most of the countries in the world are net food importers. The policies of food surplus countries are guided by their own interests. In international trade, more often than not, the non-tariff barriers become much more pronounced than the formal tariff barriers.

Developing countries often express concern over the approach of developed countries. For instance, in the developed countries sanitary

and phytosanitary standards (SPS) are being used to restrict export from developing countries. This is not only an important market access issue but also has implications with regard to implementation of special and differential treatment provisions. International SPS measures should not be framed without taking into account the peculiar needs and situations prevalent in the developing countries.

On the other hand, developing countries should examine the advantages of international SPS with an open mind. Indiscriminate use of pesticides has started affecting our environment. Unless we are careful, pesticide residues will make themselves manifest in the grains that we eat or the milk that we drink. Importing countries are becoming increasingly conscious about pesticide residues in plantation crops like tea and in spices. Since we have the prospect of becoming a major exporter of agricultural commodities and products, we have to be conscious of international sanitary and phytosanitary standards. The standards we propose for the export market should also be internalised by us for our domestic market. Integrated pest management has to become a way of life.

The levels of agricultural subsidies obtaining in the developed countries will start coming down. It will open up opportunities for us to export our agricultural products and commodities. We will, therefore, have to get ready for the external market, which means setting up cold chains, developing proper systems of grading, processing and quality upgradation. We also have to adhere to the world standards of hygiene. In this context, I am reminded of the need for brand promotion. It is well known that there is a great deal of value addition in brand equity. We have so far remained bulk exporters and have left the question of value addition to the importers. It is time that we paid adequate attention to this matter.

There have been apprehensions in certain quarters that globalisation of trade will mean reducing our levels of subsidy in agriculture. But this does not take into account the fact that the Aggregate Measure of Support (AMS) to the agricultural sector in India is negative, whereas it is very high in the developed countries. As regards giving limited

access to commodities from other countries, it should not unduly worry us as the bound rates accepted by us for agriculture vary from 100% to 300 per cent. In the long run, however, it is necessary for us to remain competitive in the world. This can only be achieved by maintaining high standards of productivity.

One gets disturbing reports about terminator seeds and genetically modified organisms (GMOs). Terminator seeds have dangerous portents. They would make the farmers totally dependent on foreign suppliers who would charge whatever prices they like. A farmer cannot produce his own seeds. Besides, it can adversely affect the local germplasm and threaten our biodiversity. We, therefore, not only need policies to prevent the importation of such seeds but also strengthen our quarantine measures. As regards transgenics, we have to strengthen our own R&D efforts in this regard. Transgenics are needed for evolving varieties, which are disease-resistant. The ICAR is already engaged in this task. For example, developing genetic resistance to bollworms in cotton is an absolute necessity. What our country needs is evolving GMOs through our own R&D without depending on foreign sources. The environmental impact of new varieties also needs to be assessed carefully before a new variety goes commercial.

India possesses rich biodiversity. It is our duty to preserve the same. We need to catalogue our local germplasm systematically. We also need to have an organisation in place, which will be responsible for documenting authentically all our flora and fauna so that we are able to contest the dubious patent claims arising in the developed countries on materials, which have been used for generations by us. The efforts made by the ICAR in preparing DNA finger prints of local germplasm is praiseworthy. I am happy that the Agriculture Ministry is soon going to introduce the legislation for plant variety protection under a *Sui Generis* system. I am also happy to mention that the Ministry of Industries is proposing legislative measures for geographical indications. The sooner we have these laws in place the better.

I understand that the national agriculture research system evolved over the years is facing difficulties. Since the 1980s the growth of public investment in agriculture research has slowed down. As a result of global recession there is a distinct decline in donor contributions. One of the reasons for this decline in public funding of agricultural research could be the worldwide move to privatise public sector activities. There is little doubt that private sector funding of R&D in the agriculture sector has increased many times in recent years. However, it still accounts for only 10 to 15 per cent of total agriculture R&D funding in developing countries compared to about half in the industrialised countries. The result of these trends is that research intensity in developing countries remains low and has hardly increased over the past 10 years. This underlines the challenge before the nation, which is to promote rapid agricultural growth and compete in the global market through the application of science and technology. The challenge is further heightened when we look at the state of our natural resources environment.

During much of the 1970s and 1980s investment in agriculture research was motivated by concerns about growing population, a finite resource base, import substitution and food security. However, in the 21st century, along with the above mentioned concerns, we have to take care of natural resources management and preservation of our environment as additional priorities in our research agenda.

All these underline the need to provide a long-term research and technology plan for Indian agriculture. Such a plan would make full use of frontier technologies, including biotechnology. It would ensure the linkages between research, technology and production on the one hand and the effectiveness of the delivery system and extension network to carry the fruits of science and technology to the farmer on the other. It would take timely action to protect Indian agriculture from the negative fall-out of globalisation and maximise the advantages it can derive from the opportunities of globalisation.

During the last half a century we have done much to be proud of. But we have a long way to go. We also have to take good care of the

environment we live in. Our development strategy has to be ecologically sustainable. This would be the major challenge for us in the coming millennium.

With these words, I have great pleasure in inaugurating the Seminar, which is being attended by so many distinguished persons. The results of today's deliberations would be keenly awaited.

** Inaugural Speech at the Seminar on "Research & Development Thrusts in Indian Agriculture in the Wake of Globalisation" held on September 9, 1999 in New Delhi*

ENERGY CONSERVATION AND RECYCLING*

I am glad to be with you at this Seminar, organized by ASSOCHAM, on "Recycling, Energy Saving and Eco-friendly Process". I consider the subject of the Seminar apt and timely. Energy, as we all know, is vital to our growth efforts.

The economic reforms, which have been pursued by all Governments in the past few years and which will continue, have created a new and more competitive environment. Industrial growth and modernisation in future will be driven more and more by micro-level decisions of individual corporations and firms. Foreign investment will play an important role in this process. The biggest contribution that public investment can make to stimulate rapid industrial growth is the development of high quality and efficient infrastructure.

Rapid industrial growth needs a massive improvement in infrastructure, especially power, roads, railways, ports and telecommunications. The Ninth Plan places major emphasis on these sectors. These are also areas where public investment has to play a major part, supplemented by private investment as far as possible.

Balanced regional development has always been an essential component of Indian development strategy since Independence. Massive investments would have to be made particularly in creating social and physical infrastructure in the backward areas of the country for taking advantage of the growth opportunities.

In order to realise 6.5-7 per cent annual rate of growth in the economy, with industrial growth between 8 and 10 per cent and agriculture at around 4 per cent and to step up the growth rates still higher, matching infrastructure will need to be created to meet the requirements of different sectors of the economy. While massive investments will be required for additional capacity creation, we can get significantly more

out of the existing capacity with better utilisation of the assets. For instance, there is clearly scope for improving the Plant Load Factor, reducing line losses and eliminating power thefts.

Given a sustained growth rate of 6.5 – 7 per cent of GDP and taking into account energy/GDP elasticity of 1.046, the primary commercial energy sources will not be able to fully meet the demand unless we build up additional capacities at a desired pace. Oil and power are the major items in the commercial energy basket. We continue to be deficit in both.

The annual growth rate of electricity generation from the utilities for the first three years of the Ninth Plan works out to above 6 per cent as against the targeted estimate of 9 per cent, i.e. less by 3 per cent. If the same trend continues, generation from the utilities in 2001-02 would be around 87 per cent of the target.

Of the capacity addition target of 40,245 MW in the Ninth Plan, the achievement by the end of the current year is estimated to be only around 30.3 per cent. It is estimated that the feasible capacity addition for the remaining two years i.e. 2000-02 would be of the order of 15,831 MW. Thus, the total feasible capacity addition during the Ninth Plan would work out to 28,044 MW representing a realisation of only 70 per cent of the target. These figures clearly indicate that in the Ninth Plan we are not reaching a stage of bridging the gap in the power sector.

We are, therefore, laying emphasis on accelerated completion of the ongoing projects and initiation of measures to facilitate investment in new projects. Other measures include maximisation of benefits from the existing plants by improving their operational efficiency and capacity utilisation, improvement and augmentation of the transmission and distribution network and dealing effectively with the transmission and distribution losses and theft of power. The present level of all-India transmission and distribution losses is about 22 per cent and the losses in some States are even higher.

While continuing with the efforts to increase the supply of power for meeting the ever-increasing demand, emphasis is also being laid on conserving and saving energy, which is one of the important Plan objectives. While the former would prolong the life of our natural resources, the later would go to meet the energy gap to some extent at the aggregate level and quite significantly at the sectoral level as for example in the case of aluminum where power is used as a raw material. A comprehensive legislation on energy conservation has been approved by the Government of India and is awaiting the approval of the Parliament.

Energy saving is in policy as well as societal focus today. Backed by Plan programmes, schemes and other incentives, it has to assume the shape of a movement. The industry should also be participating in this movement both from environmental and economical considerations. In some cases it is possible to do this by resorting to production of some industrial goods using waste materials, scrap, etc. These include the secondary plastic plants, non-conventional energy units, secondary zinc and lead units, etc. While some of the units in the secondary sector have state-of-the-art environment-friendly technologies, many are simple units like backyard lead smelters.

The secondary route of producing industrial goods by and large has similar characteristics, namely, low investment, short gestation and low energy consumption. But this route cannot fully replace the primary processing because of the characteristics of the products.

Coming specifically to the aluminum industry, India is well endowed with bauxite resources and has the fifth largest deposits in the world. The aluminum industry has grown quite significantly since 1943 when the first smelter with a capacity of 9000 tonnes was set up at Bidhanabad in Asansol district of West Bengal. Today, we have an aluminum capacity of 714,000 tonnes and production is around 550,000 tonnes per annum. India has also emerged as an exporter of alumina as well as aluminum.

The demand for aluminum is growing at 8 per cent annually. However, the per capita consumption of aluminum in India is one of the lowest

in the world. With economic development gathering momentum and more and more people graduating to higher income levels, the per capita consumption of aluminum is bound to increase. I am told that India has only 300 known uses of aluminum as against around 3000 known uses abroad. So, there is a vast scope for a higher growth of the Indian aluminum industry.

The metal has special advantages like aesthetic value, long life, light weight, better strength, fire resistant and ability to take colours, etc. and finds wide application in many sectors of the economy such as power transmission, transport, packaging, building, consumer durable, etc. Besides these advantages, the metal helps in conservation of forests, as it replaces wood in the construction industry, including furniture, and is, therefore, environment-friendly.

Since we have large bauxite deposits, we can produce alumina, which does not consume much power and explore the possibility of exporting it to neighbouring energy-rich countries for conversion into aluminum under joint venture operations, if necessary. The Planning Commission has propagated this idea in the past. I am glad to note that three large export-oriented alumina projects are coming up on the East Coast and that one of them intends to get a portion of the alumina smelted abroad.

Production of secondary aluminum is quite attractive because, as compared to a primary smelter, it consumes only 5 per cent of energy, has a shorter gestation period, needs only 3-4 per cent of investment and does not consume natural resources such as bauxite. Besides, it also saves foreign exchange, which is spent in importing important raw materials such as pitch and petroleum coke, magnesium, etc. for the production of primary aluminum.

Even so, secondary aluminum only supplements primary aluminum, given the fact that in some important consuming sectors only primary aluminum can meet the product requirements, as in the case of high tension transmission lines, foil and packaging sectors, printing industry, specialised extrusion and rolled products, etc. The primary aluminum has, therefore, its own place and merit.

It is necessary to adopt state-of-the-art technology and underpin it with modern R&D facilities. I have noted that the Indian Aluminum Company (INDAL) has set up a secondary aluminum unit with an annual capacity of 25000 tonnes at Taloja in Maharashtra based on state-of-the-art technology. This unit, I am sure, will act as a catalyst, which will lead to growth of energy-efficient and environment-friendly secondary aluminum production industry in the country.

I look forward to the Seminar bringing out many recommendations, which will help in developing the secondary aluminum industry.

I thank ASSOCHAM for having given me this opportunity to share some of my thoughts with you.

** Inaugural address at a Seminar on "Recycling, Energy Saving, Eco-friendly Process" organised by ASSOCHAM on September 17, 1999*

VALUE OF INFORMATION TECHNOLOGY*

I am grateful to the IETE for giving me this opportunity of meeting all of you who have come from different parts of the country. The fact that you have come here in such large numbers points to the dynamism of the organisation and also the importance that all of you attach to the subject under discussion.

I am very happy to listen to Dr. Sharma and other speakers, who have given a view of their approach to information technology and how it can be used. In the Indian context, I think, that is the fine vision for development and reaching the benefits and fruits of development to those who are the most needy. Moreover, they spelt out the activity they are presently engaged, the successes they have achieved and also their future plans. I wish them all success and wish the Institution all success in its progress and in the fulfilment of its plans.

I would also like to congratulate Dr. Chidambaram and Dr. Shenoy. You could hardly have selected worthy recipients. I have had the good fortune of knowing both of them. I have always drawn strength from the fact that we have, even in this age of globalisation, been able to retain in this country some of the finest scientific and engineering minds, which have made all these contributions to the development of this country. I feel that one of the challenges before organisations like yours is to create a climate in which young people, who are bright, who have international market today and who happen to be specialising in a field which is developing across the globe at an astounding speed, could work. You would do a great service to the country if most of them could remain in this country. I believe that one of the great advantages of information technology is the annihilation of distance. The result is that it is completely possible to stay in this country and work for any other organisation anywhere on any task. That is something, which we should make full use of.

Every invention that increases human efficiency contributes positively to economic and social change. But some have more far-reaching implications than the others. As was mentioned, information technology is really associated with the ushering in of a new age. It is an epoch-making technology and the changes it is bringing about even today touch all aspects of human life. Information technology is a harbinger of future growth and competitiveness of nations and industries. India, having the largest pool of skilled and trained manpower in this area, has a strong competitive advantage in the international market. Keeping this in view, the Government of India has resolved to make India a front-runner in the information revolution to which references were made by Dr. Sharma. All sections of the society have to pool their resources together to achieve this objective. Your institution can play an important role in realising this goal.

Information technology (IT) broadly includes all sub-sectors dealing with the generation, transmission and utilisation of information. Information technology and allied sectors have immense potential for income, exports and employment generation. Besides, it would also lead to increase in productivity and efficiency, improved quality of services, greater transparency and friendliness in government-people relationship and emergence of new services and enterprises like Internet-based enterprises, electronic commerce etc. Information technology is expected to emerge as one of the largest employers of work force in the country and some say that it can provide up to 25% employment for the labour force in the long run. Keeping in view India's potential, the country should aim at an annual export target in excess of US \$ 50 billion for computer software and a target of US \$ 10 billion for computer and telecom hardware by the year 2008. The compound growth rate of more than 55% achieved during 1992-97 will have to be increased to 80% by 2008.

However, the point needs to be made that technology alone, even if it is good, is not sufficient to create social or economic value. It has to be related and integrated to the social ethos, values and the work culture

of the people. This realisation has led to the emergence of a new area of study called social informatics. It studies the change in the social dynamics as a result of the use of information technology. It is of particular significance to India, which has a strong and vibrant tradition of harmonising modernity and conventional wisdom. Due attention needs to be paid to this area also along with hardcore information technology.

Information technology has the potential to revolutionise the Government functioning and is vital for the way Government serves the people. It offers endless opportunities to bring new and more efficient ways of delivering public services and to introduce unprecedented levels of transparency in the functioning of public agencies and institutions. In fact, information technology represents an amazing opportunity to rethink fundamentally the way the Government provides the services to the public. In this context, it will make possible, in the near future, extensive rationalisation of service delivery processes.

The direct and immediate benefits of use of IT in the government are improvement in service quality, efficiency and government-people relationship by providing quick, easy and transparent access to information. New information services will allow the citizens to be more fully involved in the democratic process of decision making and participatory development. The use of information technology to speed up the flow of information within government will lead to greater efficiency in policy formulation and programme monitoring. Electronically delivered services, which can be introduced in the near future, include providing information, collecting taxes, granting licences, administering regulations, paying grants and benefits, collecting and analysing statistics and procuring goods and services.

Information is a vital resource for socio-economic development and has applications in rural development, agricultural development and social development. The Ninth Plan envisages "growth with social justice and equity". The strategy of agricultural development is centred around achieving the objectives of sustainability of employment

generation, food and nutritional security, equity and poverty alleviation. The Ninth Plan focus and strategy, *inter alia*, include doubling food production, increase in employment and incomes, supplementary or sustained employment and creation of rural infrastructure through poverty alleviation schemes.

The actual implementation of all development projects and administrative tasks starts from, and are monitored by, district authorities. Development of information systems and utilisation of information resources within government over Internet and Intranets is a matter of strategic importance in our country. Government is the 'major generator' of socio-economic information for its own use as well as for public use. Computer-based information systems are a pre-requisite for national development and the development of information systems within the government can be used as a lever for development of the society as a whole.

Information technology is a multi-disciplinary field emerging from computer technology, software technology, data-base technology and communication technology. I need hardly spell this out to an audience like this. Informatics network plays an important role in the information flow from the implementation levels to the planners and administrators at the macro level, i.e. national level, from macro-meso level, i.e. region covering more than one State to meso level i.e. a State and then to micro level i.e. district, block, and village. Integrated application of information technology, bio-technology and space technology will bring in the necessary S&T inputs for the required regional rural development in the country.

I mentioned this in some detail because while our plans are very good our weakness lies in the implementation and monitoring and that can be assisted to a very great extent by proper application of information technology.

The IT industry, the user groups and the professionals, who require organised information flow for multi-disciplinary research and development, have been waiting for the declaration of a comprehensive

National Informatics Policy by the Government. The Government has responded to this by setting up the 'National Task Force on Information Technology and Software Development' under the authority of the Office of the Prime Minister of India in May 1998. By July 1998 the first Policy Report was submitted, approved by the Cabinet and notified in the Gazette. Our Government considers information technology as an agent of transformation of every facet of human life, which will bring about a knowledge-based society in the next millennium. The Government has also instructed all the Central ministries and departments to prepare a Five Year Plan on IT with the provision of 1 to 3 per cent of their budget outlay. The IT-led development is now expected to take place through 'Information Shops' and 'Community-based Communication Centres' using Information Superhighways.

With the globalisation of the Indian economy, e-commerce (electronic commerce) is facilitating the financial institutions and exporters to benefit from the global economy. Trade and commercial information is crucial to our exporters in this situation and e-commerce provides the direction. Our policy is to give special emphasis to "Business to Business" e-commerce, which is the fastest growing area in IT today. We propose to set up a group on e-commerce in the Planning Commission under a Planning Commission Member to study all aspects of e-commerce and its applications to India.

The information technology has proved to be a very effective tool for monitoring Plan projects for minimising the time and cost over-runs. The aim is to have a project monitoring system with information coming in regularly, with flash reporting, monthly monitoring of projects costing Rs.100 crore and above and quarterly monitoring of projects costing Rs.20 crore and above. This information system would help the Government to take immediate remedial action whenever the trend of cost over-run or time over-run is detected.

All of you are men of experience and you know how we allow our projects so much of time over-runs and cost over-runs. You are aware

of this fact. Progressive use of IT in the Government may require a major shift in the mindset of the people involved. This will require raising the level of skills of staff at all the levels in the government. A key element of this will be training and development to improve their understanding of IT. In the ultimate analyses it is how we manage the HRD infrastructure for IT that will decide the pace at which we can use it.

** Inaugural Address at the 42nd Annual Technical Convention by IETF on "IT for Socio-Economic Development" held on September 25, 1999 in New Delhi*

ROLE OF SMART CARDS*

It gives me great pleasure to be here with you at the inauguration of Smart Cards Expo'99. Ever since our Independence, fifty years ago, India has recognised the importance of technology in bringing about economic and social transformation of the country. The large and diversified industrial base that exists in India today is the direct outcome of our efforts to not only assimilate technologies as they are developed but to leapfrog intermediate steps of technological progression. It is in this context that this Exposition is of great significance. As the world moves into the Information Age, we not only have to keep pace with, but indeed forge ahead and remain as close as possible to, the frontiers of technology.

We are rapidly moving towards a so-called "connected society." The Internet is the most visible manifestation of this growing interconnectivity. Perhaps the most striking aspect of the Internet is its speed of adoption. Consider the fact that in the US the radio took about thirty years to attract fifty million users. Television took 13 years. Cable Television took ten years. The Internet did it in half the time with double the number of users. Today some 130 million people are already on-line across the world. It is estimated that there will be 300 to 400 million people on the Net by the end of the year 2001.

The Internet is no longer a parallel postal service, as had been initially visualised by some people. Although worldwide there are five times more e-mail transmitted today than letters sent through the Post, this is but a small fraction of the application of the Internet. The main benefits arise out of the practically instantaneous access to information from diverse sources, which permits meaningful comparisons and informed decision-making. Incomplete or asymmetric information, which has been the source of much of the distortions and discrepancies that exist in the economic and social

spheres, is all set to be a thing of the past if appropriate and urgent measures are taken to widen the ambit of such interconnectivity.

India is uniquely positioned to take advantage of the benefits conferred by information technology. As you are aware, we have already made our mark in the field of software and it is but a logical step for us to establish our presence in the inter-related areas of networking. The process has already begun and we expect information technology, including Internet-based activities, to emerge as one of the largest employers of the work force in the country. The manpower and skills are available and their augmentation is primarily a matter of providing the necessary focus. Keeping in view India's potential, the country should aim at an annual export target of US \$ 50 billion for computer software and related services and a target of US \$ 10 billion for computer and telecommunication hardware by 2008. The achievement of these targets will only be possible with the compound growth rate of more than 55 per cent achieved between 1992 and 1997 being raised to 80 per cent per annum. It will also require widespread dispersal of IT within the country.

The introduction and rapid diffusion of information technology, however, are not without problems. At one level there are purely technical issues that can cause problems of which the latest is the Y2K problem or the Millenium bug. As you may know, the Government had set up a High Level Action Force to oversee the national effort in this area. The Action Force has identified 11 critical sectors of the economy and the concerned Ministries have been tasked with drawing up a detailed action plan to evaluate the likelihood of Y2K problems in these areas, take necessary remedial action and prepare contingency plans. I have myself corresponded with Chief Ministers asking them to take parallel action at the State level especially for the power sector. The Action Force has recently completed a detailed review of the action plans in each area and I have myself participated in many of these reviews. I can assure you that the plans submitted to us are impressive and we will ensure that they are fully implemented and this should help a trouble-free transition into the new millenium. The other danger lies in the implication of certain sections of society

being excluded from the benefits of information technology. As I have mentioned, although IT has the potential to reduce disparities between nations, asymmetric access to its benefits by different sections of society can have far-reaching social and economic implications. The Government is fully aware of this problem and has responded by setting up the National Task Force on Information Technology and Software Development under the authority of the Office of the Prime Minister of India in May 1998. By July 1998 the first Policy Report of this Task Force was submitted to the Government, approved by the Cabinet and notified in the Gazette. Since our Government considers IT to be an agent of transformation of every facet of human life, which will bring about a knowledge-based society in the next millenium, it will continue and accelerate the process of ensuring that no section of society is excluded from this process. As one component of our efforts, the Government has instructed all the Central ministries and departments to prepare a Five Year Plan on IT with the provision of one to three per cent of their budget outlay in order to ensure that every sector of the economy receives due attention.

An important component of the sociological implications of the information age is that the breaking down of distances, which is at the heart of the process, should not be allowed to impinge on the essence of individuality. There is clearly a need to ensure that an electronic counterpart of physical individuality is evolved so that there is a true breaking down of distances without loss of identity. There is already a wide recognition of such a need across the world and various efforts are in place to create such e-identities. An important component of this process is clearly the "Smart Card". It is for this reason that I welcome this Exposition since it gives us an opportunity to explore the possibilities and limitations of this exciting new technology.

Conventional Personal Cards have been in use for over two to three decades in various forms and for various applications ranging from individual identification to financial transactions. The need to extend and improve the services where individual identification is important has today exploded the plastic card market. Since simple identification could only go so far in providing newer services, a mechanism of storing

additional information on the cards was felt necessary. Magnetic strips were added on to the plastic cards to carry information that could be dynamically altered with ease. However, many issues concerning reliability and security of these magnetic strips have been raised from time to time.

Microprocessor chips have also been in use for almost the same period with applications ranging from computers to controllers as embedded chips in various devices. Integration of these two technologies, viz. Personal Cards and the Processor Chips, has now been in the market in the form of Smart Cards – a card with an embedded processor chip. This new composite technology of Smart Cards opens out a whole new range of applications especially in the area of secure financial transactions, secure personal identity and individual information storage. The advent of Smart Card technology, coupled with the Internet services, gives to the common man access to a variety of new applications.

India has always been very responsive to the adoption of new IT solutions. Smart cards are today being evaluated for various applications with public interfaces like driving licenses, health information cards, security cards and for e-commerce. Soon one would find these applications getting wider acceptability in the country.

There are, however, two dimensions of the introduction of smart cards that need to be mentioned. The first is the issue of standardisation and inter-operability. India is a vast country and in our federal set-up it is inevitable that smart card applications will actually have to be implemented at the local or State level with each State having its own specific requirements. While implementing at the local level, however, the national perspective should not be lost. Standardisation and inter-operability have to be built into the system at the stage of conceptualising the application from the national perspective. Care needs to be taken that it does not become necessary for the cardholders to replace the cards as they move from one location to another or from one State to another. The very advantage of smart cards would be lost in such a case and a poor country like ours can ill afford such

repetitive expenditure. Although we have evolved certain standards regarding the physical characteristics of smart cards and the electronic signal and transmission protocols, these in themselves do not assure inter-operability. This issue will have to be tackled at the national level perhaps through a mechanism such as the Group that is proposed to be set up by the Planning Commission to examine and guide the introduction of e-commerce in the country.

Secondly, we have to be aware of the fact that ours is a multilingual country and the vast majority of our citizens cannot be assumed to be conversant in any language other than their mother tongue. Inter-operability in Indian conditions does not only mean commonality of electronic codes and protocols. It also requires that for a number of applications the information stored on these cards should be accessible in a multiplicity of languages. I am not aware whether such efforts have already been made but technologically it should not be an insuperable problem.

In conclusion, I would like to express the excitement that I feel at the advent of this new technology in India. But I am also aware of the hurdles that we may have to cross. I have attempted to give a brief indication of my personal thoughts on this matter. However, I think it is inescapable that the introduction of this technology in the country would need to be guided carefully keeping in mind the specificity of our situation. Perhaps the expert group that I have mentioned earlier, coupled with a National Technology Provider, would be one way to introduce smart cards into India so that the "learning by doing" experience can be internalised and eventually capitalised in terms of the appropriate standards and inter-operability conditions. I am certain that the deliberations of this Exposition will take us further along the path to introduce this technology in the country. Thank you.

* *Inaugural Address at Smart Cards Expo'99 on September 28, 1999 in New Delhi*

DIMENSIONS OF NATIONAL SECURITY*

I am very glad to be in your midst today. It gives me a welcome opportunity to interact with you. I look upon you as a select group of very bright young persons, destined to shoulder increasingly onerous and exacting responsibilities as the years roll by. The crucial question, which each one of you will have to ask yourself is: "What will be the guiding principle of my work ethic in the years ahead? Can I overcome the seduction of self-serving careerism and commit myself to maintaining the highest standards of public service, good governance, integrity and citizen-centred efficiency?" It will not always be easy, nor do I want to dole out any advice to you. If I talk about good governance, it is because the need for it has been brought home forcefully to me during the last few months in the Planning Commission. I find that the problems are known and so are the solutions. There is no dearth of good plans, schemes and projects. The weak link is implementation, which is the responsibility of the delivery system. That is the essence of the challenge facing the government machinery.

This is not the subject of my talk today but I could not resist the temptation of touching briefly upon a subject, which links this Academy to one of the most outstanding administrators of this country. I refer, of course, to Sardar Patel. Indeed, I consider it a privilege and feel honoured to deliver the Sardar Patel Memorial Lecture. It gives me an opportunity to pay homage to the memory of a great Indian, one of the giants of the freedom struggle, firm of purpose and indomitable in spirit. As free India's first Home Minister and Deputy Prime Minister, he left an indelible mark on history through his masterly consolidation of the Indian Union. The people will always accord him a place of honour among its galaxy of founding fathers and nation builders.

Sardar Patel was a far-sighted statesman with an astute understanding of the internal and external dangers to India's security. He put down the armed rebellion in Telengana with a heavy hand and warned the Prime Minister about the disturbing signals emanating from our north. As Sardar Patel is synonymous in my mind with national security, I thought the most appropriate theme for today's lecture would be "Dimensions of India's Security Concern".

The level of public interest in security matters has risen sharply after Kargil. The impact of the live TV coverage of events, the heroism of our soldiers who climbed those steep, trackless mountains to fight and defeat the enemy and the deft exposure and international isolation of Pakistan, have greatly strengthened the spirit of national unity and confidence.

Of course, public support for national security is instinctive and it manifests itself abundantly whenever there is a serious threat or crisis. But that is not enough. National security, which calls for the protection of a nation's freedom, sovereignty and core values, requires long-term vision and planning.

Nation-building also requires long-term planning and vision. A prudent policy should always look ahead and anticipate threats and changes in the security environment. Our defence strategy must look beyond the present threats and capabilities. A unilateral desire for peace is not enough. This is the biggest lesson of Kargil. Durable peace can come only if the nation is strong enough to deter aggression and maintain internal security with requisite capabilities.

In a period of declining defence outlays India has to wisely spend its resources to shore up its defences. It should be ensured that lack of resources do not affect current military preparedness, R&D and self-reliance in key areas. Self-reliance in critical areas has become all the more essential in view of the technology-denial policies of developed countries. In organisational terms it means integrated harnessing of the scientific and productive capabilities of this country, whether in

the public or the private sector. Whenever we have focussed these capabilities on specific projects, the results have been encouraging.

India's desire to retain its freedom of judgement and decision remains the key to its policy-making today and will remain so in the future. India with its rich and ancient civilization, its size, growing strength and potential cannot but pursue policies that safeguard its autonomy and its interests as an independent player on the world stage. Support to non-alignment was as much an assertion of India's right to safeguard its national interests, as was the unswerving opposition to the NPT and finally the successful nuclear tests at Pokharan in May 1998.

The end of the Cold War, the disintegration of the Soviet Union and economic globalisation had heralded the emergence of a new world order. The bipolar world is gone. There is one predominant power and a number of lesser power centres. Each country's perception of its national interests will determine its strategic priorities and shape its bilateral relations. We live in a competitive world in which all nation-states are engaged in advancing their political, economic and military interests.

Indian policy and strategy have to be dynamic and able to adapt to, and gain from, the emerging world order by exercising the right choices in every situation. We would all like to live in a world in which unilateral resort to force by a state is not possible and a truly collective security system is in operation. But the reality is that power and force remain at the heart of international relations. A country of India's size, with about one-sixth of the world's population, cannot be a global player if it lacks adequate defences against external aggression, blackmail or interference.

To safeguard its independence and territorial integrity, preserve its multi-cultural identity and strengthen its development process to ensure the well-being of its people, India needs peace. Because of its size and location, India's security concerns and interests extend to regions far beyond its immediate neighbourhood. However, some major powers try to confine India in a narrow sub-continental power

equation with Pakistan. All differences can be removed on the basis of a pragmatic understanding of India's genuine security concerns and *de facto*, if not *de jure*, acceptance of the reality of India's nuclear-weapon-state status.

The draft Indian nuclear doctrine is nothing more than a logical follow-up of the nuclear tests. It fleshes out the concept of a nuclear deterrent within the parameters laid down by the Prime Minister earlier. At this stage it is a discussion paper.

It is clear that in today's world, security has many dimensions. Our security concerns are dynamic, and they cover the environment within the country (internal security), around the country (regional security) and the global environment (international security). Thus, security can be perceived as concentric circles, interacting with each other.

Our major internal security problems relate to the continued cross-border terrorism in J&K and the continued acts of terrorism by some groups in the North East States. These activities are sustained by helping hands across some of our borders. Recently, this has been brought into sharp focus by the number of direct attacks on the security forces, aided and abetted by Pakistan, both in Kashmir and in the North East States. For many years now, Pakistan has been trying to destabilise India without success by arming, training and equipping extremists and by aiding militant organisations as well as some fundamentalist groups in India. These factors have made it necessary to deal firmly with such elements.

The issue of cross-border terrorism has also assumed a new dimension with the direct threat of Jihad by Osama Bin Laden. This requires a different level of preparedness. More and more countries, which are affected by Islamic fundamentalist groups, are likely to co-ordinate their efforts to combat the growing scourge of global terrorism. India has recently authored a draft convention against international terrorism particularly when it is promoted by a State, which provides sanctuaries, finances and other encouragement to terrorists.

Another type of violence, which our internal security agencies have to face in some parts of the country especially in Andhra Pradesh and Bihar, is organised, at least to begin with, by left wing extremists. It needs to be recognised, however, that the Election Commission and the security agencies have seen to it that the elections have been successfully concluded despite threats of widespread disturbances and many violent incidents. It augurs well for democracy when people refuse to be cowed down by such threats and exercise their right to vote. While there is always room for differences in a democracy and for dialogue with those who do not use violence as a political instrument, no government can negotiate with anti-social elements who have taken law into their own hands and who violate the rights of others.

However, the internal security problems cannot always be dealt with as mere law and order problems. It is necessary to uncover their roots and take remedial measures. Rapid economic development, declining disparities in income and wellbeing between regions and individuals, curbing population growth, restoring the credibility of the administration and progressing steadily towards equality of opportunity are necessary to combat the maladies of cynicism, social disharmony and despair on which the forces of disorder thrive. Thus, national security is intimately linked to poverty alleviation.

India has to rapidly modernise its physical infrastructure, provide a reasonable quality of primary health care and provide at least elementary education to all to develop its human capital. Without large investments in the critical infrastructure sectors, the country's economic modernisation cannot be significantly accelerated. The strategy of economic growth has also to focus on generating employment in the countryside, where a majority of Indians live, in order to reduce the level of poverty and slow down the rapid urbanisation that is overwhelming our cities. Growth of population has to be curbed as a matter of national priority. Clean air, unpolluted water, soil and water conservation and ecological security also deserve an important place on the nation's agenda.

India is among a dozen bio-diversity-rich regions of the world. Conserving it and exploiting this wealth in a sustainable manner, so that people who have been exercising traditional rights over such wealth continue to do so, is an important aspect of our development policy. This dimension of national security relating to environmental conservation has come to the fore after the Stockholm Convention of 1972. Issues of global warming, standards of emission of toxic gases, industrial pollution and promotion of eco-friendly technologies have become complex matters of national development and international diplomacy.

How India protects and promotes its economic and commercial interests under WTO is a core issue of national security. The international trade regime exerts great pressure on economic security. All WTO member-countries will soon have to readjust their laws relating to trade matters to conform to WTO rules. In the short-run such readjustment could cause economic dislocation and create socio-political unrest. Particularly onerous are the rules governing patent protection of genetic materials, including seeds and natural medicines. Very aggressive and powerful international firms are filing patent applications to obtain monopoly rights over traditional knowledge-based processes and products. The industrialised world and MNCs are spending vast sums of money on R&D. On the other hand the R&D expenditure incurred by the developing countries is declining. Access to technology is vital for accelerating the pace of development and for self-reliance in matters of security but such access is getting restricted. Industrial countries hold 97% of all patents. The latest Human Development Report summarises the situation thus: "The new rules of globalisation, privatisation, liberalisation and tighter intellectual property rights are shaping the path of technology, creating new risk of marginalisation and vulnerability."

Then there is the question of food security. Nearly one third of our children are born underweight. The country has to provide them nutritional security. At the same time, an effective public distribution system and other components of a social safety net have to be put in place to ensure a minimum standard of living to all our citizens. In

the past, when taking advantage of our dependence on food imports our autonomy in decision-making was being compromised, we had successfully overcome the situation technologically through the green revolution. Now we have a surplus in foodgrains. This has to be sustained to meet the requirements of our growing population.

Another critical dimension of national security is energy security. Adequate and affordable energy supply is essential for all human activities, for the household, for economic growth and for defence. Energy security is, therefore, an important component of national security. The risk of power shortage hampering economic development is too real to be ignored. The widening gap between demand and supply of electricity is resulting in widespread and sizeable shortages. Addition to generating capacity fell short of the target in the Eighth Plan. Latest estimates show that there would be a shortfall in capacity addition in the Ninth Plan also.

The petroleum sector has become an area of concern. With domestic oil production declining and demand rising, India's dependence on oil imports has increased significantly. In the Ninth Plan, the dependence on oil imports is expected to increase from 60% to nearly 70 per cent. Further, the international prices have increased significantly in recent months, which not only drains our foreign exchange reserves but also means that a correction in the domestic prices is inevitable.

Most of our imports come from the Middle East and most of our oil production is offshore. In fact 80% of our oil supplies come from across the seas. Therefore, the Persian Gulf region is clearly an area of vital importance to Indian security. Ensuring unimpeded access to the oil markets of the Persian Gulf and securing its key sea-lanes are crucial for long-term Indian economic growth.

The largest resources of oil are in the Middle East and Central Asia. The demand for oil is going up most rapidly in the fast-developing economies of Asia. According to one estimate, "almost half of the increase in total world energy demand now comes from the Asia Pacific region. Up to the year 2010, the developing countries of Asia are

likely to account for 40 to 44% of the incremental demand for oil, 72 to 96% of the incremental demand for coal and 36 to 52% of the incremental demand for electricity." The impact of these substantial increases on oil prices and, more importantly, on political and economic alignments or frictions, needs to be monitored closely and continuously by India with a view to ensure energy security for the country at an affordable price.

The West's new concept of the use and means of war is a source of serious concern. In the Gulf war and in Yugoslavia, missile attacks were launched mostly from warships stationed in the nearby seas or from aircraft based on them. This combination of naval and air power obviates the engagement of troops in ground combat, as the purpose is not to capture territory but to humiliate and punish the adversary, destroy his assets and secure his submission. And every time when such ruthless and rampant use of force by big powers is not sanctioned by the Security Council, it seriously erodes the authority of the Security Council and the UN.

Rapid technological advances, globalisation of the economy and the sweeping information revolution are other notable driving forces of our time and India should not fail to harness them for the betterment of the lives of its people.

Air control and communications have become critical factors in modern warfare. The outcome of war is determined by the capacity to make integrated use of advanced technologies on the battlefield. The war of the future will be a "cyber war", drawing heavily on the revolution in information technologies.

We should also not overlook the growing importance of missiles and other unmanned air vehicles as instruments of military combat and psychological warfare. The best, and indeed the only reliable, defence against missiles is provided by a military capacity to inflict equal or greater destruction on the adversary.

In this connection, I would like to say that whenever other powers have tried to throttle our attempts to attain technological security

our scientists have always risen to the occasion and have developed world-class indigenous technologies, be it space, super computers, nuclear or missile.

It is thus clear that the modern concept of national security is a holistic one, which determines the formulation of national policies. A holistic approach to national security demands that the nation strengthens both its economy and its defences and that the defence policy, foreign policy, economic policy, trade policy and internal security policy - all buttress each other.

To maximize the effectiveness of national policies it has to be ensured that the various strands of policy reinforce each other. India's economic policy has to further its defence and foreign policy interests, and *vice versa*. India's future cannot be secured unless the various policies and programmes are blended into a harmonious national vision, with each component seeking to strengthen the other.

In the ultimate analysis national security rests on the unity, moral fibre and spirit of the people. It is this spirit, which Shri Lal Bahadur Shastri, after whom this Academy is named, was able to rouse in 1965 during an earlier war. His slogan "Jawan aur Kisan" caught the imagination of the people. The response of his call was overwhelming. That is the spirit we have to preserve and nurture. It is the best guarantor of our security.

"Sardar Patel Memorial Lecture on "Dimensions of India's Security Concern" at LBS National Academy of Administration, Mussoorie on October 1, 1999

PRIVATISATION OF INFRASTRUCTURE*

It gives me great pleasure to be amongst you for the Valedictory Session of the International Conference on "Deregulation and Privatisation of Transport Industry in South-Asia". I am sure the deliberations of the conference would have thrown up recommendations for rapidly improving the transport infrastructure in South Asian countries. You will agree that accelerated and sustained growth is possible only on the basis of a strong and viable infrastructure, especially transport. Transport, in fact, has a multiplier effect. It facilitates travel and trade and provision of social services and, indeed, raises the quality of life.

India has made impressive progress in the development of infrastructure since Independence. The length of roads has increased eight-fold between 1950-51 and 1995-96. Of the nearly 6 lakh villages, sixty per cent are connected by all-weather roads. The number of bus passengers has gone up by 13 times during the last four decades. Transport of goods by railways has yielded place to road transport, the share of which in freight traffic has increased from 11% in 1951 to 60% in 1996. Moreover, the share of road transport in passenger traffic has gone up from 32% to 80% during the same period.

Traditionally, investment in infrastructure has mostly depended on public funding, which has not been able to keep pace with the growing demand. This is a major challenge for the economy and a great opportunity for investors. The private sector has begun to participate in the growth of the transport sector in most countries and the trend is likely to gain momentum in the next millenium. In some countries the role of the State is gradually changing from being an active provider of transport infrastructure and services to a facilitator and a regulator. There is a growing realisation that Governments in developing countries are not always able to make the required public investment in transport infrastructure because of competing demands from other

sectors. Augmentation of investment by the private sector is, therefore, welcome. Private sector participation in infrastructure and increased competition is also expected to increase efficiency and improve the quality of service while lowering its cost and price.

Recognising the need to attract greater investment in infrastructure as a part of the economic reform programme initiated in 1991, India has also gradually opened up the infrastructure sectors to private investment. The Ninth Five-Year Plan has also given an important thrust to private sector participation in infrastructure. The measures taken by the Government include a series of tax and other concessions and simplification of regulations and procedures. Most foreign investment proposals are now automatically approved. Others are considered by the Foreign Investment Promotion Board within fifteen days of a proposal reaching its Secretariat.

Privatisation can take the form of disinvestment of Government equity, transfer of management control to the private sector or deregulation, allowing free entry to the private sector. In India the Government has taken major initiatives in privatisation of the transport sector. The Indian Railways launched an "Own Your Wagon Scheme" in the Eighth Plan to tap private sector resources for augmenting the supply of wagons. Further, private sector participation is envisaged for provision of infrastructure facilities in the Railways. The existing laws have been amended to facilitate private sector participation in roads. The private sector has taken up bypass and bridge projects under the programme of development of national highways. For the development of ports, investment of Rs. 8000 crore from private sector and captive users in both the public and private sectors for capacity addition to the tune of 76 million tonnes has been envisaged in the Ninth Five Year plan. Further, some projects under the State sector relating to development of minor ports are proposed to be taken up by the private sector. The Government policy accords automatic approval to FDI up to a ceiling of 74% for construction of green-field airport. A green-field airport at Cochin has come up with an innovative pattern of

financing with user NRIs contributing one third towards the total equity capital.

Recognising the crucial role of infrastructure, a Task Force on Infrastructure has been set up under the chairmanship of the Deputy Chairman of the Planning Commission with the aim of promoting specific projects of national and regional importance and ensuring their timely completion. This Task Force has prepared a blueprint to connect Kashmir with Kanyakumari on the one hand and Saurashtra with Silchar on the other through well-developed highway systems. These North-South and East-West corridors along with a golden quadrangle linking Delhi, Mumbai, Chennai and Calcutta form the National Highway Development Project. This integrated project is likely to cost Rs 50,000 crore and would be implemented in ten years. The large volume of investment for this project is proposed to be financed partly by a cess on fuel and partly by domestic budgetary funds, multilateral and private funding. We also propose to upgrade at least five airports to international standards.

The mandate of the Task Force has been enlarged to formulate an integrated national transport policy to strengthen the transport infrastructure. This requires formulation of an integrated transport policy visualising the transport system as an integral structure made up of different modes and services functioning with an element of both inter and intra-modal competition. Thus, reorientation of the transport policy would require a shift in the emphasis from merely providing transport infrastructure and services to technological upgradation and modernisation, ensuring mobility coupled with accessibility. A draft Integrated Transport Policy was presented to the Task Force at the last meeting held on July 29, 1999. A Committee is examining ways to operationalise the various suggestions and recommendations contained in the document.

Investments needed for developing basic rail and road networks in the developing countries are heavy and the expected returns are not attractive for the private sector except in case of high-density routes. Moreover, looking at the capital markets, particularly for long-term

debt, of developing countries, it may not be realistic to expect any large-scale contribution from the private sector in the transport area though evolution of a well-developed policy and regulatory framework can result in a gradual inflow from the private sector.

In order to achieve the desired levels of investment, both public and private, in infrastructure, it is important that the issues of appropriate pricing and cost recovery are tackled at the earliest. Appropriate pricing policy enhances the resource availability with the public authorities for undertaking maintenance and upgradation of the existing facilities and providing resources for fresh investment. At the same time it makes infrastructure projects viable and attractive for the private sector.

In the Planning Commission, we have made it a point to refer to this aspect during my discussions with the State Chief Ministers in order to ascertain what the State Governments are doing with respect to rationalisation of tariffs for power, transport, irrigation, etc. It is encouraging to note that most of the State Governments have responded positively and some of them have already initiated steps in this respect.

A number of studies of the South Asian region have shown that there are ample opportunities for economic cooperation between the countries in the region. There is thus a strong case for expansion of trade among the countries in the region. However, South Asia has, by and large, adopted conservative trade and transit policies. Consequently, documentation and procedures are restrictive, complicated, cumbersome and time-consuming. These act as disincentives to the traders and add to the cost, making trade less competitive in the global market. In this scenario, there is clearly an urgent need to rapidly promote the active functioning of the South Asian regional trading arrangements as embodied in the SAARC for addressing these problems.

South Asia is rich in natural and human resources. There is considerable potential for developing these resources and widening the market opportunities through increased co-operation. There is a need to strengthen and expand the transport infrastructure, particularly along

the corridors linking the countries, both within the region and with the rest of the world. At the same time, it is necessary to initiate measures to remove the non-physical barriers. This, however, requires an increased awareness of the benefits of their removal and political commitment to carry through the required measures.

The wisdom of fostering mutual co-operation among the developing countries becomes even more manifest when it is recognised that not only do all these countries face common problems but their policies, strategies and major goals are virtually identical, namely to eliminate poverty and to promote socio-economic transformation and technological changes with the object of harnessing natural and manpower resources to improve the quality of life.

With the increasing trend towards deregulation and private sector participation in transport industry, there is a need for putting in place an appropriate regulatory framework for optimising the benefits of private participation in the form of promotion of healthy competition, charging of optimum tariffs and making available quality services etc. The regulator would also be required to address consumer grievances besides acting as an arbitrator in disputes between the service provider and the authority that has granted the concession.

CIT-India, which is a part of a 79-year-old global organisation dealing with all modes of transport, deserves to be complimented for bringing together experts on the subject and highlighting the issues relevant at a time when the countries in South Asia are gearing up to introduce major reforms.

** Valedictory Address at the International Conference on "Deregulation and Privatisation of the Transport Industry in South Asia" organised by CIT-India on October 25, 1999*

CHALLENGES IN ENSURING SOCIAL SECURITY*

I would like to congratulate the International Centre for Development Research and Co-operation (RIS) and the World Bank Institute for organising this important Seminar on "Social Security in India and South Asia". The term social security is relatively new in India, where societal structures, such as the tribe, the village, the mohallas and most importantly, the family, rather than the over-arching structure of the State, traditionally supported individuals in need. This cultural tradition has been reinforced through centuries of practice and experience.

We must, however, recognise that the pressures of modernisation have undoubtedly led to a weakening of these social support systems. This is particularly evident in our urban areas. The large-scale migration that has taken place over the years from our villages to the cities has taken people away from their social milieu and placed them in a situation, where there is little support they can count upon. Therefore, there is a need to take steps to ensure that in this period of rapid transition, in which disruption and displacement are natural consequences of a process of economic growth, we can provide support to the people. Also, there is a need to assist social groups, who are being marginalised in this process of development.

Social Security is one of the important dimensions of the development process. It assumes a place of special significance in the developing countries, where poverty, destitution and income inequalities abound in a large measure. While growth is an important precondition for expanding the scope of social security, no less important is the need for adopting special social security policies.

In the broader context social security is needed by all vulnerable groups. The most vulnerable group consists of those who have neither physical endowments nor financial resources for gainful employment and, therefore, do not have the purchasing power to afford a minimum

standard of living. Even though India has achieved self-sufficiency in food production at the national level, food and nutrition security at the household level is yet to be achieved. This is the new challenge. In recognition of this fact, a targeted Public Distribution System was introduced with the objective of providing the people access to food at prices they could afford, particularly in the deficit and inaccessible regions of the country with a concentration of the poor. In addition, pre-school children and pregnant and lactating mothers receive supplementary nutrition through the ICDS and a new mid-day meal programme has been introduced to provide nutritional support to school-going children. In order to enhance the incomes of the rural people supplementary wage employment programmes like Jawahar Rozgar Yojana and Employment Assurance Scheme are in operation. These schemes ensure that in the lean agricultural season, casual manual employment is available in public works to those who are in need of work. Schemes, like Prime Minister's Rozgar Yojana (PMRY), Integrated Rural Development Programme and the Swarna Jayanti Rozgar Yojana (SJSARY), encourage self-employment. While the first scheme is meant to provide self-employment to the educated unemployed, the last scheme is for the urban areas.

I should mention that the Ninth Five Year Plan assigns sizeable resources for generating employment through programmes to create employment directly and to support activities whose primary objective relates to the growth of labour-intensive sectors. The schemes of Khadi and Village Industries Corporation (KVIC) also sustain labour-intensive activities in the rural areas.

A National Social Assistance Programme for the Poor consisting of an Old Age Pension Scheme, Maternity Benefit Scheme and Family Benefit Scheme was introduced a few years ago to provide relief to those living below the poverty line. A Rural Group Life Insurance Scheme was also introduced, though on a limited scale. But, despite these, the problem of poverty is still daunting.

As reported in the 1998 volume of the Human Development in South Asia published by the Human Development Centre, the number of people living in poverty as a percentage of the total population was

46% in the case of Bangladesh and 35% in the case of India in 1995. For Nepal the figure was 45% whereas in the case of Pakistan and Sri Lanka the respective percentages were 29% and 22% in 1995. Life expectancy at birth has been approximately 56 years in the case of Bangladesh, 61 years in the case of India, 55 years in the case of Nepal, 62 years in the case of Pakistan and 72 years in the case of Sri Lanka. We also know that the infant mortality rate in South Asian countries has been high except for Sri Lanka, which has performed better. The adult literacy rate has also fallen short of expectations in the countries of the region. As against these trends of social sector underdevelopment, social security schemes have so far not been able to provide adequate relief to the people in these countries. Expenditure on social security benefits as a percentage of GDP was 0.02% in the case of Bangladesh, 0.3% for India, 0.2% for Pakistan and 2.5% in the case of Sri Lanka in 1993. These figures illustrate the distance that we have all to travel in terms of providing social security benefits to the people of this region.

In the present context of increasing globalisation and liberalisation in the national and international economic systems, the danger of social aspects of development getting marginalised has increased considerably. While the process of globalisation and liberalisation expands the scope of the opportunities for development, it has also implicit in it the threat of ignoring many of the concerns of social development.

One issue that particularly warrants our attention is the minimisation of social costs while aiming at economic efficiency. This poses special policy problems. If we succeed in balancing the objectives of technological modernisation with employment growth, we would have taken a major step forward towards a secured society.

The concept of social security includes many crucial aspects of human development. Education and health facilities, old age pension, security of jobs, insurance against risks, unemployment and deprivation are some of the issues that come within the scope of social security. There is a major on-going debate on finding ways and means of bringing

the informal sector into the fold of social security schemes in a more effective manner. This kind of widening of the scope of social security schemes is a socially desirable objective. But achieving it is a daunting task as the informal sector in South Asian countries is excessively large. It has significant policy implications in terms of allocation of resources and implementation of schemes. Some efforts are on but we need to put these issues at the forefront.

However, just extending the formal sector schemes to the informal sector would be too simplistic. One point is often made that if we do so the amount to be redistributed from the income of formal sector employees to those belonging to the informal sector would be enormous and would have implications for further taxation of a very high order. This highlights the imperative need to find new alternatives to ensure social security in the informal sector rather than simply attempting to expand the scope of formal sector schemes.

Similarly, we cannot simply borrow a social security policy design that has been successful in some other developed or developing country. We need to critically evaluate the experiences of both developed and developing countries in order to gain insights into the nuances and interplay of different factors within the overall design of their social security schemes. Taking into account the economic and social characteristics specific to South Asian region and, within the region, the country-specific realities, evolving a framework for social security policies is a major challenge to which this Conference would have to address itself.

The availability of basic facilities for primary education and primary health care is very poor in South Asia. Poverty with malnutrition and deterioration in the health of women signify very low levels of social development in these economies. With the emerging ageing of the population, old age social security also assumes special significance. While there are many policy dimensions of social security, one issue of particular interest to this Conference, I understand, is that of old age security and pension funds.

As you all know, the pension system has essentially three main goals, namely prevention of poverty in the old age, provision of a savings mechanism which allows individuals to redistribute their earnings over their life time to avoid poverty in old age and provision of insurance, in particular the provision of social safety nets for those deprived of opportunities to work. These main goals of the pension system can be realised only through a proper mix of governmental and private sector initiatives. There are many major issues in designing pension systems based upon the experiences of other countries. We have, in the world, a wide variety of pension systems. Some of the Latin American countries like Chile have a relatively longer experience of private sector participation in the management of the pension system. Let us take a quick look at two types of pension plans, namely (a) pay-as-you-go pension plans in which the current workers pay for those who are retired and (b) advance funded or contribution plans in which an individual or a group of workers pay into these plans and accumulate assets.

The question is whether the pay-as-you-go system of defined benefit that is administered by the State is superior to the defined contribution systems delivered by the private sector. Both have their own merits and demerits and I must emphasise that these need to be analysed in the context specific to the South Asian region. A combination of both the systems for this region also needs to be explored so as to minimise the risks associated with either system and maximise the advantages.

The viability and sustainability of these two types of pension systems are now the subject matter of debate in the world. The nature of the changing demography, ageing population and increased life expectancy have all increased the urgency of evolving a suitable pension system for old age security. It has been observed that the environment of a totally free market is not conducive to producing socially desirable patterns of saving for retirement. That is why, apart from private initiatives, the role and relevance of specially designed Government pension schemes become obvious.

The challenges of social security have become increasingly acute. There is apprehension that the fast pace of liberalisation and globalisation

would increase social tensions since the system is not geared to the task of providing social security in an adequate manner. It is accordingly urged that the pace of liberalisation and globalisation should be in conformity with our ability to put in place a suitable social security system. National pension programmes have an effect on saving and investment decisions, the nature of labour supply and international competitiveness, and sustainability of development in general. Therefore, while undertaking macroeconomic reforms these issues would have to be taken into account.

Private pension funds all over the world have provided useful support mechanisms not only for social security but also for the dynamism of the capital markets. Hence, the investment of pension funds and their impact on financial markets deserves special attention. On the other hand, a well functioning capital market is essential for generating adequate returns on the invested pension funds. Therefore, capital market policies would have to be carefully analysed in terms of their implications for pension fund investments.

It is my belief that the nature and structure of social security systems for the developing countries in South Asia during their period of high growth strategy, along with its attendant risks, would have to be significantly different from the systems which prevail in more mature and stable economies. If this Conference can throw light upon the role and nature of social security systems for economies at our stage of development, and particularly for South Asia, including India, it would have provided a useful material for policy makers in these countries. It is with this confidence and expectation that I look forward to the deliberations and recommendations of the Conference.

** Inaugural Address at the International Conference on "Social Security Policy: Challenges before India and South Asia" organised by International Centre for Development Research and Co-operation (RIS) India and World Bank Institute, Washington DC, USA on November 1, 1999 in New Delhi*

ENERGY, ENVIRONMENT & DEVELOPMENT*

It gives me great pleasure to be here with you at this inaugural session of the International Conference on "India in the New Millennium: Energy, Environment and Development". I am particularly pleased that this Conference is taking place in Harvard, which all over India represents the best not only of American universities but also of universities all over the world.

As we stand on the threshold of the new millennium, we can look back with pride at some of our achievements over the past 50 years of our development as an independent nation. We have successfully reversed the worst inequities of our colonial heritage and have built India into a nation of considerable economic strength in a framework of democracy and federalism with full regard for human rights and the rule of law. These values have grown deep roots in our national ethos and I am certain that they will endure the sternest test of time. The recently concluded national elections, in which a large number of the 600 million voters in 25 States exercised their franchise, bears testimony to the strength of our commitment to democracy and federalism. Despite the magnitude of the task, the elections were free and fair and were conducted efficiently and in a peaceful atmosphere.

On the economic front India's performance has been undergoing a steady transformation with a long-term acceleration in growth. India's GDP grew at 5.8% per annum in the 1980s and has grown at nearly around 7% in the Eighth Plan period (1992-1997). This makes India one of the key fastest growing countries in the world.

We cannot, however, overlook our shortcomings or be blind to the magnitude of the challenges that lie ahead of us. Despite all our achievements, one third of our citizens still live below a modestly defined poverty line. Our social development indicators, although much improved from where we began, are still unacceptably low.

Population stabilisation is still a long way off, though demographic transition has certainly begun in most parts of the country, Environmental degradation, which was not much of a concern until quite recently, has started to accelerate, particularly in urban areas. We will need to tackle all these challenges in a holistic manner in order to ensure sustainability, both economically and environmentally. This, in short, is the task before the country and in particular its planners and policy-makers.

Although the issue of environmental sustainability has formally entered the international agenda only after the Earth Summit, which was held in Rio de Janeiro in 1992, it has been an integral part of Indian planning and policy-making for at least two decades prior to that. The Fourth FiveYear Plan, which was launched in 1969, clearly articulated the need to harmonise our development plans with the preservation of the environment. Subsequent plans have reaffirmed and given concrete shape to strategies for addressing this concern. Indeed, Agenda 21 of the Rio declaration to a substantial extent reiterates and emphasises an approach, which has been articulated in Indian Plans for quite some time. This approach, in its essence, states that environmental concerns must be integrated with the development strategy of the country and more importantly with the social and economic conditions of living.

The fact that Indian planners and policy-makers expressed concern about environmental issues long before it became fashionable to do so is neither strange nor unusual, since it is deeply rooted in our cultural traditions. The central tenets of Indian culture and philosophy lead to solicitousness for life in all its forms and to preservation of the environment and ecology as central *desiderata* of existence. To Indian philosophy, the bounties of nature are as much to be nurtured as used for the benefit of mankind. Protection and regeneration are inherently more desirable in Indian ethos than wanton destruction and exploitation.

To quote the *Ishopanishad* – one of our oldest religious and philosophical texts –

"All in this manifested world, consisting of moving and non-moving, are covered by the Lord. Use its resources with restraint. Do not grab the property of others – distant and yet to come."

The global and inter-generational concerns expressed by our forefathers are today finding an echo in modern discourse. But philosophy and ethics, while important in shaping attitudes, are subservient to survival instincts on the one hand and conditioned by emulative behaviour on the other. The noble sentiments expressed by our philosophers and saints and embodied as objectives in our development Plans have been overtaken by the pressures of population growth and the insidious attraction of new and more exploitative life-styles that are often viewed as part of modernisation. Much as we would like to deprecate these developments, we cannot shut our eyes to their reality. Our best-laid plans and comprehensive legislative framework for environmental protection have not succeeded in reversing the deterioration in our environmental endowments of air, water, soil and life forms.

Population pressure and poverty together form a potent combination that can undermine all ethical considerations and can severely distort the valuation of the interests of the present generation relative to that of the future. The resultant severe shortening of the operative time horizon and the ready availability of technologies, which can quickly and cheaply meet immediate needs through exploitative use of resources, form an unholy nexus, which is difficult to resist, particularly in democratic societies, which by their very nature are answerable to the extant constituency. Considerations of extra-territorial and inter-generational welfare tend to get relegated to the background by the pressing imperatives of the "here and now". This is reinforced by the well-known "tragedy of the commons", whereby natural and ecological resources are considered as 'free goods' to be exploited at will. Degradation of land quality through excessive use of chemical inputs and depletion of water resources through unrestrained use of tube-wells are consequences of such behaviour, which are being experienced in large parts of India.

Environmental degradation arising out of survival needs can, however, be understood and even sympathised with, if not actually condoned.

The same cannot be said of the effects that arise from environmentally profligate life-styles and emulative aspirations. In recent years the standards for material well-being the world over are increasingly being defined in terms of life-styles and consumption patterns prevalent in the developed western countries. The spread and reach of electronic media propagate the desirability of such life-styles and thereby reinforce this tendency. As a consequence, notions of growth and development are centered round comparisons in the differential levels of material consumption between the haves and the have-nots. If these trends continue and heavily populated countries such as India and China succeed in attaining anywhere near the average standards of living, which exist today in the developed world and they do so with similar per capita intensity of usage of energy and other environmental inputs, the Malthusian inevitability would be upon all of us for reasons that Malthus never dreamed of.

Fortunately, the instinct for survival is generating anti-bodies in the system. The obvious, and increasingly compelling, connection between pollution of all kinds and health on the one hand and the growing scientific evidence regarding global warming and consequent climate change on the other have forced a reappraisal of the environmental intensity of western life-styles. Some of the considerable scientific talent and technical expertise, which were once directed towards creating new needs and fulfilling them at the cost of the environment, have started to be reoriented towards improving the efficiency of resource usage and conservation. There is also some evidence of questioning of the desirability of current life-styles within the western establishment itself and not merely by what was considered once to be the "lunatic fringe". These are favourable auguries for the future of humankind since the possibility exists that we may yet evolve an acceptable standard of living for all, which would be environmentally sustainable.

These trends, however, will take time before their effects are felt in full measure but in the meanwhile it would not be either possible or desirable for us to await their culmination. The imperatives of providing an adequate standard of living for our people and of eliminating the scourge of poverty from the face of India will brook no delay. In the

immediate future, therefore, we will perforce have to plan on the basis of the existing parameters and the emerging trends. Nevertheless, it shall be our constant endeavour to ensure that our development strategy and policies are informed by, and consistent with, environmental concerns both in our own interest and in our role of responsible world citizens.

The Ninth Five Year Plan (1997-2002) has laid down the contours of our development needs and the broad strategy to attain our targets over a 15-year perspective period. It has been estimated that to eradicate poverty in the country, the economy will have to grow at the rate of over 7 per cent per annum over this 15-year period so that by the terminal year the per capita income in the country will have doubled. More important, however, is the structure of this growth. We recognise that uncontrolled urbanisation is not desirable from the point of view both of the quality of life and of environmental sustainability. We must, therefore, try to stem the tide of massive rural-urban migration and this means we must encourage an economic structure, which would avoid it. The focus, we believe, will have to be on strengthening the rural economy and enhancing its productivity sufficiently so that it can afford a decent standard of living to all.

To this end the government has been making concerted efforts to meet the energy requirements in the rural areas in an appropriate manner. Family-size biogas plants provide energy to almost 3 million households. Community-based biogas plants with an aggregate capacity of 171 MW have also been established mainly for catering to cooking needs. Biomass gasifier systems with a total capacity of 3085 KW have been installed to provide electricity to households in remote villages from locally available biomass resources. In the wind energy sector India ranks fifth in the world with a total wind power capacity of 1024 MW, which is mostly in the private sector. Solar photo voltaic devices with an aggregate capacity of 47 MW have been installed for meeting the needs of 1.5 million individuals. A medium-term national renewable energy programme is being chalked out to increase the share of renewables in the total power generation capacity from the present level of 1.5% to about 10% by 2012.

About 34 per cent of India's total energy requirements continue to be met from non-commercial sources. Fuel wood is an important source of energy for cooking and heating in large parts of India. We have to look for practical solutions to the basic problems of the people dependent on non-commercial or traditional energy sources in order to meet their requirements, while at the same time protecting the environment. Therefore, there is a need for matching our efforts at afforestation, which is primarily from the point of view of providing carbon sinks, with careful management and utilisation of forest resources by the local, dependent population. Joint forest management concepts, which actively encourage people's participation, are proving to be a unique and more or less successful experiment in this direction.

These efforts are extremely important. However, they are necessarily marginal to the larger task of meeting the aggregate demand for commercial energy in the country. In common with practically all other developing countries, the elasticity of energy demand with respect to GDP in India has been estimated to be above unity. Our efforts at acceleration, which we must intensify if we want to eliminate poverty, will necessarily be associated with accelerating demand for energy. I want to assure you that we will do our utmost to promote energy efficiency in the economy and we expect that the efficiency of energy use through the use of modern technology will improve by 0.5 to 1 per cent annually in different sectors of the economy. Despite this, the total primary commercial energy requirement is likely to increase from 250 million tonnes oil equivalent (MTOE) in 1996-97 to 770 MTOE by 2012, i.e. by more than three times. Although this looks formidable, in order to put the matter in perspective it needs to be realised that the per capita consumption of commercial energy in India was only 476 kilograms oil equivalent (KgOE) in 1996, as compared to the international average of 1684 KgOE, i.e. less than 30 per cent. Even with the projected growth, the per capita consumption of commercial energy in India will be only about 850 KgOE in 2012, which would be half the international average that exists today and less than a quarter of that, which prevails in most developed countries.

Much of this projected growth is likely to be in electricity demand, which is projected to rise from 394 billion kilowatt hours (BKwh) in 1996-97 to 1473 BKwh in 2012. Despite the increasing use of oil and natural gas for electricity generation and other uses, coal continues to be the main source of primary commercial energy in India. The demand for coal is, therefore, likely to increase by 2.5 times over this period. It is recognized that fossil fuel extraction and use are major causes of environmental problems the world over but the choices at present are limited. Although the hydro-electric potential of the country is estimated at 84,000 MW, which can yield 600 BKwh per year at 60 per cent load factor, much of the hydro potential that remains to be tapped is located in ecologically fragile regions. Tapping this source is, therefore, not only environmentally and ecologically problematic but is also much more expensive. Nevertheless, the effort of the Government is to enhance the hydro-electric power generation capacity and ultimately increase the hydro-thermal mix to 40:60 from the present position of 25% share for hydel power in total capacity.

Nuclear energy has to be an important component of our overall strategy to meet our rapidly growing energy demand. Nuclear power constitutes just over two per cent of our installed power generating capacity. But, as the world increasingly confronts the challenges of meeting the energy demand, while protecting the global environment and climate, fossil fuel and hydro sources of energy have to be used judiciously. Safe and modern nuclear power plants represent an attractive and viable option for meeting both energy demand and environmental concerns. Unfortunately, USA continues to deny nuclear power technology and resources to India, which acts as a major constraint to the development of nuclear power capacity in India. If this approach is based on proliferation concerns, it appears to undervalue the fact that India's record on export controls and proliferation has been impeccable. There are countries, whose record on proliferation, as is well documented in USA, is much less creditable than India's but they are the beneficiaries of expanding nuclear power cooperation with the US. It is time to re-examine the old assumptions to see whether these discriminatory restrictions on India are serving

any useful policy interests of the US or they are unnecessary hurdles in the way of what can be an enormously fruitful cooperation between India and US in nuclear energy, which will also simultaneously address our mutual desire for more intensive engagement in energy and related environmental issues.

I have already touched upon our efforts to tap some of the country's large potential of non-conventional and renewable sources of energy. The Government has been pursuing a definite and determined policy for the development and use of these alternatives. Its major programmes include power generation through wind, small hydro, biomass and solar energy. Presently, for instance, the installed capacity of wind farms in India is 1024 MW, which places us fifth in the world behind the USA, Germany, Denmark and the Netherlands. The Government also supports R&D programmes for the development of fuel cells and alternative fuels for surface transport applications. But these efforts are still at a nascent stage. Much work will have to go into development of these technologies before they can become credible alternatives to fossil fuels.

This then brings me to the international dimension of energy and environmental conservation. In fact, the issues being discussed at this Conference were the subject matter of discussions during the recent visit of Mr. Bill Richardson, US Secretary of Energy to India. In the joint statement issued at the end of his visit, the Governments of India and the US agreed "that the Kyoto Mechanisms could offer the opportunity to achieve mutually beneficial partnerships between industrialised and developing nations. Both the Governments resolved "to work closely together with other countries to develop agreed international rules and procedures for the Kyoto Mechanisms including the Clean Development Mechanism." Both the countries also "resolved to work closely together with other countries, in keeping with the principle of common but differentiated responsibilities to advance the goal of protecting the people of the world from the threat of climate change, while promoting economic growth". It is a matter of satisfaction that "as the world's largest emitter of GHG, the US recognises its responsibilities to help lead international efforts to address

the challenge of climate change. It has already taken steps in terms of the Kyoto Protocol to meet its energy requirements in an increasingly climate-friendly manner including reduction of greenhouse gas emissions of roughly 30% by 2010.

Despite our best intentions and commitment it is beyond our immediate capabilities to either change the trends of life-style aspirations or develop the technologies needed to support these aspirations in a sustainable manner. The lead will have to be taken by the developed countries and I am not sure that the signs are entirely propitious. For instance, the United Nations Framework Convention on Climate Change (UNFCCC) stipulated common but differential responsibilities for the developed countries and did not lay down binding commitments on the developing countries with regard to greenhouse gas (GHG) emissions. However, "the Government of India recognizes the need for voluntary "no regrets measures" at the national level, which will have the additional benefits of dealing with air and water pollution, urban transportation and other important sectors of the domestic economy."

It is unfortunate that emissions have actually gone up in some developed countries. This poses some difficult questions. It implies, for one, unwillingness on the part of certain countries to bring about life-style changes that are necessary for global sustainability. The immediate consequences of postponing emission adjustment apart, the international demonstration effect of promoting a consumerist life-style can, in the longer run, be most damaging. If control of GHG is going to be a long and painful process, not only does the pain have to be shared equitably by all, especially those who have reached a standard of living beyond that of mere survival, but care has also to be taken to ensure that things are not made more difficult for those who have to balance moderation of energy consumption demands of their citizens with the need to ensure their basic human rights.

There also appears to be an unwillingness to enforce energy conservation commitments through the price mechanism. It may be worth recalling that the thrust towards energy conservation in the developed countries came not so much from any ideological

commitment to the environment but from the oil price shocks of the 1970s. Since then, however, the price of energy relative to per capita incomes has declined significantly, which by the laws of economics can only lead to profligacy. Administrative measures regarding emission norms, while important in themselves, are no substitutes for appropriate pricing regimes. Since energy usage has strong externalities through its impact on the environment, there is good economic rationale to tax energy consumption. A possible mechanism to effect such a linkage would be to mandate minimum tax levels on fossil fuels, which would be linked to the per capita income of the concerned country.

Finally, I turn to the issue of technology. The mandated emission levels, which can be achieved only by application of specific technologies, automatically confer monopolistic power on the holders of the technology and enable them to earn unjustified rent. This is iniquitous. Since the environment is of concern to all—an externality in the truest sense—there is no justification for some to earn large rents at the cost of the vast majority. Fair return on technological development must of course be there but nothing beyond. The Global Environmental Fund (GEF) attempts to tackle this issue in part but a partial reimbursement is not a corrective for the essential distortion. Mechanisms need to be evolved to ensure both the development of technologies and their dissemination at fair non-distorting prices. There is a case for transferring these technologies at variable incentive prices to countries with the highest potential for controlling damaging emissions.

The organisation of this Conference by Harvard University is an event of tremendous significance. I have noted that the programme covers almost all the important dimensions of the issue at hand. The range of participants promises sharing of rich and varied expertise and experiences. I am certain that we shall leave this Conference with a much better understanding not only of the developments taking place in India but also of the dimensions of the global environmental challenge. I wish this Conference every success. Thank you.

** Keynote Address at the International Conference held by the Center for International Development, Harvard University USA on November 8, 1999*

ECONOMIC REFORMS & PROSPECTS*

It is a great pleasure for me to be here at the Center for Research on Economic Development and Policy Reforms of Stanford University. I had first visited San Francisco in the early sixties, when I had just become a Member of Parliament. India was at the heart of the research agenda in development economics in those days and development economics, for a while, was also greatly influenced by the Indian case. I am glad to see that this Center continues to follow the developments in India, particularly in the area of economic reforms.

The development choices we made then were not very different from the choices made by many developing countries. Those were the days when export pessimism was widespread in Latin America and there was a strong belief in import substitution as a means of industrialisation. There was also a strong belief that the public sector could serve as an engine for rapid industrialisation and many developing countries sought to expand the public sector presence in many industries.

Forty years later, we have learnt a great deal, based on our own experience and on the experience of other countries as well, about what works and what does not. A broad consensus has evolved on many development policy issues. It is by now widely accepted that successful developing countries have sought to integrate with the world rather than insulate themselves from it. There is general agreement that a freer play of market forces and greater competition will lead to greater efficiency and faster growth. The early enthusiasm about the public sector as a solution to all problems has been modified by the realities of experience in many developing countries, and this has led to a much better recognition of the role of private sector activity and the proper role of the State. More specifically, the role of government in economic activity and the associated problems of governance have come into sharper focus.

Our objectives have not changed. We want faster growth, with a broader spread of the benefit of growth. We want growth with social justice, and we want especially to achieve an early elimination of poverty. And we want to achieve this in a manner which is ecologically sustainable. These are more or less the objectives we started with fifty years ago, though perhaps there was less recognition of the importance of ecological sustainability. What have changed are the instruments for achieving these objectives. These are indeed very different from what was envisaged earlier.

The need for new strategies and instruments is partly a reflection of the fact that the world has also changed substantially over this period, and especially in the past two decades. Globalisation and integration of the world economy are inescapable realities. These words evoke both positive and negative images. Until recently we used to refer to the experience of the East Asian countries to illustrate the evident benefits of globalisation. Unfortunately, the euphoria generated by the "East Asian miracle" has been replaced by a phase of uncertainty arising out of the "East Asian meltdown". Fortunately, the situation in those countries is beginning to stabilise and they are beginning the process of regaining some of their lost momentum.

Throughout this period, India has maintained a reasonable growth performance while avoiding the extreme instability which affected East Asia. In fact, India's economy is going through what can be called a long-term acceleration. In the 1970's we grew very slowly at the rate of around 3.5% per annum. In the 1980's we began what may be called a gradual process of economic liberalisation and this bore fruit by raising the growth rate of GDP to 5.8 per cent. The pace of reform then accelerated in the 1990s, triggered initially by the balance of payment crisis of 1991 but sustained in subsequent years by a genuine recognition of the need for change.

The 1990s saw a number of new initiatives in economic policy in the areas of domestic industrial de-regulation, trade liberalisation, opening up to foreign investment, a beginning with public sector reform and a gradual process of financial sector reform. The reforms in India were

not introduced with a big bang. Many reformers, both Indian and foreign, and indeed many even inside the Government, have argued for a faster pace of reform. I will not go into the technical merits of whether a faster pace of reform should have been adopted. As a politician, I can, however, vouch for the fact that generating a consensus for change in a large and highly pluralistic democracy is always difficult, and it is especially so in a poor country. It goes to the credit of India's democratic processes that successive governments have managed to continue the process of economic reforms and indeed give them a further push.

India's reforms in the 1990s have had good effect. They have produced an average growth rate of nearly around 7% in the Eighth Plan period (1992-1997). This is not as good as we would like. We need a growth rate of more than 7-8% if we are to make a significant dent on poverty in India. Moreover, the growth we have experienced in the 1990s is also not as well balanced regionally, as we would have liked. It has had less impact on reducing poverty than we had hoped. Nonetheless, it is definitely encouraging, not only compared to our past record but also the record of other countries. In fact, it is not sufficiently recognised, even in India, that India has been one of the ten fastest growing economies of the world in the 1990s.

The challenge before us today is how to achieve a growth rate of over 7-8% of GDP per annum, ensure that this growth is regionally more balanced and, above all, that it succeeds in generating employment at a pace, which can absorb our growing labour force. Fortunately, our population growth is slowing down and this bodes well for the future. However, because of the age structure of the population, the labour force growth will begin to decelerate only after 10 years. The next decade must, therefore, see a growth rate, which generates high levels of employment. How to tailor our development strategy in general, and programmes and policy packages in particular, to achieve these objectives is the current focus of work at the Planning Commission. The Planning Commission and the other departments of the Government need to define and implement second generation of

economic reforms. The details of this agenda are still being worked out but I would like to take this opportunity to share with you some of the key policy issues that are the focus of our immediate attention.

To start with, we clearly need to consolidate and deepen the process of reforms in sectors where they have already been initiated. De-regulation of industrial investment activity was a key element of the reform and has been nearly completed at the Central Government level. However, investors also face controls at the State Government and local levels. The task of de-regulation and de-bureaucratization needs to be vigorously pursued at these levels. Many of our State Governments have begun to focus on this task as they realise that with liberalisation of investment decisions by the Centre, individual States have to compete for investment from both domestic and foreign investors. Even while encouraging the process of liberalisation, the Central Government will have to take into account the uneven flow of investment to different States with a view to keeping the regional disparities within tolerable limits.

In the area of trade policy, the process is well under way and the desired end points are now known. We removed quantitative restrictions on imports except for consumer goods in 1993. Subsequently, we have negotiated with our major trading partners a phased elimination of all the remaining QRs to be completed by 2003. Customs duties, which used to be high, have been lowered very substantially and we propose to reduce them further to bring them in line with East Asian levels by 2003. Indian industry has, therefore, been given a reasonably clear indication of the direction and pace of changes in this area. Lowering of industrial tariffs further may mean increased competition for Indian industry. On the other hand, lowering of tariffs by the major markets of our interests may mean greater market access to our exporters. A brief analysis of the tariff peaks in the developed countries indicates that the average level of 3.8% tariff in the post-Uruguay Round period for developed countries does not provide a correct picture about the market access allowed to the exports of developing countries like India. This is because of the existence of 'tariff peaks' and the phenomenon of 'tariff escalation'

particularly for the products of export interest to India and other developing countries.

Encouragement of foreign investment was a key element in our reform programme. The new government has made it clear that we are actively seeking foreign investment especially in high technology areas and infrastructure. We propose to expand the list of industries eligible for automatic approval of foreign investment so that we can achieve our target of raising foreign direct investment from US\$ 3 billion per year to US \$10 billion.

Public sector reform was another important aspect of our reform package. The low operating efficiency of many, though not all, of the public sector enterprises has put an increasing financial burden on the Government. The failure of the public sector to generate surpluses, as was once expected, in effect led to a reduced ability of the Government to support the development of the social sectors, e.g. education, health and demography. It has also limited the availability of resources for the development of physical infrastructure. We initiated the process of public sector reform by giving public sector enterprises more autonomy from Government and also by beginning a process of disinvestment in public sector equity while retaining majority control. More recently, we have gone beyond this position to adopt a bolder policy of actually reducing the Government's stake to a minority or even zero in some cases. The Government has indicated that we will undertake even bolder initiatives aimed at effectively privatising many public sector enterprises in the non-strategic areas.

Beyond macro-economic management of the economy and reform of industrial and trade policy regimes, the agenda for reforms in other sectors is also quite demanding. The thrust of the initiatives taken so far has been on addressing issues facing the organised manufacturing sector. The Government is also addressing the issues constraining the growth of the unorganised manufacturing sector. A large part of the economy, particularly the rural area and most of the labour market is still unorganised. It is essential to ensure that the de-regulation benefits the small-scale sector and the unorganised sector.

A major weakness of the economy at present is the inadequacy and poor quality of India's infrastructure i.e. electric power, roads, ports, telecommunications and also urban and rural drinking water supply and sewerage. Rapid growth is possible only if the supply of these services can be greatly increased and the quality also improved. Investments in these sectors at present are far below the levels needed to achieve this. The availability of these services is a particularly important prerequisite for attracting capital, whether foreign or domestic. A high quality of infrastructure services is also essential for international competitiveness and export dynamism in an increasingly open economy. This calls for major policy reorientation. Traditionally, investment in infrastructure has mostly depended on public funding which, because of the pressure of other priorities, has not been able to keep pace with the growing demand. However, we need to collect reasonable user charges both to enhance the revenues of the public sector and the viability of investment in these areas by the private sector. We are keen to bring in the private sector in all these areas and to this end we are beginning to move towards reasonable user charges.

We are also setting up independent regulatory agencies which can provide private investors with the reassurance they need that they will get a level playing field in which to operate. I must share with you, however, that it has proved much more difficult to create an appropriate regulatory framework than we had thought. The economists in the Planning Commission tell me that the field of regulatory economics is relatively new and other countries have had similar experiences. This is clearly one area where we must be willing to adjust our policies in the light of our own experience and that of other countries.

It is impossible to talk of the Indian economy without talking of agriculture. The acceleration of growth in the 1980s was in part due to the fruits of the Green Revolution, which gained momentum in the 1970s. The success of the Green Revolution has given us a substantial increase in the production of foodgrains, which has created

a reasonable degree of food security at the national level. However, there is evidence that the yields have peaked in the traditional Green Revolution areas and the spread of productivity increases outside the irrigated areas has been limited. Rising subsidies on inputs such as water, power and fertilizers have strained the resources available with the State. This in turn has limited the ability to undertake the much-needed investment in land development and moisture conservation, which are crucial for productivity in the rain-fed areas where irrigation is not possible. There is also the issue of local-level barriers to trade in agricultural commodities. All these issues have to be urgently addressed in the second generation of reforms. The success of economic reforms, in particular the percolation of benefits to the masses, depends largely on the reforms in the food and agriculture economy.

Reforms in the real economy have to be supported by reforms in the financial sector. We began the process of reforming our financial sector at an early stage by focussing first on the banking system and then on the securities market. We have made substantial progress in this area. We are upgrading the prudential norms in the banking sector in a phased manner. The quality of banking supervision has also been greatly increased. Reforms in the securities market have also made considerable progress. We have improved the standards of disclosure and transparency in our stock markets and introduced regulations to govern the actions of intermediaries. The use of information technology in trading and settlement systems in our stock exchanges has brought our systems up to world standards. In recent years, following the East Asian crisis, the attention being paid to strengthening the financial sector in the developing countries has increased greatly. We are aware of these developments and it is our endeavour to ensure that our financial sector comes up to the higher standards now expected.

A major area of reform in the financial sector in India relates to insurance. Until now, insurance has been a completely nationalised industry. The new Government has recently introduced a Bill in Parliament proposing to end the public sector monopoly of the

insurance sector. This is an extremely important initiative. It will help to strengthen institutional arrangements for long-term or contractual savings. A strong and vibrant insurance industry will, I expect, help to channelise the long-term savings to the infrastructure sector where these are most needed.

Finally, we must pay much more attention to the aspect of social development. The quality of human resources available to a nation has always been acknowledged as a prime contributor in sustaining growth over longer time horizons. This is obviously an area where the State has to play an important role in meeting the requirement for investment to provide essential services. In our case, the commitment of the Government in these areas has never been in question. In our federal system this is an area, which lies primarily in the realm of the State Governments, and the good intentions have been constrained by the lack of resources. But resources are not the only problem. The inefficiency of government delivery systems is also an important constraint. Progress in this important area, therefore, requires a major push towards generating additional resources combined with institutional and organisational changes to enforce performance and accountability in these sectors. This issue is obviously closely linked to governance questions, which are increasingly the subject of attention in development economics.

These are some of the challenges that lie ahead as we seek to chart the second generation of reforms. Some of these issues, such as reform in the labour markets, are more difficult to handle than the first generation issues, which were relatively simple. However, I am confident that we will be able to make progress through the consensual process, which has served us so well in the past. We may not be able to do everything we want to do in a short time but steady progress on most, even if not on all, of these fronts does hold out the hope of accelerating our growth rate to at least 7% in the near future. I am confident that as we see the benefits of continuing to reform, we will be able to develop the consensus needed to implement change in the more difficult areas also.

I have tried to indicate the road map of our reform process and the crossroads, in terms of difficult choices, which may come in the way. I am sure that this distinguished audience, with their theoretical understanding and research of studying reform processes in other countries, will give us the benefit of their insights.

Speech at the Center for Research on Economic Development and Policy Reforms, Stanford University on November 9, 1999

FUTURE OF IT SECTOR REFORMS*

Friends, I am happy to be with you all this evening. A few months ago some of you met me in Delhi and invited me to visit Silicon Valley. I had assured you that I would come whenever I visit the US next. I was invited by Harvard University to speak at an International Conference on Energy, Environment and Development. I have now taken this opportunity to fulfill my promise to visit the Silicon Valley. This location, as well as the Indian community here, are recognised as symbols of entrepreneurship all over the world. We in India take pride in your achievements and wish you all success in your endeavours.

I propose to speak to you mainly about our efforts to exploit to the full the vast potential of information technology for accelerating the development of India and raising the standard of living of its people. We have come a long way since Independence but have a very long way to go yet and all the time the world is moving ahead at an ever-increasing pace. We missed the industrial revolution. We have no intention of missing the electronic, information and knowledge revolution.

The strength of India is its democracy, its free press, independent judiciary and an array of skilled and talented people in all walks of life. In my view, our challenge is to control the numbers and create equality of opportunity to all our people and the right environment in which they can grow to their full potential. It is to realize this large vision without trying to paper over the shortcomings that we have to do everything to build up on our strengths. And it is in this perspective that we have to appreciate the policy and programmes of economic reforms, which we are pursuing.

India unfolded the first set of economic reforms in mid-1991. Since then, the country has come a long way on the road to liberalisation and globalisation. I will not talk of all the changes made in many sectors but will only say that the most powerful change has been in the mindset of the people and the institutions, in which they work

and operate. The country has come to recognise that India must integrate with the world, be open to technology and foreign investment and allow her considerable domestic talents to flourish without bureaucratic restraint. We have also come to realise that the infrastructure needed to be totally overhauled to facilitate this globalisation and integration with the world economy.

India has always valued knowledge and from the beginning of our development efforts we gave importance to scientific development in critical areas such as atomic energy, space and more recently biotechnology also. However, converting knowledge into GDP is something new and this aspect has been at the forefront in the area of information technology. The Government of India has resolved to make India a global IT superpower and a front runner in the age of the information revolution.

The present Government has come up with a comprehensive vision for the development of the whole sector of IT comprising informatics, telecom and the electronic industry. The Prime Minister, Shri Atal Behari Vajpayee, had constituted a National Task Force on Information Technology and Software Development. The first set of 108 recommendations on the IT Action Plan submitted by the IT Task Force has been accepted by the Government. These cover a wide spectrum of issues relating to telecommunications, finance, banking, revenue, commerce, electronics and HRD. Two more reports of the Task Force are being pursued. We have set an export target of US\$ 50 billion for computer software and US\$ 10 billion for computer and telecom hardware to be achieved by the year 2008.

I am very happy to inform you that almost all the States of India have drawn up comprehensive IT plans and are coming out with IT policies, which will help in creating a conducive environment for high-growth high-tech industries. Our vision of IT includes telecom, media technologies and electronics. There are, however, other dimensions, the so-called flip side, which we must also consider. The PC penetration in the country is only 3 per 1000, which is far too low. We have

barely 2 telephones for thousand people and cable connections for 20 million households. There are about half a million Internet connections in the country. We have a long journey ahead to become an "Information Society". Our emphasis, therefore, is on developing strategies and policies, which facilitate and enable the entrepreneurs on the one hand and deployment of public and private resources on the other to move towards an "Information Society". This will, in my view, help in narrowing the gap between the information-rich and the information-poor in our society.

It is evident that a multi-pronged strategy is required to realise India's potential of becoming a global leader. Some of these strategies could be as follows:

- India already has 18.5% market share in global cross-country customised software market. India needs to further consolidate its position as the leading provider of offshore IT services.
- With a potential 2 trillion dollar global IT industry by the year 2008, we must create a policy ambience that can achieve the target of a \$50 billion annual export of IT software and IT services, including IT-enabled services, by this year. The domestic market for IT will also expand and spread all over the country.
- India has to create original technology in this area. It is only those countries, which will create original technology, that will become leaders of information technology. In other words, India has to create products as well as shrink-wrapped software packages for the global market. The immediate areas could be Internet, E-commerce, ERP and next generation enterprise applications/tools. But, this can also involve creating system software or operating systems.
- We need to encourage with seed capital and venture capital the young students and professionals with innovative ideas, irrespective of whether they are in larger cities or towns. For this we need a flourishing community of "angel investors".

- We need to promote localisation of software so that the wider cross-section of Indian population can use software-driven IT industry to their advantage.
- We must accelerate the drive for setting up a world class info infrastructure with an extensive spread of fibre optic network, satcom networks and wireless networks for seamlessly interconnecting the local informatics infrastructure (LII), national informatics infrastructure (NII) and the global information infrastructure (GII) to ensure a fast nation-wide onset of the Internet, Intranets and Extranet. I can assure you that we are determined to create this infrastructure.
- We must accelerate the rate of PC penetration in the country from the 1999 level of 3 per 1000 to one per 50 along with universal access to Internet, Extranets and Intranets by the year 2008 with a flood of IT applications encompassing every walk of economic and social life of the country. The existing over 600,000 public telephones and public call centres (PCOs) should be transformed into public tele-info centres offering a variety of multimedia information services.
- In order to realise a goal of "IT for all by 2008" in India we would require a rapid spread of IT awareness among the citizens, propagation of IT literacy, networked Government, rural penetration of IT applications, training citizens in the use of day-to-day IT services like tele-banking, tele-documents transfer and tele-library and electronic commerce.
- We have to do a great deal more to provide quantitative and qualitative training for creating world-class IT professionals.

We have moved forward and taken a number of initiatives in these areas. Let me refer to some of these:

- ◆ A new Internet Service Provider policy has been announced and implemented. The ISPs will be allowed to set up

international gateways. A national Internet Backbone is being set up. Inter-connection of closed user group network has been allowed.

- ◆ The Internet bandwidth will not be an issue in the days to come. The VSNL already has a capacity of more than 150 MB. The STPI, another gateway provider, has a capacity of more than 50 MB. All the reputed bandwidth providers like MCI and Tele Globe are operating in the country through VSNL and STPI.
- ◆ India has set up 12 Software Technology Parks within the country to provide one-stop solution for the software exporters. Sixty per cent of the software exports from the country is from these STPs. These Parks are being strengthened further in terms of infrastructure. The procedural bottlenecks have been removed to a large extent and this process is on. Units have been permitted to set up a Call Centre. However, there is a need to liberalise the procedure and scope of this Call Centre, which we are pursuing.
- ◆ For improving the quality of human resource development and to improve the skills of existing software professionals initiatives have been undertaken for implementing the Distance Learning Programme. Some of the leading American universities providing such programmes have already been consulted.
- ◆ The Government of India has provided a corpus of Rs.100 crore towards setting up a Venture Capital Fund for the IT industry, particularly for the small and medium enterprises. All the legal formalities for the formation of this company have been completed. This is a small amount but it will be supplemented by Venture Capital Funds from the private sector including foreign investors. A number of other Venture

Capital Funds particularly from UTI and Satyam are in the pipeline. Certain legal policy issues like limited partnership, amendment to the Income Tax Act etc. are being pursued. The announcement of Sweat Equity and tax breaks for venture capital companies has already been made.

- ◆ The Cabinet has recently approved a Bill for establishing the legal framework for facilitating e-commerce in the country. The Bill will be introduced in the next session of Parliament beginning later this month.
- ◆ The procedure for paying for software through the Internet has been liberalised. Reimbursement up to US\$ 50,000 per transaction is allowed for international credit cards organisations towards advance for import of software through Internet even before the software is downloaded.
- ◆ We are encouraging Indian software companies to invest abroad for acquisition of software and IT companies in order to increase the market presence. The Reserve Bank of India has accorded a blanket approval up to 50% of their foreign exchange earnings in the past three years subject to a maximum of US\$ 25 million for Indian companies to undertake such investment. Proposals to liberalise this limit further are being considered.
- ◆ A new Ministry of Information Technology has been set up to serve as a nodal centre for facilitating IT initiatives in the country. The Ministry will be taking initiatives in the areas of software productivity improvement, human resource development, promotion of brand equity in the area of software and IT, electronic governance and establishing a vibrant IT services market.

These are some of the areas we hope to address. The Government of India looks towards you and other Indians in the USA to collaborate and invest through whatever means, including the setting up of your

units in India, setting up joint ventures or through provision of venture capital or provision of incubation services here in the Silicon Valley, creating the brand equity for Indian units, helping the small and medium enterprises in India to market their products and moving more and more software enabled services to India. I know that several of you will be visiting India over the next few weeks. I hope you will get in touch with me on your next visit to give me a feedback on what more you think we can do.

** Speech at the meeting with The Ind-US Entrepreneurs (TIE) delivered on November 10, 1999 at Silicon Valley*

PREPARING FOR THE NEW MILLENNIUM*

It is a great pleasure for me to be with you today in one of the best management schools in the US, and indeed in the world, and share some thoughts on certain aspects of India's development.

India lives in several centuries. Ever since it became independent in 1947 one of the national priorities has been the development of science and technology and harnessing these for development. India has a long history of science and technology. The fact that India has one of the largest pools of highly skilled professionals, some of whom have done very well in the USA, can be related to the development of science and technology in India on one hand and the process of development planning on the other. Today we have over 200 universities and a large number of national research laboratories, apart from R&D done in the private sector. It is noteworthy that many of the fields of science and technology in which India was successful, like nuclear physics, theoretical physics, molecular biology, astro-physics, aeronautics engineering and space science, required extensive numerical computations with heavy use of computers. As early as 1956 to 1959, India designed and built two computers — one called 'TIFRAC' at the Tata Institute of Fundamental Research at Bombay and the other called 'ISI-JU' developed jointly by the Indian Statistical Institute and Jadavpur University at Calcutta. For these understandable reasons, information technology had its origin in science and technology institutions and statistical institutes.

I can recall the decisions taken in the various Departments of Science & Technology, like Atomic Energy, Space, Electronics and others, in the growing field of information technology in the country when I was Minister of Science & Technology more than 25 years ago. With centuries of mathematical culture behind it, India produced a large number of scientists and technologists who made use of computer

programming for solving problems in their fields like science, technology, statistics and planning. On the communication front, the Department of Telecommunications spread its network throughout the country. New frontier areas like ocean development and biotechnology, among others, prodded IT utilisation further. It was when the world discovered the Indian talent in software development that IT took a major commercial turn. With this, information technology received top priority in the country and IT professionals trained in India were much in demand all over the world.

Information technology received a big boost when the Prime Minister appointed a Task Force on Information Technology and Software Development. The Task Force has submitted three reports and the Government has already accepted a number of its recommendations relating to software. These recommendations are intended to empower the IT industry and the software professionals with the Government taking on a benign promotional role and stepping in to remove any obstacles in the path of the entrepreneurs or professionals. One index of the success of these policies is the enthusiastic reaction to the IT scrip in the Indian stock markets, which shot up more than 10 times within six months and are now the most sought-after by the investors. Two Indian companies, INFOSYS and SATYAM, have entered NASDAQ in recent months and appear to have done very well.

The infrastructure required for IT is quite complex. It calls, *inter alia*, for high-quality infrastructure of roads, electricity and telephone, in addition to data communication facilities. At present, high-speed wide-area communication is through the satellite medium, microwave systems and fibre optic lines. Recognising the importance of fibre optics the Department of Telecommunications has laid more than 100,000 route kilometers of fibre optic cables. These are mainly for low and medium-speed fibre optic communication. With a heavy projected load in the coming years, it was considered necessary to install at least 20,000 route kilometers of very high-speed fibre optic lines, more than a 1000 times the bandwidth as compared to the existing fibre optic lines of the Department of Telecommunications.

To meet this requirement a Project was launched on the recommendation of the Prime Minister's Task Force on Information Technology.

The first report of the Prime Minister's Task Force on Information Technology dealt with software. The second report, which is on hardware policies, is under the consideration of the Government. The intention here is the creation of a policy ambience in the country comparable to those in Taiwan, Malaysia, Singapore and others who are dominating the world IT hardware market.

The Task Force has laid considerable stress on human resource development policies to underpin the plans for accelerating the growth of the IT sector. A scheme is under consideration to integrate the infrastructure that the State can provide with the working capital—both physical and human—that private enterprise can offer to optimise the available national resources for IT education. We are working on setting up a national infrastructure for IT-HRD—a high-speed national network backbone called, Vidya Vahini. The private sector will be encouraged to invest in the arteries and branches of Vidya Vahini at local and regional levels.

I now turn to another feature of India's development policy, namely economic reforms. Economic reforms in India have to be viewed in the context of certain broad objectives. We want faster growth with a broader spread of the benefits of growth. We want growth with social justice and we want especially to achieve an early elimination of poverty. And we want to achieve this in a manner, which is ecologically sustainable and in a democratic framework. These are more or less the objectives we started with fifty years ago, though perhaps there was less recognition of the importance of ecological sustainability. What have changed are the instruments for achieving these objectives. The need for new strategies and instruments is partly a reflection of the fact that the world has also changed substantially over this period and especially in the past two decades. Globalisation and integration of the world economy are inescapable realities.

India's economy is going through what can be called a long-term acceleration. In the 1970s we grew very slowly at the rate of around

3.5% per annum. In the 1980s we began what may be called a gradual process of economic liberalisation and this bore fruit by raising the growth rate of GDP to 5.8 per cent. The pace of reform then accelerated in the 1990s, triggered initially by the balance of payment crisis of 1991 but sustained in subsequent years by a genuine recognition of the need for change.

The 1990s saw a number of new initiatives in economic policy in the areas of domestic industrial de-regulation, trade liberalisation, opening up to foreign investment, a beginning with public sector reforms and a gradual process of financial sector reforms. This is because generating a consensus for change in a large and highly pluralistic democracy is always difficult and it is especially so in a poor country. It goes to the credit of India's democratic processes that successive governments have managed to continue the process of economic reforms and indeed give them a further push.

India's reforms in the 1990s have had a good effect. They have produced an average growth rate of nearly around 7% in the Eighth Plan period (1992-1997). This is not as good as we would like. We need a growth rate of more than 7-8% if we are to make a significant dent on poverty in India. Moreover, the growth we have experienced in the 1990s is also not as well balanced regionally, as we would have liked. It has had less impact on reducing poverty than we had hoped. Nonetheless, it is definitely encouraging not only compared to our past record but also the record of other countries. In fact, it is not sufficiently recognised, even in India, that India has been one of the ten fastest growing economies of the world in the 1990s.

The challenge before us today is how to achieve a growth rate of over 7-8% of GDP per annum, ensure that this growth is regionally more balanced and, above all, that it succeeds in generating employment at a pace, which can absorb our growing labour force. Fortunately, our population growth is slowing down and this bodes well for the future. However, because of the age structure of the population, the labour force growth will begin to decelerate only after 10 years. It is against this background that the Planning Commission and the other

departments of the Government need to define and implement the second generation of economic reforms. The details of this agenda are still being worked out but I would like to take this opportunity to share with you some of the key policy issues that are the focus of our immediate attention.

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Public Sector reform was another important element of our reform package. The low operating efficiency of many, though not all, of the public sector enterprises has put an increasing financial burden on the Government. The failure of the public sector to generate surpluses, as was once expected, in effect led to a reduced ability of the Government to support the development of the social sectors, e.g.

education, health and demography. It has also limited the availability of resources for the development of the physical infrastructure. We have initiated the process of public sector reforms and the Government has indicated that it will undertake bolder initiatives aimed at effectively privatising many public sector enterprises in the non-strategic areas.

One vital aspect of the economy, which calls for sustained and focused corrective action, is the inadequacy and poor quality of India's infrastructure i.e. electric power, roads, ports, telecommunications and also urban and rural drinking water supply and sewerage. Rapid growth is possible only if the supply of these services can be greatly increased and the quality also improved. Traditionally, investment in infrastructure has mostly depended on public funding, which, because of the pressure of other priorities, has not been able to keep pace with the growing demand. It is, therefore, necessary to enlarge the resources of the public sector on the one hand and attract private sector to the infrastructure sector on the other. For this it is necessary to collect reasonable user charges for services like power and irrigation. We are also setting up independent regulatory agencies, which can provide private investors with the reassurance, which they need, that they will get a level playing field in which to operate.

Reforms in the real economy have to be supported by reforms in the financial sector. We began the process of reforming our financial sector at an early stage by focussing first on the banking system and then on the securities market. We have improved the standards of disclosure and transparency in our stock markets and introduced regulations to govern the actions of intermediaries.

A major area of reform in the financial sector in India relates to insurance. Until now, insurance has been a completely nationalised industry. The new Government has recently introduced a Bill in Parliament proposing to end the public sector monopoly of the insurance sector. This is an extremely important initiative. It will help to strengthen institutional arrangements for long-term or contractual savings. A strong and vibrant insurance industry will, I am confident, help to channelise long-term savings to the infrastructure sector where these are most needed.

These are some of the challenges that lie ahead as we seek to chart a course for the second generation of reforms. Some of these issues, such as reform in the labour markets, are more difficult to handle than the first generation issues, which were relatively simple. However, I am confident that we will be able to make progress through the consensual process, which has served us so well in the past.

I have attempted to give a broad overview of some of the technological and economic developments that have taken place in India and highlighted some of the issues, which are of concern to us. I would like to end with the hope that this institution with its unique global culture will be persuaded to develop mutually beneficial relations with one or more of the leading Institutions in India. In the new millennium, when all of us will be each other's neighbours, it will be necessary for us to forge better understanding and co-operation on the basis of shared knowledge and ideas.

**Address at the Kellogg School of Management, Chicago on November 11, 1999*

PLANNING IN A MARKET ECONOMY*

It gives me great pleasure to be here with you in one of the great universities in the US. As you are aware, the winds of change are sweeping across the globe. Countries, which for long had centrally planned economies, are steadily reorienting themselves to a more market-oriented system. It sometimes comes as a surprise to people that India continues to preserve planning as a central pillar of its development strategy despite having a vibrant market economy. But then, we have five decades of experience in fruitfully combining the planning process with a dynamic mixed economy within the framework of a democratic system.

Since our Independence more than 50 years ago, India has followed a path of planned development. By and large the track record has not been bad. We have managed to decisively reverse the trend of falling per capita incomes that had characterised the first 50 years of this century and have steadily accelerated our growth rates from an average of 3.5 per cent per year during the 30-year period from 1950 to 1980 to 5.5 per cent during the 1980s and further to 6 per cent during the 1990s. However, in recent years planning has come under attack from a number of quarters. Much of the criticism, I believe, is misinformed since it represents not a criticism of planning *per-se* but of a particular form of planning, namely, investment planning, whereby the Government determines the quantum of investment that will go into any sector or even industry. The argument appears to be that the central planners are less competent to take, and direct, investment decisions than the entrepreneurs operating under the discipline of market forces. While this view has greater force at the present stage of development of the Indian economy, there are two points that need to be made to place the issue in perspective.

First, it needs to be realised that investment planning in its pristine sense has not existed in India at least for the last fifteen years, when the dilution and eventual dismantling of the industrial licensing regime was initiated. Secondly, investment planning in the sense of working out the investment requirements of different sectors of the economy in order to ensure inter-sectoral consistency continues to be valid and will be so until such time as India becomes a capital-surplus country and, the importance of public investment diminishes significantly. Interestingly enough the Indian corporate sector appears to share this view. Our experience at the Planning Commission indicates that the single largest user of the Plan projections is in fact the private corporate sector, which recognises the value of sectoral forecasts made in a consistent, economy-wide framework for its own investment decisions.

This is not to say, however, that the planning methodology should not change so as to reflect the new economic realities and the emerging requirements. It must, and it will. In fact, the Planning Commission has been conscious for quite some time that the role of planning in managing modern market economy must be quite different from what it was three decades ago when the public sector was seen as having an expanding role and the government sector pervasive. Today, we expect, and indeed encourage, much freer operation of market forces and the Government is withdrawing from large parts of the economy where it believes that freer markets will be conducive to economic efficiency and therefore more economic growth.

A significant beginning has been made in the Ninth Five Year Plan itself. In sharp contrast to the past, the Ninth Plan does not lay down investment patterns in a deterministic manner. It indicates the sectoral investment requirements, the investment that is likely to occur and thereby the areas, which may receive excessive or insufficient resources. Such an analysis focuses attention on the sectors, which require policy change in order to achieve the desired targets. This approach to my mind is what policy planning is all about. There is always a role for planning in every large organisation, a role for setting goals, a role for anticipating future constraints that may arise in particular sectors and

in our situation anticipating problems that may arise because of the federal nature of the polity and relative roles of the Centre and the State Governments.

You will notice the startling similarity between this form of national planning and the corporate plans made by large corporate houses. No economic entity, which has long-term vision, can operate effectively in the absence of a mechanism by which future scenarios are generated, opportunities and threats are analysed and a consistent strategy evolved. The Planning Commission is increasingly taking the role of a 'strategic thinker' for the Government. Since it is not a line organisation it is best suited to take a detached view of the way different Ministries and State Governments are implementing their programmes. The Planning Commission fulfils this role recognising that in a dynamically evolving world the conditions change continuously and the development strategy also has to evolve in a consistent and pro-active manner. This can only be done through a system, which tracks the emerging trends both in the international and the domestic economies, analyses the opportunities and dangers and indicates the direction for policy change. In future years this approach will need to be strengthened and made more precise and accurate.

I do not think that it is anybody's case that government has no role at all in managing modern economies. We acknowledge that the role of government is radically different. Government must withdraw from areas, which are best managed by the private sector but it must strengthen its position in certain areas where the private sector cannot be expected to play a role. The whole range of social sectors, especially health and education, are clearly the areas where government must play a much larger role than it has in the past if we have to meet the huge gaps that we face at present. In addition, the entire area of rural economic infrastructure is one that cannot be left entirely or mainly to the private sector. Programmes of soil and moisture conservation, rural land development, provision of safe drinking water and sanitation are areas where States will have a role in the foreseeable future. In the area of economic infrastructure for the rest of the economy what is needed is a partnership. In the past, economic infrastructure such as

railways, ports, national roads and power are all provided by the public sector. In future we will see that these areas are opened up to the private sector to the extent that the private sector can be expected to come in and this varies from sector to sector. However, for the foreseeable future, in the development of the national road network, the bulk of road development will have to be in the public sector although a start in this area has already been made. For all these reasons, public investment, both in the Centre and in the States, will continue to have a major role in the development of the country and the prioritisation of this investment has to be properly planned.

Further, in our federal system, some subjects are allotted to the Central Government, some are left to be managed by the States and in some others both the Centre and State Governments have a concurrent jurisdiction. Now, some issues are to be tackled by the elected Panchayati Raj institutions at the village level and by the urban bodies. An important function of planning in such a federal system is to evolve a shared vision of, and a shared commitment to, the national objectives and the development strategy not only in the Government at all levels but also among all other economic agents. No development strategy can be successful unless each component of the economy works towards a common purpose with the full realisation of the role that it has to play within an overall structure of responsibilities. For this to happen, the vision and the strategy have to be clearly articulated in a formal document, which is readily available to all the players in the national economy. The Planning Commission is also best equipped to evolve a long-term economic strategy for the development of the country. At present it is trying to work on a Vision 2020 Document outlining the priorities for the country in the next century.

As we prepare to move into the next millennium, one of the issues raised is whether there is still relevance for the Planning Commission in the new scenario or can the functions be carried out by some other agency. My answer would be that there are certain functions, which the Planning Commission is best equipped to perform. For instance, a body like the Planning Commission is required in order to address the national objectives of poverty alleviation, population control,

employment generation and balanced regional development in a holistic manner. Leaving these issues to the sectoral Ministries runs the danger of the inter-linkages and synergies being overlooked. Another area where the Planning Commission is relevant is in coordinating the economic activities of the Central and State Governments and among the Central Ministries. There is no other agency that is better equipped to play this role. As you may be aware, India is a federal country in which the authority and responsibility for handling various public activities are vested in different tiers of the government by our Constitution. Coherent policy-making, however, requires that some agency should ensure that these different and autonomous tiers do not work at cross-purposes. For this it is essential to have an institution, which has an economy-wide mandate.

In addition, the creation of a partnership in the public sector and the private sector in other infrastructure sectors requires a supportive regulatory framework. Here again, policy planning rather than the old fashioned material planning, plays a crucial role. It is my endeavour to restructure the role of the Planning Commission so that it contributes to development of appropriate policy structure in this area.

You would agree that the coming millennium holds several challenges, which we will have to meet through suitable evolution of our development strategy. Such an evolution is unlikely to happen by itself and would require a strong and technically competent planning system, which can look at the issues in an integrated manner. This is true not only of developing countries like India but of the developed countries as well. It will also involve a greater realisation of the interdependence that already exists between different countries of the world and short-term profit motives will have to give way to building long-term relationships on the basis of mutual benefit. I believe that it is essential that one takes a global view of these issues and, in the process, appreciate the continuing need of planning in a market environment.

POLITICAL & ECONOMIC DEVELOPMENTS IN INDIA*

It gives me great pleasure to be here with you at the Mid America Committee, Chicago. I welcome this opportunity to share some thoughts with you and to interact with you.

As we in India look back at the first fifty years of our development experience as an independent nation, we can easily identify some of its positive features. The long period of stagnation in our per capita incomes, which characterised the first fifty years of this century, has been decisively reversed with steady and accelerating economic growth, based predominantly on our own resources. We have eliminated the scourge of famines from the face of our country and are moving steadily towards emerging as a net exporter of food and other agricultural products. We have developed a diversified industrial base on the strength of our own entrepreneurial talents. Our technological achievements, both military and civil, are not inconsiderable and in certain areas are of world class. And, most importantly, all of this has been achieved in the framework of a vibrant pluralistic democracy.

The recently concluded elections have again demonstrated that democratic processes have developed deep roots in the country. The results also reflect the growing maturity of our voters and of our political system. For a country of India's size and diversity, the biggest challenge is to develop a political mechanism by which regional and sectional aspirations can be fully articulated, contradictions resolved and finally assimilated into a national consensus. This is by no means an easy task but it is one enjoined on us by our Constitution. You would perhaps be aware that the Constitution of India was framed after a thorough study of various Constitutions. Although it is based on British principles, its federal nature owes much to the Constitution of the United States of America. It is this federal character of our

Constitution, which, I believe, has enabled us to resolve the myriad problems that are inherent in a multi-racial, multi-lingual and multi-religious country and weld together a nation, which has withstood many trials and tribulations. In the first fifty years of our existence, we have experienced four wars, innumerable natural calamities and deliberate attempts to subvert the integrity of the nation through cross-border terrorism. Through all this our democracy has not only survived but has also flourished.

In recent years there has been some criticism of the frequent elections and changes in Government that have been taking place in the country. There is a point of view that holds that this is symptomatic of a fractured polity. I would submit that nothing could be farther from the truth. Articulation of diverse aspirations needs appropriate vehicles and institutional arrangements. Our polity provides space to political parties, which represent different components of our vast diversity. It is up to the people to decide if they favour a multi-party coalition. The results of this election indicate that the Indian electorate subscribes to such a view.

It is also noteworthy that despite the frequent elections and changes in Government there has been no real uncertainty either in our governance or economic policy. The convergence of views in economic matters has never before been demonstrated as clearly as in the case of the Ninth Five Year Plan. Although the finalisation of the Ninth Plan Document has been delayed by two years due to change in Government, it represents a degree of agreement on our development strategy that is remarkable. The preparatory work for the Ninth Plan was initiated in 1995 by a Congress Government, it was developed to a large measure by the United Front Government and brought to finalisation by the present Government. This would not have been possible if the policies of successive Governments had not sought to broadly reflect the aspirations of the people of India and protect their interests. That is why India's desire to retain its freedom of judgement and decision remains the key to its policy-making today and will remain so in the future. India, with its rich and ancient civilization,

its size, growing strength and potential, cannot but pursue policies that safeguard its autonomy and its interests as an independent player on the world stage.

There are many areas in which the interests of India and the USA converge. In India public opinion in the last few months has responded positively to what it perceives as better understanding within the US Government of the Indian position on several issues. Let us hope that this favourable climate is converted to further consolidation and deepening of ties between our two democratic countries

After all, India is one of the largest economies in the world with a landmass of 3.29 million sq. kilometers and a population close to one billion. India possesses a richness of diversity of culture, geography and climatic conditions and natural and mineral resources that are matched by few countries in the world. It is an ancient land but a young country. India's long history of stable parliamentary democracy ensures a transparent, predictable and secure environment for foreign investment. The existence of a free and vibrant press, an independent judiciary, a strong legal and accounting system and the use of English as the principal language of business and administration are some of the attractive features of the business environment.

India has a large and rapidly growing market of nearly 300 million people for consumer goods and it is estimated to be growing at 8 per cent per annum. The demand for several consumer goods is growing at the rate of over 12 per cent per annum. Besides the vast domestic market, it has access to the South Asian market on account of its strategic location. India is also one of the largest manufacturers in the world with its manufacturing activities spanning almost all areas. India has an abundance of highly qualified and skilled manpower as well as world-class professional managers who are available at competitive cost. This makes it an ideal base for sourcing production both for export and the huge domestic demand.

India also has one of the largest pools of scientists, engineers, technicians and managers in the world with a well-developed R&D infrastructure

and technical and marketing services. India has a vibrant capital market with over 9,000 listed companies with a market capitalisation of around US\$ 225 billion at present.

I have referred to these basic facts to give you a feel of the size of India, its geo-strategic position and its determined efforts to improve the quality of life of its people in a democratic framework and very largely through its own efforts.

You can well imagine the enormous effort that went into the organisation of the recent elections in India, in which over 600 million people cast their votes. And now that the elections are over, the new Government has already started taking important decisions, many of them tough ones. The Government is aware that we have lost valuable time due to the rather unnecessary elections imposed on the country. Important legislations, like the Insurance Regulatory Bill and Money Laundering Bill, have already been placed before the Parliament. The Cyber Law has been approved by the Cabinet. The President's inaugural address to the 13th Lok Sabha really sets the tone for what you may call the second generation reforms and I can do no better than to flag some of the points of that address to give you a clear idea of the new Government's agenda.

Foreign direct investment (FDI) plays a crucial role in rapid economic development by bringing in modern technology and management practices. The Government will review the existing FDI regime in order to bring in greater transparency, cut delays in project implementation and create an enabling policy to ensure FDI inflow of at least \$ 10 billion per year. There will be an automatic route for FDI clearances except in a small list of carefully chosen areas. Experience, both domestic and international, suggests that rapid and multi-sectoral growth is possible only by pursuing a bold strategy of economic reforms.

The nation's re-oriented strategy of development will have to rest on a triad, in which the Government provides a strong policy and regulatory leadership, the private sector brings the dynamism and efficiency of the competitive environment and the local democratic

institutions and the civil society bring enthusiastic participation by the people. The most obvious constraint to rapid economic growth today is the inadequacy of the infrastructure. The Government will take urgent steps to improve the situation guided by the principle of greater private investment within a strong regulatory mechanism.

In the power and energy sectors, the Centre will work closely with the State Governments for time-bound corporatisation of the State Electricity Boards. Generation, transmission and distribution of electricity will be unbundled as separate activities. Tariff reform, privatisation of transmission and distribution of power and the setting up of State Electricity Regulatory Commissions will be accelerated.

In the transport sector, the National Highway Authority of India will be strengthened to enable it to quickly implement the National Highways Development Project including the East-West and North-South corridors. A dedicated Road Fund will be created.

A Railway Reforms Commission will soon be set up to evolve a new resource mobilisation strategy, rationalise tariff, prioritise the project portfolio and urgently fulfill the unmet needs of railway safety.

A Group of Experts will be constituted to recommend a new legislation in place of the Indian Telegraph Act, 1885 to enable India to seize the new opportunities created by the technological convergence between telecom, computers, television and electronics.

A new Ministry of Information Technology has been created to be the nodal institutional mechanism for facilitating all the initiatives by the Central Government, State Governments, academia, the private sector and successful Indian IT professionals abroad. The Ministry will implement a comprehensive action plan to make India an IT superpower in the early part of the next century and achieve a target of \$ 50 billion in software exports by 2008. It will accelerate the Internet revolution in India, emphasising the creation of useful content in Indian languages. The IT-enabled services, IT education, hardware manufacturing and exports, e-commerce and Internet-based enterprises will be actively promoted. These have the potential to create employment and business opportunities for hundreds of thousands

of young Indians. A legislation to promote e-commerce will be introduced soon. It has already been approved by the Cabinet.

A Task Force for the pharmaceutical and other knowledge-based enterprises will be constituted for making India a world leader in this sector.

I have attempted to give a broad overview of some of the important developments that have taken place in India and highlighted some of the issues, which are of concern to us. I would like to end with the hope that in the new millennium, when all of us will be each other's neighbours, it will be necessary for us to forge better understanding and co-operation on the basis of shared knowledge and ideas.

** Speech at a meeting with selected NRIs at Mid America Committee, Chicago on November 12, 1999*

ECONOMIC PROSPECTS & REFORMS AGENDA*

It gives me great pleasure to be here with you at the Economic Editors' Conference. This is one of the most important forums for exchange of views with the media. I sincerely hope that at the end of our interaction you will have a clearer understanding of our objectives, hopes and expectations.

Let me begin by briefly sketching our expectation of the growth prospect of the economy in the immediate future. As you are all aware, we have passed through a two-year phase of industrial deceleration, during which the growth rate of the economy dropped sharply from 7% plus that had been experienced during the three-year period 1994-97 to 5% in 1997-98 and 6% in 1998-99. There is every sign that the economy is pulling out of this phase and is well on the path to regaining the earlier growth momentum. The evidence available in recent months suggests that both domestic and export demand is turning up. The provisional data for six infrastructure industries, i.e. electricity, coal, saleable steel, petroleum refinery products, crude petroleum and cement, indicate a growth rate of 5.9% during April-August 1999-2000 as compared to a growth rate of 4.4% during April-August 1998-99. In fact, during August 1999 electricity sector grew by 8.1 per cent. If these trends continue, and we believe they will, it is quite possible that industrial growth in the country will steadily accelerate.

In fact, India's economy is going through what can be called a long-term acceleration. In the 1970s we grew very slowly at the rate of around 3.5% per annum. In the 1980s we began what may be called a gradual process of economic liberalisation and this bore fruit by raising the growth rate of GDP to 5.8 per cent. The pace of reform then accelerated in the 1990s, triggered initially by the balance of payment crisis of 1991 but sustained in subsequent years by a genuine recognition of the need for change and I believe that a 7% plus growth

performance is by no means unattainable. In fact, it is not sufficiently recognised that India has been one of the ten fastest growing economies of the world in the 1990s.

The 1990s saw a number of new initiatives in economic policy in the areas of domestic industrial de-regulation, trade liberalisation, opening up to foreign investment, a beginning with public sector reform and a gradual process of financial sector reform. Reforms in India were not introduced with a bang. Generating a consensus for change in a large and highly pluralistic democracy is always difficult. It goes to the credit of India's democratic processes that successive governments have managed to continue the process of economic reforms and indeed give them a further push.

The challenge before us today is how to achieve a growth rate of over 7-8% of GDP per annum, ensure that this growth is regionally balanced and, above all, that it succeeds in generating employment at a pace, which can absorb our growing labour force. The Planning Commission and the other departments of the Government need to define and implement the second generation of economic reforms.

All efforts at reform can eventually founder on the rocks of a fiscal crisis. This is a very serious problem and I have often spoken about it. As you are aware, both the Centre and the State Governments are under severe fiscal stress, which severely limits the degrees of freedom available for undertaking meaningful initiatives. Fiscal reforms are, therefore, central to our agenda. I will not elaborate on this since the Finance Minister has discussed these issues in detail.

To start with, we clearly need to consolidate and deepen the process of reforms in sectors where they have already been initiated. De-regulation of industrial investment activity was a key element of the reform and has been nearly completed at the Central Government level. However, investors also face controls at the State Government and local levels. The task of de-regulation and de-bureaucratization needs to be vigorously pursued at these levels. Many of our State Governments have begun to focus on this task as they realise that with liberalisation of investment decisions by the Centre, individual

States have to compete for investment from both domestic and foreign investors. This issue is particularly important in the case of the unorganised sector, whose growth is central to our efforts at increasing the employment opportunities. Even while encouraging the process of liberalisation, the Central Government will have to take into account the uneven flow of investment to different States with a view to keeping regional disparities within tolerable limits.

It is impossible to talk of the Indian economy without talking of agriculture. The success of the Green Revolution has given us a substantial increase in the production of foodgrains, which has created a reasonable degree of food security at the national level. However, there is evidence that yields have peaked in the traditional Green Revolution areas and the spread of productivity increases outside the irrigated areas has been limited. Rising subsidies on inputs, such as water, power and fertilizers, have strained the resources available with the State. This in turn has limited the ability to undertake the much-needed investment in land development and moisture conservation, which are crucial for productivity in rain-fed areas where irrigation is not possible. There is also the issue of local-level barriers to trade in agricultural commodities. All these issues have to be urgently addressed in the second generation of reforms. The success of economic reforms, in particular the percolation of benefits to the masses, depends largely on the reforms in the food and agriculture economy.

Further, we must pay much more attention to the aspect of social development. In our federal system this is an area, which lies primarily in the realm of the State Governments and good intentions have been constrained by the lack of resources. But resources are not the only problem. The inefficiency of governmental delivery systems is also an important constraint. Progress in this important area, therefore, requires a major push towards generating additional resources combined with institutional and organisational changes to enforce performance and accountability in these sectors. This issue is obviously closely linked to governance issues.

Technology will have to be at the heart of our development efforts and we will need to create conditions for full flowering of our potential.

Information technology, for example, is one area where we have the potential to be a global powerhouse. Efforts are on in this direction. However, in the pursuit of global excellence we should not forget the benefits that can be derived within the country by their application. Mechanisms for greater interaction between technology developers and specific user sectors, such as agriculture, unorganised manufacturing and social services, will need to be established and faster dissemination encouraged.

A major priority of the economy, at present, is to address the inadequacy and poor quality of India's infrastructure. Traditionally, investment in infrastructure has mostly depended on public funding which, because of fiscal problems and the pressure of other priorities, has not been able to keep pace with the growing demand. However, we need to collect reasonable user charges both to enhance the revenues of the public sector and the viability of investment in these areas by the private sector. We are keen to bring the private sector into all these areas and to this end we are beginning to move towards reasonable user charges.

We are also setting up independent regulatory agencies, which can provide private investors with the reassurance, which they need, that they will get a level playing field in which to operate. I must share with you, however, that it has proved much more difficult to create an appropriate regulatory framework than we had thought. The field of regulatory economics is relatively new and other countries have had similar experiences. This is clearly one area where we must be willing to adjust our policies in the light of our own experience and that of other countries.

Reforms in the real economy have to be supported by reforms in the financial sector, in the banking sector, in the securities market and in our stock markets. The Government has recently introduced a Bill in Parliament proposing to end the public sector monopoly in the insurance sector. This is an extremely important initiative. It will help to strengthen institutional arrangements for long-term or contractual savings. A strong and vibrant insurance industry will, I expect, help

to channelise long-term savings to the infrastructure sector where these are most needed.

These are some of the challenges that lie ahead as we seek to chart the second generation of reforms. Some of these issues, such as reform in the labour markets, are more difficult to handle than the first generation issues, which were relatively simple. However, I am confident that we will be able to make progress through the consensual process, which has served us so well in the past.

**Opening remarks at the Economic Editors' Conference held on November 18, 1999 in New Delhi*

RESEARCH ON ENVIRONMENTAL POLLUTION *

It gives me great pleasure to be here with you at the inaugural session of this New Millennium Conference on "Retrospect of Indian Research on Environmental Pollution". The time is indeed ripe for taking stock of our progress so far and to develop a suitable perspective for the next century.

As the new millennium approaches, we face new challenges. We have to continue to improve our economic growth rate, provide basic minimum life support services to a large section of our population and deal with the problems of poverty and unemployment. At the same time we have to pay attention to conserving our natural resources and also improving the status of our environment. Environmental degradation, which was not much of a concern until quite recently, has started to accelerate, particularly in urban areas. We will need to tackle this in a holistic manner in order to ensure sustainability, both economically and environmentally. This, in short, is the task before the country and, in particular, its planners and policy-makers.

Although the issue of environmental sustainability has formally entered the international agenda only after the Earth Summit, which was held in Rio de Janeiro in 1992, it has been an integral part of Indian planning and policy-making for at least two decades prior to that. The Fourth Five Year Plan, which was launched in 1969, clearly articulated the need to harmonise our development plans with the preservation of the environment. Subsequent Plans have reaffirmed and given concrete shape to the strategies for addressing this concern. Indeed, Agenda 21 of the Rio declaration to a substantial extent reiterates and emphasises the approach that has been articulated in Indian Plans for quite some time.

The fact that Indian planners and policy-makers expressed concern about environmental issues long before it became fashionable to do so is neither strange nor unusual, since it is deeply rooted in our cultural traditions. To Indian philosophy, the bounties of nature are as much to be nurtured as used for the benefit of mankind. Protection and regeneration are inherently more desirable in Indian ethos than wanton destruction and exploitation.

To quote the Ishopanishad, one of our oldest religious and philosophical texts, "All in this manifested world consisting of moving and non-moving are covered by the Lord. Use its resources with restraint. Do not grab the property of others – distant and yet to come." The global and inter-generation concerns expressed by our forefathers are only today finding an echo in the modern discourse on ecology and environment.

But philosophy and ethics, while important in shaping attitudes, are subservient to survival instincts. The noble sentiments expressed by our philosophers and saints and embodied as objectives in our development Plans have been overtaken by the pressures of population growth and development needs. Population pressure and poverty together form a potent combination that can undermine all ethical considerations and can severely distort the valuation of the interests of the present generation relative to that of the future. The resultant severe shortening of the operative time horizon and the ready availability of technologies, which can quickly and cheaply meet the immediate needs through exploitative use of resources, form an unholy nexus, which is difficult to resist. Our best-laid Plans and comprehensive legislative framework for environmental protection have not succeeded in reversing the deterioration in our environmental endowments of air, water, soil and life forms.

Despite our increasing green consciousness, hazardous wastes are being dumped on land indiscriminately, coastal areas and deep seas are getting increasingly polluted, pesticides and other chemical pollutants continue to contaminate the rivers and ground water and noxious

gases are being continuously released into the atmosphere. We are consuming fossil fuels at higher rates to meet the energy demands arising out of increasing economic activity. Deforestation and degradation of natural habitats are yet other issues of concern.

According to some reports, ambient air quality is alarming in many urban and semi-urban areas. The time series data for 1995-98 on ambient air quality recorded for 23 cities reveals that the Suspended Particulate Matter (SPM) levels remain critical (above 210 mg/m^3) in 12 cities. Even in small to medium towns, such as Indore, Ahmedabad, Patna, Ludhiana, etc, the SPM levels are very high and in some cases they are higher than even the levels in the metro cities. The costs imposed on society by such pollution are staggering. One study by National Environmental Engineering Research Institute (NEERI) for Delhi has estimated that human health damage costs due to air pollution alone is Rs.1168 million per year and vegetation production losses are Rs.321 million per year.

Rural areas are facing another threat, that of indoor pollution. Studies indicate that the levels of pollutants inside rural houses, especially in the kitchens, are quite significant due to poor ventilation and use of thermally inefficient *chulhas* as also due to use of fuels such as cow dung, fire wood, kerosene etc. It is recently estimated that 82% of Sulphur Dioxide, 38% of Nitrogen Dioxide, 88% of Volatile Organic Compounds (VOC) and 96% of Particulate Matter emissions in the country come from the household sector. These lead to high indoor concentrations of pollutants, adversely affecting the health of people, especially women and children.

The country's water resources are also facing problems of pollution leading to high occurrence of water-borne diseases. Even today about 200 million people in India do not have access to safe drinking water. Most of our water sources are polluted with untreated and partially treated wastes from industry, domestic sewage and fertilizer/pesticide runoff from agricultural fields. About 1.5 million children die each year due to water-related diseases only. The problem of water pollution

is being faced both in river water as well as ground water. The main cause of ground water pollution is leaching and percolation of pollutants, including heavy metals, from industry. Contamination from agricultural runoff contains high amounts of pesticides and insecticides.

Lack of proper sewage treatment and disposal facilities is another problem that is contributing to water pollution. About 75% of the wastewater produced has been from the domestic sector but the sewerage facilities are inadequate in most cities and almost absent in rural India. Only 25% of Class I cities have wastewater collection, treatment and disposal facilities. Only 20% of wastewater generated in Class I cities and 2% in Class II towns is treated. The problem is compounded by depletion of the water table due to over-exploitation of ground water. Ground water pollution is a matter of serious concern as 80% of domestic water needs are met from this source.

The major rivers in our country too are facing pollution due to sewage disposal and industrial effluents flowing directly into them. Besides these, the non-point sources of pollution, which are even more difficult to monitor and control, include agricultural run-offs, dhobi ghats and cattle wallowing. As a result of pollution, even the river Ganga is unfit for bathing at some stretches.

The increase in the noise levels leading to noise pollution is quite alarming and if unchecked may impair hearing ability. Noise pollution has reached a high level in most of the metropolitan cities in many residential and commercial areas and even in the 'silent zones'.

The problem of land degradation has arisen mainly because of the changes in land use pattern over the years wherein large tracts of fertile agricultural land and forests have been diverted for urbanisation and settlements. Excessive soil erosion with consequent high rate of sedimentation in the reservoirs and decreased land fertility has become a serious environmental problem with disastrous economic consequences.

One must understand that economic activities have a direct bearing on the natural and environmental resources. Excessive and indiscriminate use of natural resources and energy leads to pollution. Activities involving processes like extraction, manufacture, transport, consumption and disposal add some stress to the environment and affect its assimilative capacity by adding wastes to it. When such activities are carried out inefficiently, the impact is much higher.

The Government of India has been making efforts to tackle the problem of pollution, and its policy on environment is reflected in the various policy statements on abatement of pollution, national conservation strategy and environment and development. The control of vehicular pollution, which is a major source of air pollution in cities, has received considerable attention. In Delhi a programme to phase out vehicles, which are more than 15 years old, has started since November 1998. A phased programme on improvement of fuel quality is also under way and unleaded petrol has been introduced in metro cities and State capitals. The Sulphur content in diesel supplied in Delhi and the Taj Trapezium has been reduced to 0.25% since 1997. These steps have resulted in a reduction of the pollution load of Delhi. The levels of lead have come down by as much as 97% from the 1995-96 levels, which is a very encouraging trend. This programme is coupled with the tightening of vehicle emission norms. We have notified the India 2000 and modified India 2000 norms for vehicle emissions, which are at par with the Euro I & II norms respectively. In Delhi, India 2000 norms have been enforced since 1st June 1999 and the modified India 2000 would come into force from 1st April 2000. At the national level, India 2000 norms would be enforced from 1st April 2000.

To tackle the problem of pollution from industries, an Industrial Pollution Control Project, with the assistance from the World Bank, was initiated in 1991 with the objective of strengthening the technical capability of State Pollution Control Boards of Gujarat, Maharashtra, Tamil Nadu and Uttar Pradesh. Under this Project loans were provided to industries for installing effluent treatment plants in clusters of

industries for pollution control. Another World Bank-assisted project on industrial pollution prevention is under way with the objective of strengthening SPCBs of Andhra Pradesh, Karnataka, Madhya Pradesh and Rajasthan, providing technical assistance and facilitating priority investments for promoting the development and adoption of clean technologies including water reuse and recycling.

To control the problem of river pollution, the National River Conservation Plan now covers 18 major rivers in 10 States of the country. Programmes on interception and diversion works, sewage treatment plants, low-cost sanitation schemes, electric crematoria and schemes of river front development have been initiated and are at various stages of completion. The river action plans now seek to promote low-cost technologies and greater people's participation for greater impact in controlling pollution. To tackle the problem of water pollution from the agriculture sector, sustainable agronomical practices and use of bio-pesticides and bio-fertilisers needs to be encouraged.

The Government has from time to time enacted a number of laws for environmental protection. The Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Wastes (Management & Handling) Rules, 1989 and the National Environment Tribunal Act, 1995 are some of the important legislative measures. However, despite having a number of laws, their implementation has remained rather weak in checking the pollution and degradation of the environment. Special courts have not yet been set up in all the States for expeditious disposal of pollution-related cases. Continuous monitoring of polluting industries is another weak area where further efforts are required.

Administrative and legal measures for controlling emissions, while important in themselves, are no substitutes for appropriate pricing regimes on the one hand and development of requisite technologies on the other. Since energy usage has strong externalities through its impact on the environment, there is good economic rationale to tax

the energy consumption in a manner so as to encourage a shift towards more energy-efficient technologies. Similarly, pollution taxes can also be persuasive instruments for transitioning to more environment-friendly technologies and practices. These new market-based instruments for control and abatement of pollution will need to be implemented to supplement our traditional approach. However, for such measures to be successful without adversely affecting our pace of growth and development, the necessary technologies must exist and must be available at reasonable costs. This is the challenge before us.

Cleaning the environment has the potential to acquire the status of an industry and requires large-scale promotion of R&D. There exist a number of possibilities in various sectors where pollution levels could be reduced but these suffer for want of advanced technologies, which could only be developed through research. In the energy sector, new technologies for environmentally sound energy systems, including new and renewable energy sources and nuclear energy, improving energy efficiency of equipment and appliances, development of clean coal technologies, improving environmental management in mining, are potential areas for research where substantial reduction in pollution could be achieved. In the transport sector, which contributes greatly to air pollution through vehicular emissions, research for technology improvement by developing efficient multi-valve engines, catalytic converters and microprocessors to maintain air fuel ratio etc could yield good results in abating pollution. Enhancing productivity and minimising wastes through efficiency improvement programmes would lead to a substantial reduction in waste generation, thereby directly reducing pollution. The need to develop cleaner production systems in many processing industries and improving productivity acquires importance for research. India has a large potential to generate electricity through wind and solar power. In fact solar electricity generation technologies are promising future options for renewable energy supply. An outcome of greater use of wind and solar technology would be the mitigation of carbon emissions. These environmentally friendly technologies are only at a nascent stage of development and it would require adequate research inputs to perfect these technologies.

These are some of the key areas where research in our country should focus in the coming years.

Despite having a very elaborate educational and scientific network of universities and research institutions, crucial research gaps exist in many areas. There is no doubt that research will play a very crucial and constructive role not only in finding solutions for environmental problems. What we need is a partnership of public and private sector cooperation in this field.

The process of transfer of internationally proven technology in this field has to be considered on a separate footing, considering its impact on humanity as a whole. The mandated emission levels, which can be achieved only by application of specific technologies, automatically confer monopolistic powers on the holders of the technology and enable them to earn unjustified rent. This is iniquitous. Since the environment is of concern to all, there is no justification for some to earn large rents at the cost of the vast majority. A fair return on technological development must of course be there but nothing beyond. The Global Environmental Fund (GEF) attempts to tackle this issue in part but a partial reimbursement is not a corrective for the essential distortion. Mechanisms need to be evolved to ensure both the development of technologies and their dissemination at fair non-distorting prices. There is a case for transferring these technologies at variable incentive prices to countries with the highest potential for controlling the damaging emissions.

At the dawn of a new millennium, as India continues to surge ahead on her path of development while maintaining its cultural and traditional ethos, research and development will play a crucial role in almost all sectors but nowhere more so than in the protection of our environment. India would continue to reaffirm its commitment to the solution of environmental problems facing humanity today. It has great confidence in the capabilities of its scientific manpower, which is one of the best in the world. The presence here today of academicians, researchers, environmental professionals, industrialists,

policy makers and NGOs together under a common roof is indicative enough of our determination to tackle the problem of environmental pollution and lead our people to a cleaner and greener century.

I extend my best wishes for the success of this Conference and hope that collectively you will be able to achieve the objectives set before you. I am confident that the Conference would identify crucial research gaps and would propose ways and means to plug these gaps. I also hope that the views and findings presented in the Conference would be widely disseminated. Thank you.

** Inaugural Address at the New Millennium Conference held on November 22, 1999 in New Delhi*

TOWARDS INFORMATION SOCIETY*

It gives me great pleasure to be here with you at this inaugural session of the South Asia Conference on Global Knowledge Network. I am particularly pleased that this Conference is taking place in India at a time when we stand on the threshold of the new millennium and we in India are making efforts to exploit to the full the vast potential of the information technology revolution. I believe that it is incumbent on us to use the expertise we have gained not only for accelerating the development of India and raising the standard of living of its people but also for the whole South Asian region.

I am happy to note that this Conference is supported by the Global Knowledge Partnership of nearly 100 organisations. I welcome the distinguished delegates who include policy makers from the government, NGO leaders and professionals from the information and communications technology fields having special interest in development. The benefits of knowledge can truly be garnered only when all potential stakeholders act in tandem and in close co-ordination. The topics chosen for discussions too are most appropriate, i.e. "Access", "Contents" and "Partnership". The global knowledge vision can be realised only when the contours of these three critical issues are understood in their entirety.

I welcome this opportunity to share some of my thoughts with you. I had an opportunity earlier this month to meet Indian entrepreneurs at the Silicon Valley in the US. It is a matter of pride that they have done so remarkably well in the mushrooming business of information technology. Many of them are working at the very cutting edge of technology. I told them about our efforts in this area and invited them to collaborate and invest in this field by setting up units in India, setting up joint ventures or providing venture capital or incubation services, creating brand equity, helping the small and

medium enterprises in India to market their products and moving more and more software enabled services into India. I think the same could be applied for the South Asia region as well. In fact, The Ind-US Entrepreneurs (TIE) group in the Silicon Valley aims at increasing e-entrepreneurship among persons hailing from both India and Pakistan.

The wisdom of fostering mutual co-operation amongst the countries of the region becomes even more manifest when it is recognised that not only do all these countries face common problems but the policies and strategies followed by them and the major goals each of them is professedly striving for are virtually identical, namely: to eliminate poverty, improve the quality of life and promote technological transformation and structural changes with the object of harnessing their natural and manpower resources to their best advantage.

The world is moving ahead at an ever-increasing pace and we would need to redouble our efforts to narrow the gap. We may have missed the industrial revolution but we have no intention of missing the knowledge revolution that is sweeping across the globe. This has become a national necessity as it penetrates the farthest corners of the country almost instantaneously, opening up income-earning opportunities and promoting national and international trade. Equally important, it introduces transparency in governance and helps the nation in the faster development of the social sector and human development.

India has always placed a high value on knowledge. Our ancient philosophic traditions hold that "gyan" or knowledge is one of the three main paths to salvation. We have also believed that knowledge should not be the preserve of a few but should be shared with all who can benefit. Conversion of knowledge into income and wealth through technology and commercialisation of knowledge are relatively new to us. However, we have begun the process of adjusting to this new reality.

We recognise that technology will have to be at the heart of our development efforts and we would need to create the right conditions

for a full flowering of our potential. This will have to be done within the contours of the competitive framework that has come into existence globally. Mechanisms for greater interaction between technology developers and specific user sectors will have to be established and faster dissemination encouraged. The rapid strides that have been made in technology development around the world has brought around a revolutionary change in the way we have to view knowledge-based activities. The wide menu of technological choices, that is available, demands the establishment of a mechanism by which the alternatives can be accessed and assessed for their suitability. Today, search has become at least as important as research, particularly for developing countries.

Telecommunication provides the basic infrastructure for communication on which the IT super-structure is constructed. Recognising this, India began modernising its telecom network since the mid-80s and the new telecom policy announced 5 years ago has given the telecom sector a big boost. On an average, this sector is clocking a growth rate of more than 20% in recent years. The network now covers about 54% of our 6 lakh villages. I would like to list a few major milestones in this sector. These are complete de-regulation of equipment manufacturing sector in 1991, throwing open of value-added services to the private sector in 1992, throwing open of basic services to the private sector in 1994, setting up of an independent regulatory authority (TRAI) in 1997, announcement of a new policy for Internet service providers (ISPs) in 1998, announcement of a new telecom policy in March 1999, permitting the migration of the existing licensees from a regime of fixed licence fee to a regime of revenue sharing in July, 1999 and creation of two separate departments as the first step towards separating the policy-making function of DOT from that of the service-provider.

Our vision of IT includes telecom, media technologies and electronics. The Prime Minister had constituted a Task Force on Information Technology. The first report of the Prime Minister's Task Force on Information Technology dealt with software. The second report, which is on hardware policy, is under the consideration of the Government.

The third report deals with human resource development, content industry, research and development, citizen-interface and microelectronics. The Task Force has laid considerable stress on human resource development policies to underpin the plans for accelerating the growth of the IT sector.

Today, with the emergence of Internet, 'E' stands for everything, from electronic commerce to entrepreneurship. This is catching the imagination not only of the Central and State Governments but also of private citizens. As a result there is a galloping demand not only for basic services in telecom, IT and media but also for more and more new services, which open up opportunities for growth and development. This is the bright side of the picture.

There are, however, other dimensions, the so-called flip side, which we must also consider. The PC penetration in the country is only 3 per 1000, which is far too low. We have barely 2 telephones for thousand people and cable connections for 20 million households. There are about half a million Internet connections in the country. We have a long journey ahead to become an Information Society. Our emphasis, therefore, is on developing a strategy and policies, which facilitate movement towards an Information Society by encouraging entrepreneurship and deploying public and private resources to this end. This will, in my view, help in narrowing the gap between the information-rich and the information-poor both globally and within our own society.

Some of the initiatives in this area are:

- The Internet service providers will be allowed to set up international gateways. A National Internet Backbone is being set up. Inter-connection of closed user group network has been allowed.
- India has set up 12 Software Technology Parks within the country to provide one-stop solution for the software exporters. Sixty per cent of the software exports from the country are from these STPs. These Parks are being strengthened further in terms of

infrastructure. The procedural bottlenecks have been removed to a large extent and this process is on. Units have been permitted to set up a Call Centre.

- The Government of India has provided a corpus of Rs.100 crore towards setting up a Venture Capital Fund for the IT industry, particularly for the small and medium enterprises. This should be supplemented by Venture Capital Funds from the private sector including foreign investors.
- The Cabinet has recently approved a Bill for establishing the legal framework for facilitating e-commerce in the country. The Bill will be introduced in the next Session of Parliament beginning later this month.
- The procedure for paying for software through the Internet has been liberalised.
- We are encouraging Indian software companies to invest abroad for acquisition of software/IT companies in order to increase market presence.
- A new Ministry of Information Technology has been set up to serve as a nodal centre for facilitating IT initiatives in the country. The Ministry will be taking initiatives in the areas of software productivity improvement, human resource development, promotion of brand equity in the area of software and IT, electronic governance and establishing a vibrant IT services market.

The infrastructure required for IT is quite complex. It calls, *inter alia*, for high-quality infrastructure of roads, electricity and telephone, in addition to data communication facilities. At present, high-speed wide-area communication is through the satellite medium, microwave systems and fibre optic lines. Recognising the importance of fibre optics, the Department of Telecommunications has laid more than 100,000 route kilometers of fibre optic cables. There is a project to install at least 20,000 route kilometers of very high-speed fibre optic lines.

Efforts to tune in the system of governance to the digital era began several years ago, as a result of which the Central and the State Governments have a powerful information and communication infrastructure known as NICNET. This reaches out to more than 500 districts of the country. While the technology infrastructure was being built, the Government has simultaneously taken several measures including training programmes to bring about a cultural change in the style of governance. What is most impressive is that the initiatives of the Central Government are sought to be bettered by the States. Below the State-level today we have more than 3 million elected representatives of the people in the villages. About one third of them are women. These village councils, known as Panchayats, are meant for delivering locally needed basic services, such as health, education, water etc., and the application of IT can be of great benefit to these nodes of democracy. We are looking upon IT not just as another technology but as the means to place power in the hands of the people. We are also looking upon IT as a two-way street in governance.

I have attempted to give a broad overview of some of the important developments that have taken place in India and highlighted some of the issues, which are of concern to us. South Asia is rich in natural and human resources. As a result, there exists considerable potential for developing these resources and widening the market opportunities through increased co-operation. It is now widely accepted that growing international co-operation between countries is a positive development because the resulting increase in trade leads to a higher GDP growth in all the member countries of the trading arrangement. There is, thus, a need to strengthen and expand the information infrastructure. But, more importantly, the focus now has to be laid on initiating measures at mitigating the non-physical barriers. This, however, requires an increased awareness of the benefits of their removal and political commitment to carry through the required measures.

This Conference will no doubt address problems relating to access to quality information in the South Asian region and will encourage the usage of information and communications for accelerating development. I hope it will raise awareness about the global knowledge

agenda of access, empowerment and governance. The aim should be to strengthen knowledge partnership and improve access to information for sustainable equitable development. The information revolution has to be utilised for economic development, social cohesion and poverty alleviation in all the developing countries of the region.

I would like to end with the hope that in the new millennium, when all of us will be each other's neighbours, it will be necessary for us to forge better understanding and co-operation on the basis of shared knowledge and ideas.

The organisation of this Conference by the National Informatics Centre and the British Council along with other international and national partner organisations working in South Asia is an event of great significance. I have noted that the programme covers almost all the important dimensions of the issue at hand, namely access, content and partnership. The range of participants promises a rich and varied sharing of expertise and experiences. I am also sure that the outcome of this Conference will become a useful and strong input to the Global Knowledge Conference in Malaysia in 2000. I am confident that this Conference will create a much better understanding of the key issues, namely, how to widen access, create the necessary overall enabling framework and move forward in the new millennium from a South Asian perspective. The power of knowledge is in the hands of the underprivileged and poor. I hope the participants of TASKNET'99 would like to invest in helping rural communities to raise their awareness of the global knowledge agenda. The participating organisations from different countries will definitely gain by exploring partnership opportunities. It is for them to prioritise their areas of need and investment. I wish this Conference every success. Thank

** Inaugural Address at the South Asia Conference on Global Knowledge - TASKNET'99 (Towards A South Asian Knowledge Network) held on November 23, 1999 in New Delhi*

TOWARDS A VIABLE SUBSIDY POLICY*

It gives me great pleasure to be with you this morning at the inauguration of this Seminar on the critical issue of evolving a viable subsidy policy. This is a subject, on which there has in fact been less than adequate discussion and debate. Perhaps the sensitivity of the topic has inhibited an open debate. However, public opinion is shaped by public debate in a democracy and there is a strong case for taking a close look at the policy on subsidies and subjecting it to critical scrutiny. It can clearly be nobody's case that subsidies should be eliminated altogether but the nature and quantum of subsidies need to be seen against the wider backdrop of a viable development strategy and the trade-offs involved.

The principal reason why subsidies have recently become the focus of attention is the fiscal crisis that is gripping the nation, both at the Centre and the States. We are facing a situation where the combined fiscal deficit is increasing, where current revenues are not adequate to meet current expenditure and where the gap is being increasingly met by borrowings. Development expenditure is becoming a casualty in the process, with critical infrastructural investment bearing the brunt of the adjustment. We are, in other words, essentially catering to the interests of the present generation at the cost of future generations.

For a perceptible improvement in the existing financial situation, the problem of subsidies will have to be tackled head on. The staggering magnitude of the subsidies does not leave any other choice. At the Centre, the fertiliser subsidy is around Rs.12,000 crore, whereas the food subsidy accounts for another Rs 7,000-8,000 crore. The major direct subsidies together amount Rs.24,000 crore according to Budget Estimates for 1999-2000 and may indeed turn out to be higher. States

are giving around Rs.12,000 crore as net subsidy on power and more than Rs.6,000 crore as subsidy on medium and major irrigation. The subsidy to State Road Transport Corporations are in the region of around Rs.4,000 crore.

These are only some of the explicit subsidies, which are being given through the budget. We also have a number of implicit subsidies, whose magnitude and quantum are rarely measured or monitored. Such subsidies are further contributing to the worsening financial scenario. These include subsidies in the areas of higher education, especially university and technical education, and in secondary and tertiary health care. Undercharging for railway passengers and postal services and subsidies on kerosene and LPG are other instances.

The subsidy regime, as it has evolved over time, is creating a number of distortions in the economy. The adverse impact of the burgeoning subsidies bill on the financial position of the country is only one aspect of the problem and perhaps not even the most important. There are other ill effects of the existing system of subsidies, which are probably less appreciated.

For instance, the subsidy system is adversely affecting investment flows in a number of critical sectors. The precarious financial condition of the State Electricity Boards is a well-known fact, which is in a large measure due to the below-cost recovery of user charges. The State Electricity Boards are, as a result, in no position to invest in modernisation, additional capacity generation or improvement in transmission and distribution systems. To make matters worse, their cash-flow position precludes them from giving sufficient comfort to private investors who may be interested in entering this sector. After all, private investment in the sector will flow in only if the investors are assured of making a reasonable profit, which becomes hostage to the existing subsidy regime and the burden placed on the finances of the SEBs. Similar is the case with irrigation, transport, communication and other key infrastructure sectors.

If we want our country to march into the next millennium as an economic power, we have to modernise and dramatically improve the

performance of our infrastructure and this will not be possible unless we overhaul the prevailing subsidy system. The existing subsidy regime is also interfering with the efficient allocation and utilisation of even the available resources. Often the heavy subsidy on higher education and specialised medical services are at the cost of primary education and public health care. Low or negligible irrigation charges are resulting in over-irrigation of certain areas leading to problems of salinity, water logging, falling water table and water-intensive cropping patterns. Fertiliser subsidy goes in a large measure to protect inefficiency in the fertiliser industry. Subsidy-induced excessive application of certain fertilisers by farmers is resulting in unbalanced nutrient use and sub-optimal results. Kerosene subsidy has reached a stage where increasingly larger proportions of kerosene are being used to adulterate diesel rather than provide fuel to the poor.

Not only is the subsidy regime interfering with allocative efficiency it is also not necessarily contributing to promoting equity in the system, which is, of course, a legitimate objective. Only a small share of the food subsidy benefits the really poor. In fact, the Public Distribution System has an urban bias and is benefiting large sections of the urban middle class. Subsidies on power, irrigation, fertiliser, diesel and credit benefit to a large extent the politically influential and relatively better off in the countryside. In terms of regional impact also, subsidies in the present form tend to benefit the relatively more developed regions. Subsidies on higher education and specialised medical services are again catering mainly to the better-off sections of society.

Thus, despite the heavy costs of maintaining the existing subsidy regime, it is not really serving the stated objectives of growth, equity and protection of the weaker and poorer sections of the society. Indeed, the system sometimes comes in for criticism that it essentially benefits certain vocal and politically influential groups. These policies are continuing even when a number of surveys have indicated that the smaller and marginal farmers are not interested in subsidised power or subsidised irrigation as such but are prepared to pay reasonable rates for assured availability of quality services. This is equally true of

a large number of consumers in the urban areas who are willing to pay reasonable charges provided there is an improvement in the quality and reliability of the various social and economic services being offered by the Government.

In such a situation, it is imperative to take a fresh and critical look at the existing policy regime. It is clear that there are certain considerations, which will have to be kept in view while framing an alternative and viable subsidy policy. Let me briefly discuss some of these. First, subsidies will have to be given only in cases where they clearly serve some useful social or economic purpose. Food and fertiliser subsidies, for instance, can indeed be justified on the perfectly legitimate grounds of social security and food security considerations. Similarly, kerosene subsidy can be justified on the ground that it provides light in remote areas whose needs are not met by the system. But there is no reason to believe that these must, therefore, be across-the-board.

Secondly, as far as possible, such subsidies will have to be closely targeted and transparent. Transparency and openness will ensure that the leakage is minimised, and the intended beneficiaries can demand and secure their just dues. Across-the-board subsidies, however, can neither be justified nor sustained. Wherever possible, the design of the subsidy schemes should be such that they are self-targeting. Transparency and careful targeting will also reduce the total outgo on account of subsidies, thereby releasing resources for other productive investment.

Thirdly, the subsidy regime must be simple and easy to administer. This is important to prevent leakage and to avoid generating opportunities for corruption. This is not a trivial issue, since it involves careful consideration of institutional structures and delivery systems. There will always be vested interests, which will attempt to twist the mechanism to serve their narrow purpose. These will have to be anticipated and systems designed to prevent their occurrence.

Fourthly, the financial liability of the subsidies must be known and fixed. As things stand, almost all our subsidies, both implicit and explicit, are open-ended in the sense that there is no ceiling fixed on the expenditure that can be incurred in this regard. Thus, any change in cost automatically results in an increase in the subsidy burden.

Fifthly, the existing subsidies, which do not conform to the above four criteria, will have to be completely stopped. Even if a total withdrawal of such subsidies is not feasible at one go, at least a commitment should be made to phase them out according to a definite time schedule.

Finally, the subsidies given must be regularly reviewed, preferably with the involvement of independent agencies and civil society participation so that those, which have ceased to serve any useful purpose, can be phased out. This, after all, is the spirit of zero-based budgeting.

Of course, even if we were to evolve a subsidy regime, which is based primarily on sound economic and social considerations, certain prerequisites will need to be fulfilled for it to be successfully implemented. First and foremost, there has to be a consensus among different States and among different political parties on shunning populism and adopting a sensible user charges policy. In the absence of such a consensus, it may be difficult for a few willing States, in isolation, to go ahead and charge viable rates for various economic and social services. In fact, we need to go further than this. Not only has there to be a consensus on policy; it has to be backed by the will to implement the decisions arrived at. For instance, it was agreed in the State Chief Ministers Conference in 1993 to levy a minimum tariff of 50 paise per unit for electricity supplied to the agricultural sector. However, only a few States have taken the initiative to implement it.

Fortunately, in many ways the present environment is conducive to the implementation of a sound subsidy policy. There is greater

awareness among various sections of the population of the financial crisis gripping the country. The finances of many States are in such a precarious condition that they can hardly afford to persist any further with populist policies. Most important, the electorate is mature enough to see through the populist gimmicks. This is one of the strongest messages thrown up by the recently concluded general elections. We have the case of Andhra Pradesh, where the ruling party was voted back to power despite taking decisions, which would normally be considered as unpopular. People appreciate sincere efforts made to provide them with good governance. They are prepared to pay reasonable charges for quality and reliable social and economic services. They now realise that any promise of free power or free irrigation cannot be sustained and will only result in greater hardships in future. They perhaps realise better than many politicians that there are no free lunches. This is certainly a very healthy and promising sign for the country and, hence, the time to act is now.

The spirit of accommodation, the desire to rise above narrow partisan ends and the will to act together are already evident in the Chief Ministers Conference that was held only last week. Of course, the Conference mainly discussed tax-related issues. Yet, what we require is the same kind of honesty and determination from all political parties and all the States in the field of subsidy policy also. Only then can we hope to break the economy free from the entanglements in which it has been caught. Moreover, the Centre and the States will have to act together in this respect, eschewing the temptation to point fingers at each other.

Friends, the Planning Commission has already initiated discussions with the States concerning the Annual Plan for the next financial year. We would certainly make use of this opportunity to persuade the States to implement the reform measures, which will put their finances on a sound footing in the medium term. In particular, we would emphasise that States rationalise and reduce the subsidy burden on their budgets and initiate cost-recovery measures. I am quite hopeful that we will be able to make real progress in this direction this time.

To conclude, I would like to compliment the ASSOCHAM for facilitating an in-depth discussion on yet another burning issue. Such Seminars provide a platform for interaction and informed debate between the policy makers, the business community, academics and other concerned parties. I hope that today's deliberations will result in some concrete recommendations that can help formulate a subsidy policy, which is sufficiently flexible and pragmatic to be implemented and effective.

I thank you for your attention.

** Inaugural Address at the Seminar on "Towards a Viable Subsidy Policy" organized by ASSOCHAM on November 24, 1999 in New Delhi*

ISSUES IN ENSURING FOOD SECURITY*

It gives me great pleasure to be here with you at this Seminar on one of the most critical issues facing our country. Food security must be a central focus of any society as it looks forward to the future. The importance of food security in recent years, however, seems to have receded into the background of our collective consciousness. Perhaps, we have been lulled into complacency. I believe that food security is just as important an issue today as it has ever been and we need to bring it back into the forefront of our development agenda. I would like to take this opportunity to compliment the Observer Research Foundation for convening this Seminar and, thereby, reasserting the importance of this issue.

As we stand at the threshold of the next century and look back upon the first fifty years of our existence as an independent nation, whatever may have been our failures, we can take pride in having eradicated the scourge of famines from the face of our country. This is only partly due to our success in increasing food production at a rate faster than the growth rate of our population. Perhaps, even more important has been our resolve to ensure that nobody dies for lack of food and the institutional mechanisms that we have evolved to give effect to our resolution.

But the eradication of famines is by no means synonymous either with the elimination of hunger or of attainment of food security. The human organism can survive for extended periods of time with inadequate nutrition but surviving is not the same as living a healthy productive life. Although in recent years we have started to measure the incidence of hunger through sample surveys on "having two square meals a day", I am not sure about the utility of these estimates in the coming years. As you must be aware, the measured incidence of hunger

in India has declined quite sharply in recent years from 18 per cent of the population in 1987-88 to 6 per cent in 1993-94. This 6 per cent is concentrated in three States – Bihar, Orissa and, strangely enough, West Bengal. But other collateral indicators of under-nutrition and malnutrition tell an altogether different story. Anthropometric measures, such as weight at birth and height to weight ratios of children in particular, suggest that under-nutrition is much more pervasive than what the "hunger index" indicates.

A situation of pervasive under-nutrition is both invidious and insupportable. It has to be redressed in the shortest time possible. Greater and more balanced availability of food is clearly a *sine qua non* but it is by itself not sufficient. Availability of food is not the same as access to food. There must not only be more and better food but also every person in the country must have the wherewithal to get the nutrition he or she needs and deserves. Our development strategy must ensure this, not just for the immediate future but on a sustainable basis.

As a starting point, let me bring to your notice one specific trend that perhaps forms the pivot of our entire strategic approach in the Ninth Plan and for the perspective period. The demographic projections made for the Plan indicate that although there is likely to be a steady reduction in the rate of population growth in the country, the growth rate of the labour force would reach a historical peak during the Ninth Plan period at about 2.5 per cent per annum and decline only gradually thereafter. This is the highest rate of growth of the labour force that the country has ever seen and it originates from the high rates of population growth experienced in the late 1970s and early 1980s. The emerging labour force is also characterised by low levels of literacy and other industrial skills.

An assessment of the possibilities for creation of work opportunities commensurate with the magnitude and skill profile of the future labour force indicates that agricultural growth will have to continue to play a significant role. Thus, at one level there is a happy confluence between

the employment requirements and the need to increase food production. At another level, however, it has to be recognised that Indian agriculture in the past has not been able to provide an adequate standard of living to those who depend on it for livelihood. This must be changed as urgently as possible through rapid increases in agricultural productivity. Calculations indicate that agricultural output will need to grow at about 4.5 per cent per year on a sustained basis in order to not only absorb the available work force but also provide sufficient income to it for meeting its basic needs. Such a growth target will not be easy to achieve.

The solution appears to lie in the geographical diversification of agricultural growth so that the areas of low agricultural productivity catch up with those that are already advanced. This again is consistent with our nutritional needs since the incidence of poverty in the country is more or less geographically congruent with low agricultural productivity. The eastern parts of the country and the rain-fed areas of peninsular India immediately come to mind. There is considerable hope that we may be able to increase agricultural output, particularly of food grains in these regions since the potential is there. Moreover, it is also an imperative. The traditional surplus foodgrain areas of Punjab, Haryana and Western UP have started to exhibit a plateauing of productivity levels and the output from these regions may, in fact, start falling as farmers gradually diversify towards other crops and products.

But, for this to happen, a number of measures have to be taken concurrently. The first imperative, of course, is to reduce the impact of the vagaries of nature, especially in the rain-fed areas of the country. For this there is no alternative to proper development of watersheds. Although there has been considerable emphasis on this issue in the recent past, the track record has not been particularly good. The problem does not appear to be so much the availability of resources as the lack of requisite skills in watershed design and inadequate involvement of the people themselves in developing and managing their water resources. Institutional arrangements for training watershed developers and organising water users need to be evolved urgently.

Secondly, the nature of our agriculture being dominated by small farmers limits the ability of the average farmer to invest in productivity improvement measures, such as usage of better fertilizers, pesticides, etc, from the surplus generated from farming activity. This syndrome needs to be broken. Greater access to credit for the small farmers has always been recognised but there have been numerous difficulties in ensuring it. While making every effort in this direction, I believe, it is also equally important to provide off-farm employment opportunities so that there is an alternative source of income, which would enable the farming family to generate the requisite surplus.

Geographical diversification apart, diversification of agricultural activities with greater focus on horticulture, animal husbandry, poultry and fishery is also necessary for a number of reasons. First and foremost, balanced nutrition requires dietary patterns, which cannot be met from crop activities alone. Secondly, it is becoming clear that the crop sector, in particular cereals, does not require the degree of labour intensity necessary to fully absorb the additions to the labour force. Thirdly, the productivity per person, measured in terms of income, in the non-crop sector is significantly higher than in the crop sector. Finally, diversified agricultural activities lend a degree of stability to rural incomes, which is not possible with excessive focus on one or just a few products.

The second area of focus has to be technology. Agriculture, including its allied sectors, today, is just as high technology an activity as any segment of industry. But our technology dissemination methodologies have not evolved in any meaningful manner. A major stumbling block, of course, is the low educational attainment of the average Indian farmer. While any industrialist, no matter how small, can get whatever technological information he needs from the Internet, the Indian farmer still has to depend on the word-of-mouth and other audio-visual means. There is not much that can be done about this state of affairs in the short run and, therefore, the focus has to be on institutionalising the methods to bring technology closer to the farmer. The extension worker has by and large fulfilled his mandate admirably but the demands of modern agricultural technology may be beyond his

capacity to handle. He needs to be assisted and supplemented by professionals of much higher degrees of sophistication. The Krishi Vigyan Kendras are only the first step in this direction. We will need to strengthen them and expand their capabilities considerably in the future and will, perhaps, also have to evolve other mechanisms for technology dissemination and referral services.

While addressing the technological needs of our farmers, care must be taken to integrate the issues of environmental and ecological sustainability with the pressing need to increase production and productivity. The "more the better" syndrome, particularly when it comes to chemical fertilizers, herbicides and pesticides, is already having serious deleterious effect on both land and water in substantial tracts of the country, especially those which have advanced agriculturally. We cannot allow the same mistakes to be repeated in the more ecologically fragile regions from which the future growth of food production will have to come. Concerted research will need to be carried out in developing eco-friendly technologies, which would be just as productive as the technologies existing today.

The issue of hunger and under-nutrition, however, does not end with adequate availability of food and spread of "entitlements". The evidence indicates that intra-family distribution of the available nutrition can be skewed, so that even if adequate income is available certain members of the family, particularly women and children, may remain undernourished. Malnutrition of expecting and lactating women and its consequences on the infant is a particularly tragic dimension of such skewed intra-family nutritional patterns. This phenomenon arises partly out of sociological factors and conditions and partly from persistence of traditional dietary patterns, which may not always be appropriate in the light of advances in knowledge about nutritional requirements. These sociological and psychological aspects are much more difficult to address than the physical issues of production and distribution. Attempts are being made to address this issue, at least in part, through such government programmes as the Integrated Child Development Scheme (ICDS) and the mid-day meal scheme. But these are not enough. The ultimate solution has to lie in social transformation and empowerment.

Finally, there are international dimensions to the issue of food and nutritional security that we can ignore only at our peril. Let me highlight two issues. First, the rapid advances in agricultural technology during the 1950s, 60s and 70s were mostly in the public domain, fuelled by strong ideological commitments by governments, international agencies and individual scientists to forestall the Malthusian inevitability. This approach is now in retreat and the property rights to most new technology advances, and indeed to some older and even traditional knowledge, are held by commercial agencies, for whom elimination of hunger and deprivation is of lesser relevance than generating profits. "Doing well by doing good" is a perfectly acceptable ideological precept but when doing well is at the cost of the wider good, things cannot be allowed to pass. It is necessary for the international community to recognise that hunger and malnourishment are not just localised problems but problems of all humanity and every effort needs to be made to reestablish the primacy of social responsibility.

Secondly, as international trade in agricultural commodities becomes more open under the aegis of WTO, with the attendant trend towards equalisation of prices across countries, there must be a certain degree of sensitivity to the specific needs of labour-surplus countries like India. As I have already mentioned, agriculture is not only a source of food production but, equally importantly, the principal source of livelihood for the vast majority of our people and will continue to be so in the foreseeable future. This is in sharp contrast to agriculture in most developed countries, which supports a relatively low proportion of the population. Therefore, even if the productivity per unit of land is identical in the two sets of countries, the income per person dependent on agriculture will be far lower in the former at the same set of prices. If it is lower than the threshold required for meeting the minimum nutritional needs of the agricultural populace, then there may be no alternative to deliberately alter the terms of trade in favour of agriculture by either providing higher prices or by subsidising the inputs. Both these alternatives are under attack, which reflects an

excessively economic view of things and neglects the social and humanitarian considerations that must guide all policy, national and international.

In the end, I would like to thank Shri R.K. Misra, an old friend, for bringing us together to exchange views on food security, which is the foundation on which all other forms of national security rest. I shall look forward to the conclusions of the Seminar.

** Address at the National Seminar on Food Security organised by Observer Research Foundation on December 1, 1999 in New Delhi*

RURAL WATER SUPPLY & POLICY REFORMS*

I am very glad to be here with you at this important Workshop on "Rural Water Supply and Policy Reforms". The fact that so many State Ministers could find time and have gathered here indicates the priority that all of you attach to this vital issue. As you are aware, unsafe water and inadequate sanitation are the leading causes of human illness and the worst sufferers are women and children. In order to ensure 'Health for All' the present Government stands committed to provide potable drinking water to every settlement in the country within the next five years. Recently, a new Department of Water Supply has been created in the Ministry of Rural Development.

The primary responsibility for providing drinking water and sanitation facilities in the country rests with the State Governments and, more specifically, the local bodies in the urban areas. The Centre ensures that funds are provided in the State budgets and progressively larger allocations have been made for water supply and sanitation in the various Five Year Plans. The importance of providing safe drinking water as a basic minimum need was reiterated in the Fifth Five Year Plan (1974-79), which included rural water supply in its Minimum Needs Programme (MNP). The magnitude and urgency of the problem of drinking water in rural areas had prompted the Central Government to support the programme of provision of rural drinking water supply. Thus, the Central Government has been supplementing the efforts of the State Governments since 1977-78 by providing financial assistance and technical guidance to the State Governments through the Centrally Sponsored Accelerated Rural Water Supply Programme (ARWSP).

As a sequel to the United Nations Water Conference held in 1977, the decade of 1980s was designated as the 'International Drinking Water Supply and Sanitation Decade'. For the first time, the issue of

drinking water and sanitation was separated from other water issues. The General Assembly of the UN adopted the Decade Approach with programmes having realistic standards of quality and quantity. The Sixth Five Year Plan of India responded by raising the outlay for this sector substantially to Rs.4047 crore, which was about four-times that made during the Fifth Plan and constituted about 4.15% of the total public sector Plan as against 2.62% in the Fifth Plan. The tempo and the priority built up since then continue. The Ninth Plan provides Rs.39,538 crore as outlay for the water supply and sanitation sector, which works out to about 4.6% of the Ninth Plan public sector outlay and is an all-time high. It includes Rs.20,814 crore for rural water supply and sanitation, of which Rs.8,650 crore is under the Central Plan.

There has, of course, been progress in this Sector over the years but the results achieved are not entirely satisfactory. According to one estimate, the population having access to safe drinking water supply facilities in rural areas rose from 5.7% in 1970 to about 92% in 1999. However, this estimate appears to be somewhat exaggerated, particularly since this does not appear to have taken into account the sources which have gone into disuse. As against this, there are also private sources, which supplement the Government's efforts. Statistics do not truly represent the hardships being faced by the people, particularly the poor, in terms of quality and quantity of water and regularity in supply. There are also significant regional imbalances in the coverage. To achieve the objective of 100% population coverage those States, which have a significantly lower coverage like Kerala, Punjab, West Bengal and some North-Eastern States, would have to make much greater efforts in terms of investment as well as infrastructure and other resources. Cost-effective solutions would, therefore, have to be devised. One disturbing feature to be noted is the re-emergence of a large number of problem habitations again and again as a result of ever-increasing population, non-sustainability of water supply systems, depletion of water sources, short life of hand pumps, increasing water quality problems etc. Thus, it is found that

despite enormous Government investment in rural water supply in India, a significant proportion of the country's rural population still does not have access to an adequate supply of safe drinking water.

The Government has realised that stepping up investment alone will not solve the problem. What is required is the adoption of more sustainable policies in this sector. This was first spelt out in the Eighth Five Year Plan (1992-97), which enunciated some key principles such as (i) water being managed as a commodity and not as a free service, (ii) adopting a demand-responsive and participatory approach to service delivery, (iii) users being fully responsible for operation and maintenance and (iv) protecting the environment and safeguarding the health of the people by providing an appropriate linkage between water supply and environmental sanitation in planning new programmes. The Ninth Five Year Plan (1997-2002) continues to promote the same principles and is now concentrating on operationalising them in the field. The Rajiv Gandhi National Drinking Water Mission of the Ministry of Rural Development has initiated a number of steps to implement the policy reform package.

The Ninth Plan aims at providing potable drinking water supply to the entire population in urban and rural areas. This will require a tremendous effort in terms of financial inputs, infrastructure and other resources. Due to severe resource constraints and other competing demands it may not be possible for the Government alone to fund the entire programme. While the Government will do whatever is possible, the urgency of the problem requires that alternative sources of funding and management should also be tapped. A more innovative and broad-based approach to financing and management of water supply and sanitation facilities is called for. This implies a shift from exclusive dependence on budgetary support to resource mobilisation through community participation, institutional finance and enhanced participation by the private sector in activities, which can be performed more efficiently by them. At the same time, it is also necessary to adopt appropriate cost-effective technologies based on local materials, which are not only user-friendly but also eco-friendly. We should

take full advantage of several studies and experiments, which have already been carried out on various facets of water supply and sanitation. We also need to examine as to which of the successful models prepared in this country or abroad is worth emulating on a wider scale in India to suit its social, political and cultural environment and climatic conditions.

The Ninth Plan strategies for rural water supply seek to achieve universal coverage of drinking water through different programmes and strategies in no-source villages or habitations, partially covered villages or habitations and problem villages or habitations in respect of water quality. A habitation-driven approach will be adopted in preference to a purely village-centred approach. The highest priority is to be given to all the remaining "no-source" and poorly-served "partially covered" (less than 10 lpcd) villages or habitations as well as those facing acute water quality problems. Thereafter, priority will be given to other partially covered (11-40 lpcd) and villages or habitations with water quality problems.

The Ninth Plan envisages installation of a quality monitoring and surveillance system all over the country, evolving cost-effective and socially acceptable O&M strategies, reorienting the structure and functions of rural water supply planning and implementing agencies and taking all measures to ensure sustainability of drinking water sources. Tackling the problem of drying of sources and providing a role for the beneficiaries and Panchayati Raj Institutions (PRIs) in the planning and implementation of water supply facilities are other priority tasks. In view of the resource constraints, it would be necessary to restrict the role of external agencies to priority areas.

In all our efforts, sustainability should be the main consideration. Sustainability should not only be from the financial angle but also from the environmental, technological and institutional angles. Sustainability encompasses various facets of water supply and sanitation. The foremost is operation and maintenance. The present state of affairs in this regard is not at all satisfactory. Revenue generation

is almost absent in the rural areas. This is one of the factors responsible for poor upkeep, lower efficiency and early decay of the assets created. Operation and maintenance in most of the States continues to be the responsibility of the State Governments. The time has now come to make operation and maintenance of water supply and sanitation self-sustaining, if not surplus generating. The responsibility for operation and maintenance needs to be passed on to the PRIs in the rural areas as a follow up of the 73rd Constitution Amendment. In rural areas, where a piped water scheme is operational or is proposed to be developed, the Maharashtra model may be adopted, which is structured on the basis of strong community participation through village Panchayat Committees and Village Water Committees, whose members are directly involved during the construction of different components of the scheme. For example, they assist the Maharashtra Jeevan Pradhikaran in deciding the location of the village works, such as service reservoirs, stand-posts, etc. and are involved in ensuring that the stand-posts in their jurisdiction are maintained in good running condition and are properly drained. The Village Water Committees would have at least 50 per cent women members and adequate representation for SC/ST and would be entrusted with the responsibility for house connection. Before these connections are provided, the owner has to ensure that adequate arrangements are made for the disposal of sullage water. The Village Committees are also responsible for ensuring the hygienic conditions of all water sources in the village.

As regards the O&M of hand pumps, community-based models have been developed in a number of States, particularly in Betul district of Madhya Pradesh, Banda and Barabanki districts of Uttar Pradesh and Midnapore district of West Bengal. The Midnapore model has been recognised as a good one and is being emulated and adopted by other States. In this model, a Water Committee is established in each village or habitation, two women from the community are trained as caretakers, the beneficiaries raise Rs.500 per hand pump as the initial fund for maintenance and each family contributes 50 paise per month

towards maintenance. This has resulted in an optimum level of functional hand pumps on a wholly self-sustaining basis with the active participation of the community and the local NGOs.

Another important area of concern is the growing water quality problem. Almost half of the world's population suffers from diseases associated with insufficient or contaminated water. Safe water supplies and environmental sanitation are vital for health. According to various studies, 80% of all diseases and over one-third of deaths are caused by the consumption of contaminated water. Water quality is basically determined by bacterial and physico-chemical parameters. Important water-borne diseases due to bacterial contamination are hepatitis-A, cholera, typhoid, polio, diarrhoeal diseases and amoebiasis. Consumption of water with excess fluoride causes dental and skeletal fluorosis whereas that with excess arsenic causes gastrointestinal, cardiac and vascular disorders and skin diseases and can also cause lung cancer.

Issues relating to ground water, although gradual in impact, require immediate consideration especially in rural areas, where 85% of the population is dependent on this source. The pollution is generally of two types. One form of contamination is caused by the very nature of geological formation. The other is caused by human interference, like excess application of chemical fertilizers in the agricultural sector, untreated domestic sewage causing biological contamination, discharge of untreated industrial effluents and excess pumping of ground water in coastal areas leading to salinity ingress. Improving the quality of drinking water, ensuring proper sewage disposal and providing adequate water for both personal and domestic hygiene are key to prevention and control of major diseases. Science can be of tremendous help to mankind but wrong or shortsighted uses can cause incalculable harm. As per the reports, more than 50% of the treatment units, installed in large numbers all over the country in rural areas under the Sub-Mission Programme of the Rajiv Gandhi National Drinking Water Mission during the Seventh Plan to remove excess fluoride, salinity and iron, became non-functional within a couple of years of

installation due to a variety of reasons including inappropriate technology, high cost of O&M, non-involvement of local community and lack of awareness campaign. Modern technology may have cleared the dust of poverty, but has spread its own pollution, which is destroying our environment. Cost-effective technology based on local materials, which are environment and user friendly, should therefore be adopted. Development of appropriate technology is important to tackle the water quality problems. As many as 1.53 lakh rural habitations have been identified with various quality problems, like excess of fluoride, arsenic, salinity and iron on the basis of 1% stratified sampling. This number is likely to go up when detailed sampling is done. Appropriate sustainable technology should be found out to tackle each of these problems.

Technology is also important to meet environmental challenges. The ground water table is getting depleted year after year, particularly due to indiscriminate and excessive exploitation of ground water for agricultural and industrial uses. Though the level of ground water development in the country as a whole is about 31.92%, the same is much higher in some States, such as 93.35% in Punjab, 83.88% in Haryana, 60.44% in Tamil Nadu, 50.63% in Rajasthan etc. Out of 7063 Blocks/Talukas/Water-sheds/Mandals in the country, 249 have been identified as "over-exploited" where the annual withdrawal is more than the replenishment and another 179 as "Dark" areas, where the annual withdrawal is more than 85% of the replenishment. To combat this environmental problem for better sustainability of drinking water sources scientific recharging of aquifers may be one of the corrective measures. But more important are preventive measures like construction of rainwater harvesting structures, revival of traditional sources like tanks, wells, kund etc., which, besides being supplementary sources, help recharge ground water aquifers and reduce the devastating effect of floods. At the same time, it is also necessary to prevent unscientific or over-exploitation of ground water. The States would be well advised to look into this problem seriously while there is still time and seriously consider adopting a regulatory mechanism in the form of ground water legislation. Due to the depletion of ground

water, quality deterioration and drying up of surface sources, it has become necessary in such areas to bring water from long distances, which results in high capital as well as O&M costs. It is, therefore, essential to conserve water to the maximum extent possible. Leakage and wastage in the water supply system range between 30% and 40% in most of the areas due to poor management. This could be brought down by around half by corrective measures and adoption of appropriate technology.

Due to the growing population and increasing demand for water on the one hand and the fast-depleting water table on the other, the position is likely to worsen year after year if appropriate preventive and corrective measures are not taken well in time. The demand and supply of total water resources are very critically balanced. In order to meet the criticality of this challenge, the following steps are imperative:

- Local water resources development and management projects like watershed management and rainwater harvesting structures are planned and implemented on a priority basis, particularly in water scarce regions.
- Efficiency is improved in water use by introducing participatory management and removing the system inadequacies.
- Quality of water is maintained through application of appropriate technology, pest management, regulatory measures etc.
- Recycling and reuse of waste water for uses like processes requiring lower purity, flushing toilets, watering lawns, air conditioning and cooling, irrigation etc after appropriate treatment if necessary.
- Environment is protected through catchment area treatment, forest conservation, conjunctive use, land drainage and reclamation etc.
- Necessary institutional arrangements are developed such as water laws and regulations, water management, water pricing and creation or restoration of institutions for such purposes.

- Community involvement in all stages of planning, implementation and operation and maintenance of rural water supply schemes and transfer of assets to PRIs for operation and routine maintenance.

I am sure that all these and many other related issues would be discussed in this Workshop and all of you with your rich and varied experience would contribute in evolving a suitable framework for rural water supply policy. In the Planning Commission we would await the outcome of these deliberations and take full advantage of your suggestions or recommendations to fine tune the present policy framework with a view to ensuring adequate supply of safe drinking water to all our people in the shortest possible time.

** Keynote Address at a Workshop on "Rural Water Supply Policy Reforms in India" held on December 7, 1999 in Cochin*

CONTROLLING HIV PANDEMIC*

I am very happy to inaugurate the launching of Phase-II of the National AIDS Control Programme. The Minister of State for Health has already indicated the objectives and the proposed strategy of this phase of the AIDS control programme, as well as the major programme thrusts. Poised on the threshold of the next millennium and initiating the second phase of the programme to control HIV infection, we need to review the emergence of the pandemic and the progress achieved in containing the threat posed by it. We have to learn from both the past successes and the problems encountered. We in India have to recognise the need to sustain our efforts to combat this infection in the years to come.

The second half of the twentieth century witnessed a steep fall in morbidity and mortality due to infections the world over because of the availability of potent antibiotics, effective vaccines, availability of health infrastructure and increasing utilization of the available facilities by the population. Public health professionals and the public at large felt that with concentrated effort, control of communicable diseases, even in developing countries, by 2000 AD was eminently feasible. Some even dreamt of a complete conquest of all communicable diseases.

We now realise in retrospect that the ready availability of drugs for management of sexually transmitted diseases (STD) and easy access to contraception for preventing pregnancies may have led to changes in the sexual mores in many societies. The arrival of the Human Immuno-deficiency Virus (HIV) in this setting resulted in an explosive sexually transmitted disease epidemic. The asymptomatic and chronic nature of the disease, the absence of an effective vaccine to prevent infection and the absence of drugs for treating the infection have resulted in a cumulative disease burden.

There is a widespread impression that HIV is highly contagious and that it kills young men in the prime of their life. However, we now know that the majority of HIV infected persons remain not only without symptoms but also healthy for periods ranging from 10-20 years. The length of this period can be further prolonged if they take adequate nutrition and remain free from infections, especially sexually transmitted ones.

The tragic aspect of this uncertain and prolonged asymptomatic period is that promiscuous persons may infect their spouses. What is much worse, the infected women may transmit the infection to their children. It has been estimated that 20-30% of infected mothers will transmit the infection to the baby. Until a few years ago we did not have any drugs to reduce or avert this tragedy. However, now there are promising drugs, which, if given for a short period, would substantially reduce the possibility of transmission to the baby. I have been informed that the Department of Health is taking up studies on the use of these drugs to prevent infection in children. If these prove to be effective and feasible, we will not only have addressed a particularly poignant dimension of this disease but also have one more tool to control the spread of infection.

In certain ways we have been fortunate. For unknown reasons, HIV infection reached Asia last, which gave us a certain amount of leeway. We have been able to take some advantage of this. In 1986, long before AIDS cases were reported, India has the distinction of initiating a national sero-surveillance system under the Indian Council of Medical Research (ICMR) to define the magnitude and dimension of HIV infection during the silent phase of the epidemic. This pioneering work resulted in drawing global attention to the opportunity and challenge of initiating AIDS control programmes not only in India but also in the populous Asian continent at an early phase of the epidemic when very few persons were infected.

Based on the data from ICMR studies, we drew up the National AIDS Control Programme. In spite of numerous shortcomings in the implementation of Phase I of the AIDS Control Programme in this

vast and varied country, it is noteworthy that WHO has estimated that, as of 1997, India has a relatively low prevalence of HIV infection at 2.6/1000. This is perhaps due partly to our cultural ethos and partly to the dedicated work done by committed professionals, which has gained national and international recognition. The country should, therefore, vigorously pursue AIDS prevention and control measures, which are consistent with, and supportive of, our social and cultural ethos, and thereby create conditions in which the infection rates continue to remain low.

The low prevalence rate of HIV infection in India, however, should not lull us into complacency. Because of the sheer size of our population the country currently has over three million HIV infected persons. Within the next decade the number is likely to more than treble to nearly 10 million. The number of AIDS cases will also show a corresponding increase. It is, therefore, imperative that the country gears up to provide necessary preventive, diagnostic, promotive, curative and rehabilitative care to tackle this problem through appropriate strengthening of the existing primary, secondary and tertiary health care infrastructure in the Government, as also the NGOs and the private sector.

The Government is well aware of the dimensions of the problem and has identified the actions necessary to meet the challenge. The Ninth Plan has envisaged focussed attention on (1) more effective implementation of the programme for ensuring safety of blood/blood products; (2) increasing the reach and spread of HIV testing network; (3) augmenting STD, HIV/AIDS care facilities; (4) improving hospital infection control and waste management so as to reduce accidental HIV infection; (5) enhancing efforts to improve HIV/AIDS awareness, counselling and care; and (6) strengthening sentinel surveillance. In order to achieve these objectives, the gaps in existing infrastructure and manpower at various levels have to be identified and filled for the effective implementation of the AIDS programme.

During Phase I of the AIDS Control Programme the country tried to plan and implement a multi-pronged strategy for the containment

and control of a new disease. Separate organisational structures were created in the States and the Centre to ensure that the Programme is effectively and efficiently implemented. This strategy certainly did achieve some measure of success, as I have already described, but there have been problems in inculcating a sense of ownership of the Programme in many States. This is a serious issue since it is now quite clear that the HIV/AIDS pandemic will not be of a short duration and its magnitude will not be trivial. Therefore, a stand-alone, Centre-driven approach to AIDS control will be inadequate to meet the challenge.

The task before the country now is to build up mechanisms to integrate the AIDS Control Programme with the existing health services and institutions so that the Programme will be sustainable after AIDS Phase II Programme is completed. In order to achieve this integration it is essential that steps should be initiated for integrating the planning, implementation and monitoring of the AIDS Phase II Programme with the other ongoing health programmes at the district, State and the Central levels.

There is, therefore, an urgent need to set goals and monitor the progress through a Health Management Information System (HMIS) from PHC or district level to the State level for each of the six important activities that I have mentioned as part of ongoing reporting for health services.

Let me begin with the issue of sentinel surveillance. Realising the need for epidemiological data on a continuous basis for monitoring time trends in the prevalence of infection, providing appropriate interventions and monitoring their impact, sentinel surveillance was incorporated as a critical component in the AIDS Phase I Programme. However, due to a variety of factors the National Aids Control Organisation has reported that sentinel surveillance has not been carried out according to the specified protocol in most of the States during AIDS Phase I. Hence, critical data is not available for all States.

In view of the known massive diversity in the health indices and behavioral patterns between States it is imperative that information

on prevalence of infection in each State is obtained so that appropriate State-specific interventions can be drawn up. It is only through such information that realistic targets can be set, implemented and monitored. It is imperative, therefore, that scientific sentinel surveillance is carried out on a continuous basis so that State-wise data becomes available during the AIDS Control Phase II.

We must recognise that to a large extent AIDS is a sexually transmitted disease. Therefore, as part of the AIDS Control Programme Phase I, the number of STD clinics were increased and strengthened. The Reproductive and Child Health (RCH) Programme is providing care for women for management of reproductive tract infection or STDs. The STD control activities for men are mainly through STD clinics. It is essential that the programme of health education, counselling and referral care for HIV-infected persons from the primary to secondary care level is sustained even after the completion of the project.

Blood safety is one of the components of the AIDS Control Programme, where performance, in terms of reaching the set targets, has been good in Phase I. However, there are a large number of blood banks, which have not yet been covered and we are still nowhere near reaching the norm that all blood used for transfusion has to be screened for all blood-borne infections. The Phase II Programme should try to achieve this goal.

Supply of adequate number of kits of appropriate quality is an essential prerequisite for successful implementation of many components of the AIDS Control Programme. It is essential that need assessment for kits is made on priority and sufficient funds allocated for this because this is one critical component where constraints could come in the way of effective implementation of many other components of the Programme.

The IEC had been a key activity of the AIDS Control Programme to generate awareness. In view of the social stigma associated with HIV infection, awareness generation has to be done with sensitivity to social and cultural mores. What is required thereafter is interpersonal communication, especially through male multi-purpose workers and ANMs, coupled with counselling and referral services.

In this context, the male multipurpose worker, who is a key peripheral functionary in many health and family welfare programmes, has to be trained to perform the required functions under the AIDS Control Programme. The ANM is currently getting some input under the RCH Programme but these again have to be further amplified. It is essential that at all levels the training activities under AIDS Control Programme are taken up as a part of the overall skill upgradation and training activities.

The NACO has indicated that it will provide funding to State AIDS Control Societies directly, instead of through the Finance Departments of the State Governments. Funding through the Societies has been resorted to in other health programmes also. However, if there is a multiplicity of State or District-level Societies for each of the vertical programmes, the District Collector or Health Secretary cannot devote adequate time for each of these Societies and their needs. The Planning Commission has suggested the formation of a single State or District-level Society for all health and family welfare programmes. This would enable speedier implementation of horizontal integration of the activities at or below the district level, improve effective functioning, reduce duplication of activities and achieve better co-ordination among the programmes. Some of the States like Orissa have already implemented this suggestion. The Ministry of Health may like to pursue this and assist other States in rapidly implementing this suggestion.

In the end, I feel confident that with the co-operation of all those engaged in combating the HIV epidemic, we will be able to contain the spread of AIDS in 1/6th of the global population.

** Inaugural Address at the launching of the National Aids Control Programme Phase II on December 15, 1999 in New Delhi*

HUMAN RESOURCE PLANNING & DEVELOPMENT*

It gives me great pleasure to preside over the first meeting of this august body in this new millennium. Let me first wish you all a Happy New Year, a Happy New Century and a Happy New Millennium. I welcome you all to this meeting.

This new millennium is all set to augur well for the nation as a whole. We are now very close to achieving 7% annual rate of growth. In the next decade, the annual rate of growth is expected to be well over 8 per cent. The second phase of economic reforms has just been initiated with full vigour. The country is now laying a renewed and increased emphasis on social dimensions of development. Strengthening infrastructure support and widening rural economic base are receiving special attention. Technology missions are envisaged to go in full steam to bridge the technology gap in crucial areas in order to meet the challenges of increasing globalisation and the compulsions of WTO. The country has already occupied a prime position in the international arena as a leader in information technology. A structured programme of co-operation between India and other developing nations is emerging as a major dimension of the vision for the future. In achieving this vision the Planning Commission requires the active co-operation and support of the intellectuals and research organisations of the country in evolving strategies, planning and implementing development programmes. This Institute, with its close linkages with the Planning Commission, will have a definite role to play. The IAMR, as has already been highlighted by the Director, has achieved significant strides in spearheading research, training and consultancy in human resource planning and development. Within the framework of the Planning Commission's Vision for the next two decades this Institute can play a more significant role in policy-making. It can contribute to the creation of an environment and provision of mechanisms for sensitization, awareness and dissemination of the policy. It can expand

its activities in the development of information systems and documentation on crucial dimensions of human resource planning and development to aid researchers and policy-makers.

The next decade will witness a massive increase in the number of adolescents in the 10-19 age group from 200 million to 239 million. The population in the 15-59 age group will increase from 519 million in 1996 to 800 million in 2016. This current phase of demographic transition is both a challenge and an opportunity. The challenge lies in improving the quality of life of the people, particularly in the active age group. As you are all aware, quality of life is multi-dimensional. It encompasses both the economic and social dimensions. Hitherto, politicians and policy-makers have been focussing excessively on the economic dimensions. The time has now come to accord due recognition to social dimensions and initiate the process of rapid development of the social sectors.

The present Government has identified seven sectors for special focus as "basic minimum services" to hasten social sector development. The Prime Minister's Special Action Plan, which is an integral part of the Ninth Plan, has given further impetus to the 'basic minimum services' by providing action-oriented and time-bound programmes of implementation with earmarked funds. It is now crucial for the policy-makers to know whether the variety of social sector programmes, being implemented, are yielding the desired results. If they are not, we must know where we have gone wrong so that we can learn from our mistakes and correct the future course of action. This calls for independent evaluation and feedback on governance and impact of schemes of development at the ground level by professional bodies like IAMR. This evaluation has also to be a continuous feature to facilitate regular feedback, realignment and reorientation of the instruments of development. There is also a need to ascertain whether there is a convergence of different schemes of development at the ground level.

Monitoring and evaluation assume added significance as the development process has been decentralized and the responsibility

for implementation of social sector programmes is now largely vested in the hands of democratically elected bodies. Human resource planning and development at the ground level is, therefore, critical. The evaluation will have to bring out distinctly the human capabilities at the ground level in efficient utilisation of available resources and effective management of development for the benefit of the poor.

Rural development programmes had hitherto focussed excessively on agriculture and construction sectors for employment generation. The available trends indicate that rural employment generation in the agriculture sector has been much faster since 1987-88 than in the previous years. As a result, casual employment has been increasing at a higher pace in the rural areas at the expense of self-employment and regular employment.

Casualisation of employment has been one of the major maladies of rural employment generation in the country. Casualisation results in irregular employment, irregular incomes and irregular nature of tasks performed. This will adversely affect human resource development in the country as casualisation restricts the scope for acquisition of new skills and increasing labour productivity. There is a dire need to expand and diversify rural economy into non-traditional and non-household-based manufacturing and the emerging areas in the service sector in order to generate regular and self-employment opportunities. Available evidence indicates that rural job seekers are not able to avail of the employment opportunities in non-traditional and non-household segments of rural economy because of inadequate facilities for vocational education and training. Human resource development in the rural areas will thus be a major area of concern for policy-makers in the next two decades. I am happy to know from the Director's address that this Institute, with its vast experience in establishing and operating information systems, is proposing to set up an education management information system on the whole gamut of technical education including vocational education and training. This will be a boon to the policy-makers, planners and development administrators.

This century is going to witness increasing globalisation of world trade and severe restriction on technology transfers and market regimes. If what happened to our Basmati rice and turmeric serves as an example, the developed countries in the West are going to invade the rich flora and fauna of the developing countries and attempt to take away the traditional rights of the developing world. India has a very rich bio-diversity. It has been an asset in our growth process. Regrettably, in the past we have only been reactive in protecting our rich diversity. The time has come for us to be proactive. Our rich bio-diversity needs to be inventorised. It should be developed, protected and conserved. There is already a huge gap in technology development between the developed and the developing countries. Bridging the technology gap will, therefore, be one of the foremost concerns of policy-makers in this century.

We need also to infuse dynamism in the functioning of our R&D laboratories by making vigorous efforts for generating and disseminating technologies and at the same time protecting them from copying and piracy. It is here that the emerging demographic trends provide us an opportunity. These efforts call for systematic development and reorientation of our human resources to meet these emerging challenges. Extreme caution and care is also the need of the hour. In our enthusiasm to extract the maximum mileage out of the emerging global trends in economic management, we should neither compromise on our national interests nor should we let ourselves be isolated in the process within the WTO framework. This will be an interesting area for investigation and expert bodies like the IAMR should take up specific studies and advise the Government on these emerging areas.

The 21st century with its increasing focus on market-oriented economies will be dominated by technologies, which will only be driven by the knowledge base. While we have assumed a lead role in the software industry, we are still at the initial stage of implementing an IT policy. It is becoming increasingly clear that significant changes will have to take place in reorienting our human resources to face the challenges and to take advantage of the opportunities thrown up by

the information revolution. We have yet to come up with firm estimate of the human resource requirement for maintaining the lead position in the software industry and for availing of further opportunities in this field. Added to this, much of the education and training of human resource for the software industry is taking place in unregulated and uncontrolled private institutions. There is, therefore, an urgent need to focus on human resource planning and development for meeting the challenges of the emerging trends in information technology.

The East Asian crisis has underlined the importance of international co-operation. In the face of rapid globalisation of world trade and widening technology gap, developing countries should pay greater attention to being self-reliant in technology development and management, developing and widening the capital base, and meeting the challenges of emerging trends in world trade. We need to build on cultural links with our neighbouring countries and intensify our co-operation to share experiences in technology, capital and markets to the mutual benefit of all concerned. India has realised this imperative and has evolved a well-structured programme of co-operation between India and the ASEAN. India has offered a package of measures to assist the ASEAN countries facing the worst ever crisis in economic management. This package includes a significantly increased component of technical training and HRD assistance. I am glad to notice that this Institute has taken a positive step in this regard and is exploring possibilities for collaboration and networking with the ASEAN Secretariat for extending research and training services to ASEAN countries and for exchanging faculty among HRD institutions in the ASEAN countries and in India.

I would like to place on record our sincere thanks to the present and past Vice Presidents of the Institute, the Chairman of the Executive Council and the Chairman of the Standing Committees on Research Programmes for their support and valuable contribution to the work of the Institute. They have helped the Institute substantially in expanding and diversifying its academic activities and in improving the quality of the Institute's academic output.

Distinguished members of the General Council, some of you are probably aware that Prof. Ashoka Chandra has taken over as Special Secretary, Ministry of Human Resource Development as a part of the process of professionalisation of Central Ministries. We are happy that his continuance here as Director of this Institute concurrently could be ensured until alternative arrangements are made.

I would like to place on record our sincere appreciation of his signal contribution to this Institute in enhancing the productivity, quality and relevance of the academic output of this Institute. Under his able guidance, this Institute has transcended national boundaries and has registered its presence globally in the field of human resource planning and development. In addition to his contribution to research, training and information systems, the Institute is now organising an international Master's Degree programme in human resource planning and development. This is a unique programme in the whole world. Further, his vision for the Institute has culminated in setting in motion the process of building a new Campus of international standards for this Institute.

I am sure Prof. Ashok Chandra will not lose interest in the activities of the Institute, even after he demits office as its Director. The staff of the Institute needs to be particularly commended for the very good progress they have achieved and the support and co-operation they have extended to Prof. Ashoka Chandra in achieving several milestones. With its commendable track record in the last decade, I am sure the staff of this Institute will stand up to all challenges and excel itself every year.

With these words, I am happy to inaugurate the Thirty-sixth Meeting of the General Council.

* *Presidential Address at the Annual Meeting of the General Council of IAMR held on January 6, 2000 in New Delhi*

TONING UP CONSULTANCY SERVICES*

Shri Parthasarathi, Chairman, CDC, Dr. Mashelkar, Secretary, DSIR & DG, CSIR, Mr. Kell, Chairman, ASPAC of FIDIC, Shri N.K. Sharma, MD, NRDC & Vice-Chairman, CDC, distinguished delegates to this Millennium Consultancy Congress, distinguished invitees to this Inaugural Session, ladies and gentlemen, I am very happy to be here this morning at the Third National Consultancy Congress being organised by the Consultancy Development Centre (CDC).

The Congress is being organised at a very appropriate time as we are on the threshold of not only a new century but a new millennium, and that too a millennium, which is going to fundamentally change every thing on earth. The theme of the Congress "Beyond 2000: Challenges and Opportunities for Consultants" is also extremely topical considering that the world economy is entering a new phase of knowledge-led business with its attendant hopes and challenges. We are experiencing the consequences of global changes as never before and these are impacting on our activities in all walks of life — political, economic, demographic, technological, social and cultural. As the world's second most populous nation, we need to gear ourselves up to play our appropriate role in the comity of nations. We must grasp the existing opportunities for development and security, as also create and operationalise new opportunities to ensure the basic needs for all our people at least by 2020. We must, at the same time, be aware of our responsibilities to the world order as it evolves over time.

As you know, we started our process of industrialisation in right earnest during the Second Five Year Plan launched in 1955-56. Major projects were taken up like multi-purpose dams on major rivers, steel plants, heavy engineering complexes, oil exploration and production, to name just the more important ones. These projects were mostly based on

foreign technical know-how and basic engineering. At that stage only detailed engineering was done by domestic consultants and very little technology transfer took place.

It was the Planning Commission, which had, as far back as the turn of the 1960s, taken the initiative to commission studies to examine and take stock of the consultancy sector and define how it should be developed in order to aid industrialisation of the country. The record since those early days shows that right from the start of planned development of our country consultancy services have contributed to many of the numerous projects that were set up to develop infrastructure, the core sectors of industry, national defence and even parts of agriculture. Indeed, consultancy was perceived as cutting across a large part of the economy and, so, major efforts were made to build up several large and strong consultancy and design engineering companies in the public sector. These included EIL, EPI and MECON. This action by the Government led in turn to the spawning of some private sector companies such as, Dastur & Co., TCS, TCE, Humphreys and Glasgow and DCPL. However, consultancy really came into its own during the 1970s. This enabled technical and management consultants to operate as a specialised profession in planning, development, design and execution of projects and the development of companies as a whole.

Much has happened since then and I was happy to know from the Welcome Address of Shri Ashok Parthasarathi, Chairman of CDC, that the growth of consultancy has been impressive particularly during the last 15 years. I understand that there are today around 5,000 consultancy companies in operation in the country employing about 70,000 professionals with an estimated turnover of Rs. 5,000 crore, including export of Rs. 500 crore in 1998-99, dealing with technical and management consultancy services in some dozen socio-economic sectors. This is certainly a good achievement. I am also happy to know that our consultancy companies are offering a wide range of services such as preparation of feasibility and project reports, market surveys, detailed design and engineering, supervision of erection, testing and commissioning, as also operation and maintenance. Consultants have

developed higher skills both in technical and management consultancy for operation within the country and abroad. Many of our consultants are also providing services in a number of areas of industry and infrastructure, while a few have developed sector-specific capabilities in areas such as construction, chemical, engineering, transport, power, metallurgy and telecommunications. That the first few consultants in "sunrise industries" such as biotechnology and renewable energy are coming up is noteworthy. Of course, there is a large presence of consultants in our burgeoning IT Industry.

I must recognise in this connection the technologically and managerially demanding turnkey projects of high design engineering content such as the magnificent Konkan Railway Project of the Indian Railways, which is a world-class project achieved without slippage on cost or time. This shows that we can do it on our own and as well as the best. Our consultancy companies are also exporting technology services and complete plants and projects to other developing countries. What is more, most of these consultancy contracts have been won against developed country consultants in global or near global tenders under World Bank, ADB and EU financing. The achievements of CMC in the computerisation of the Felixstow Port in the UK and the Bremerhaven Port in Germany, building on their experience in executing such automation on our own Nhava Sheva port and CMC's consultancy and project execution of Ticketing on the London Underground merit particular mention in this context. Similar demanding projects are being executed by some of our larger private sector companies such as Consultancy and Engineering Service, TCE and ICT.

Now, a word about the CDC. Its documents bring out its role as the nodal agency for the consultancy sector, as also the many initiatives and promotional activities it has undertaken and is continuing to undertake to develop and promote consultancy services and the consultancy sector as a whole. Since its inception in 1986, CDC has performed a useful role in developing our consultancy capabilities through a number of initiatives, particularly during the last 4 to 5 years as outlined by Shri Parthasarathi and Dr. Mashelkar. I am happy

to know about these achievements of CDC. However, considering the demands of the new millennium and the changing paradigm, we need to carry on with the good work and develop it further.

We in this country were unable to access and participate in the first Industrial Revolution due to our colonial status and other historical reasons. We have done a lot in the second Industrial Revolution over the last 50 years but perhaps not enough. We must, therefore, strive to acquire a dominant position in the third Agro-Industrial Revolution characterised by knowledge-based development, employment and value addition. This third Revolution has the potential of taking us to the global forefront in the 21st century while also making major contributions to our national development. At the recent ASSOCHAM summit on "India in the Knowledge Millennium" the Prime Minister had said, "The expansion of the 'production frontier' has led to the establishment of a knowledge-based economy. Led by information technology this new economy includes areas such as biotechnology, pharmaceuticals, consultancy operations and financial services". Consultancy has thus now been recognised at the highest levels of our Government to have the potential to play a very important role in the development of our country in the 21st century.

But consultancy has to also continue, at the same time, to play what may be called its "classical" roles. The first is as a critical link in the innovation chain between the R&D sector on the one hand and the manufacturing, particularly the capital goods, sector on the other. The second role of consultancy is in the rapid expansion and setting up of world-class physical infrastructure, optimising in the design and engineering of products and plants, leading to economy, safety, good practices in project management and quality so as to provide overall the best value for investment.

Consultants must also play a major role in transfer of technology and its commercialisation in regard to both foreign and domestic technology. In respect of foreign technology consultants can and must assist in absorbing and adapting a foreign design of plant, equipment and production processes to meet the distinctive needs of the Indian

market, while also bringing them to contemporary international levels. Consultants must also play a role in unbundling the "technology package" provided by foreign technology suppliers so that our capital goods manufacturers have a fair chance of participating in projects being engineered, if not designed, for client-enterprises within the country and consequently our substantial capital goods capacity is fully used and its future capabilities enhanced. By ensuring that a significant portion of a project is capable of being met through local capital goods and technical services, impetus could also be given to manufacturers of components of capital goods without compromising on cost and quality.

When we come to indigenously developed technologies, if local R&D is to be optimally utilised, as it should be, it would be necessary for organisational structures to be developed, which provide "packages of services" similar to those being provided by foreign manufacturing companies or technology licensors to our entrepreneurs. It is a matter of concern that in respect of foreign technology transfer, barring a few instances, the role of consultants has not been effective in techno-commercial matching of the foreign technology to our factor endowments on the one hand and the distinctive character and needs of our market on the other. Consultants, therefore, need to be more proactive in this area and intervene appropriately in the innovation chain so as to enhance the domestic value content of the product or service being provided. This will help us to become internationally competitive through lowering the cost by increasing the content of high quality manpower in which we have a significant factor advantage. The advent and spread of the Internet should greatly facilitate this process since the options available to the consultants can, and should, increase many-fold provided that our entrepreneurs recognise this opportunity.

If all this is to be done it is crucial that our consultants continually upgrade their skills and expertise to operate effectively at the contemporary international level, if not beyond such levels. This would help our consultants not only to increase their operations in the country but also enhance their slice of the cake in terms of international

consultancy contracts. Moreover, these contracts must not be only in other developing countries but also in the middle-level developed countries like Turkey, Greece and ASEAN, as also in markets such as South Africa and Latin America. Opportunities in the developed countries are also likely to increase as cost-effectiveness assumes greater importance and barriers are lowered. This is already becoming more relevant in the context of the General Agreement on Trade in Services (GATS) of WTO and so you have no time to lose as incumbency and established trade records are important criteria in the selection of consultants.

The primary responsibility for this new role of consultants in the next decade will have to be accepted by consultants themselves and they will have to make a major effort to meet the challenges, upgrade their skills and take full advantage of the expanding, but demanding, opportunities. At the same time, I am open to suggestions in case consultants need government assistance in some specific areas for developing the consultancy sector. We do not have, for example, any effective policy regarding the development of consultancy in health and construction services, in which too we have considerable potential. It is, therefore, necessary that we evolve a comprehensive policy for the services sector as urgently as possible.

I would like to assure you that the Planning Commission will look sympathetically at the recommendations, which CDC, the nodal organisation for consultancy development in the country, may like to make for further development of services in general, and consultancy in particular, in the country. The Commission can and will act as a facilitator to help the cause of consultancy. In order to do so, I look forward with interest to the outcome and recommendations of this Congress. I have great pleasure in inaugurating this third and millennial National Consultancy Congress.

** Inaugural Speech at the Third National Consultancy Congress on "Beyond 2000: Challenges and Opportunities for Consultants" held on January 15, 2000 in New Delhi*

SUSTAINABLE DEVELOPMENT & TECHNOLOGICAL CHALLENGES *

Having been associated with the Committee overseeing the organisation of this Congress, I would like, first of all, to thank the Prime Minister for accommodating this programme in his extremely busy schedule. I would also like to congratulate the organisers of the Congress, who have put in so much time and energy for its success.

The focus on the vitally important issue of "Engineering and Technological Challenges of the 21st Century" is entirely appropriate as this new millennium is likely to witness tremendous environmental and ecological stress as the vast majority of the world's population strives not only to climb out of abject poverty but to attain standards of living prevailing in the developed world. As the world shrinks and competition grows in the next millennium, our scientists and engineers will have to play a key role in meeting the challenges of the future. But even as we move forward in step with the world, we have to be true to ourselves.

In this context, I would here like to recall the words of Rabindra Nath Tagore. In a speech delivered in America in 1925 Gurudev said, "The educated Indian at present is trying to absorb some lessons from history contrary to the lessons of our ancestors. The East, in fact, is attempting to take unto itself a history, which is not the outcome of its own living... Europe has her past. Europe's strength, therefore, lies in her history. We, in India, must make up our minds that we cannot borrow other people's history and that if we stifle our own we are committing suicide."

Although sustainable development, a term coined in the environmental context by Mrs. Gro Brundtland in her famous Report "Our Common Future", has become particularly fashionable after the Rio Summit in

1992, the philosophy underlying this concept in terms of inter-generation and intra-generation equity has been embedded in the Indian ethos for centuries. Two central tenets of Indian culture and philosophy, namely, the unitive basis of the material world and non-violence, reflect our respect for all life, animals and plants, and for the preservation of environment and ecology. Indian philosophy emphasises that the bounties of nature are as much to be nurtured as used for the benefit of mankind.

For developing countries like ours, which constitute over 80% of the world's population, sustainable development is not only a development strategy undertaken in harmony with nature but also in harmony with men and women. It must be a strategy, which enshrines at its very core an immediate and sustained commitment to meet in an environmentally benign way the basic physical needs of all the people of the developing world in the shortest possible time. What is more, such a strategy also needs to be implemented through political, social, economic and cultural transformation and equity throughout developing countries.

It is only with the application of science in developing appropriate engineering and technological advances that mankind has been able to locate and extract deeper and newer natural resources. Coupled with conservation, efficiency and substitution, the elongation of the life of the existing resource base has been made possible. On the negative side, the success has induced a sense of complacency, which, I believe, is misplaced. This relief, in my view, should be considered temporary, primarily since this achievement has by and large been restricted to the developed world of the North. The poorer developing countries have had to remain content without much change in their consumption pattern and life-style, a condition that they are not likely to tolerate for much longer. Population control and attainment of demographic equilibrium in the developing countries should be one of the top most priorities of our countries for their sustainability. At the same time it is equally important that the highly industrialised countries undertake changes in their life-styles and consumption patterns.

This hiatus between the North and the South could perhaps have continued unabated under the prevailing North-South power balance were it not for the rapid advances in telecommunication technology and a telescoping of the differential economic and technological capabilities. Concomitantly, these advances, notably the satellite television, have also raised the aspirations of the people living in the poorer southern part of the globe. A profligate and recklessly extravagant pattern of consumption is penetrating all over the globe. This demand-side pressure on natural eco-systems is not only far in excess of the relief afforded on the supply side by technological advances but also considerably more than their intrinsic assimilative capacity. The biotic pressure from population explosion is responsible in an equal measure for this phenomenon. Theoretically it is possible that the rate of technological advances may surpass the rate of growth of biotic and other stresses on the environment. However, this requires an immense amount of capital directed in a sensitive and responsible manner, particularly to help the developing countries in leapfrogging the exploitative phase. That, in short, is our common challenge.

Let me illustrate this briefly in the context of energy. Fossil fuel burning has a severe consequence for the environment. So much so, there is growing scientific evidence about global warming and associated climatic changes due to the burning of fossil fuels. At present about 34% of India's total energy requirements continue to be met from non-commercial sources with fuel wood being an important source of energy for cooking and heating in large parts of India. Though petroleum, coal and electric power will supply the bulk of energy, there is a case for developing renewable energy sources in this country. For instance, wind energy alone has a potential of 20,000 MW, of which only 1000 MW is exploited at present in India. Similarly, the potential of small-hydro power plants is 10,000 MW, and we have been able to tap only 250 MW. The biggest source of non-conventional energy, solar energy, offers a potential, theoretically, of trillions of MW and only a miniscule fraction of it is presently exploited. Generation of electricity using solar energy, although technically feasible, is yet to reach the stage of commercial viability and the scientific community must take it as a challenge to make this technology cost-effective. It is only through the use of better engineering and

technological solutions that we would also be able to meet the lower emission levels. Unfortunately, exercise of the monopolistic powers of the holders of such technology and making it available at unfair terms and conditions is not going to solve the problems of climate change. This is iniquitous as well. Environment is of concern to all. We have had this demonstrated quite unequivocally in the context of defence and other forms of frontier technology. I sincerely hope that these experiences are not replicated in areas, which are critical to environmental preservation.

Science, technology and engineering experts in India can doubtless make major contributions to sustainable development. However, they can do so only on the basis of a paradigm, which stresses preservation and conservation as opposed to amelioration and correction and which characterise much of the technology that is being developed in the West for environmental reasons. This is the true message of Gurudev's statement in this context. Our development must be based on an indigenous vision of desirability and must be embedded in our lifestyle aspirations. There is a need for a self-reliant mindset and both the will and the capacity to create, through technological innovation based on new science or judicious selection of existing technologies, a social and economic order, which would be sustainable for generations to come. Such an order may well require us to develop technologies for water, food, health, education, environment-friendly basic goods and services, including clean energy sources, human habitats and transmission and communication systems, which are cost-effective and capable of meeting the aspirations of the people in a sustainable manner. Given the theme chosen for this Congress, this, I believe, is the most burning and challenging science and technology issue that confronts this distinguished gathering. I hope you will address it with professionalism and sensitivity that befit the status of both the issues under consideration and calibre of the interlocutors.

I wish the Congress all success. Thank you.

** Address at the World Congress on "Sustainable Development: Engineering and Technological Challenges of the 21st Century" organised by the Institution of Engineers (India) in Calcutta from January 20-23, 2000*

DEVELOPMENT OF NORTH EAST REGION*

Respected Prime Minister, Hon'ble Union Ministers, Governors, Chief Ministers, senior officials of the Central and State Governments and friends.

This important meeting with the Governors and Chief Ministers of the North Eastern States reflects both the interest and concern of the Central Government for accelerating the pace of development in the region and improving its security environment. The North East Region of the country is endowed with rich natural resources. It has registered rapid progress in the field of literacy and has made its mark in the field of sports. But, for various reasons, the region has not been able to exploit its full economic potential. The region is deficient in infrastructure, plan resources, skilled manpower and entrepreneurship.

The region is beset with complex, multi-dimensional problems of slow growth, fiscal deficit, sustainability and disturbed conditions. To my mind, our strategy should mainly focus on creating avenues for productive and gainful employment. The lack of sufficient industrial development adds to the problem of unemployed youth, more so of educated youth with rising expectations. So far as government jobs are concerned we seem to have reached a saturation point, as the burden of non-Plan expenditure has already become unsustainable. Government should act as a catalyst for generating economic activity rather than providing direct employment. There has to be a trade off between government jobs and development of social and economic infrastructure. Some studies on the North East have revealed that while unemployment among educated youth has gone up, there is an acute shortage of skilled manpower in many important sectors like agriculture, animal husbandry, horticulture, irrigation, industries, mineral exploration and power. There is, therefore, a need to expand facilities in the area of technical and professional education to build

capabilities, which are consistent with the endowments and requirements of the economy of the States. At the same time, raising the investment to the desired levels will necessitate the mobilisation of private investment, for which infrastructure will have to be strengthened, apart from creating an environment of peace.

As infrastructure development projects have a long gestation period, their impact gathers momentum over a period of time. In the short run, we need to concentrate on high and sustainable growth rate of agriculture, horticulture and sericulture. Tourism, trade and information technology are the other sectors, which have good potential for employment generation. I understand that Sikkim has identified tourism as the thrust area. Other States could take similar initiatives.

Information technology can play an effective role in the development of the North East Region by creating IT infrastructure and undertaking appropriate manpower development. The NIC's experience in this area has been quite positive. The NIC has proposed promotion of IT-entrepreneurship by providing appropriate training to technically qualified unemployed youth of the region. A Software Technology Park is also being set up at Guwahati. All States should make full use of this. Promotion of trade with the neighbouring countries will also help in generating economic activity and gainful employment. The Task Force set by the Ministry of Commerce has made many useful recommendations for promotion of trade with the neighbouring countries. Trade restrictions need to be eased and the infrastructure for exports needs to be strengthened.

In fact, the benefits of increased trade following the proposed Asian Highway passing through this region, expansion of the railway network and possible linkages with ports in future could be considered while preparing a Vision 2020 document, which I have already offered to support during the last Annual Plan discussion.

On our part, concerted efforts have been directed in the recent past to overcome the problem of inadequate Plan resources for infrastructure development, through various supportive measures. The Plan outlays for NE States for the Ninth Plan have been raised substantially to

Rs.25,283 crore against Rs.15,439 crore for the Eighth-Plan. Various Central Ministries and Departments are now required to earmark at least 10% of the budgetary allocations for the North East Region and Sikkim. In the light of the recommendations of the Shukla Commission, which identified gaps in the infrastructure and basic minimum services, the Ministries and Departments have formulated programmes and schemes for the North East. You will be happy to know that the proportion of expenditure by the Central Ministries for the North East has gone up from 5.9% of Gross Budgetary Support in 1997-98 to 6.6% in 1998-99. Further, a Non-lapsable Central Pool of Resources has been constituted, to which shortfalls in expenditure with respect to the 10% norm are to be credited for supporting development projects. This Pool became operational during the last financial year with the release of Rs.121.95 crore as assistance for 21 projects. During the current year, an amount of Rs.270 crore is being released for the ongoing and new projects. In some cases, releases are held up for want of utilisation certificates or detailed project proposals. I have already written to the Chief Ministers on this subject.

Monitoring of projects is a critical area, which needs to be looked into. Appropriate institutional arrangement both at the Central and State levels have to be evolved and put in place to ensure timely completion of projects without time and cost over runs and without leakage, so that the full benefit of the projects reaches the intended beneficiaries. In order to improve the capability of the State Government officers in the area of project formulation, implementation, monitoring and evaluation, it is proposed to hold a Workshop in February 2000 in collaboration with the Indian Institute of Management, Calcutta.

I will urge upon the Chief Ministers to utilise the Plan funds for strengthening social and physical infrastructure and make serious efforts for containing non-Plan expenditure and mobilising additional resources. While you can count on the supportive approach of the Planning Commission to the problems of this region, the need of the hour is for the States to make determined and concerted efforts to put

their economies in a vibrant, self-reliant and self-sustaining mode. The region needs an environment of peace for its development. In those parts of the region where peace prevails there is a visible change for the better and the environment is conducive to development. In these areas I have sensed a new spirit of confidence and enthusiasm and a new commitment to build a bright future for today's youth. I hope the same spirit will animate all the States of the North East and enable them to bring lasting peace and prosperity to the lovely bouquet of communities, which inhabit this beautiful part of India.

Roughly 30% of the normal central assistance to States is given to the special category States on a very favourable term of 90% grant and 10% loan. The other States, where more than 95% of the population reside, gets only 70% of the normal assistance and that too as 30% grant and 70% loan. Further, these States have been allowed to direct 20% of the Plan funds to meet non-Plan expenditure. This point is being made to emphasise that the capacity for substantial increase in such funding is going to be limited. Therefore, the State Governments should also try to contain the uncontrolled growth of unproductive revenue expenditure. At the same time, no effort should be spared to raise as much tax and non-tax revenues within the States as possible. As a matter of principle and practice, the growth in non-Plan revenue expenditure should be necessarily kept below the growth in States' own revenue receipts.

* Address at the meeting with the Governors and Chief Ministers of North-Eastern States during visit to North East with Hon'ble Prime Minister on January 21, 2000

SECURITY CONCERNS IN ASIA*

I am glad the Institute for Defence Studies and Analyses has organised the second international conference on the theme of "Asian Security in the 21st Century". We are on the threshold of the 21st century and all of us from the Asian countries and, indeed, people everywhere need to reflect upon the direction in which issues and events are moving and the way in which we would like to vector them.

The 20th century, as the Director of IDSA stated, has been the most violent century in human history. Two long and highly destructive world wars capped by the nuclear bombing of cities, long bitter wars in Korea, Vietnam, Iran-Iraq and hundreds of other wars are grim reminders of the violence and conflict where the ratio of military-to-civil casualties was reversed. We need to reflect on the causes and course of these wars and violence.

The end of the Cold War, the disintegration of the Soviet Union and economic globalisation have heralded the emergence of a new world order. The bipolar world is gone. There is one predominant power and a number of lesser power centres. The United States remains deeply engaged in Asia and, in fact, with its new fleet and stationing of forces in the Persian Gulf, can be said to have shifted forward strategically from the Pacific Ocean into the Indian Ocean. We live in a competitive world in which all nation-states are engaged in advancing their political, economic and military interests. With the change in international politics and the attendant consequences in the world economic order, economic interests, more than ideological rigidities, are likely to dominate the foreign policy of Governments.

The concept of security is being increasingly defined in non-military terms. The technological advances brought about in the post-World War-II period, especially the arrival of nuclear weapons, and now the revolution in Information Technology have changed the doctrines and

practices of warfare. In fact, defence is no more the dominant component but is one among several others, which constitute the spectrum of national security. The concept of national security is thus vastly more comprehensive and all-embracing in which all the resources at the command of a nation—strategic, military, diplomatic, economic, technological and political—are sought to be mobilised and employed in a holistic and integrated fashion to accomplish the national security objectives of the country.

These objectives cover internal security, regional security and international security. They interact with each other. Because of its size and location, India's security concerns and interests extend to regions far beyond its immediate neighbourhood. India's major internal security concern has been cross-border terrorism, first in Punjab, where it was finally rejected by the people, and now in J&K, where it is being sustained by foreign mercenaries. Peace-loving countries must co-ordinate their efforts to defeat this unholy nexus between terrorists, drug smugglers and arms traffickers.

As we stand on the threshold of the new century, we have to take note of certain trends. The most important of these is the issue of changing equations among nations and their capabilities. The last half-century has witnessed the end of colonialism and the emergence of over 100 nation-states who have entered the UN as new members. The last decade of the 20th century itself has witnessed the fragmentation of many states with nearly a dozen emerging as new states. The UN Secretary General, Boutros Boutros Ghali, in his "Agenda for Peace" had cautioned in the early 1990s that the world could not afford further fragmentation of sovereign states, especially those brought about by armed violence and narrow sectarian nationalism.

Most countries of Asia have emerged from varying periods of colonial rule and imperial domination and are still deeply engaged in the task of nation building. At the same time in a world, that is increasingly globalising, new concepts are probing the limits of sovereignty. This requires serious reflection. The issue is not so much whether sovereignty is absolute as whether a country chooses its policies as part of its

sovereign right or they are imposed on it through various instruments. The case of Western Europe is instructive. The European Union is evolving into a supra-national entity as a result of sovereign choices being made by the individual sovereign countries. The fact that states perceive advantages in such a union is itself encouraging the pressures for expansion of the membership. Sovereignty continues to remain the central principle of organisation for a state. It is not surprising, therefore, that some of the most powerful countries of the world remain highly sensitive about their sovereign rights!

What is important is not so much the expression of an abstract principle that all states have an equal sovereign right as the implementation of the concept of sovereign equality of all states. This requires the promotion of the democratic principle and norms both at the national as well as international levels. Such an approach provides a sound basis for a genuinely voluntary, sustainable and equitable process of globalisation. While the developed world is keen to expand globalisation of markets and trade, there is strong resistance to globalisation of labour. Such dichotomies will continue to generate tensions and inequity as long as it is not recognised that the development of the developing world and its markets is no less in the interest of the developed world.

Through long periods of history, Asia has played a key role in the evolution of human civilization. All indications today point to the 21st century being an "Asian Century." The most dramatic and high economic growth rates are taking place in Asia. This is also the continent where the most far-reaching and crucial social and political changes are being witnessed. India's economy, for example, has been growing at an average rate of 6.6% during the last decade of the 20th century. It may not be as dramatic as the sustained growth of China but is one that has weathered the storm of the East Asian crisis and the economic sanctions after May 1998.

Very soon four of the five largest economies of the world will be Asian countries. Asia has the largest reserves and is the biggest supplier of hydrocarbons and a strategic resource base critical to both the developing as well as the developed world. China became a net importer

of energy after 1992. Japan invested heavily in nuclear power after the oil shock of the early 1970s to reduce its vulnerabilities. India's import dependency in regard to crude oil is likely to increase substantially by the end of the coming decade. Disruption in oil supplies or prices have caused serious setback to economic and human development in the past. We need to co-operate with each other in evolving policies that factor in the demands and vulnerabilities of countries in Asia to future energy needs and benefit the suppliers and consumers in an equitable and fair method.

The demand for oil is going up most rapidly in the fast developing economies of Asia. According to one estimate, "almost half of the increase in total world energy demand now comes from the Asia Pacific region. Up to the year 2010 the developing countries of Asia are likely to account for 40 to 44% of the incremental demand for oil, 72 to 96% of the incremental demand for coal and 36 to 52% of the incremental demand for electricity."

Asia was the battleground for most of the long bitter wars of the last century. It is a sobering thought that there are over 6 million men under arms in the countries of Asia. Five out of eight nuclear weapon states are in Asia. Afghanistan continues to remain a battleground now for a quarter century. A human tragedy continues to affect the people of Iraq. At the other end of the continent, tension on the Korean peninsula remains worrisome. The future has enormous uncertainties to which we have to find the right solutions. The greatest challenge that the countries of Asia face in the new century is how to ensure that peace and stability are strengthened and made durable so that human development can be pursued without distraction and disruption.

It is with this end in view that I have attempted to outline the various contours of security, which are of concern not only to us but the whole of Asia. It is also my hope that an appreciation of the many commonalities in their security concerns will persuade Asian countries to fully develop and harness the potent synergies of co-operation among themselves.

The challenge at the first level is an intellectual one. Peace cannot be established or maintained by an approach that is based on exclusivity or "balance of power". For peace and stability in Asia to become the norm in the coming decades, we will have to share our perceptions and aspirations on a continuing basis. There is an over-riding need for understanding each other so that space is created for mutual adjustments for furthering our common goal.

With these words, I have great pleasure in inviting Shri George Fernandes to inaugurate the conference.

** Presidential Address at the 2nd International Conference on "Asian Security in the 21st Century" held on January 24, 2000 in New Delhi*

CHALLENGES IN DAIRY DEVELOPMENT *

I am very glad to be with you at this National Round Table on "The White Challenges", which will discuss various issues pertaining to the vital sector of dairy development.

At the dawn of India's Independence, the dairy sector, though fairly large, did not present an organised look. The Government of India took one of the most far-reaching policy initiatives in the dairy sector between the Third and the Fourth Five Year Plans. This was to promote dairy development through producers' co-operatives and encourage milk production based on milk sheds in the rural area on the lines of the Anand experiment, which led to the introduction of Operation Flood Programme in three phases. This Programme was launched in 1970 and remained in operation up to 1996.

During this period, there has been considerable improvement in the production of milk. Milk production witnessed a significant growth of 4.5% per annum to reach the level of 74.4 million tonnes during 1998-99, making India the largest producer of milk in the world. The per capita availability of milk increased from around 180 millilitres per day in 1991-92 to 212 millilitres per day in 1998-99. The step-up in production of milk is attributable to intensified activities aimed particularly at the improvement of the genetic stock through crossbreeding, effective control of diseases and Operation Flood Programmes.

Dairy as an economic activity fits in most appropriately into the country's strategy for increasing food production, rural employment and equitable distribution of income. Its expansion is also likely to enhance the participation of womenfolk, thus securing their well-being. The objective is not merely to get higher milk yield from the dairy animal, important though that undoubtedly is, but to achieve a significant and sustained increase in the farmer's income.

The gross value of output from the livestock sector accounts for about 26% of the total agricultural output at present but the potential animal husbandry and dairy development activities have been marked out for greater attention during the Ninth Plan as this sector plays an important role in generating employment opportunities and supplementing the incomes of small and marginal farmers and landless labourers, especially in the rain-fed and drought-prone areas. Effective control of animal diseases, declaration of disease-free zones, scientific management of genetic stock resources and upgradation, breeding, quality feed and fodder, extension services, enhancement of production, productivity and profitability of livestock enterprises are the specific areas identified for immediate intervention and support. The Ninth Plan target for milk production has been set at 96.49 million tonnes, envisaging an annual growth rate of 7.06 per cent.

Some of the critical areas, that call for attention, concern the improvement and expansion of breeding services including artificial insemination services, upgradation of animal health care services and strengthening of training and research facilities. For this purpose Centrally Sponsored Schemes for upgradation of genetic stock of cattle and buffalo have been taken up during the Ninth Plan period. Further, systematic dissemination of appropriate technologies in the field of animal production, management and health care is also undertaken through extension and training programmes.

Fodder and feed development is also one of the crucial areas, which needs greater attention. The demand for animal feed is likely to increase at a faster rate in the next ten years and, therefore, promotion of cultivation of fodder crops, ensuring availability of fodder seeds as also of quality nutritious feed, assume considerable importance.

In their initial stages of operation the District Unions inherited dairy plants from the erstwhile Government Milk Supply Schemes or the Government Dairy Development Corporations. I am told that the dairy plants were transferred to the District Unions along with staff and other liabilities. All or some had accumulated losses, thereby

imposing a burden on the Unions. However, the organisation of dairy co-operative societies has been continuing even after the closure of the Operation Flood Programme in 1996. As of today, there are 81,000 dairy co-operative societies involving a membership of more than one crore. What is more, out of a total of 170 Unions, 100 have earned a net profit during 1997-98. The overall profit of 170 Unions stood at Rs. 23 crore in the same year. The Government of India has recently approved a scheme for assistance to sick dairy co-operatives.

The Milk and Milk Product Order (MMPO), promulgated in 1992, has been regulating the growth of the dairy sector by registering dairy units, which are handling more than 10,000 litres of milk per day or equivalent amount of milk sold. This Order regulates both the private and co-operative sectors. I understand that since the inception of this Order registration has been granted to 195 co-operative sector plants with a total processing capacity of 260.07 lakh litres per day and to 254 plants in the private sector with a total processing capacity of 261.61 lakh litres per day. The Ministry of Agriculture is, I understand, currently seized of the problems emerging out of the various provisions of the Order.

These concerted efforts have resulted in India emerging as an international competitor to the established brands. The Indian branded products are finding a place in the export market not only in small consumer packs but also in bulk packs. The Indian dairy industry is maturing into a competitive dairy industry ready to meet the challenges posed by liberalisation and the WTO. Since India is a signatory to the WTO and we are committed to free trade principles, it will be useful if we keep an eye on the possible effects of trade liberalisation in the Indian economy, especially the dairy economy, and draw up strategies, which will help us to meet the emerging challenges.

The urgent challenge now is to improve competitiveness, which means that we must have the required technology and our products must meet international standards both in terms of quality and cost-effectiveness. With improving standards of living, modernisation and technological upgradation, the dairy sector has tremendous growth

potential, which can make an impact both on the domestic and international markets in the coming decade and also be at the forefront of our drive against poverty and unemployment.

I have great expectations from this sector. I hope useful, innovative and implementable suggestions will emerge out of your deliberations so that the dairy sector can play its appointed role in our long-term development strategy. I wish the conference all success.

Inaugural Address at the National Round Table on "The White Challenges" organised by INITIATIVES (NGO, Mumbai) in New Delhi on January 18, 2000

INTEGRATED LAND & WATER MANAGEMENT*

I thank the organisers of this Workshop for giving me this opportunity to share some thoughts with you. During the past four days you have no doubt discussed the technical issues regarding drainage in great detail. In the presence of such distinguished experts I can add but little, except to emphasise the criticality of the issue in the Indian context and our expectations from the international community in general and professionals in particular.

As you may be aware, the Planning Commission of India has identified sustainable use of land and water resources for maximising agricultural production as a key area of concern. For us rapid agricultural growth is important not only for the food and nutritional security of our growing population but also as the most powerful instrument for the eradication of poverty from the face of the country. Our efforts in this direction are constrained in two distinct ways, which are both related to issues of drainage and flood control. First, the areas of the country, which have a very high potential for agricultural growth are located in the eastern region. The land is rich and fertile and is also well endowed with water resources, whether from ground water, surface water or rainfall. There can, however, be too much of a good thing. Excessive and uncontrolled water resources make these areas prone to floods and water logging, thereby limiting our efforts to increase the intensity of land use. At one level the solution is obvious, namely, better flood control and drainage, but at another level the problem appears formidable. The costs and possibly the long-run consequences of existing methodologies are prohibitive. As against this, if we can make a dent on this problem, the rewards, both economic and human, can be enormous. It could transform the lives of a very high percentage of the poorest and most deprived people in our country.

The second problem is the growing evidence of soil degradation in some of the most productive agricultural regions of the country. These areas are by and large irrigated and it is believed that the principal causes of the damage are excessive use of water and insufficient drainage. Irrigation, which is the largest user of available water resources, is important but it can yield lasting benefit only with sound water management. The performance of irrigation so far has not measured up to expectations either in terms of the pace of development and use of facilities or its impact on the health of land. A number of problems have been associated with major and medium surface irrigation projects. While a large number of ongoing major and medium irrigation projects are awaiting completion for a long time resulting in huge time and cost over-runs, another serious problem has been created by canal water-induced waterlogging. Inadequately planned growth of canal systems has other implications. For instance, waterlogging and salinity take place in the absence of drainage, which is many a times impeded by canal embankments and roads as well as railway embankments. Waterlogging, moreover, is associated with health hazards like Malaria. This is not a new phenomenon in India. It is essential that we not only repair the damage but also identify the causes, which have led to this state of affairs. Otherwise, we may find ourselves only repeating past mistakes.

In India, as indeed elsewhere in the world, the problem of drainage in irrigated areas appears to stem from certain basic flaws in the original planning of water resources projects. I am informed that we are not unique in this regard and that in spite of the requisite know-how, planning in the water sector in many countries has lacked this concern. Drainage of irrigated areas was not given due attention. The resulting problems were further compounded due to unscientific application of water. As a result, about 80 million hectares of land in the world cannot be put to full beneficial use because of poor or no drainage. We need to correct this lacuna in water management planning.

There are two basic issues in the functional aspects of water resource management and irrigation projects in terms of being able to cope

with degradation of land resources by way of waterlogging and salinity build-up. While the first issue by and large concerns the developing countries, the second one is more relevant to the developed countries.

In most developing countries the planning, design, construction and operation of water storage and delivery systems are done by irrigation engineers. There is a view that since application of irrigation water is related to soil conditions and crop water requirements, irrigation systems and the associated drainage systems should be designed in a scientific and holistic manner through interface between irrigation systems and agriculture production. The essential point is that apart from irrigation engineers, agronomists, social scientists and extension services should also have a much greater role in water management, including delivery of water and maintenance of the system for sustenance of land and water resources.

Many developed countries are facing difficulties in ensuring long-term sustainability of their existing water resource projects because of the increasing burden of environmental safeguards and rising maintenance costs. They may, by virtue of their high technological and economic skills, come out with viable solutions to these problems but it is time to ponder over which environmental impacts are of real importance and which are more cosmetic in nature. A balanced approach would be required to devise techno-economically feasible methods of preventing adverse environmental impacts. The lead taken by the developed countries for drainage improvement may prove critical for the future since some of the technologies would also need to be adopted in developing countries. Many methods presently in vogue are far too expensive to be viable in developing countries.

Let us now consider where we have gone wrong in planning our water resource projects. In most of the projects constructed during the last century, especially in developing countries, conjunctive use of surface and ground water was not planned. Flood control, drainage and water management did not form part of irrigation schemes. Soil surveys and studies for cropping pattern and crop water requirement were not carried out in an exhaustive manner. The outcome is there for all to

sec. I am happy, therefore, that integration of flood control, drainage and water management has been discussed in detail in this Workshop. I assure you that we recognise the advantage, indeed the necessity, of planning for water in an integrated manner. Wherever this calls for changes to be made in the norms and procedures for project appraisal and investment clearance, the needful will be done.

The very fact that the drainage situation has been allowed to deteriorate for so long shows that there is need for wide ranging administrative restructuring and reforms to ensure accountability in future for the governance of the water sector. It is perhaps time for the community of water managers to recognise and declare that drainage problems need to be an integral component of integrated basin-wise planning and management of water resources. Drainage need not be considered only as an adjunct to irrigation but as a means for achieving both productivity and sustainability. The problem of reuse or disposal of drainage waters also needs to be a part of integrated land and water management.

Conjunctive use of surface and ground water would be necessary to prevent waterlogging and the attendant evils of soil salinity. However, proper ground water development requires reliable sources of energy. Provision of adequate and timely electrical power could, therefore, be crucial for minimising drainage problems in many developing countries. This of course will need to form part of overall planning for economic development.

Poor maintenance of water conductor and delivery systems has significantly contributed to drainage problems in many countries. Unfortunately, for socio-economic and political reasons, maintenance in most cases is staff-oriented, with the bulk of the expenditure being incurred on salaries and not on actual maintenance works. An entirely new approach needs to be adopted to improve the management and funding mechanisms. Participatory irrigation and drainage management could greatly reduce the burden on government resources but mass awareness and motivation programmes would need to be taken up together with measures to empower the people to take up

maintenance of certain components. In India an attempt has been made to utilise part of the funds of employment generation schemes, like Integrated Rural Development Programme and Jawahar Rozgar Yojna, for maintenance of certain components of irrigation and drainage works. Some further improvement in maintenance could be achieved by earmarking funds for maintenance of specific components. More such efforts would be needed together with some policy changes. We in the Planning Commission are exploring such options. I am sure efforts in this direction are being made in other countries also. We should share our experiences for mutual benefit.

In the years to come, with the growing requirement of food and fibre, the pace of irrigation development will increase sharply. This would generate pressure for increased investment in drainage. The crucial issue in drainage improvement, especially where the land holdings are small and farmers are poor, would be lack of financial resources. Since governments alone cannot take up the entire responsibility of large-scale drainage works participatory drainage management appears to be the only solution. However, this would require a sustained programme of mass awareness and motivation without which no progress can be made. Special awareness programmes through extension services will help in identifying symptoms, which indicate waterlogging or secondary salinisation. Such diagnosis will be most beneficial if it can be made before any serious degradation process sets in. Most developing countries would not be able to afford such investments. Substantial assistance in the form of information and technology would, therefore, be required from developed countries.

These are some of the issues which, I believe, need to be addressed by our planners and engineers in the overall context of the economic well-being of our people. I assure you that we will be taking these up with the importance that they deserve. Thank you.

**Valedictory Address at the 8th ICID International Drainage Workshop held on February 4, 2000 in New Delhi*

FINANCIAL SECTOR MANAGEMENT*

It has indeed been a pleasure to hear Mr. Davies on financial sector regulations in the United Kingdom. I am sure that you will agree with me that his address was both lucid and informative. We must thank the CII for organising a talk, which invites us to consider the distance that we in India still have to traverse before we approach the kind of financial market that exists in the United Kingdom.

Until quite recently we had a tendency to view the financial sector as a mere adjunct to the production sectors of the economy, rather than as an essential component of an integrated and efficient economic system. As a consequence, despite the fact that India has had a larger and more widespread financial sector than most developing countries, our approach to financial sector issues has been on a piecemeal basis. Our approach towards the banking and insurance sectors, particularly since their nationalisation in the 1960s and early 1970s, has focussed more on meeting certain socially and politically desirable credit distribution patterns, even though at times this meant less efficient financial intermediation in the economy. All this has led to policies designed to reverse the steady weakening of the health of our financial sector and erosion of its efficiency. The stock markets too have traditionally been relatively difficult to access and limited in their scope despite the fact that we have one of the oldest stock exchanges in the developing world.

The inefficiency of our financial system, whether for debt or equity, may not have been a cause of great concern in the past when a large part of investment in the country was by the public sector, which was not particularly sensitive to issues of risk and return due to its sovereign nature. Things began to change from the mid-1980s as private investment in the country rapidly overtook public investment. By the early 1990s this transition was more or less complete with public

investment having fallen to less than 35 per cent of total investment. The problem was further compounded by the fact that the economic reforms initiated in 1991 had de-regulation of private investments and liberalisation of foreign exchange markets as two of their central components. These areas had earlier been under tight governmental control, which limited the discretion available to the financial sector on the one hand and reduced risks faced by the financial sector on the other.

In the changed circumstances of the 1990s it was felt that the financial sector in India would not be able to perform its expected functions under the earlier policy regime. Financial sector de-regulation, therefore, became a matter of some importance during this period. Since then we have come a considerable distance in financial sector de-regulation. However, though the decade of the 1990s has witnessed tremendous growth and diversification of the financial sector in India, it has also experienced some financial scandals and scams. It is now clear that in our zeal to develop the financial sector rapidly we paid less than adequate attention to financial regulation and supervision.

It is not as though we do not have adequate laws governing the financial sector. On the contrary, we may have too many. The Ninth Five Year Plan has identified the fragmented nature of the Indian financial market as being one of the most important constraints to attaining high levels of investment and growth. Much of this fragmentation actually arises from a legal system, which views different segments of the financial sector as being distinct and stand-alone rather than as components of an integrated system designed for smooth transformation of savings into investment.

The consequences of a fragmented financial market can be quite serious, especially in a situation where the sectoral structure of private investment is required to undergo a significant change. In particular, the Indian private sector in the past has had practically no involvement in infrastructure development and very little exposure to investment in heavy industries. The objective conditions of the economy today are such that in the future these areas will have to attract sizeable

private participation if we are to achieve our targeted rates of growth. Such investments typically require long-term commitment of funds both in the form of equity and debt. The Indian financial sector, however, is structured towards primarily providing short and medium-term funds and sources of long-term funds are limited. In such a situation the ability of the private sector to make such investments will be severely restricted. There is need, therefore, to create conditions whereby the term structure of the supply of investible funds can match the term structure of demand. This will not be possible without considerably greater integration of the financial sector.

As a part of our efforts to reform the financial sector, we have begun the process of moving from direct government control to independent regulatory and supervisory bodies. In the past few years the Reserve Bank of India (RBI), which for many years was the only regulatory agency for the financial sector, has been supplemented by the creation of the Securities and Exchange Board of India (SEBI) and the Insurance Regulatory and Development Authority (IRDA). As things stand, therefore, there are three principal agencies namely RBI, which is primarily responsible for bank and foreign exchange supervision, SEBI, which supervises the securities market, and IRDA, which is the regulator for the insurance sector. The jurisdiction for regulation and supervision for the non-bank financial (NBFC) sector is still under consideration.

Each of the above three agencies has no doubt contributed in a substantial measure to improvement in the regulatory and supervisory framework of the financial sector in India. However, I notice that the evolution of our regulatory system appears to be following the same path that has been followed by other countries in the world, in that separate regulatory agencies are being established for separate segments of the financial sector. On the other hand, as Mr. Davies has so clearly indicated, the United Kingdom is moving in the direction of merging the existing financial regulators and supervisors, who oversee different types of financial business, into one organisation, namely, the Financial Services Authority. The considerations underlying this shift have been very clearly articulated by him but it is still not clear whether countries

like ours, which have relatively under-developed financial sectors, can leapfrog to a unified regulatory authority or should follow the traditional path of segment-specific regulators.

At one level it appears to me that we have a long way to go before achieving the level and sophistication of regulatory knowledge necessary for each financial segment, which would argue for segment-specific regulators to be in existence at least for the period during which we are climbing the learning curve. On the other hand I am not sure whether having separate segment-specific regulators will retard the process of financial sector integration, which is so necessary as I have already indicated.

Our problems have been further compounded by the fact that in the emerging future it will not be possible for us to focus exclusively on regulation of the domestic financial sector, nor even on limited exposure to the international financial markets. The rapid spread of information technology and the advent of Internet-based financial services are creating conditions under which global financial integration is but a matter of time. Domestic financial regulations alone may not suffice in such a scenario, although they certainly will continue to be important. The recent East Asian crisis and the domino effect, which affected countries as far apart as Russia and those in Latin America, have given clear warning to us all. The international financial architecture will have to evolve keeping this issue in mind and domestic financial regulatory systems will have to fall in step. What this evolutionary process will be is not clear but we nevertheless have to continue to press ahead on the basis of the experiences at hand.

Perhaps, there is a middle path, which we can tread, which would avoid both the problem of inadequately equipped regulators and that of fragmentation of the financial sector. I am certain that the experience of the United Kingdom in general, and that of Mr. Davies in particular, will help us in searching for a strategy, which would be appropriate for our specific conditions. Thank you.

* Speech at CII Meeting with Mr. Howard Davies, Chairman, Financial Services Authority, UK on February 9, 2000 in New Delhi

TASKS BEFORE CONSTRUCTION INDUSTRY*

I am glad to be with you at the Third National Conference organised by the Construction Industry Development Council (CIDC) on "Globalization – Challenges for the Indian Construction Industry".

The Construction Industry Development Council (CIDC), established only recently, has emerged as an effective institution for furthering the healthy growth of the construction sector in the country. The CIDC has fast matured into a dynamic organisation increasingly capable of giving well-considered suggestions on policy issues, taking into account the interests of various players in the construction sector.

You are all aware that CIDC, among other things, has been organising seminars and conferences on the construction industry with a view to evolving a consensus on important issues so as to boost confidence in the current programmes and help CIDC in shaping the future programmes. Based on the present-day realities of an "open economy" and "global village", the CIDC has directly, as well as indirectly, supported international networking to learn from the experiences of organisations spread over East Asia and Europe.

In the light of this background the choice of the topic for the Third National Conference namely 'Globalisation – Challenges for the Indian Construction Industry' is very appropriate. I am sure the galaxy of experts brought together on the occasion of this Conference will formulate a practical and dynamic agenda for action and reforms for the balanced and healthy growth of the construction sector in the country. I look forward to an in-depth discussion on the impact of globalization, liberalization and the changing international scenario as well as on the implications of the WTO commitments. I am sure the conference through its various technical sessions will draw the attention of the various participants and the construction community in general to these issues and evolve the basic ingredients of a policy

framework for guiding the construction sector for the consideration of policy makers.

The Indian economy is at critical juncture of its development process. The rate of growth has accelerated but it needs to accelerate further to at least 7.5% in the next decade of the new millennium. Rapid growth in the Ninth Plan and subsequent Five Year Plans will generate a heavy demand for infrastructure, especially power, telecommunication and transport. These services being non-tradable, the additional demand has to be met by expanding domestic supply substantially. This offers a challenge and opportunity to domestic construction sector because its input in building sound and quality infrastructure in the country is vital. I am confident that the construction sector would avail this opportunity and come up to the expectation of the nation in completing projects without time over-run and without compromising on the quality. To achieve this objective the construction sector has to strengthen itself through technological upgradation and by improving its skills so as to equip itself to tackle the problems of new areas such as implementation of project through the mechanism of "build, operate and transfer" and its variants.

Many Ministries are engaged in these various infrastructure sectors and the issues related to them are likely to be discussed in the Conference. As many of the construction entities have traditionally evolved informally and not as an integral part of the organised sector, the quality of their operations needs to be evolved as an important component of the grading norms being discussed for the construction entities. Besides, the Third National Conference is likely to deliberate on some of the issues, which have posed obstacles or impediments in the way of the Indian construction industry such as rule-bound and rigid working, absence of a clearly defined pragmatic framework, absence of a comprehensive policy of human resource development, inertia and conservatism in financing/lending norms of banks or financial institutions for the construction sector, absence of mechanised and modern methods of working, absence of a uniform code of business practices and lack of transparency in working practices.

The construction sector is an important sector due to the labour-intensive nature of the construction activity and the priority being given to employment generation in the economy. The matter regarding notification of the construction sector as an 'Industrial Concern' under section 2 (xvii) of IDBI Act is under consideration of the Government. Historically, construction in many countries has been fully mechanised and advances in technology have enabled introduction of most modern equipment. This has helped in improving the quality of road construction and in reducing the time required to complete these projects. We must take full advantage of the new technology particularly in the case of development of high-density corridors. This will improve the overall efficiency levels. The training needs of workers at various levels need to be assessed and some of the modern-day technologies need to be incorporated in the training manuals. The upgradation of efficiency levels through proper on-the-job training and awareness is likely to make them the most important assets of the industry. They can also be made aware of the systems currently in vogue in other countries especially those, which have a strong construction industry. I hope the Conference will tackle the host of issues related to HRD in the construction industry and provide a blueprint for action.

The CIDC has started taking concrete steps to set up a construction equipment bank so that the construction agencies are able to utilise the investment of other economic agents for building plant and construction machinery. As the project is still in the developmental stage, a discussion in the Conference at this stage should provide a useful opportunity to put forward inputs for its proper evolution and development.

In the present-day context of increasing globalisation and the important role played by information technology the construction industry has to take a major leap forward in this field so as to enable the Indian construction industry to become competitive.

In the highways sector, a Task Force on Infrastructure has been set up and an important project namely National Highway Development

Project (NHDP) has been launched. The prestigious Golden Quadrangle Development Scheme, which is a part of this project, is now envisaged to be completed in a four-year period. The NHDP is likely to be completed in a period of ten years. The total cost of the project, involving the development of about 13,000 kms of road length, is likely to be over Rs. 50,000 crore. We have, therefore, launched a huge programme of development of our high-density national highway corridors, which we are committed to complete in a time-bound manner. The implementation of this programme requires a high degree of efficiency and preparedness by the implementing agencies.

The timely completion of this ambitious project crucially depends upon the way in which the international expertise in the area is tapped and absorbed by the Indian construction sector. This would help the Indian construction sector to become more productive and quality conscious. The sector has to tap the positive potential in the globalisation processes.

It is also important that, among other things, the construction sector focuses on providing quality service, which would also enable it to raise funds for meeting its requirements through direct and indirect user charges. The issue of user charges, though not one of the direct topics of the Conference, is crucial for formulating effective cost recovery policies, which, among other things, help in productivity improvement and in augmenting supply of infrastructure and services.

I hope this Conference will provide important inputs in its area of direct concern for the successful and careful calibration of the Indian economy to the requirements of the globalisation processes.

** Inaugural Address at the National Conference on "Globalisation - Challenges for the Construction Industry" on February 10, 2000 in New Delhi*

CHALLENGES BEFORE RUBBER INDUSTRY*

It gives me great pleasure to be here with you at this inaugural session of the National Rubber Conference, "RUBTECH-2000". This Conference has brought together people working in different areas of the rubber industry to discuss the technological developments taking place in the rubber industry in India and abroad and identify the major thrust areas on which to focus in the context of the challenges of globalisation. I welcome this opportunity to share some thoughts with you on the theme of the Conference, "Global Technological Challenge in the New Millennium".

The impact of rubber and its products has been growing in our day-to-day life. Per capita rubber consumption has become one of the important indicators of a nation's prosperity. Rubber is also making a significant contribution to the overall development of the world economy. The rubber plantations and rubber goods manufacturing industries in India have achieved steady growth and development throughout the post-Independence era. India is today the fourth largest producer of natural rubber and has the highest productivity among major producers. It is also the fourth largest rubber consumer in the world. Whereas in other major producing countries the natural rubber market is export oriented, India shares with China and Brazil the unusual position of consuming its entire domestic output of natural rubber for its industrial purposes. India has a relatively small synthetic rubber capacity but is the largest producer and user of reclaimed rubber in the world. The Indian rubber industry has already established a steady growth rate of about 8% during the last few years, although in the last 2-3 years the industry has slowed down in line with the general industrial slowdown witnessed in the Indian economy.

India had an early start in building up a large and diversified industrial base for rubber products compared to other major natural rubber

producing countries. The industry manufactures 36,000 items, employs about 4 lakh people, contributes Rs.3000 crore per annum to the national exchequer and exports goods worth Rs.15000 crore per year to about 80 countries including the USA and Germany. An important structural characteristic that has dominated the industry from the very beginning is the pivotal position of automotive tyre and tube manufacturing. Although its relative share has declined over time due to the steady expansion of the non-tyre sector, it remains the single largest product group.

The Indian rubber industry is in urgent need of technological up-gradation, more so the small and medium companies, which are still using outdated and conventional production processes as the inflow of foreign technologies, whether through technical tie-ups or joint ventures, has been negligible in the rubber sector. This state of technological backwardness may have managed to survive in the past in the absence of the kind of competition the industry will be called upon to face in the future with increasing globalisation. But this situation is changing fast now.

The rubber industry has been adversely affected in the past few years by liberalised imports of rubber and rubber products. The process of liberalisation is now irreversible and will only increase with the full implementation of GATT by 2003, under which all quantitative import restrictions will be abolished and tariffs reduced to nominal levels. The industry will have to face international competition in terms of free imports of technologically superior products at very competitive prices. We should also seek to develop an export market.

Liberalisation has brought in its wake progressively increasing quality consciousness even in the domestic markets. Quality control will, therefore, become a very important parameter determining product acceptance not only in the export market but also within the country. Barring tyre manufacturers, the rubber industry is largely in the small to medium-scale and needs to address this issue very seriously to survive global competition. The ISO-9000 standards are more of a minimum international norm today than being sufficient for product acceptance.

Ultimately Indian industry must prepare to obtain ISO-14000 for competing at the global level. There is a need to improve the image of "Made in India" label to increase the share of Indian industry in global markets and maintain in the domestic market.

Major changes have taken place in manufacturing equipment, production processes, testing, raw materials and quality control systems. R&D is the key to technological changes but this is one area where Indian industry has to do lot of catching up with its global competitors. Research and development will be the most critical factor for developing new processes, product innovation and achieving higher productivity. A quantum jump in productivity is a must for revival and could be achieved through training human resources in improved manufacturing techniques. The industry would be able to survive only by producing products matching with the best in the world at competitive prices, which is possible only through judicious deployment of materials, manufacturing processes and value engineering. At present, it is only the tyre sector, which has an organised base for R&D. The rest of the industry is yet to commit itself to this important aspect of development. The industry needs to earmark larger funds for R&D on a sustained basis in order to produce technologically efficient products giving the consumer better value for his money. There is a need for active and sustained interaction between academic institutions and industry.

The Indian rubber industry still, by and large, depends on the indigenous natural rubber for its existence and expansion, whereas the world has switched over to synthetics and is embracing newer polymers. However, the rubber farmers, not only in India but the world over, are doing serious introspection with natural rubber prices at a historical low in real terms, long gestation periods and over-production, entry of new low-cost production in Myanmar, Laos and Cambodia, competition from cheap imports and synthetic blends and plastics, environmental pressures for recycled products and lack of diversification in the usage of natural rubber and rubber timber etc. The natural rubber producers will have to look at production of higher value-added grades of rubber and consistent quality. There is a strong

case for diversification of the uses of natural rubber and rubber timber. For example, rubberisation of Indian roads could be taken up by mixing natural rubber in bitumen, which would augment the availability of this product as well as enhance the quality and life of roads with lesser maintenance cost. Research is required not only in the development of the better varieties, control of diseases, use of fertilizers, methods of tapping and so on but also application of rubber in the consuming industries. It is time to add another dimension to the focus of research institutes, viz the development of products to better suit the current and new industrial applications. Rubber will then fetch a higher price on its own as a new product and this is where the research will pay high dividends.

Most of the new developments, particularly in the automotive industry, are not based on the use of natural rubber. Presently, most of the requirement of synthetic rubber is met by imports, which make them susceptible to exchange rate variations. Making available good quality synthetic rubber and its compounds would be a major technological challenge faced by the industry to develop cost competitiveness.

Many polymers and chemicals used by the rubber industry at present are not only imported but are also very expensive. To keep the costs down the rubber industry must develop technology for indigenous production of these polymers and chemicals at reasonable prices.

In the next few decades simply producing at the least cost would not be enough to compete. The industry will not only have to produce most competitive and technologically efficient products but also develop the technology to market and distribute the products in the most effective manner. Information technology is touching almost every area of human life and revolutionising it. The rubber industry should harness this technology, as it is available in India at competitive prices, for the production and marketing processes in the industry.

Globalisation has linked economies of all the nations as never before and companies are pursuing global strategies to enhance their competitiveness in world markets. The most relevant example here is that of the global automobile industry, which is witnessing a

tremendous amount of consolidation, which in turn is leading to global alliances of international tyre manufacturers. Increasing competition from countries like China, Korea etc as well as changes in the global tyre market are leading to shrinkage in the market for tyres exported from India. In this scenario, the Indian tyre industry is also facing the increasing challenge of producing tyres of global quality at a competitive cost. To produce tyres with features like faster derivability without heat build-up, low fuel consumption, noise-free operation, high safety, stability, improved ride performance and riding comfort will be important areas for research in the tyre sector.

With concern for environment protection becoming so important, there is a challenge to evolve environment-friendly technologies and yet be competitive on a global level. Already, many importing nations are insisting on certification of the final product being free from specific contamination of seemingly harmless elements. Assurance that the product/technology used is environment-friendly would become increasingly important.

Let us turn our attention to the rubber industry at the global level. While today the global rubber industry consumes natural rubber and synthetic rubber in the ratio of 35:65, let us not forget that synthetic rubber is all petroleum based. There is realisation in the international market that fossil fuels are limited in supply and when the time comes to replace them, there may be no choice but to revert to natural rubber. However, there will be a challenge for research to focus on producing natural rubber products of the same quality as the best synthetics. Moreover, with increasing focus on natural products, people may be willing to pay a premium for natural products rather than synthetics in the years to come. Natural rubber will be perceived as a natural product enhancing its demand, application and price. It is true that the number of areas formerly occupied by natural rubber in which synthetics have made inroads are getting larger and larger everyday. But with the revival of global interest in natural products there may well be pressure to use natural rubber, particularly in the medical field and infant care, and such areas are going to increase in the future.

The development of alternative raw materials to replace crude oil as a raw material for synthetic rubber is an important problem that must be solved. There will be growing need to develop new methods of synthetic rubber manufacturing that are more energy efficient and utilise recycled raw materials. Further, synthetic rubber has to be developed to provide enhanced fuel-efficient properties.

As the world becomes more and more industrialised, industrial products are rapidly being generated, which can be harmful to our environment. Individuals, governments and industry are rightfully concerned about the impact industrial development has on our global environment. For example, the need to minimise carbon dioxide and other waste substances during the course of the tyre's lifecycle from the manufacture of synthetic rubber and tyres to tyre uses and finally recycling of the worn-out tyre will assume increasing importance. Similar concerns will arise in other areas of the rubber industry. Recycling of used rubber products is an area, which is already a major issue in the rubber industry. In developing countries, recycling of rubber is need-based and essential on economic as well as environmental grounds, while in developed countries it is desirable mainly for ecological reasons. Newer technologies will have to be developed for efficient recycling of waste rubber materials.

I understand that the Indian Rubber Institute (IRI) has been playing a useful role as a forum for training personnel in the field of rubber science and technology as well as for research. I hope that IRI will continue to play a dominant role in developing the required technical manpower for the challenging tasks that lie ahead.

I have attempted to share some of my ideas with you regarding technological challenges, which the rubber industry in India and at the global level will have to tackle in the new millennium. With liberalisation of imports by 2003 and free availability of world-class products in India, it is but logical to presume that the present consumer of rubber products will demand international quality products. The Indian industry should look at international competition not only as

its biggest challenge but also as an opportunity to upgrade its facilities and products to match with the best in the world. Experience of the Indian rubber industry during the last decade has shown that our industry is receptive to technological upgradation and product innovation for ensuring competitiveness and quality in the context of growing market integration. I would like to end with the hope that the Indian rubber industry will face the new millennium with courage and develop a vision to become a truly globally competitive industry within a time-frame of 5-10 years.

Inaugural Address at the National Rubber Conference—"RUBTECH-2000" on February 18, 2000 in New Delhi

WORKERS' WELFARE IN NON-FORMAL SECTORS*

I am glad to be here among you at this function organised by the Ministry of Labour to welcome Mr. Juan Somavia, Director General of the ILO to India. Mr. Somavia's presence here symbolizes the active engagement of the ILO and the Government of India, which has been continuing from the very inception of the ILO. India is a founder member of the ILO and the Indian tripartite delegations have been playing an active role in the work of ILO, especially in the standard-setting activities.

Developing countries like India are confident that, given his background, Mr. Somavia will approach their problems with understanding and sensitivity. Mr. Director General, your Report entitled "Decent work" at the 1999 International Labour Conference is, indeed, a thought-provoking document. The key issues relating to workers have been presented in a social perspective. What is more striking is that the ILO is now reaching out to a wider constituency of workers, which, I am sure, reflects your personal direction. I am happy that apart from the needs of wage workers, the majority of whom work in formal enterprises, the ILO is concerning itself with all workers, recognising that the former is only a part of the mandate of the ILO and is only a small part of the world of workers.

We share Mr. Somavia's hope in realising the objectives and the priority directions he has referred to in his theme of decent work. Today, Mr. Somavia will be addressing us on the theme "Decent Work in the Global Economy". The issue of promoting opportunities to obtain 'decent and productive work' has become central. The goal is not just the creation of work opportunities but the creation of jobs of acceptable quality. This theme has profound relevance and implications for our national economic and social policies.

In India we are presently going through a phase of demographic transition. The rate of growth of the labour force is expected to reach a peak level of 2.5% per annum during the period 1997 to 2002, which is the Ninth Five Year Plan for India. This implies an annual addition of 10 million persons to the labour force. This demographic phase offers a window of opportunity as the dependency ratio is projected to decrease quite sharply. But in order to seize this opportunity we have to ensure that the emerging workforce is gainfully employed. The challenge, therefore, is to first ensure that we create work opportunities, which are consistent with the skill profile of the labour force, and then to improve the skills and knowledge base for sustained growth in employment and incomes. Against this background, the Planning Commission has set up a Task Force to recommend measures for the promotion of avenues of employment in a big way.

We recognise the need to create conditions for decent and productive work for a workforce of around 400 million persons and this we seek to achieve in a democratic set-up with a commitment to continue unhindered the internal migration of labour. The social and political environment permits regional adjustments within the country but the distribution of skill and knowledge imposes certain constraints on the evolution of the structure of the economy. In particular, we believe that the agriculture and informal sectors will have to continue to play a substantial role in our efforts to provide work opportunities.

The dependence of the workforce on agriculture is no doubt declining but, given the growth of the labour force and a feasible pace of transition of the economy away from primary sectors of production, agriculture will have to continue to provide work opportunities to around 60 per cent of the work force in the near future. However, the picture is not uniform. In some parts of the country this dependence on agriculture and allied activities may be as high as 70% and increasing in the short term.

In India we have sought to address the improvement in the lot of agricultural workers through strategies that increase productivity of

land, sustain prices of agricultural produce, maintain price of food and other basic items in the consumption basket, provide supplementary income opportunities during the lean work period and a regulatory framework for ensuring a floor level of wages together with a policy to support labour co-operatives. But the complexity of these issues surrounding agricultural labour and the self-employed requires further consideration.

In this context, I feel that international labour and employment perspectives have continued to treat the issue of labour in agriculture as a residuary sector. In the contemporary discussions on labour issues, the institutions that can provide social protection, promote social dialogue, augment decent employment opportunities and ensure rights at work to agricultural workers have not attracted sufficient attention. In particular, small and marginal farmers, who also work as hired labour, present certain issues, which have so far not been addressed at all.

Apart from the agriculture sector, there is substantial and growing employment in the informal sectors of the small-scale and village industries, especially in the handloom and handicrafts sectors. A Task Force in the Planning Commission is at present looking into various aspects of this sector, especially in view of the fact that perhaps some of the protection and reservations offered to these units may not continue once the WTO stipulations come into effect. In India the informal sector is full of over-worked and under-paid people and we welcome your approach that the ILO must be concerned with workers beyond the formal labour market, i.e. with unregulated wage workers, the self-employed and home-workers.

This brings me to touch upon another issue of great importance to us. There has been considerable discussion of linking the implementation of core labour standards with trade measures—an issue that is euphemistically referred to as the "Social Clause". That this is an emotive issue is evident from the recent experience at Seattle. A cool-headed response also suggests to us that linking trade restrictions with implementation of core labour standards would be a

dangerous step, with negative implications of protectionist action, which would fall disproportionately on the poor in developing countries, far outweighing any possible effective improvement of the situation for labour in the developed world. This is particularly because of the immense room for differences in interpretation and opinion once the door for trade restrictions is opened in this context—a situation that is amply evident with the experience of anti-dumping and anti-subsidy trade measures in different countries.

This, however, does not mean that India, the most populous democracy in the world, does not emphasise core labour standards. We believe that labour standards need to reflect the social and economic realities that are present in every specific country. Taking this position we have, in fact, evolved a wide spectrum of enlightened labour standards ranging from child labour to bonded labour, from industrial labour to agricultural landless. These standards reflect our social and economic conditions and also our ethical and moral values. It would be too much to assert that there exist certain levels of standards, which are completely divorced from the specifics of cultural values and economic realities.

As considerable evidence and experience has shown, this is a complex issue and needs to be tackled not only with determination but also with understanding and co-ordination of various social policies. India places great emphasis on this matter and will continue to address it meaningfully. Attempts to impose impractical time schedules or threshold levels of achievements do not help matters in this regard. Nor does any attempt to impose, unilaterally or multilaterally, standards that are open to protectionist pressures. That would show a lack of understanding of the situation in developing countries and would curb, rather than assist, those who want to improve the situation of their labour.

I understand that Mr. Somavia has played an important role as the Chairman of the Preparatory Committee for the Social Summit. The Social Summit outcome set the goal of free, freely chosen and productive employment for all. After the adoption of the Declaration

in 1995 the employment situation has not improved except in a few countries which have greatly benefited from globalisation. Therefore, creation of employment opportunities should be the core activity for achieving the objective of decent work. The ILO can play an effective role in the UN system along with Brettonwood Institutions for evolving and promoting an employment strategy. This needs serious consideration especially in view of the fact that in June 2000 there is going to be a Review Summit to assess the progress made in achieving the goals set in the Copenhagen Declaration.

Mr. Director-General, it is in this context that your new direction to look at workers outside the wage-employed formal sector is indeed very welcome. Perhaps, we need to deliberate how the processes at the ILO itself may be strengthened to achieve the objectives that we have been discussing today. I hope the research agenda of the International Labour Organization and the negotiations steered by it at various fora will benefit the countries where employment outside the formal sector is very high and institutions for social protection are evolving.

The Government of India has always co-operated fully with the UN and all its agencies in furthering the cause of a just world order and I reiterate our commitment to continuing and strengthening this process. The visit of Mr. Somavia to India will definitely facilitate continuation of the dialogue between the Government of India and the ILO. I offer the full cooperation of the Planning Commission to the ILO in its efforts to evolve a development-sensitive and implementable agenda for labour standards and social security for all workers. I take this opportunity to welcome Mr. Somavia to India and look forward to receiving his valuable suggestions in his address.

** Address at the Public Lecture by Mr. Juan Somavia, Director General, ILO on "Decent Work in the Global Economy" organised by Ministry of Labour on February 18, 2000 in New Delhi*

TAKING THE COUNTRY ON HIGH-GROWTH PATH*

It is a great pleasure for me to be here with you on the occasion of the Foundation Day of the All India Management Association and to hear the thoughtful and lucid speech of Premji. I deem it a privilege to have had this opportunity to present three prestigious awards to three outstanding personalities. Each of them has been a trailblazer in his respective field. It would, therefore, perhaps be appropriate for me to briefly touch upon the growing relevance of the purpose of these awards to the work of the Planning Commission.

The Planning Commission realises the advantage of looking at problems in a structured and systematic manner. This is, indeed, what management consultants do. The Planning Commission has to look beyond the near future to the medium term and the long term. Even now, a Vision 2020 document is under preparation.

As a strategic thinker the Planning Commission needs to understand and promote the key factors of success, which would take our country on a high-growth trajectory. In the globalised world our competitive strengths and weaknesses and the opportunities to realise the benefits of globalisation as well as threats arising out of it should be frankly assessed. All these require application of management practices in Government.

The 1990s saw a number of new initiatives in economic policy in the areas of domestic industrial de-regulation, trade liberalisation, opening up to foreign investment, a beginning with public sector reform and a gradual process of financial sector reform. Reforms in India were not introduced with a big bang. It goes to the credit of our democratic processes that successive governments have managed to continue the process of economic reforms and indeed give them a further push.

I would say that India's reforms in the 1990s have had a good overall effect. The economy grew at the rate of 7% during 1994-97. However,

the growth rate dropped to 5% in 1997-98 and rose again to 6% in 1998-99. This is not as good as we would like it to be. We need a growth rate of more than 7-8% if we are to make a significant dent on poverty in India. Moreover, the growth we have experienced in the 1990s is also not so well balanced regionally as we would have liked. It has had less impact on reducing poverty than we had hoped. Nonetheless, it is definitely encouraging not only compared to our past record but also the record of other countries. In fact, it is not sufficiently recognised, even in India, that India has been one of the ten fastest growing economies of the world in the 1990s.

The challenge before us today is how to achieve a growth rate of over 7-8% of GDP per annum, ensure that this growth is regionally more balanced and, above all, that it succeeds in generating employment at a pace, which can absorb our growing labour force. Fortunately, our population growth is slowing down and this bodes well for the future. However, because of the age structure of the population, the labour force growth will begin to decelerate only after 10 years. The next decade must, therefore, see a growth that generates high levels of employment. How to tailor our development strategy in general, and programmes and policy packages in particular, to achieve these objectives is the current focus of work at the Planning Commission. The details of this agenda are still being worked out but I would like to take this opportunity to share with you some of the key policy issues that are the focus of our immediate attention.

All efforts at reform can eventually founder on the rocks of a fiscal crisis. This is a very serious problem and I have often spoken about it. As you are aware, both the Centre and the State governments are under severe fiscal stress, which limits the degrees of freedom available for undertaking meaningful initiatives. Fiscal reforms are, therefore, central to our agenda. I will not elaborate on this since this would be dealt by the Finance Minister in his budget speech.

To start with, we clearly need to consolidate and deepen the process of reforms in sectors where they have already been initiated. De-regulation of industrial investment activity was a key element of the

reform and has been nearly completed at the Central Government level. However, investors also face controls at the State Government and local levels. The task of de-regulation and de-bureaucratisation needs to be vigorously pursued at these levels. Many of our State Governments have begun to focus on this task as they realise that with liberalisation of investment decisions by the Centre, individual States have to compete for investment from both domestic and foreign investors.

In the area of trade policy, the process is well under way and the desired end points are now known. Indian industry has been given a reasonably clear indication of the direction and pace of changes in this area. Lowering of industrial tariffs further may mean increased competition for the Indian industry. On the other hand, lowering of tariffs by the major markets of interest to us may mean greater market access to our exporters.

Encouragement of foreign investment was a key element in our reform programme. The Government has made it clear that it is actively seeking foreign investment, especially in high technology areas and infrastructure.

Some aspects of our reforms have created a certain degree of apprehension in the minds of our entrepreneurs and private sector management. I am convinced, however, that the ability and talent of our businessmen and managers will enable them to meet these challenges effectively and prosper. Mr. Azim Premji and Mr. Prakash Tandon are exemplars on whom my confidence is based.

Information technology is one sector, which has emerged as a force in driving the nation's economic development and bringing the world closer together. India has always placed a high value on knowledge. Our ancient philosophic traditions hold that *gyan* or knowledge is one of the three main paths to salvation. Converting knowledge into income and wealth through technology and commercialisation of knowledge are relatively new to us.

Mr. Azim Premji has indeed proven the value of human capital, ingenuity and capability of Indian brainpower. I commend Mr. Azim H Premji, Chairman of Wipro Limited for his extraordinary achievements in industry, technology and in the development of intellectual capital for the world at large.

The world is moving ahead at an ever-increasing pace and we will need to redouble our efforts to narrow the gap. We may have missed the industrial revolution but we have no intention of missing the knowledge revolution that is sweeping across the globe. This has become a national necessity as it penetrates the farthest corners of the country almost instantaneously, opening up income earning opportunities and promoting national and international trade. Equally important, it introduces transparency in governance and helps the nation in the faster development of the social sector and human development.

With the fast changing globalised world the professional manager has to be an optimist and a risk taker who takes decisions on the basis of scanning the ever-turbulent environment rather than merely on analysis and extrapolation of the past data. The private sector provides the professional managers this opportunity. I am happy to find that in some sectors the corporate strategy is being well crafted, concentrating on the core competencies and creating niches in the market. I find a more dynamic system of alliances, mergers and acquisitions in place, with the corporate culture and employee behaviour being suitably modified.

Mr. Prakash Tandon is one of the country's best-known professional managers. He created his own niche when he became the first Indian to head a multinational company (MNC). That his success was not a flash-in-the-pan can be seen from his sterling performance as leader of diverse businesses in private and public sectors. If his achievements now appear to be legion, it is because of his unstinted and pioneering efforts. Rightly, ALMA has chosen him for the "Lifetime Achievement" Award.

A major weakness of Indian economy at present is the inadequacy and poor quality of infrastructure, i.e. electric power, roads, ports,

telecommunications and also urban and rural drinking water supply and sewerage. Rapid growth is possible only if the supply of these services can be greatly increased and the quality also improved. Investments in these sectors at present are far below the levels needed to achieve this. The availability of these services is a particularly important prerequisite for attracting capital, whether foreign or domestic. High quality of infrastructure services is also essential for international competitiveness and export dynamism in an increasingly open economy. This calls for major policy reorientation.

You may be aware that the Task Force on Infrastructure constituted by the Prime Minister is looking specifically at the problems of the transport sector. The National Highway Development Project envisages the development of more than 15000 kms of road at a total investment of Rs.58,000 crore over ten years. The Golden Quadrilateral covering a distance of 5,000 kms is proposed to be completed within four years at a cost of Rs.21,000 crore. The main issue here is one of management. We are working out ways of using a part of the cess on diesel and petrol for leveraging resources. The pre-project activities and clearances are being obtained and we are hopeful that we will stick to the time schedule. I have asked the concerned agencies to lay down milestones in a clear measurable way so that the progress could be monitored. This only highlights that our project management has to improve. I am happy to share with you that in a scenario where time and cost over-runs are rampant, only recently I found that two projects in the power sector— one by the NTPC and the other by the Power Grid Corporation—are going to be completed before the scheduled date of completion. This only proves that effective monitoring system and management practices can ensure results even within the framework of the public sector.

Finally, we must pay much more attention to the aspect of social development. The quality of human resources available to a nation has always been acknowledged as a prime contributor in sustaining growth over longer-time horizons. This is obviously an area where the State has to play an important role in meeting the requirement for

investment to provide essential services. In our case, the commitment of the Government in these areas has never been in question. In our federal system, this is an area, which lies primarily in the realm of the State Governments and good intentions have been constrained by the lack of resources. But resources are not the only problem. The inefficiency of governmental delivery systems is also an important constraint. Progress in this important area, therefore, requires a major push towards generating additional resources combined with institutional and organisational changes to enforce performance and accountability in these sectors. This issue is obviously closely linked to governance questions, which are increasingly the subject of attention in development economics.

In other words, while there may be an overall shortage of resources to meet the requirements of development, there is also simultaneously a problem of lack of efficiency in use of available resources. In this context, the question of management in Government becomes important. The challenge before us is to induct professionalism in the art of governance by using and adapting management principles. One area, which has as yet received less than adequate attention is that of civil service reform, which I believe to be of the utmost importance. This needs to form the centrepiece of second-generation reforms and I would be grateful for ideas on how this should be done.

It needs to be emphasised that the relationship between development strategy and institutional and administrative structure at the grassroots has not been recognised, which in turn has led to non-implementation of Plan programmes to the extent desired. This brings us to the need for inducting sound management practices in the delivery system.

In this context, *Dr. Jana exemplifies what can be done if we have the vision and the commitment to social goals.* I would like to congratulate and commend *Dr. Samarjit Jana* for his tireless efforts. He has contributed immensely in a field, which deserves the attention of society a lot more. I am indeed happy that the AIMA through this award has started recognising the services of public servants.

Ladies and gentlemen, India is rapidly moving towards a development strategy, where the private sector will play the leading role in production activities and the government will focus its attention on social issues. The awards presented today symbolise this future and I compliment the AIMA for its enlightened selection. Thank you.

** Address at the Foundation Day of the All India Management Association on February 21, 2000 in New Delhi*

MEETING THE NEEDS OF VISUALLY IMPAIRED*

I am glad to be with you today at the inauguration of the National Conference commemorating 20 years of dedicated service of the All India Confederation of the Blind. I understand that the Confederation is organizing many important activities for the visually impaired, like managing one of the largest Braille printing presses in the country, training thousands of computer operators and stenographers, extending crisis intervention services, running a few special schools for the blind etc. I would like to take this opportunity to congratulate the Confederation and all those who have given their time and energy to this very worthy cause.

The number of disabled persons in absolute terms is quite large. The visually impaired number 3.63 million as per the NSSO Survey of 1991. I may mention here that this survey estimated that roughly 1.9% of country's total population was suffering from various disabilities, viz. visual, hearing, speech etc.

The pattern of diseases causing blindness has shown considerable changes in the recent past. While small pox has been eradicated, blindness due to Vitamin A deficiency has declined considerably. As a result of this, the number of blind children in the country has reportedly declined. Yet, the total number of visually impaired has still shown a slight increase as per the NSSO data from 3.47 million persons in 1981 to 3.63 million in 1991 because of the diseases associated with longevity causing blindness in the middle and late adulthood.

However, research studies in the recent past have established that a large number of visual disabilities are preventable, if attended to on time. For example, immunisation against communicable diseases,

supplementation of micro nutrient and regular health check-ups of pregnant women, including screening can help prevent various disabilities including blindness. We are seeking the convergence of the activities of various departments at the grassroots level to minimise the incidence of such disabilities.

The Government's concern for this section of our population has been manifested since the First Five Year Plan, when a national level apex body, the Central Social Welfare Board was set up in 1953 to take care of the welfare and rehabilitation needs of the vulnerable groups including the handicapped, children and women. A training centre for the adult blind was set up at Dehra Dun in 1955. The National Programme for Trachoma Control in 1963 was directed towards tackling the problem of blindness. This was later merged with the National Programme for Control of Blindness in 1977. Yet another national institute was set up for the visually handicapped at Dehra Dun in 1982 to extend a wide range of services for education, research and vocational training, besides training of the personnel to work for the blind.

You are perhaps aware of the special initiatives taken during the International Year of the Disabled Persons in 1981, which gave a big fillip to the already existing services for the disabled throughout the country. A number of special concessions were extended both by the Central and State Governments in education, employment, travel, etc. A comprehensive legislation, viz. the Persons with Disabilities Act, was enacted in 1995, which seeks to empower the disabled with a right to demand protection of rights, equal opportunities and full participation in all developmental activities of the country. Enforcement of this legislation in 1996, in fact, marks the beginning of a new era in the lives of the disabled.

The Ninth Five Year Plan re-affirms the commitment of making as many disabled as possible active, self-reliant and productive contributors to the national economy. Also, realising the fact that the Governmental efforts could cover only 5% of the disabled and the rural disabled being the most neglected, the Ninth Plan adopted a major strategy of 'Reaching the Unreached'. Systematic attempts are

being made to bring about the convergence of the existing services available under various welfare-related sectors of health, nutrition, education, labour, rural development, urban development, science & technology, women & child development, information and broadcasting, etc.

Special efforts are being made to extend both welfare and rehabilitation services right up to the district level through a comprehensive programme called National Rehabilitation Programme for the Disabled, which is being launched as a State-sector programme during the current year. Simultaneously, efforts are also being made to strengthen the existing infrastructure by setting up six Regional Composite Resource Centres in various parts of the country to cater to the needs of all categories of the disabled. The Government is extending 3% reservation for the disabled in the Group A, B, C and D posts both in the Government and in the public sector undertakings to ensure employment opportunities with justice. Similar efforts are also being made to reserve 3% of the benefits under various poverty alleviation programmes including DWCRA exclusively for disabled women. Organising Viklang Bandhus is another innovative effort to train the disabled as self-help volunteers to contribute their mite to help others also to help themselves.

The Plan outlay has been increased from Rs.47 crore in the Seventh Plan to Rs. 214 crore in the Eighth Plan and to Rs.954 crore in the Ninth Plan to meet the emerging need of the disabled. The Ministry of Social Justice and Empowerment is monitoring not only the impact of various policies and programmes in terms of improving the status of the disabled but also the progress of implementation of the PD Act at regular intervals. I am informed that the nodal Ministry, at the instance of the Planning Commission, is soon bringing out a National Plan of Action for empowering the persons with disabilities.

The Government has been actively involving the NGO sector as their partners all along in view of their credible achievements in reaching the unreached and extending the most-needed human touch while serving these sensitive target groups. I am told that the nodal Ministry

of Social Justice and Empowerment has been closely collaborating with a country-wide networking of more than 1500 NGOs working for the visually impaired through its grants-in-aid programme.

While the Government is working with a commitment to improve the status of the disabled through various action programmes, the NGO sector, especially agencies like your Confederation, should work towards creating an enabling environment wherein the disabled can prove their capacities and capabilities.

No doubt, there is a growing awareness in the community of the potential of visually impaired persons to become more and more productive and contribute to the society but unfortunately old prejudices die hard. We should, therefore, concentrate our efforts, especially those of the NGO sector, to change the mindset of the people, besides eradicating the negative attitudes towards the blind. The ultimate objective in all these efforts is only to make people realise that the blind persons are not really disabled but are only differently abled and can prove their worth as good as the abled, if not better, if only equal opportunities are given to them. In this context, I would like to suggest that this Conference should consider incorporating some strong strategies for awareness generation and sensitization through effective mass media and information technology in the proposed decadal plan of action along with other action programmes for the Confederation to put into action.

I am happy to find that the Conference aims at formulating a plan of action for increasing the access of a much large number of needy visually impaired both in the rural and urban areas to education, training and rehabilitation services. I am hopeful that the deliberations of the Conference would also enable us to introspect on the efficacy of our policy initiatives in this field. The fact that more than 200 visually impaired delegates are participating in this Conference provides an opportunity to gain useful insight into their felt needs and the manner in which they would like those needs to be addressed. I wish the Conference all success.

** Inaugural Address at Millennium National Conference on "Work for the Blind in India" held on February 23, 2000 in New Delhi*

AGENDA FOR MANPOWER RESEARCH*

It gives me great pleasure to be with the distinguished gathering of guests, staff of IAMR and other officials associated with the construction of the Campus. I am proud to be a witness, along with all of you, to a milestone in the history of this premier institution. I have had the privilege of being its Vice President in the late 70s and President again since the late 90s. It has achieved substantial progress during the decade of the 90s. The Institute's research studies are spread over a wide canvas, encompassing various social and economic dimensions of human development. The training programmes of the Institute have received international recognition. Its foray into educational programmes in 1997 has also been very successful. I understand that the Institute's International Post-Graduate Diploma Course in Human Resource Planning and Development has earned international acclaim and attracted wide participation from senior and middle level policy-makers of different governments. The Institute is now organising an International Masters' Degree Programme in Human Resource Planning and Development in affiliation with the Guru Gobind Singh Indraprastha University in Delhi.

The IAMR has so far been responding to a variety of users with the result that its work programmes have been largely demand-driven. The time has now come for the IAMR to be a 'strategic thinker' and play a proactive role in policy-making. It will have to develop the future scenarios in human resource planning and development, analyse the opportunities and the threats and evolve a consistent strategy to aid the policy-making. The Institute will also have to create the right kind of environment and provide mechanisms for sensitisation, awareness generation, dissemination, analysis and discussion of policies. This is a huge task considering the size of the country and the need to undertake these functions at the national, state and district levels. With a limited faculty support, the IAMR cannot possibly take up all

the tasks on its own. It will have to develop and utilise linkages with other institutions and agencies for generating support in terms of research, analysis of data, implementation, monitoring and evaluation of policies and strategies relating to human resource planning. I have, therefore, decided to use this occasion to lay down certain crucial agenda for the Institute's academic activities, keeping in view the national priorities in development planning.

The national priorities in development planning are poverty alleviation and balanced regional development. The nation now is keen on achieving a faster growth with a broad spread of the benefits of growth. Growth with social justice within a democratic framework is the essence of the design of development. The 73rd and the 74th Amendments of the Constitution have created the institutional framework for the enthusiastic participation by the people. The Government has redefined its role in development planning and is now set to provide a strong policy and regulatory leadership. The private sector will have to respond positively to bring in dynamism and efficiency of the competitive environment. There is a need to ensure co-ordination and cohesiveness among these three partners in development in order to promote a shared vision and shared commitment to the national objectives and development strategy. This is unlikely to happen by itself and would require a strong and technically competent planning system, which can look at the issues in an integrated manner. It is here that human development has a crucial role to play.

India's economy is going through what can be called a long-term acceleration. In the 70s it grew very slowly at the rate of around 3.5 per cent per annum. The decade of the 80s witnessed a faster pace of growth at the rate of around 5.8 per cent per annum, largely due to the initiation of a gradual process of economic reforms. The pace of reforms accelerated during the 90s and we are now close to achieving 7 per cent annual rate of growth. In the current decade very soon Indian economy may grow at a rate of well over 8 per cent per annum. The rate of growth has been a major concern of development planning since the beginning of the planning era. More important, however, is the structure of growth. Past trends in the development of the economy

have led to uncontrolled urbanisation, bringing into sharp focus crucial issues of quality of life and environmental sustainability. There is a need to stem the tide of massive rural-urban migration by strengthening the rural economy and enhancing its productivity. This can happen only if the rural economy is diversified into non-traditional and non-household-based manufacturing and the emerging areas in the services sector. Simultaneously, efforts are needed to promote human resource development in the rural areas so that the rural job seekers are enabled to avail of the job opportunities generated in the economic activities, which hitherto have been alien to rural economic environment.

The macro economic management of the economy and the reform of industrial and trade policy regimes have been addressing issues facing the organised sector. The agenda for reforms in the unorganised and informal sector are even more demanding. The informal sector is important in the context of employment generation for a number of reasons. It employs about 65 per cent of the workforce outside agriculture and ranks next to agriculture in terms of size of employment. In the Indian context, urban informal sector has exhibited a high rate of growth of employment of about 6 per cent per annum as against the overall employment growth of about 2 per cent per annum. The employment elasticity of unorganised manufacturing, estimated to be between 0.5 and 0.6, is also substantially higher than the elasticity of employment in organised manufacturing, which is as low as 0.15. The informal sector has thus a great potential for employment generation. Added to this, the informal sector has also the ability to provide productive self-employment in large numbers and check migration of rural labour force to the already congested urban areas. The informal sector is also important from the point of view of geographical diversification of production and benefits of growth because it has the capacity to take to production of mass consumption goods at different locations close to the consumer.

India has a large and rapidly growing consumer market of nearly 300 million people. It is expected that the number of consumers will grow at the rate of 8 per cent per annum. The value of consumer goods

traded is also growing at the rate of 12 per cent per annum. This provides an ideal structure for a wider spread of production base at different locations. The informal sector will be a very useful instrument to ensure balanced regional development. In addition, the informal sector can adapt new technologies with greater ease than the organised sector and increase productivity, undertake production of intermediate goods through sub-contracting and absorb the workers affected by the structural adjustment programme due to the ease of entry.

There are, however, some crucial issues relating to the informal sector development on which policy-makers need advice and suggestions based on intensive investigations and research. One of the major issues is the generally low productivity of employment in the informal sector. Another issue is that currently due to the high input cost and low output price syndrome, in which the informal sector units operate, there has been very little value addition in the informal sector, although physical labour on an average is spent for more than 8 hours per day in this sector. The informal sector workers, therefore, remain a part of the marginal complement of workers in the economy. Technology upgradation and skill training are recognised as critical inputs for the informal sector development. The database on the informal sector also appears to be very weak. This is gradually hindering any effort to promote the informal sector systematically. These are the crucial areas for systematic investigation and research, continuous monitoring and evaluation and programmed dissemination of knowledge to sensitise the policy-makers and development administrators. A premier institution like IAMR, with its large infrastructure facilities, should take up these challenging tasks.

India is uniquely positioned to take advantage of the benefits conferred by information technology (IT). The IT is one area where we have the potential to be a global powerhouse. The benefits of IT should, however, be harnessed to increase human efficiency and to contribute positively to economic and social change. As a pioneer in establishing and operating IT-based manpower information systems the IAMR should take a lead role in the generation, transmission and utilisation of information on all crucial categories of manpower.

Information-based decision-making is yet alien to the managers, entrepreneurs and workers in India. As long as the present culture persists, the value of information and the benefits of IT will never be realised to the full potential. In the field of human resource planning and development, the IAMR may have to take a lead and develop mechanisms to initiate the culture of information-based decision-making, particularly in the Government. This would revolutionise the Government functioning and offer endless opportunities to bring new and more efficient ways of delivering public services and to introduce unprecedented levels of transparency in the functioning of public agencies and institutions.

Last but not the least, no research on employment and manpower would be complete unless cognisance is taken of the issue of gender. Our past record in this regard is nothing to be proud of. The Government has recognised gender equality and empowerment of women as a key component of its developmental objectives. This is most important in spheres relating to human resource development and opportunities in the workplace. I would strongly urge the IAMR to make gender-related issues a focal point for its future work programme.

Distinguished guests and staff of the IAMR, you are all probably aware that Prof Ashoka Chandra has taken over as Special Secretary, Ministry of Human Resource Development. He will be shortly demitting his office as Director of this Institute. His enthusiasm and dedication to purpose have enabled this Institute to achieve substantial progress and cross major milestones. The new campus is emerging as a reality now. It is set to enlarge the facilities for academic expansion and diversification. The Institute should, under the guidance of the new Director, who will be joining in a week, take off from here and reach greater heights in academic excellence. I am happy that the function of laying the foundation stone is taking place during the tenure of Prof. Ashoka Chandra. I hope he will continue to show interest in the academic progress of this Institute and extend support to it in realising its potential. With these words, I am happy to join you in laying the foundation stone of the new Campus of this Institute.

** Inaugural Address on the occasion of laying the Foundation Stone for the New Campus of the Institute of Applied Manpower Research on February 24, 2000 in New Delhi.*

IMPORTANCE OF POWER SECTOR REFORMS*

I am glad to be here today amongst you to deliberate upon the basic issue of providing electricity to all. Although we have achieved some success, we have a long way to go. The pace of power development in the country has not moved rapidly enough and chronic power shortages continue to plague the economy in almost all the States of the country. During the year 1998-99 the country faced an energy shortage of 5.91% and a peaking shortage of around 13.91 per cent. I am afraid that the situation is likely to worsen in the coming years due to the anticipated slippage in the planned capacity addition during the Ninth Plan.

The Ninth Plan envisaged a capacity addition of 40245 MW, comprising of 11909 MW in the Central Sector, 10748 MW in State Sector and 17588 MW in the Private Sector. Against this, the likely achievement in the Ninth Plan would be about 22945 MW, comprising of 5604 MW in the Central Sector, 9851 MW in the State Sector and 7489 MW in the Private Sector. The likely achievement represents 47% in the Central Sector, 92% in the State Sector and about 43% in the Private Sector. Thus the major shortfalls are in the Central and the Private Sectors. The shortfall in the Central Sector is mainly due to the shortfall in achieving the capacity addition target of NTPC where the projects like Anta II, Auraya II, Kawas II, Gandhar II, Simahadri and Talcher II are slipping. The shortfall in the Private Sector projects is mainly due to difficulties experienced in achieving the financial closure. Therefore, the achievement in the Ninth Plan would be 43% less than the targeted addition. This is a matter of serious concern. When the economy is poised for a major take-off we cannot afford the electricity sector acting as a brake.

The deteriorating financial health of the State utilities has been one of the major factors for the slow pace of development in the power

sector. As per the latest information, the commercial loss of State Electricity Boards (SEBs) is expected to be Rs.20707 crore in 1999-2000 (RE) against Rs. 9978 crore at the beginning of the Ninth Plan. The rate of return (RoR) on the net fixed assets, which was (-) 17.9% at the beginning of the Ninth Plan, is expected to be (-) 31% in 1999-2000 (RE). The subsidy to the agriculture sector has increased from Rs.15299 crore at the beginning of the Ninth Plan to Rs.25576 crore in 1999-2000 (RE). The share of agriculture sector in the total electricity consumption in the country is about 30% and yet this sector accounted for only about 3-4% of the total revenues of SEBs from the sale of electricity. Similarly, the share of the domestic sector in the total electricity consumption in the country was about 16-17% and the sector contributed about 11-12% of the total revenue of SEBs from the sale of electricity. The main reason is that against the average cost of supply of 242 paise per unit (1998-99), the average tariff charged for agriculture and domestic consumers is 30 paise per unit and 131 paise per unit respectively. This has resulted in the escalation in the commercial losses of the SEBs as the cross subsidies are no longer sufficient. At the same time, since cross subsidy is being provided by charging a higher tariff to industry, the cost of industrial production gets pushed up. The cost of supply has also increased because of higher establishment charges, poor maintenance and higher fuel consumption. There is a need to reduce the cost of supply through better efficiency and management. This becomes all the more important once we realise that in an increasingly globalised world this would in fact lead to more and more industrial units losing their competitiveness due to higher input costs.

In spite of the decisions taken at the Chief Ministers' conference to levy at least 50 paise per unit for supply to agriculture sector most of the States have not done this. If the tariff of 50 paise per unit is introduced for the agriculture sector, additional resources to the tune of Rs. 2912 crore could have been mobilised in 1998-99. Even after this decision, many States like Punjab, MP and Tamil Nadu have made supply to agriculture sector free. This has certainly contributed to the deteriorating financial health of the SEBs. The time has come

for us to ask frankly whether this is necessary for political reasons. If we look at Andhra Pradesh, the answer is "no". Andhra Pradesh provides the example of a State, which replaced free supply of power with a tariff and with assured supply of quality power to the farmers. This has not affected political goodwill and the present Government has come back to power. Therefore, the time has come to focus on supplying quality power. The alternative is diesel. The under-pricing of power also leads to wasteful use of precious energy, whereas what is needed is conservation.

It appears that many State Governments have started giving low priority to the power sector in terms of investment. The investment has come down from 27.2% in 1992-93 to 18.5% in 1998-99. Many States are giving as low a priority as 6-15 per cent. This is shortsighted strategy. There is a strong case for increasing the investment in the power sector and within that for transmission and distribution.

However, as stated earlier, the financial position of most of the State Governments and State Electricity Boards (SEBs) are in a bad shape. As such they are not in a position to invest in the creation of new capacity, improvement in the T&D system and the required R&M works for improving the financial health of the SEBs. Many of such State Governments are also not showing any interest in reforming the power sector, which is vital for the improvement of the financial health of the SEBs. This has created a vicious circle since without the power sector reforms the financial health of the SEBs cannot be improved and at the same time in the absence of power sector reforms, private investment is also not forthcoming. Therefore, something needs to be done to tackle this situation. This has led to proposals for reforming the power sector.

The restructuring and reforms of the electricity sector were initiated by the Government in 1998. The power sector reforms were expected to focus on the establishment of a rational tariff structure through independent Regulatory Commissions and unbundling of electricity boards, separating generation from transmission and distribution to bring about greater efficiency in each area. Further, the legislative

framework for reform and restructuring of the power sector was meant to ensure that, i) investment flows to the power sector without Central and State Governments' sovereign guarantees; ii) distribution is in the hands of a distinct body to avoid pilferage and T&D losses and iii) there is accountability and the institution is answerable.

The Government has already amended the Electricity Act, 1998 for treating transmission as a separate activity. Therefore, now the focus should be on measures to facilitate investment through reforms in the distribution sector, through formation of a number of composite distribution zones in each State as separate entities. In fact, reform in the distribution sector is the key to the success of reforms in the generation and transmission as it is directly related to consumer satisfaction and realization of revenue for the investment made in the entire power system.

The Government's policy to encourage private investment in this sector is basically guided by the fact that this would attract sufficient resources to this critical sector and release a large share of the available resources for other priority sectors like social development. The focus of the reform so far has been on promoting private investment in generation, improving regulatory environment both at the Central and State levels and restructuring/unbundling of State Electricity Boards into separate generation, transmission and distribution entities, which would be commercially viable and bankable. The situation demands a fundamental change in the approach of the State Governments and initiation of necessary reforms and their implementation so as to ensure an adequate level of investment in the power sector.

In this context we are closely watching the experience of Orissa, which has taken a lead in this direction. Unfortunately, the super-cyclone has been a serious setback to the efforts made and has delayed any meaningful appraisal. In fact, we have to take lessons from the experience of pioneer States and have to draw up a model which is most suited to our local needs. Mere corporatisation would not do unless a considered view is taken of the previous liabilities. The involvement of the

stakeholders has to be concurrently ensured if the reforms have to become sustainable. In fact the UP experience also brings out the need to keep the employees and officers informed about all major discussions relating to restructuring so that there are no misgivings on this account.

The transmission and distribution (T&D) losses in the country is nearly 22% and the losses in the States vary from as low as 17.1% to as high as 48 per cent. Investment in the T&D systems has all along been neglected. The performance of the power utilities can be improved in the short term through a reduction in the T&D losses and an increase in productivity through renovation and modernisation work. The high T&D losses in the power system are due to theft and pilferage of power in addition to technical factors. Large investments are required to reduce technical deficiencies and improve the quality of power supply to the consumers. It has been observed that one per cent reduction of T&D losses is equivalent to generation of additional revenue of about Rs. 600 crore at the average tariff prevailing in 1995-96.

I sincerely hope that this initiative will be of benefit to you in achieving our collective aim of providing power to all. I am certain we can work together in close collaboration to improve the conditions in this critical sector.

* *Valedictory Address at the Power Ministers' Conference on "Electricity to All" held on February 26, 2000 in New Delhi*

NATIONAL PRODUCTIVITY POLICY*

Mr. C. T. Benjamin, Chairman NPC and Secretary ID, Prof. Ghemawat, Shri S.S.Sharma, DG NPC, Shri G.P.Gupta, Chairman IDBI, distinguished resource persons and delegates, ladies and gentlemen.

It gives me great pleasure to be with you in this very topical and timely convention on National Productivity Policy organised by the National Productivity Council (NPC) in collaboration with the IDBI. We have just heard three very thoughtful speeches and the contours of the Policy have already emerged.

In the current era of globalisation and communication revolution the Indian economy is getting increasingly integrated with the world economy. Our country and firms can no longer afford to underplay the inevitable fall-out of this process. The Indian corporate world will have to go through a period of preparation for restructuring to become more effective, productive and competitive in the world market. This process would sometimes be even painful as has been experienced in other countries. The organisations, which successfully prepare themselves to compete in the global market place, would undoubtedly emerge as the leaders of tomorrow.

The changed global scenario, therefore, calls for evolving a new productivity policy, an appropriate strategy and fiscal and financial steps necessary for strengthening the institutional framework to make the Indian economy truly internationally competitive. We have to give special attention to increase the overall productivity in the economy apart from maintaining the dynamism of our policies. We have to formulate policies for enhancing competitiveness and increasing productivity. The link between competitiveness and productivity has already been brought out by the earlier speakers.

The Planning Commission has felt that the overall impact of globalisation, WTO stipulations on our industry and competitiveness should certainly receive greater attention. A meeting on international competitiveness of the Indian industry was held to focus on these issues. This is receiving more attention at the government level but agriculture and industry must also be conscious that WTO stipulations involve both "give and take". This becomes important once we realise that the WTO stipulations are going to be in place soon and we must position ourselves to take the maximum advantage of globalisation.

When we look at our strengths we find that we have the second largest pool of skilled manpower with comparatively low wage rates and a diverse industrial and manufacturing base. We are the leading producers of essential consumer items such as milk, rice, wheat, fruits and other horticulture products. We have achieved self-sufficiency in food production. In fact, we have large stocks of food. We are one of the largest markets and the fourth largest economy in the world in terms of purchasing power parity. We have active stock exchanges, our economic fundamentals are strong and we are rated very high in cutting edge technologies, i.e. nuclear power, biotechnology, ocean development, space and information technology. We have been identified as one of the most promising among the emerging economies with a huge potential and to cap it all we remain a strong, vibrant and, indeed, the biggest democracy in the world with a stable polity.

Unfortunately, we have a number of weaknesses too. We are still among the poorest countries in the world with a very low per capita income. We have under-developed social sectors with large illiteracy. Our infrastructure is not of international standards and quality. Here I may add that there is a consistent programme to upgrade our infrastructure. Our competitive ranking is still low. Unemployment among the educated youth remains high and the figures of the employment exchanges do not necessarily reflect the correct position. There is even higher underemployment in certain sectors of the economy with the result that at the grassroots level life is very hard for

a large number of people. The growing population, which will take not less than 45 years to stabilise, is creating tremendous pressure on everything – food, housing, drinking water, basic civic amenities and even the environment.

While we have done well, we could have done better. It is not as if gross production has not increased in India. Otherwise, we would not have had the strengths, which I have already mentioned. What has happened is that the rate of growth has been low and output has not been commensurate with the investments. In other words, our productivity has been very low. According to studies carried out by the Switzerland-based International Institute of Management Development, our overall productivity in 1998 has been just 10% of the world average. A study of the overall world productivity done in 1999 by the same institute places India at the bottom of the 47 major economies.

The National Productivity Council has done yeoman's service to the cause of productivity. It was set up in January 1958 as an apex body with guiding principles, which evolved through a national consensus forming the basis for leading the productivity movement in the country. Our productivity promotion efforts were initially aimed at the enhancement of labour productivity. Later, the movement covered the aspects of enhancing the capital productivity apart from focussing on energy productivity and management aspects. Several initiatives were subsequently taken for improving productivity of the economy. The whole economy came within the ambit of the concept of productivity, as it should have.

Despite this, I might say that productivity considerations have not been central to our approach in the past. We have not paid adequate attention to the need for raising mass awareness for productivity improvement at various operative levels and stages. There is also the issue of sheltered market and absence of competition in the past, obsolete technologies in large segments of our economy and low labour productivity.

In contrast, the South East Asian countries, which began their economic development by and large at the level at which we had

started, have been able to achieve significantly higher productivity levels than us. One of the major factors for the success of the Asian Tigers appears to be the importance given in these countries to productivity orientation in every facet of economic and industrial policy formulation and implementation, both at the macro and the micro levels.

However, what a country can achieve through sustained step-up of productivity is best illustrated by the continuing expansion of the US economy, which is setting new records. Productivity increases are providing the impetus to the US economy to grow with low inflation rates and rising standards of living. The US budget, which used to show huge deficits for years, has been showing surpluses in recent years mainly on account of productivity gains. For us too, the time has come to put the issue of productivity at the centre of our development process.

We must have a National Productivity Policy, which will bring the entire issue in focus. At present, whatever efforts are being made to improve productivity are piecemeal in nature, lack coordination and are not being made in a systematic and scientific manner. This must change.

The cornerstone of the National Productivity Policy must be the incorporation of the productivity principle in the wage revision process. At present the wage revision in the Government and public sector enterprises is basically linked to changes in prices and cost of living and has no relation whatsoever to the productivity of the workforce. This practice has been continuing for long and it is imperative that it changes with the time. Wage revisions must, therefore, be linked to productivity gains also. Even more so, the bonus being paid to the workforce has to be related to the performance on the productivity front. Once we realise that payment of wages and salaries should be linked to a unit's ability to pay and its performance vis-à-vis productivity in that sector, there would be an objective, rational and transparent basis for wage negotiations and settlements.

If we have to catch up, at least with the Asian Tigers, and realise higher per capita income, we must grow at a higher rate on an average

than we have achieved so far. The Planning Commission is of the view that unless there is a sustained growth of the economy at the rate of 7-8% per annum, it would not be possible to break the vicious circle of poverty, unemployment and low levels of income. Given the fact that our resources are limited, it would be possible to achieve these growth rates only with higher productivity of these resources.

The concept of productivity has to be widened to cover not only the productivity in the organised industrial sector but also the unorganised sector and even in public administration. This is all the more true in the social sectors where the need for public investment in health, education, rural road, etc. is urgent.

We have to shift away from input indicators to performance indicators. Too much emphasis on budgetary outlays and actual spending without the corresponding measurable increase in output has to be changed. There are any number of schools without teachers or hospital without doctors even after the requisite personnel are employed. This is more a problem of governance than of public expenditure but it has a direct bearing on the productivity of public investment.

We in the Planning Commission have been concerned with the issue of productivity of public investment. Fascination with increasing expenditure will have to go. Equal, if not more, emphasis will have to be given to how we make use of the increasing expenditure. In the present context, when we are faced with an all-round resource crunch, it is all the more necessary to focus on the quality of expenditure or the efficiency in resource use. Even with the present level of investment it is possible to derive much larger benefits provided the efficiency of investment increases. We can take the case of the power sector for illustration. If we can use the existing generation and transmission capacity efficiently, the gap between the demand and availability of power can be substantially reduced. Long delays in the completion of projects in the public sector also mean that the possible gains of productivity are frittered away.

Similarly, the Government is spending huge amounts on employment generation and poverty reduction programmes. However, the gains are not at all commensurate with the expenditure. If, however, the quality of expenditure improves, substantial progress can be made in solving the problems of unemployment and poverty even with the existing investment levels.

The policy initiatives must ensure that they cater to the needs, especially, of our rural people. In short, we must plan to meet the minimum needs of the rural community for water, power, roads and basic telecommunication. We must also improve the forward and backward linkages of the rural economy to economically empower the rural people to play the dynamic role and make a strong contribution to the national economy that they are capable of making. It requires careful examination to ensure that in the process of economic growth the vulnerable sections of the society are not left out. Even a small incremental improvement in the technology in use in rural areas is capable of yielding very large dividends.

I understand that this Convention is going to address all these issues and come out with a framework, which would be a guide for improvement of productivity in the country. I would request this large assemblage of experts and practitioners to come up with a set of workable recommendations and a blueprint and suggest a practical time frame for their implementation. I wish the Convention all success.

** Inaugural Address at the Convention on 'National Productivity Policy' held on March 1, 2000 in New Delhi*

VALUE OF DISTANCE EDUCATION*

Mr. Vice Chancellor, graduating students, ladies and gentlemen, I deem it a privilege to speak to you on the occasion of the Eleventh Convocation of the Indira Gandhi National Open University (IGNOU). I am grateful to the Vice Chancellor, Dr. Abdul Waheed Khan, for giving me this opportunity to renew my association, however briefly, with a unique institution of higher learning. As I look back over the years to the passage of the Open University Bill and the foundation stone laying, I feel like a farmer happy to see the sheer size and healthy growth of a tree, which he remembers as a sapling.

I recall with pleasure the establishment of the IGNOU in 1985 when I happened to be the Education Minister. The IGNOU is an institution, which provides an alternative system of education to those who want to continue learning but are not in a position, or do not find it convenient, to do so in conventional colleges and universities. It caters to those who believe that learning is a life-long exercise. India is a large country. Large numbers live in far-flung areas where they do not have easy access to institutions of higher learning or the disciplines they want to pursue. Among them are housewives looking for learning opportunities but unable to find them. There are those who seek vocational education and others who want to upgrade their skills. The IGNOU caters to all of them and more. The relevance of the IGNOU under Indian conditions is that it meets the educational requirements of those who would otherwise be denied this opportunity. It is this imaginative approach of responding to the educational and training needs of our people, breaking new ground and breaking free from the rigidities of traditional structures and processes that is a major contribution of the IGNOU to our education system.

On this occasion I would like to place on record the solid contribution made by Prof. G. Ram Reddy, the first Vice Chancellor of the IGNOU,

to the shaping and blossoming of this University. He had the background and experience of the only other Open University in India at that time and he supplemented these through wide and intensive interactions with the leaders of Open Universities in other countries. I recall in particular the helpful co-operation of the UK in the area of course material and of Japan in the area of information technology hardware.

I am happy to see that in less than a decade and a half this University has established itself as a major distance education institution in the world. It is perhaps one of the ten largest open universities. I understand that the University is presently enrolling about two hundred thousand students every year and more than fifty thousand students complete their programmes of study and qualify for various awards. These are big achievements by any standards. However, going by the experience of China, there is scope to reach even larger numbers.

The significant and growing rise in enrolment, I feel, reflects in part the unmet needs for higher education of the ever-widening flow of the higher secondary stream. Another reason could be the flexible and cost-effective programmes of education and training that the IGNOU offers. A very distinctive feature is that study is individualised and there is flexibility of place, time and pace of study. A self-employed person or a housewife can thus pursue his or her course of studies without disrupting the daily business, professional or household tasks and can take up to eight years to complete the Bachelors' degree programmes. This system, based on acquisition of credits at one's own pace and allowing transfer of credit from one course to another, differs substantially from most of the conventional universities.

Another feature is the teaching and learning strategies and efforts to relate education to the work and life of our people. I find that the IGNOU has taken the initiative in designing and developing a wide variety of programmes, ranging from the low-end skill and competency development modules for the educationally disadvantaged to the highest levels of professional and specialised education. The vocational and professional courses range from Computer and Information

Sciences, Rural Development, Tourism, Library Studies, Health and Nutrition Education, Women's Education, Health Sciences, Engineering and Technology to Management Studies. This is apart from the more traditional courses on sciences, humanities and social sciences.

I would, however, point out that Open Universities must accept the responsibility for bringing out course material, which is of a quality that is required by a student who has to comprehend it essentially unaided. In that sense the open university's course material has to attain standards that are more exacting and tailor-made in design than the corresponding course material of conventional universities. This is true even though the IGNOU has used modern educational and communication strategies to help its students to make the best use of its teaching material. The multi media approach to instruction, coupled with both face-to-face and teleconferencing mode of counselling along with practicals at select Study Circles for some courses, are features distinguishing the IGNOU from the typical correspondence courses. It is a matter of satisfaction that India today has a broad network of distance learning institutions with a wide geographical distribution.

The concept of open university and distance education has now acquired wide acceptance and the system presently consists of the IGNOU with its 21 regional centres, 9 State open universities and about 45 dual mode institutions and all these are linked within a teleconferencing network. This open system meets an important national objective in the education sector by bringing education to the doorsteps of even those who had missed the traditional and conventional channels at some point of time in life for some reason or the other.

The experience we have gained in distance education will stand us in good stead as we face the demands of the new millennium. Education today has acquired a much larger constituency. Our aim is to raise the capability and skills of our entire population through education and training. We are not the first in this. China, for one, has been

productively using distance education to raise the level of skills and knowledge. In Thailand, vocational education has been popularised through this concept. We can, and must, apply this methodology in all areas of human development and cover all facets where knowledge workers have a role to play in the economy.

Indeed, there is also now a broad recognition that the 21st century will be the age of information and will be characterised by a shift from the limited concept of "knowledge workers" to "knowledge society". "Knowledge society" does not mean that everybody must acquire high levels of skill in the so-called sunrise industries but that every aspect of human activity, including all traditional areas and occupations, must reflect the application of knowledge. The population of India is expected to reach 100 crore on May 11. Properly educated and trained, they will lift this country to the skies.

It would help the Open Universities to provide more employment-oriented programmes if there was greater co-ordination between the education sector and labour markets than what exists at present. There must be a link between education and employment. While the IGNOU represents one of the finest examples of good quality distance education, the placement of the IGNOU graduates and postgraduates could make it even more attractive. They should be treated at par with other conventional institutes given that the course content and examination are of the same standard, if not better.

However, there is more to education than degrees and diplomas and we need to ponder over the fundamentals of high quality academic programmes through various modes, including distance education. There is, I think, a broad consensus that the greatest challenge before Indian education is how to inculcate in our people a scientific temper, an unwavering commitment to the values of integrity of character, equality, human dignity and universal brotherhood and how to eschew all barriers of caste, creed, gender, language and region. Our education system must nurture the values on which our democracy rests, namely, tolerance, harmony and co-operation. It must make us sensitive to

wants, pain and suffering. We have to commit ourselves genuinely to hasten the eradication of poverty and unemployment and improve the living standards of our people.

With the evolution of new methodologies in teaching and learning and the availability of innovative and diverse channels for learning, distance education can be a boon in providing access to the socially and geographically disadvantaged. The role of the IGNOU is of the greatest importance in such a context. I fully realise that resources are needed for creating additional facilities, particularly because distance education requires investments in technology, capacity building, infrastructure development and production of software. A large part of the outlay is for provision of technology support including hardware. The Government has, of course, been supporting distance education but, as we can see, the Government funding is being subjected to increasing resource constraints. The Open Universities would, therefore, be well advised to develop imaginative and innovative methods for raising additional resources to maintain and develop their infrastructure. Further, they should try to meet all the operating costs and expenditure for students' welfare activities from their own fee income. I am confident that the Open University system can successfully address itself to the task of raising its internal resources substantially.

My friends, you are harbingers of a new future – a future where every Indian will have the opportunity to access whatever level of education or skill he or she desires. For this dream to come true, the eyes of millions of our countrymen will be on you, seeking confirmation that non-conventional does not mean non-acceptable. The success that you attain in life will be a beacon to others; an affirmation of the fact that education and knowledge are not only to be found in the cloisters of established academia but also anywhere and at all times. It is a liberation of the mind in more sense than one. I am sure that you will more than justify our faith and hope in you and climb the highest peaks of excellence and achievement.

With these words, I would like to congratulate the new graduates and wish them all a bright and exciting future. I hope that the knowledge, which you have acquired from the IGNOU will help you to realise your full potential not only nationally but also in the global economy in whichever field you have chosen. I am sure all of you will do credit to yourselves and to the nation. I once again thank the Vice Chancellor and the Faculty of the IGNOU and extend my best wishes to all those connected with the Open University system.

** Address at the 11th Convocation of IGNOU held on March 4, 2000 in New Delhi*

PREVENTION & TREATMENT OF ACCIDENT INJURIES*

I am glad to be with you at the inauguration of the 5th World Conference on "Injury Prevention and Control".

Accidents may occur on the road, at home, in the farm and at the place of work or may occur during recreation and sports. Increasing mechanisation in agriculture, induction of relatively unskilled workers in various operations, use of insecticides, pesticides and chemicals by persons without appropriate knowledge of the precautions to be taken are resulting in increasing health hazards to workers in the agricultural sector. This may result in increased morbidity, disability and mortality due to accident and trauma.

Overcrowding, lack of awareness and non-implementation of essential safety measures result in increasing the number of accidents of all types. Falls from high rise buildings, staircases, trees etc., kitchen accidents and shocks from electrical appliances at home contribute to home accidents. Children constitute a substantial proportion of those injured at home. Increasing traffic-related accidents are a major cause of concern particularly in metropolitan cities. Cyclists, pedestrians and motorcyclists are the most vulnerable.

It would be useful to know the numbers involved in these cases. In the Indian context, I would agree that there is no single institutionalised agency charged with the responsibility of collecting data on various types of accidents. The Planning Commission will see how best to improve access to such data available with various government and non-government organisations.

We recognise the importance of reducing death and injury due to accidents in all walks of life. Special efforts are needed to carry out a scientific analysis of accidents to synergise the efforts of various ministries like transport, health, industry and labour to enhance safety

measures and post-accident care and treatment. The Planning Commission will set up a Working Group to study this problem in all its aspects and recommend a plan of action.

There has been a tremendous growth of the transport sector in the country. The number of passenger buses has gone up 13-fold and goods vehicle fleet 22-fold. While the growth of this main mode of transport indicates the progress the country is making, the bad news is that the development of basic infrastructure has not been commensurate with the growth of traffic. The railways are faced with huge arrears of track renewals. Both the capacity and riding quality of our roads are also deficient. All modes of transport are facing severe congestion. The over-crowding coupled with lack of development of quality infrastructure have adversely affected the safety of operations.

The Ninth Five Year Plan regarded safety of operation as an area of concern in all modes of transport. The statistics speak for themselves. In the case of rail transport, the number of accidents per lakh train kms. in 1995 was 8, while the number of accidents per lakh road vehicles was 1.1. According to rough estimates, more than 3 lakh road accidents take place every year in which 70,000 precious lives are lost and the society has to suffer huge economic losses. About one-fourth of such accidents occur on the national highway network. The high accident rate is largely attributable to the supply-demand imbalance or inadequacy of the highways and other main roads to meet traffic demands or road user behaviour or overaged vehicles.

We recognise that it is necessary to increase the capacity of our road network. We have launched a massive programme for development of our high-density corridors. This programme is known as the National Highway Development Project, which consists of the Golden Quadrangle linking the four metropolitan cities of Delhi, Mumbai, Calcutta and Chennai and the East-West and North-South Corridors. The total cost of this project is Rs. 54,000 crore. The emphasis is on construction of quality roads so as to ensure a higher level of mobility with safety. We are also taking steps to augment the capacity and

riding quality of our national highway network. I am sure that with these steps we should be able to reduce road accidents.

It is a known fact that the safety of road users is influenced both by the absolute speed of vehicles and by the variation in speeds among vehicles on the road. A sustainable transport system must provide mobility and accessibility to all road users in a safe and environment-friendly mode of transport. Imposition of speed limits often helps but these are not always easy to enforce, especially on rural roads. Speed limiting devices inbuilt into the vehicles as well as traffic calming measures hold the greatest promise in India. Therefore, there is an urgent need for research on traffic calming measures for roads with high percentage of vehicles and safer design of inter-city roads with non-motorised traffic.

Prevention and control of injuries and accidents involve co-ordinated action by several sectors such as industries, labour, agriculture, social welfare, transport etc. Our Ninth Plan document reflects our concern on this issue. It mentions that efforts will have to be made to improve the availability and utilisation of emergency care services at all levels of health care. For handling this work, steps will have to be taken for adequate training of medical and paramedical staff in emergency management at each level of care, provision of transport facilities for transfer of patients and suitable strengthening of emergency and casualty services in tertiary care centres. Rehabilitation services for those who have residual disabilities will also be strengthened. Steps to improve public awareness about available services and where and how to access them will also be taken up so that those in need can fully utilise the available services.

Technological advances in the last twenty years have made it possible to substantially reduce mortality, morbidity and disability due to accidents and trauma. In Delhi a modest beginning of a centralised accident and trauma services has been made by linking the traffic police accident reporting centres to ambulances fitted with essential equipment for transporting victims and strengthening of accident and trauma services in major hospitals. Based on the experiences gained

through this system, it will be possible to evolve more comprehensive accident and trauma services for the National Capital Territory of Delhi. Several States have also initiated similar accident and trauma care services in some cities.

Most of the urban traffic accident victims are in the prime of their life. The rapidity with which the first aid is administered to them and they are taken to hospitals and appropriate treatment initiated would determine how many lives and limbs are saved and how many of these young persons will return to their productive life without any residual disability. Rapid communication and co-ordination between agencies involved hold the key to success in these efforts.

It is not the responsibility of the State alone to ensure safety of transport operations. Various organisations such as Automobile Associations and Associations of Transport Operators as well as NGOs can play an important role. I am told that some NGOs in Pune have contributed greatly towards improving awareness of road safety among road users. It is high time that such scattered but dedicated, scientific and well-organised experiments are emulated in other parts of the country. I sincerely hope that the Conference will discuss the role of the civil society in promoting road safety and preventing accidents in the country. I wish the Conference all success.

** Inaugural Speech at the Fifth World Conference on 'Injury Prevention & Control' at IIT in New Delhi on March 5, 2000*

E-COMMERCE & HUMAN RESOURCE MANAGEMENT*

Mr. Rajendra Singh, distinguished participants, ladies and gentlemen, It gives me great pleasure to be with you today at the inauguration of this two-day Seminar on "E-Commerce and Human Resource Management" organized by the World Confederation of Productivity Science, India (WCPS) and the World Academy of Productivity Science (WAPS).

The subject of electronic commerce—e-commerce in short—has evoked tremendous enthusiasm even at its embryonic stage. As you are aware, e-commerce denotes conduct of business activities through electronic and telecommunication technologies, usually over the Internet. It includes all financial and commercial transactions that take place electronically. Electronic commerce has now started entering homes and it is arriving with a bang.

At present it is estimated that around 80% of e-commerce activity is taking place in USA alone, while Asia accounts for only about 5 per cent. Though the volume of e-commerce transactions in India is still miniscule, it is estimated that Internet and e-commerce-related software solution exports accounted for around \$300 million out of the estimated \$3.9 billion worth of Indian software exports during 1999-2000. Growth of infrastructure is also necessary for this.

Internet banking is also growing at an impressive rate as it has much lower operating costs. It costs almost nothing to conduct a banking transaction using the Internet, as compared to what it would be if handled by a teller at a bank branch. The customer no longer has to write and mail cheques and his or her account is updated automatically. This concept is still catching up even in the US, where very few banks can be considered "True Internet Banks", i.e. banks that allow customers to conduct transactions through their web sites.

E-commerce provides opportunities for integrating e-commerce into supply chain management and other business systems and reselling software. Various companies are working on making the Internet safe for business. The advantage of e-business is the reduction or elimination of costs, such as on printing, mailing and handling of paper catalogues. An e-commerce site can extend the reach of business by bringing in customers from previously untouched regions without incurring additional expenses of opening branch offices or extensive and expensive advertisement campaigns.

Choice and convenience are often the main attraction of Internet shopping. For example, the largest chain bookstores may carry about 150,000 different books, while an Internet bookstore may carry around 2.5 million, including rare and out-of-print titles. Apart from it, one can visit museums also. Thus customers gain access to better and more complete information about the products and services they are looking for.

It is expected that very soon its beneficial effect will be felt in different key sectors like communications, finance, retail trade, education, etc. and more particularly in areas such as customised products, elimination of middlemen, ordering office supplies, paying bills, estimating demand, etc. The goal is to electronically link the entire production, sales and delivery process into one seamless flow of information across national borders and time zones. Having a global view of logistic movements enables better decision-making and reduces costs while providing the means for sharing information among trading partners. According to a McKinsey-NASSCOM study, e-commerce covering both domestic and export markets is expected to contribute around \$10 billion during 2008.

These developments have given organisations cause to rethink their tried and tested business guidelines. E-commerce has changed the way business functions and also the strategies, which business organisations adopt to face competition. Earlier, only large business houses could afford the investment and expense that was necessary to reach out to a large number of consumers. E-commerce transcends

the barriers of distance and time. Due to rapid proliferation of Internet, the relevance of State and national boundaries is ebbing away. The structures of traditional commerce are being changed gradually due to the flexibility offered by e-commerce. Neglecting e-business today may mean no business tomorrow.

Though the Net has become global and is a window to the world market, the fact remains that all Net business flourishes primarily on local markets and local customers. The core business is always local. In a country of sub-continental proportions like India, therefore, there is a definite market for B2B dot coms. There should be plenty of scope for dot coms that facilitate payment of insurance premia, school fees, electricity, water or telephone bills and so on. However, companies will have to work with public utilities to convince them of the obvious benefits of such an arrangement and also work with consumers to infuse confidence in them that online payments are secure.

The success of e-commerce depends upon a change in the existing mindset and the shedding of outdated managerial practices in dealing with human resources. Electronic commerce will require IT professionals with varying requirements of skills. Many of the IT skill requirements needed for Internet support can be met by normal IT professionals who can deal with the organisational services needed for basic web page programming. IT professionals with such a wide span of knowledge and skills are needed to support e-commerce. Besides knowledge of IT, a person specialised in e-commerce also needs to acquire a sound knowledge in related fields like management, particularly marketing management, cyber laws, economics, etc.

Transactions over the Internet must be private, authentic, auditable and extended to accommodate new applications. These are some of the issues associated with e-commerce. Information on the Internet runs the risk of hacking and the problem of security has to be taken care of. E-commerce personnel should, therefore, have the requisite capability to address all these issues.

Today, there are about 0.3 million IT professionals in India. However, the industry needs at least one million additional professionals by

2008 if the software export target of \$50 billion by the year 2008 is to be reached. The traditional human resource management practices, which have been in vogue in many of our manufacturing and service industries, may not prove effective in managing such knowledge workers. The high turnover rate of such professionals in many IT companies confirms my fear. Managers in such sunrise knowledge-intensive organisations may have to recognise that technical expertise is as valuable as management expertise. Some of the leading IT companies in the country has shown the kind of strategies and practices in human resources management (HRM) that can be adopted to deal with these issues. These benchmark companies have demonstrated their capabilities to attract, retain and utilise the best knowledge workers in the country.

Some National Productivity Council studies throw light on HRM practices suitable for adoption by Indian organisations to support e-commerce. Such innovative practices span a whole gamut of HRM aspects including strategies, recruitment, selection, training, performance management, reward and recognition, etc. All knowledge workers value professional freedom, integrity, innovation and opportunities to learn. Transparency in dealings and clarity of expectations at the time of selection helps in obtaining the right people. Learning by experience and mentoring should form the new training strategy. The knowledge workers themselves should participate in evolving efficient and effective work practices through application of various modern management techniques. The high performers should be properly rewarded.

Human resource management must also grapple with the fast rate of obsolescence of the knowledge available with current IT professionals. These professionals should be sufficiently motivated and supported by a learning environment in the organization. I would, therefore, ask all of you to think of how best you can create world-class learning organisations. The creation of new knowledge is to be seen as central to the work of the organisation and people can easily learn and utilize knowledge from other parts of the organisation. Such organisations should continuously work towards benchmarking its practices against

world-class organisations such as Hewlett Packard, Microsoft, Motorola, etc. An organisation that benchmarks and learns from others soon becomes a benchmark organisation for others.

But the HRM challenges arising out of e-commerce are not limited to the IT professionals alone. The spread of electronic commerce will affect the labour market and cause a shift in the composition of the workforce. Jobs that rely less on the distribution of products and more on the transfer of information are likely to see routine tasks being replaced by more complicated tasks. In the digital age an employee's workday may not mean spending the hours between 8 a.m. and 5 p.m. at a desk or even in an office. Today, many companies have found that workforce flexibility—i.e. letting go the rigid guidelines traditionally followed in the workplace—is the best approach to meet the needs of their customers through increased productivity and morale of their staff.

Such developments, though inevitable, can lead to a feeling of insecurity and even inadequacy among the workers in the more traditional areas. Companies cannot afford to be insensitive to such emotions. This is both an ethical issue as well as a practical one. Demoralisation of the wider work force can potentially negate all the advantages accruing from e-commerce. Human resource management in e-commerce must therefore address this issue of transition so that care is taken to ensure that workers at all levels perceive the benefits arising out of the change process and are equipped to participate fully in its implementation.

I would, therefore, like to suggest a three-pronged HRM approach to e-commerce, namely (a) periodic review and updating of university courses in computer science and IT in consultation with the industry with a view to including the emerging technologies; (b) proper arrangement of hands-on training in industry for skill development of IT professionals and other workers and (c) adoption of HRD and career progression policies aimed at retention of skilled technical manpower at all levels by organisations.

Finally, may I reiterate my firm belief that the adoption of innovative HRM strategy and practices by the Indian IT industry will go a long way in availing the opportunities offered by e-commerce. The Government can at best play a catalytic role in transforming the existing HRM practices. The challenges are vast and the opportunities are exciting.

I am happy that you are going to discuss the implications of e-commerce for human resource management both at the macro and enterprise levels. Since e-commerce is still at a formative stage, my observations on the subject may at best be suggestive.

I have great pleasure in inaugurating the Seminar and wish it all success. Thank you.

** Inaugural Address at the two-day Seminar on "E-Commerce and Human Resource Management" organised by World Confederation of Productivity Science (India Chapter) on March 8, 2000 in New Delhi*

TASKS BEFORE MANAGEMENT GRADUATES*

It is always a rewarding experience to meet and interact with bright and promising young persons who embody the hopes and aspirations of our future. The 14th Convocation of the Indian Institute of Management, Lucknow gives me one more such opportunity. My warm and heartiest congratulations to all of you who have successfully completed the postgraduate programme in management and are poised to embark upon a new and challenging phase of your professional life.

I have been following the development of the IIM, Lucknow with great interest and I am happy to see that in such a short span of time, the IIM Lucknow has succeeded in building itself up into a highly reputed business school. This is a matter of great pride for all of us and I must congratulate the IIML community for this achievement.

As we enter the new millennium, we can look back with pride at some of our achievements as an independent nation. We have successfully reversed the worst inequities of our colonial heritage and have built India into a nation of considerable economic strength in a framework of democracy and federalism with full regard for human rights and the rule of law. These values have grown deep roots in our national ethos and I am confident that they will endure the sternest test of time.

In the economic sphere the challenge is to keep pace with the rapid and sweeping global changes. The 1990s saw a number of new initiatives in economic policy in the areas of domestic industrial deregulation, trade liberalisation and opening up to foreign investment. A beginning was made with public sector and financial sector reforms. The reforms in India were not introduced with a big bang. It goes to the credit of our democratic process that successive Governments, formed by different parties and combinations, have all accepted the logic and the need for economic reforms and carried them forward.

I would say that India's reforms in the 1990s have had a good overall effect. The economy grew at 7% during 1994-97. Though the growth rate dropped to 5% in 1997-98, it rose again to 6% in 1998-99. This is not as good as we would have liked it to be. We need a growth rate of more than 7% if we are to make a significant dent on poverty in India. Moreover, the growth we have experienced in the 1990s is also not as well balanced regionally, as we would have liked. It has had less impact on reducing poverty than we had hoped. Nonetheless, it is definitely encouraging not only as compared to our past record but also the record of other countries. In fact, it is not sufficiently recognised, even in India, that India has been one of the ten fastest growing economies of the world in the 1990s.

The challenge before us today is how to achieve a growth rate of at least 7-8% GDP per annum, ensure that this growth is regionally more balanced and, above all, that it succeeds in generating employment at a pace, which can absorb our growing labour force. Fortunately, our population growth is slowing down and this bodes well for the future. However, because of the age structure of the population, the labour force growth will begin to decelerate only after 10 years. The next decade must therefore, see a growth that generates high levels of employment. How to tailor our development strategy in general, and the programmes and policy packages in particular, to achieve these objectives is another challenge we have to face and effectively manage.

To meet this challenge we have to be aware of the developments taking place around us and take advantage of the new possibilities as they unfold. There is one particular emerging trend to which I would like to draw your attention. It is clear that we stand today on the threshold of profound changes in our economy, the society lifestyles and even polity due to the "knowledge revolution". All that we do, all that we make, all that we earn will be altered by new knowledge, not only scientific or technological knowledge but all forms of knowledge in all walks of life and in all types of activities.

This revolution will inevitably encompass our country and other developing countries as well. But the opportunities and challenges

will differ in countries at different stages of development. So, when an age-old and sophisticated society and culture like ours, with a long intellectual tradition, comes to address the designing of a structured strategy and plan of action for making our country a knowledge super power, we have to take a broader and a holistic view of the matter. For example, notwithstanding the current euphoria, we have to remember that the definition of "knowledge economy" is much broader than one based only on information technology (IT). It encompasses biotechnology, drug design, consultancy and design engineering, financial services and education itself. Moreover, it has to be broadened to encompass our huge traditional knowledge bank, whether it be in the areas of medicinal plants and so-called traditional systems of medicine such as Ayurveda, Siddha or Unani, or our enormous culture and entertainment knowledge pool—both classical and folk-based—which can give us great leverage in the gigantic area of infotainment, provided we gear ourselves up to exploit it. In fact, combined with the powerful tools, which biotechnology is now providing the world of science, technology and socio-economical development, and the enormous reach that multimedia and Internet are providing to both performing arts and other art forms, our rich heritage is among our most powerful factor advantages in the competitive battle emerging on the world knowledge market. The challenge, of course, is how to convert or utilise them as actual factors of competitive advantage in the commercial transactions involved in the knowledge market. Issues of this kind, which enter on both the supply and demand sides of the knowledge industry and the knowledge economy, need to be addressed urgently and innovatively.

To meet these challenges successfully in the 21st century, India will need managers who have a global vision, who are contribution-focussed, who believe in change and transformation, who have the ability to take risks and follow the untrodden path and who are prepared to work for a larger purpose. We need managers with the ability to inspire, facilitate and channelise collective energies in the required direction—managers who are competent to manage knowledge through information technologies in a way that their international competitiveness is enhanced.

Vision is the art of seeing things as yet invisible. Nothing is more powerful in driving an organisation towards excellence and long-range success than its ability to develop a meaningful vision for itself for the future and to channelise its energies towards realising that vision. When I speak of Indian managers with a global vision, it is to emphasise that, in today's world, planning and decision-making by organisations and their leaders should be driven by up-to-date knowledge of what is happening in their area of interest, in the country or abroad. While we have to be sensitive to the problems within the country, the way we deal with them has to be consistent with the realisation of the immense potential of carving out a special place for our country in the international arena of competitiveness. It is not always easy to maintain a global vision because either component has the potential to be totally consuming but the success of Indian managers would lie in their ability to strike a symbiotic balance between these two concerns.

Our modern educational and industrial ethics tends to emphasise individualism and competitiveness. The focus is on the self. The rationale behind individualism and competitiveness is that competitiveness brings out the best in individuals. What is not said but is often assumed is that the excellence of individuals would somehow help the entire society and not only the individuals concerned. This would require that these gifted individuals work collaboratively with each other. When everyone is trying to win by defeating others, everyone becomes a loser. On the other hand when we value others as we value ourselves, trust others as we trust ourselves and work for others as we work for ourselves, a more meaningful sustainable development takes place. While you teach your students to be competitive and excellent individuals, I hope you are also teaching them how to collaborate with each other effectively for the common cause of development.

Among the qualities that India, therefore, needs in its new managers the most important, perhaps, is the focus on contribution defined in its broadest terms. I say this because it is so easy to be focused on goals such as power and wealth. As you, young managers, go through your careers, I am sure you will discover that in the long run it is the

contribution that a person makes to the society, and not just the accumulation of power or wealth, that gives him or her satisfaction as well as stature. Those who make remarkable contributions are usually possessed by a desire to create an impact and make a difference to the society. They see life much beyond power and possession. I do hope that this proud young generation represented by the outgoing class of the IIM Lucknow will measure their lives in these terms. In making these contributions they will come across choices between the satisfaction of short-term goals on the one hand and sacrificing short-term gains in favour of a larger purpose on the other on the other. Those who choose the latter alternative will go much farther and probably find greater depth and meaning in their lives.

New managers must believe in constant change and transformation. Maintaining a positive attitude to change is perhaps the hardest of all the skills. Oppenheimer in his essay "Prospects in Arts and Science" had commented thus on change; "In an important sense this world of ours is a new world in which the unity of knowledge, the nature of human communities, the order of society, the order of ideas, the very notions of society and culture have changed and will not return to what they have been in the past. What is new is new not because it has changed in quality. One thing that is new is the prevalence of newness, the changing scale and scope of change itself so that the world alters as we walk in it, so that the years of man's life measure not some small growth or rearrangement or moderations of what he learnt in childhood but a greater upheaval."

In management education the challenge is that you to have to develop a positive attitude to change, recognise the processes inherent in bringing about change and develop and implement strategies for bringing about change. If the graduating students have internalised the paradigm of change, I am sure, they will be able to contribute to the emergence of a much better and more developed India than what we have today.

When I look at the next fifty years, I see a prosperous India emerging and taking its rightful place in the comity of nations. I see an India,

which is fully capable of defending its borders, a nuclear power committed to peace and a bulwark for a just and co-operative world order. I see an India in which democracy has taken deep roots and in which the disadvantaged sections have been empowered politically, socially and economically, be they women, dalits, tribals, landless labourers, backward classes or others. I see an India which is great in terms of literacy and education, with its universities and technical institutions being converted into centres of excellence and professionalism, with its manpower strewn all over the globe, enriching the countries of adoption as well as the mother country. I see a large nation joined together by a network of transport, communication, culture, technology, trade and commerce. I see people who have material riches but do not consider their worldly possessions to be their greatest achievement – people who are proud of being civilised human beings, caring, compassionate, tolerant and industrious. I see a nation of Indians who are citizens of the world and yet have not forsaken their traditional values. I see a great and vibrant India in the making.

Friends, in the making of this great nation each one of us has to play his allotted role. That role may be exalted or humble but it can never be negligible, for it is the combined effort of all that makes up the glory of the whole. It is my fervent hope and belief that each one of you will play your role to the best of your ability and contribute to the greatness of this nation, which has such a hoary past and such a glorious future. Jai Hind

* Address at the 14th Convocation Address of IIM, Lucknow on March 18, 2000

ARRESTING ENVIRONMENTAL DEGRADATION*

I am glad to see that an august gathering of intellectuals, academicians, foresters, scientists and representatives of various NGOs has assembled here for the National Seminar on "Environmental Perspectives and Management Strategies in the New Millennium". Perhaps, we share a common belief that developing a right perspective for conserving the environment is an urgent task to realise the objective of sustainable development. Indeed, the topic chosen for the Seminar is an important one. The human race is facing various environmental challenges globally and our country is no exception. However, in order to deal effectively with the growing problems of environmental degradation we have to be sensitive to the needs of our people at present and in the future and take into account the conditions in which they live.

The urgent need for taking appropriate action at the global level for arresting environmental degradation found expression at the Earth Summit in 1992 at Rio de Janeiro where the Heads of State of many countries made a commitment for checking the indiscriminate deterioration of the environment and adopted the Agenda 21 to work towards a future of sustainable development. But if we look back to the last decade of the twentieth century, there does not seem to be much for which nations collectively can take credit. We continue to dispense hazardous wastes indiscriminately on land and water alike thereby polluting key resources. The use of chemical fertilizers and pesticide is on the rise, posing a threat to our water resources, both above and below the ground. The fossil fuel resource base, which took millions of years to develop, is being eroded at an ever-accelerating pace. Noxious gases continue to be released into the atmosphere severely polluting the air we breathe and damaging the fragile ozone layer leading to enhanced levels of UV-B rays reaching the earth's surface. All this is despite the fact that more and more people are now aware

of these facts and the link between their well-being with the well-being of their local and global environment.

This awareness compounds the dilemma for developing countries like India. Conscious of another link, the link between poverty and environmental degradation, they recognise the centrality of developments to tackle both. Development is also a factor in checking the growth of population. As it is, the population continues to expand and the resource base continues to shrink. A growing number of people in India are still deprived of basic habitable conditions including sanitation and water supply. More than 200 million people in India still do not have access to safe drinking water and many children die prematurely due to water-borne diseases. Many more such indices can be cited. Thus, the biggest challenge we face today is to very carefully balance the growth and development needs of our people with the pattern and rate of resource consumption. We must be quite clear that the end objective of the exercise is to provide our people a better quality of life. And we need to do so with a sense of urgency and commitment.

I have referred to the link between environmental degradation and poverty. The poor are often helpless victims of circumstances beyond their control. But what defence is there for people who should know better and who owe it to society to ensure that they do not contribute to environmental degradation? Take, for example, the industry in Delhi. For a number of years they continued production, which was energy consuming, and, in some cases, highly polluting. Many of the industries were in zones not meant for them in the Master Plan. They refused to shift. The polluting industrial units continued to pollute the environment until the intervention of the Supreme Court. Another example that comes to my mind is the unscientific mining that caused great problems in the Doon valley as well as in Mussoorie hills. Such instances can be multiplied. In all such cases, apart from the general adverse impact on the environment, the worst sufferers are the poor. Any deterioration in the environment directly affects their living

conditions, as they have no protection against the adverse impacts of environmental degradation.

The challenge, therefore, is to design and build a new model for economic growth and development that must sustain human growth without destroying its support systems. We have to safeguard our resources for their long-term and optimal utilisation. We are losing the tropical forests at an alarmingly high rate. We are also losing traditional crop varieties that are indispensable for global food security. Many floral and faunal species are threatened from habitat degradation and conversion. The climate is reported to be changing and its impact has to be kept under careful watch. We need to incorporate in our developmental policies concerns that address these issues, as the activities that contribute to environmental degradation are still continuing at an unacceptable pace.

To design a new economic growth model there is a definite need to understand what has gone wrong. Only then we can take corrective measures to undo the wrongs and strive to improve our environment. The basic causes of environmental degradation, though they may sound simple, are complex. These include emphasis on quantitative growth over qualitative growth; failure of the economy to account for the social cost of environmental damage; institutional inadequacies and shortcomings in dealing with cross-sectoral problems; failure to bridge and cut across traditional political boundaries and build a consensus; and failure to perceive the environment in its totality.

We should keep in mind that such deep-rooted and complex causes cannot be corrected overnight. Laws do help but merely enacting new legislation does not solve the problem of environmental degradation. We need a different attitude, a change in our perspective. This change of perspective would need to have the support of new knowledge and technology so that it would help reform the way the society and individuals think about environmental problems and take decisions.

The Government of India is aware of, and sensitive to, these concerns and has taken various measures that reflect its will and commitment to protect the environment. Our plans and policies strive towards

ensuring a healthy environment that sustains economic growth. The National Conservation Strategy and the Policy Statement on Environment and Development serve as a template for integrating environmental concerns in sectoral policies and programs. The Ninth Plan places great emphasis on integrating energy, environment and economic policy decisions for sustainable development. The Government policies are now promoting, in addition to regulatory mechanisms, market-based economic instruments in economic and environmental planning.

Not only have policy-level initiatives been taken but practical approaches have also been developed. A while ago I was referring to the fact that we are losing floral species and that large-scale deforestation has taken place. To deal with such challenges the Planning Commission has constituted two task forces—one on medicinal plants and the other on agro-forestry—with the objective of promoting the cultivation of medicinal plants and encouraging agro-forestry especially in the rural sector. This would help in improving the socio-economic level of the poor people and would also lead to conservation of natural resources. By large-scale cultivation of medicinal plants, their indiscriminate collection from the wild could be arrested. Development of agro-forestry would lead to a sustainable supply of wood and timber for various purposes and help in preserving forests. In fact the Planning Commission has been providing a forum for inter-sector deliberations on critical issues given the urgency of the matter due to globalisation. We are encouraging close co-ordination between various agencies that are involved in compiling extensive data covering our biodiversity and natural resources so that their proper identification, inventory and documentation can be completed and patents can be obtained before international companies could reap the benefits of our rich natural heritage. We would then be in a better position to benefit economically and distribute these economic gains among the rightful owners of these resources and traditional knowledge.

The Planning Commission has also been playing a proactive role in bringing about greater co-ordination between various agencies at the Central and State Government levels as also at the level of grassroot

organisations. Recently, we have revamped the Voluntary Action Cell in the Planning Commission to facilitate the civil society in overcoming various constraints, as we recognise the notable contribution of this sector in creating awareness and managing environmental resources. There are a number of issues involving the wellbeing of tribals, as their survival is directly linked to the health of the forests in their area. The relationship between the tribals and forests is also going to be discussed shortly at a meeting of Chief Ministers. Also with regard to the rights of tribals on minor forest produce, the Planning Commission has communicated its views to the various State Governments as also to the Ministry of Environment and Forests that their rights must be protected over other interests. Besides this, we have been emphasising the use of new and advanced technology in various sectors. I am happy to learn that the Forest Survey of India has recently shifted to digital image processing that is faster and more accurate for mapping the forest resources.

There are many schemes being implemented by the Government in various sectors, including the environment sector. We are aware that merely having schemes in particular sectors is not the end of the story. They need to perform and achieve the objectives for which they are formed. To monitor the progress and performance of the schemes and programmes of the Government in various environmental, social and developmental sectors, we are currently carrying out an exhaustive mid-term appraisal of the Ninth Five Year Plan. This is essentially being done to identify the constraints that are being faced and initiate appropriate mid-course correction so that the objectives for which the schemes are designed can be realised.

Let us keep in mind that the Government alone cannot protect the environment. There has to be meaningful participation from people from all walks of life. The concept of Joint Forest Management is a good example to illustrate how resources can be managed co-operatively when the people and forest officials come together. This has protected the forests even while conferring benefits on the people dependent on forests.

Let me emphasise at this forum that industry can also play a vital role in the protection of the environment and in the new millennium there is a lot of hope from the industrial sector. A change in perspective is gradually developing with some industries consciously working towards a clean image. Projects like the green rating of industries, being implemented with the help of NGOs, should facilitate a change in the present mindset. After the Green Revolution a "Green Industry" movement is perhaps needed in our country.

Industry can help in many other ways also. For instance, it is not always possible to monitor its compliance with pollution control norms. Thus, industry must realise that it has, on the one hand, a legal obligation to comply with the rules and laws and, on the other, to protect the environment as a social responsibility. Pollution control should be incorporated in all industrial projects. Compliance with norms may not always impose additional costs but in many cases may make industry more competitive. Here the true sense of the theme of the present Seminar comes into effect. New perspectives and, above all, better environmental management strategies hold the key to a sustainable future. Measures for improving productivity by more efficient energy use, recycling of wastes and enhanced efficiency would not only lead to environmental benefits but also yield savings. These savings would be profits accruing to the industrialists. Environment and energy audit are useful tools of the new and improved management strategies.

To bring about a change in perspective and implement a sound environmental strategy there is a need to undertake awareness and training programmes. Greater awareness and consciousness has to be built up among the general public also, as the people's participation and support is vital in achieving environmental protection. Public opinion and participation is known to put positive pressure on those involved in decision-making. A new perspective on environment and suitable management strategies requires mobilisation and involvement of people from all walks of life in environmental protection. This is a challenging task and a Seminar at the national level like this one can be very successful in spreading the message that educated, informed

and knowledgeable citizens can play a crucial role in managing and protecting the environment. I hope that this Seminar would be successful in identifying the gaps that need to be filled to improve our understanding of the environment. I shall look forward to receiving the proceedings of the Seminar.

In the end, may I offer my best wishes to the Director, his colleagues and the staff of the Forest Research Institute and commend them for the excellent work they have been doing over the years.

I also feel privileged to release the book "Landmark of Botany in India" in honour of Prof. R S Ambasht. Prof. Ambasht is a well-known plant ecologist and really does not need any introduction. He is undoubtedly one of the towering figures in the field of botany at the international level. This book is a true mark of respect to his outstanding contributions in ecology. Thank you.

** Inaugural Address at the National Seminar on "Environmental Perspectives and Management Strategies in the New Millennium" organised by Forest Research Institute, Dehradun on April 14, 2000*

FOREST MANAGEMENT*

Shri Gangopadhyaya, Shri Sharma & friends, I have just come from a Seminar, which was dealing with the aspect of sustainable development and the need to check environmental degradation and evolve strategies for that purpose. So most of the subjects of interest to you have in fact been exhausted in the Seminar. But I take note of the point, which Shri Gangopadhyay has made, that there are two lakh villages in the country where the forests have direct link with the welfare of the people living in and around the villages. Therefore, perhaps a slightly different focus for these villages in terms of development strategy is called for. I will not go into that here. But I will certainly be open to persuasion in that direction provided you can give me a concrete programme of action. Concepts are important but are useless unless they are translated into programmes of action. So I shall look forward to that.

I know that all of you have selected this service possibly because it is an all-India service. An all-India service has its attraction and so, as a career, it attracts bright young people. I would congratulate you on your ability to get into this service because I know the kind of tough competition through which you have come. Having come here now you are dealing with an area, which may not appear to be as attractive and glamorous as compared to other similar services. I have been born and brought up in the hills in the midst of forests and they are my first love. My own feeling is that it is a rare opportunity to work in an area, which has direct relevance to the lives of the people and to the ability of this country to face some of the problems, which are acute but not so readily reflected in the media and not so widely known.

Basically we know that man has been in harmony with nature for thousands of years but after the industrial revolution there has been a sudden increase in the consumption of such resources, which can be called irreplaceable. The conditions of life have been improved, no doubt, but at a cost. As population has grown slowly, apart from the

resources to which I referred, there has been a steadily growing imbalance between the requirements of a growing population and the support systems of life. What are these support systems? These are clean air to breathe, clean water to drink and the means of livelihood, which in a country like India still is related very largely to life. What is happening today in large parts of the country is that the trees are cut leading to deforestation.

As I told you, I come from the hills and I have seen the impact of this on the lives of the people. I have seen village women going long distances to collect wood, a few twigs. Sometimes they stay overnight in the jungles and come back home the next day because the trees have been cut near the villages. A peculiar cultural aspect of this is that nobody dare touch a fruit tree because a fruit tree is considered a man's tree. But a tree, which gives fuel and fodder, is regarded as a women's tree and gets cut because it is for the women to fetch the fuel and fodder. So, they have to go long distances. Similarly, they have to fetch water from long distances. Now what happens when the forests and trees are cut? The old water sources dry up because it is the forests, which preserve water. No village can be established anywhere unless at some particular point of time, when it was established, water was at hand. Yet, today we find the old sources dried up. I am deliberately reducing this whole problem to the problems of people living in these areas because this problem can be related to the lives of people all over the country.

You have other aspects. You have the tribal belt. The tribal population used to live in these forest areas. Many of them were all along inhabitants of these forest areas. You come across references to them in the epics but today they are not registered in the government revenue records as owning those forests. It is the Government, which owns those forests. Therefore, they become outsiders, who can be prevented from continuing with the natural relationship, which they had with the forests. That natural relationship extended to food and to the minor forest produce, which gave them their meagre necessities of life. Today they do not have access to these and where they have access, the Government departments have come in. Although

corporations have been set up to curb the exploitation of these tribal population by the middlemen (the traders), the traders end up buying cheap from the tribal population and selling at much higher prices in the markets.

Now about those who do not live in the forests, about the city people and others. Forests are necessary for soil conservation. Today, we lose a lot of soil. Soil and forests are necessary for water conservation. As I said, water and soil are necessary to sustain agriculture and so, if you do not have proper preservation of soil and water, in due course you are going to hit agriculture, which sustains the majority of people in this country. So there is a close inter-relationship between agriculture, forests, pastures and the employment of people, their work, their livelihood, their earning, on the basis of which, I would say, their survival. Then there is the role of forests to preserve the wildlife. We have rich flora, fauna and bio-diversity in this country. We have a huge genetic pool and traditional knowledge in this country all of which relate to the forests. You have medicinal plants and other kinds of wood used in industries. You have cane and bamboo, which gives employment to lakhs of people. We have a whole range of goods apart from the minor forest produce of which I spoke earlier.

So, the employment aspect requires that forests must be preserved. In the Ninth Plan we would be actually adding the largest number of labour force ever witnessed. The reason is that after the emergency there was a sudden spurt in childbirth. All those have become adults now. Just now the addition to work force is something like 2.5 per cent. I won't go into the details about the investment that would be required to take care of this problem. I am only pinpointing the importance of forests for employment, seeing in the larger context, i.e. including the work provided to farmers, to the person who owns the land, to the landless labourers and to the handicapped people, all of which depend on the income of the farms for their sustenance. Some people might say you are stretching this too far but I honestly believe in that. I believe that it is extremely important for us to preserve our forests for all these reasons.

There is an additional reason and that is related to the whole question of global warming, the question of release of carbon monoxide, carbon dioxide and nitrous oxide into the air and the fact that carbon fixation is one of the advantages of forests. If you have sufficient forest cover and if you extend it to the possibility of preservation of soil and water, which I referred to earlier, then you may ultimately influence also the reduction in the pollution that is taking place through use of certain kind of fertilisers, insecticides and pesticides, which run into the streams and get into the ground water. Therefore, the relationship of forests to our very survival and to our ways of life is something, which I want to put before you in as clear words as I can.

But there is one aspect, which I must also frankly put to you, and that is that there is a certain distance developing in many areas between the Forest Department and the people. Now you have experiments like the association of people in forest management and joint forest management, which are doing well and of which I have heard a lot. But it is something, which each of you will have to ask yourselves. Are you going to have people come to you and participate in your programmes or are you going to tell the people that these are their programmes and the Government is there to help them? If you take the latter attitude then you will find that the people will readily take over the responsibility of protecting the forests. In case of fire you can have their ready assistance because they have a sense of ownership. They think that it is their forest and they have to protect it. Today wherever this sentiment is missing then the people feel that this is a Government property and the Government could look after it.

I have come across both kinds of officers. I have come across officers who have been able to secure 100% co-operation of the people and the forest in their area is visibly better. I have come across officers who have given their lives to fight the poachers and the people who illicitly fell trees. I have met such officers and some of them have been killed. I have been to their homes. I have seen the sacrifices made by these officers, the Rangers and others working with them. One sees excellent personal characteristics in many of these people. One has to respect their commitment and dedication. But you are their leaders and they

will take guidance from you. I hope you would deeply ponder over these various aspects. As you go along you should keep on asking yourself whether the sum total of all that you are doing is something, which you yourself find satisfying. This is not for my satisfaction. It is for your own satisfaction. You have to have the goals and the values. Ultimately you have to live up to those goals and values. My only request to you is that you should set your goals high and have values, which combine your own career aspirations with the welfare of the people whom you serve.

**Address to IFS Probationers at the Indira Gandhi National Forest Academy, Dehradun, on 14th April 2000.*

INFORMATION TECHNOLOGY IN TEXTILE SECTOR*

I am glad to be with you at the inaugural session of the International Conference — TEXINFOTECH-2000—and to share some thoughts with you on the important issue of integration of information technology (IT) in the textile sector. Information technology is a harbinger of future growth and competitiveness of nations and industries. India, having the largest pool of skilled and trained manpower in this area, has a strong competitive advantage in the international market. Keeping this in view, the Government of India has resolved to make India a front-runner in the information revolution.

The textile industry, including the apparel industry, stands out as one of the most globalised in the world today. The textile and apparel industry is buyer-driven and the pattern of demand influences a coalition of retailers, contractors, sub-contractors, merchandisers and suppliers. Each participating entity plays a role in a network of supply chains, which span from fibres to yarn to fabrics to accessories to garments to trading and marketing. Geographically, they span the continents and cut across regional and national boundaries. With the shrinking of distances and the impact on profit margins of greater international competition, the IT revolution offers a powerful tool for the textile sector to meet the challenge of the emerging situation.

The textile industry encompasses the lives of all of us either as consumers, distributors, workers or producers. It is the largest economic activity after agriculture, providing direct and indirect employment to about 100 million persons. It contributes about 14% to the value added in manufactures and accounts for around 1/3rd of the country's total export earnings. Yet, there is no denying the fact that this age-old textile industry will have to improve in certain areas of weakness and enhance its competitive strength to retain and improve its position in the textile map of the world, particularly in the context of the emerging liberalisation and globalisation of textile products

and trade. This calls for bold initiatives on the part of the industry and the Government, particularly in areas such as upgradation of technology, improvement in productivity, availability of raw materials, enhancement of quality of products, incorporation of information technology for improving design and enlarging business and commerce. It is in the context of modernisation that I believe IT has a significant role to play in the industry. Information technology can be used by small as well as large enterprises because many of the IT tools are scale-neutral.

Design today is information-based and Internet is providing the cheapest and the fastest way to access almost any kind of information right from technical to fashion trends, consumer behaviour, market intelligence, latest technologies, raw material sources, equipment suppliers, buyers, retailers, etc. The process of evolving new, original design ideas, exploring them and fine tuning the elements is now easier and faster than ever before on the computer-aided design (CAD) systems available today. Designing of yarns, weaves, textures, prints, knits, garments or even accessories, colour matching, fashion illustrations and style variations in different permutations and combinations can be carried out quickly and conveniently.

I understand that the Ministry of Textiles has already taken a number of initiatives in this regard. The year 1999 was declared as IT year for propagating the advantages of integration of IT solutions including CAD/CAM and IT-based tools for improving the speed and quality of production and cutting down the overall time and cost over-runs. As a part of this exercise, the Ministry of Textiles has been organizing seminars and exhibitions on IT known as TEXINFOTECH at various places for awareness building by bringing together the users and practitioners of IT.

Consequent upon the establishment of the World Trade Organization the quota regime in the textile sector is scheduled to be completely phased out by the end of 2004 AD. It will have implications for both domestic and export sectors. The textile industry will have to gear itself up to face competition from producers of cheap quality cloth,

inter alia, by integrating IT applications. In fact, India should act with a great sense of urgency since the effect of WTO, already being manifested, will accelerate from 2002.

The Indian textile industry should not under-estimate the magnitude of the challenge posed by global competition. For one thing, replacing the existing machines with machinery incorporating the state-of-the-art control, instrumentation and automation systems will require huge investment with the resultant negative impact on viability. Cost-effective solutions would need to be devised for the industry to survive in the face of globalisation. Retrofitting the existing production machinery with microprocessor based electronic systems may help in achieving the desired level of automation at affordable costs.

It is in the above context of modernisation that I believe information technology (IT) has a significant role to play. As you all know, IT can find a range of applications in the textile industry. Management information system (MIS) packages and enterprise resource planning (ERP) solutions are now available for adoption by small, medium as well as large units. The MIS packages for optimising the product-mix in fabrics will be helpful in reducing costs and improving productivity. The ERP solutions can be utilised for achieving efficiency and improving quality of production. The IT tools also facilitate flexibility in production, which has become more important as consumers are increasingly becoming more demanding in styles and designs. Even the handloom and powerloom weavers could have access to CAD-CAM-aided designs and colour combinations with on-line information on the latest fashion trends in India and abroad. The Government of India has allowed funding of IT-related projects costing up to 30% of the total cost under the Technology Upgradation Fund (TUF).

The other side of IT application relates to marketing of products. Virtual shopping through web-enabled electronic media is increasingly replacing the traditional concepts of marketing. The world over, business transactions are increasingly being carried through electronic media. E-commerce conducted over the Internet is expanding rapidly in industrialised countries both in the area of "business to consumer",

commonly referred to as B2C, and also "business to business" or B2B. The B2B e-commerce is expanding much more rapidly than the B2C. As international business transactions shift to the web, the producers must be able to communicate on the Net and also be accessible on it.

With the coming into force of Euro Currency in the EU countries, e-commerce will rapidly grow in EU countries, which along with the US are our major trading partners. If we want to maintain our business in textiles and sell our products in these countries, there is no other way but to adopt e-commerce in a big way. I am afraid that if we do not adopt this medium of transaction, the rapid development of e-commerce all over the world may create another non-tariff barrier for us and we will be left behind.

In the new environment of e-commerce the challenge is not only limited to the quality of the product and its price. It extends to the quality of communication adopted for information exchange in terms of speed, compatibility and friendliness. The Export Promotion Council of the Ministry of Textiles should host its own web site. It could also take a lead in setting up the virtual exhibition on the web under its market development activities, covering the whole spectrum of textiles, including products from the medium and small-scale producers. At the same time we have to formulate policies for enhancing competitiveness and productivity. The time has come to put the issue of productivity at the centre of our development process.

The subjects chosen for the Conference are very important and topical. I hope that the deliberations of the Conference will enable the textile industry and the IT sector to join forces to win the battle of global competition. I wish the Conference all success. Thank You.

** Inaugural Address at International Conference, TEXINFOTECH-2000 on "IT Applications in Textile Sector" organised by Ministry of Textiles on April 25, 2000 in New Delhi*

STRENGTHENING INDO-BRITISH TIES*

Distinguished co-chairman, colleagues and fellow members of the Round Table, I have great pleasure in formally welcoming you today to the first meeting of the India-UK Round Table. India and the UK are two countries, which have been linked together by historical bonds, our common membership of the Commonwealth and the presence of a large community of Indian origin settled in the UK. There is a wealth of commonality between our two countries, as evident in our institutions of law, education and administration. We share a commitment of parliamentary democracy and a free and vibrant Press. Underpinning all these commonality are the English language, the game of cricket and the curry industry. Over the last 50 years the Indo-British ties have been cemented further through substantial cooperation in trade and commerce.

Mutual understanding and respect has become an important feature in this relationship. In the last year and a half our respective governments have engaged in regular high-level exchanges spanning diverse fields. The ongoing discussion and debate at the government level has allowed both the countries to appreciate and understand better each other's respective positions on bilateral, regional and multilateral issues. We can, however, observe considerable untapped potential for bilateral cooperation, particularly in the economic and commercial fields. Our interaction in areas, such as science and technology, environment, information technology, energy and infrastructure, to name a few, has also remained at a nascent stage.

The India-UK Round Table has been set up to examine and analyse this relationship with an open mind and a clear perspective. The composition of this forum is indicative of the various facets of this relationship and the potential that exists for its further enrichment and diversification. The agenda for our meeting today would hopefully

lead to a focussed discussion on bilateral relations, trade, commerce, cooperation in the fields of science and technology, information technology, energy, infrastructure, culture, education, media as well as the perceptions about India and the UK in each other's country. Our deliberations today and tomorrow will be summarised and our recommendations regarding the new avenues for bilateral cooperation will be submitted to the Prime Ministers of our two countries for their consideration.

Our Round Table has been established at a time when India continues to press forward with its economic reforms and exciting opportunities are opening up for its partners. The Indian economy has grown in size, acquired depth and is moving ahead on a higher trajectory of growth. Similarly, the UK has also taken impressive strides and continues to occupy an important position in the world economy as a great trading nation and an important financial centre. A constructive economic and commercial partnership links many British and Indian firms. This Indo-British partnership, through its various events and activities, has also been instrumental in bringing the businessmen of our two countries closer to each other. However, you will, perhaps, agree that our trade figures do not reflect the dynamic growth or do justice to the exciting opportunities, which have opened up during the last few years.

Our discussions today and tomorrow will enable us to examine this further. To facilitate such an examination we have arranged for a presentation on the Indian economy, which should help to identify and consider measures for enhancing the levels of bilateral trade and investment. We will also attempt to identify the bottlenecks, which our businessmen and entrepreneurs face in exploiting the economic opportunities, which exist.

Scientific and technological cooperation between our two countries is another area, which would merit our attention. With its skilled technical manpower, which has amply demonstrated its caliber, India today has a distinct cutting edge in some critical sectors. We recognise, however, that it is important to constantly upgrade these skills and

technology and keep pace with the rapid changes taking place. Our inaugural meeting will allow us to identify the areas, which require focussed attention and consider the possibilities for transfer of technology to mutual advantage.

The industrial and trade policies being pursued by our Government since 1991 have accelerated the emergence of our electronics and information technology sector as one of the fastest growing sectors of the economy with a compound annual growth rate exceeding 50 per cent.. The exciting prospects and potential for a beneficial partnership in this sector will be demonstrated through a presentation by our National Association of Software and Service Companies (NASSCOM).

The people-to-people level contacts between our two countries have been increasing steadily over the last few decades. Both the countries have recognised the community of Indian origin in the UK as a common constituency. Tourism has been an important interface between India and the UK. The possibilities for further increasing the interaction in the area of education and culture could be explored by our Round Table. A concrete form of such cooperation could be through exchange of students, scholars, exhibitions, workshops, seminars etc. We live in an era of instant dissemination of information and news, in which the media has an important role to play in shaping the views and perceptions of our peoples. In recognition of this global phenomenon, the Round Table could suggest ways and means of enhancing cooperation between the media of both countries.

Ladies and gentlemen, this is the broad framework for our discussion at the India-UK Round Table during this inaugural meeting. I hope that at the end of our deliberations we will be able to give a concrete set of suggestions and recommendations on the measures that could be adopted to strengthen the bilateral relationship between our two countries. I look forward to your cooperation in injecting a creative and constructive spirit in the discussions.

** Opening remarks at the India-UK Round Table meeting held in New Delhi on April 18, 2000*

THRUST AREAS IN DEVELOPMENT STRATEGY*

It is a pleasure to be here with you at the Thirty-fourth Convocation of the Indian Statistical Institute. This institution is an enduring symbol of the vision of Prof. P.C. Mahalanobis, whose contributions not only to Statistics but also to Development Policy and Planning have been profound. May I take this opportunity to congratulate all of you who are graduating today. You are the inheritors of a great legacy and torch-bearers of a long tradition of excellence. One stage of your life is coming to a close and the next is about to begin. You have acquired the skills necessary to make a success of your lives but success is itself not uni-dimensional. You will have to look within yourself to decide the ingredients of success, which best suit your own personal values and objectives.

Today I would like to take this opportunity to touch upon the shifts that have taken place in our development strategy and in our attitudes and approaches towards growth and development over the years and present a vision of the future of our country. There has been a tendency in recent years to treat the development strategy followed by India for the first forty odd years after Independence as an undifferentiated continuum. Nothing could be further from the truth. Indian development strategies have evolved from Plan to Plan in response to the objective conditions of the economy and to the challenges of the moment. Some of these changes have been strikingly bold and original, others more modest; but change there has been.

The Second Five Year Plan, which more than others bore the imprint of Prof. Mahalanobis, set the stage for our essential development strategy during the early years. The emphasis on the establishment of heavy industries, both as a means of rapid industrialisation and for raising the low savings rate of the economy, was certainly original in its conception and reflects the tremendous confidence that our

economic leadership had in its analysis and judgement. The Third Plan, conceived during a period of serious balance of payments problems and falling international prices of primary products, introduced the concept of import substitution as a strategy for industrialisation. The Fourth Plan came after one of the most difficult periods of Indian economic history. The period between 1965 and 1967 witnessed the worst drought in recent memory in large parts of north India. This traumatic experience brought food security to the forefront of our policy imperatives.

The Fifth Plan too was path-breaking in that it recognised that the benefits of an industrialisation-based growth strategy have not really impacted on the lives of a vast majority of our people. In other words, the so-called "trickle-down" effect has barely worked. The concepts of "minimum needs" and directed anti-poverty programmes were the innovations of this Plan. The Sixth Plan for the first time recognised that the success of the Mahalanobis' heavy industrialisation strategy in raising the savings rate of the country had created a situation where excess capacities were becoming evident in certain industries. A shift in the pattern of industrialisation, with less emphasis on heavy industries and more on infrastructure, begins here. The Seventh Plan represents the culmination of this shift in perspective and may be termed as the "Infrastructure Plan". It was also during this period that a reappraisal of the import-substitution strategy begins. The Eighth Plan was overtaken by the crisis of 1991 and the economic reforms that came in its wake. The dramatic events and policy initiatives of the two-year Plan holiday between 1990 and 1992 demanded a full reappraisal of the planning methodology and the Eighth Plan represents the first efforts at planning for a market-oriented economy.

Through all these changes, agricultural growth was viewed as an adjunct of industrialisation rather than as the centre-piece of development strategy. At one level we have certainly succeeded. India today boasts of a highly diversified and productive industrial sector, which has steadily gained in strength over the years. At another level, however, our dreams have been belied. Even today above 70 per cent

of our population live in the rural areas and more than 60 per cent derive their livelihood from agriculture. The state of rural India, although much improved since our Independence, is still a matter of grave concern.

Despite considerable increases in agricultural output and expansion in non-farm rural activities, 37 per cent of people in our rural areas continue to live below the poverty line. Despite having attained self-sufficiency in foodgrains there is evidence that under-nourishment and malnutrition are endemic in our rural areas, particularly among women and children. This is a state of affairs that no democratic government with deep concern for the welfare of its citizens can ignore. Nor is it possible to ignore the widespread incidence of under-employment in rural areas. Too many of our people are working for long hours without commensurate returns for their labour. There is also evidence of greater casualisation of our rural labour force.

This problem is likely to become even more acute in the coming years. The projections made for the Ninth Five Year Plan indicate that our labour force will be growing at a rate of about 2.5 per cent per annum, which is the fastest growth that has ever been recorded. This high rate of labour force growth has its origins in the population explosion that occurred during the late 1970s and 80s. Our past experience and projections for the future indicate that even with optimistic assumptions almost half of this increasing labour force will have to be absorbed by agriculture. Therefore, unless our agricultural sector grows sufficiently fast, we face the spectre of growing unemployment and of even greater under-employment of our work force. This would place an intolerable burden on the fabric of our society.

This recognition has significantly affected our approach to development. The Ninth Five Year Plan reflects a subtle shift in our development perspective but a shift, which can have far-reaching implications. The fundamental message conveyed by the Ninth Plan is that the agricultural sector can no longer be treated as being a residual or peripheral component of our growth path but must occupy

the centre-stage of all our development efforts. This recognition stems from two important observations. First, our experience since the mid-1980s, and more particularly since the initiation of economic reforms in the early 1990s, strongly indicates that the Indian industrial sector has reached a stage of maturity whereby it no longer requires focussed attention of the Government, whether it is promotion or protection. Our industrial and commercial entrepreneurs are perfectly capable of generating high growth rates in industry on their own and the government needs only to play a facilitative role by creating a conducive policy environment. Secondly, it has become increasingly clear that there is tremendous potential that remains untapped in our agricultural economy. It is possible to achieve and sustain high levels of agricultural growth for a considerable period of time even on the basis of existing technology. With the induction of new technology the prospects are virtually unlimited.

In the Ninth Plan, therefore, agriculture is projected to be the centrepiece of our development strategy. Its importance is highlighted in three distinct components of the broad objectives of the development strategy articulated in the Plan. First, it is viewed as being essential for the acceleration of the overall growth rate of our economy, not only by achieving a high rate of growth itself but also through pulling up the growth rates of other sectors through a widespread distribution of purchasing power and consequently of demand for industrial products and services. This represents a virtual inversion of the "trickle-down" theory and embodies a belief that high agricultural growth can itself be an engine of growth. Secondly, agricultural growth is recognised to be the surest way to bring about equity in income and wealth so that an accelerating growth rate will be reflected in a rapid reduction in the incidence of poverty. The evidence for this is overwhelming, both from our own and from international experiences. Finally, it is central to all our efforts at self-reliance. No country can call itself secure unless it has food security not only in the aggregate but also at the level of every household and, indeed, every individual. Food security in a macro sense has informed our development policy for over thirty years now but its link with

household incomes and intra-household distribution has received less than adequate recognition.

Rapid growth of agriculture will not take place on its own. It will require concerted and coordinated efforts across a broad front. Some of these actions are directly within the domain of the government but many others require participation of a wide range of people and institutions. A sober and careful assessment of our resources indicates that both land and water will be constraints on our efforts. I do not see any possibility of increase in the cultivated area in the country. In fact, there is need for a total ban on diversion of agricultural land to non-agricultural use. Efforts are also needed for increased use of wasteland to meet the demands of urbanisation. Similarly, our water resources are under stress. Without active measures this may emerge as the single most important limitation to our efforts. There is, therefore, no alternative but to focus on raising the productivity of our land, water and, most importantly, human resources in a manner, which is sustainable over the longer term.

The first, and possibly the most important, area of focus must be to raise the cropping intensity of our existing agricultural land. Climatically we are fortunate in that it is possible for us to have multiple crops practically all over the country. However, most of our agricultural land continues to be under a single crop system, particularly in the rain-fed and dry-land areas. The problem here is water. Despite large investments in irrigation in the past, only about 40 per cent of our agricultural area is irrigated. The progress on this front, particularly in terms of major and medium irrigation projects, has slowed down considerably in recent years. Public investment in irrigation has fallen significantly. This is only partly due to resource constraints faced by governments both at the Centre and the States. A major reason is also that potential irrigation projects are located in areas, which are either more difficult or environmentally more sensitive. This of course does not mean that efforts at tapping these resources in an environmentally sustainable manner and with due regard to the vexatious issues of rehabilitation and resettlement will not be carried forward. What it does mean is that considerably greater attention will

have to be paid to rain water harvesting and increasing the irrigation potential through scientific watershed development. Furthermore, there is considerable scope to improve the efficiency of our existing irrigation infrastructure through better and more participative management practices.

The second area that needs to be addressed is that of infrastructure that supports not only agriculture but also all the rural economic activities. A number of recent studies have indicated that the rate of growth of rural incomes and reduction in rural poverty are most strongly influenced by the provision of rural road connectivity. It is also vital for improvement of social infrastructure such as safe drinking water, primary health and primary education facilities, which are identified with human development. No doubt other forms of infrastructure are also important but the impact of rural roads in widening the opportunities and alternatives available to our people has a dominant effect. Our past record in the creation of rural connectivity, with a few honourable exceptions, has not been very good. Although this is an area, which is in the domain of State Governments, the Centre has taken the initiative to provide dedicated funding for a significantly accelerated rural road programme. We have also reoriented our poverty alleviation programmes in a manner that they contribute more efficiently to the creation of rural assets, both private and community. The pure employment generation schemes, however, are being focused on those areas, which have significant underemployment, in order to ensure that the problem of providing adequate employment opportunities are not lost sight of.

It needs to be recognised that for the sustainable development of agriculture we have to adopt a regionally differentiated strategy based on agro-climatic conditions and land and water resources where crops most suited to the area and resource endowment are encouraged. Besides, farmers have to be encouraged to cultivate high-value crops and also to go in for value addition to their farm produce to generate additional incomes. The diversification of agriculture is also necessary in order to meet the increasing demand for a wider range of food products as a consequence of growth in incomes. All these, however,

would require the development of post-harvest technologies and marketing infrastructure and reconsideration of various rules and regulations that restrict agricultural trade, which frequently act against the interests of the farmers and distort their incentive structure.

The third area that needs attention is the development and dissemination of agricultural technologies. Over the years we have developed an extensive system of agricultural research centres and extension services. Although these have had a significant impact on our agricultural growth, much more needs to be done. Strengthening of our agricultural research and development system and a significant improvement in the sophistication of the technology dissemination methodologies are essential for achieving rapid and sustained growth in agricultural productivity.

Finally, there is a need to encourage rural non-farm activities along with agriculture. This is particularly important in a small farmer-based agricultural system as we have in India as it has tremendous potential for increasing rural incomes. Traditional skills, technologies and products abound in our country but we need to make concerted efforts to create market opportunities for them and provide the necessary financial resources for their development. Micro-financing is one method of providing the latter, which has been used successfully in a number of other developing countries. We too are making determined efforts to develop and encourage institutions, which are capable of taking up this critical activity. However, the attitudes and skills required for micro-finance are quite different from what exists in the normal banking sector. Entirely new and innovative approaches will have to be evolved to address this issue.

I have a vision of India in which we are not only a leading industrial power but where a large proportion of our people living in villages do not feel the need to migrate to cities. As Gandhiji said, India lives in her villages, which are the crucible of our social structure, culture and indeed our national values and ethos. In the industrialised countries of the West people are beginning to move back to the villages from the cities in order to rediscover the values and the lifestyles that they

had lost. This is, perhaps, one area where we can leapfrog. We must create conditions in the rural areas of our country whereby this vision becomes a reality in the not so very distant future. In order to do so we have to realise that rural activity, whether it is agriculture or manufacturing or commerce, is just as sophisticated and demanding as any urban industrial or commercial activity. Everybody recognises that information and management are the two critical components of industrial growth. I submit to you that these are just as important, if not more so, for the whole gamut of rural activities.

Today there is talk about the creation of a "knowledge economy" but the application of knowledge is not restricted to industry or specific components of the services sector. It touches every aspect of human existence and every form of economic activity. Similarly, the creation of knowledge is not the sole domain of laboratories and institutions of higher learning. It is to be found all around us if we care to look and if we have the humility. Should we not draw a lesson from the fact that foreigners have displayed a greater appreciation of our indigenous and traditional knowledge and wisdom than we ourselves. We must tap this vast reservoir and codify such knowledge in a manner that makes it available for the benefit of mankind.

The information revolution has made possible much that was difficult earlier and we have recorded some success in this arena. The use of information technology is spreading rapidly in the country but its penetration in rural areas is still at a nascent stage. Objective appraisal of the possibilities indicates that information technology can yield vast returns when applied to our rural areas in a creative and systematic manner. This applies not merely to issues of dissemination of technological and market information but also to ensuring better and more responsive governance. We shall make all efforts to ensure that such development does take place. Nevertheless, for the optimal use of such technologies, the people themselves will have to be empowered to tap into the IT revolution. This will not only require a rapid spread of education but of education, which is relevant to the requirements of the rural populace and enables them to take advantage of the technological possibilities unleashed by information technology. Non-

government organisations too will have a central role to play in this and all encouragement needs to be given to them to play their role effectively.

At the end of the day, however, all initiatives in developing and modernising our rural areas will depend upon the quality of management that exists. To my mind, organisation of rural economic activities requires qualities of management, which are probably far more sophisticated and complex than those required by the industrial economy. Standard forms of industrial organisation cannot be readily transmuted for application to rural areas. New and more appropriate forms of organisation will have to be devised. Co-operatives and self-help groups have played a significant role in our rural areas and they need to be unshackled from political and bureaucratic interference to enable them to grow faster and prove their worth. The Panchayati Raj institutions also represent an exciting area of experiment in rural organisations. We have great hopes that these would become powerful and eloquent champions of the aspirations of our people. These alternative forms of organisation, however, need help in managing their affairs in a professional manner. Such skills are in short supply.

Where do statistics and its related fields fit into this vision of the future? As far as I can make out, they fit in everywhere and in a greater measure than before. For too long have the Indian statistical system and practitioners seen themselves as handmaidens of the governmental system, whether in policy planning or in research. Those days are gone. Any activity, which requires going from the general to the particular or *vice-versa*, has need of statistics and statisticians. A liberalised and globalised industrial economy needs vast quantities of information and appropriate techniques of analysis. Reliance on governmental sources will no longer suffice. In services too, financial analysis and actuarial services are set to expand rapidly. Agriculture – our central focus for the future – is vast in its ambit. Genetics and bio-sciences are just as essential to agriculture as to health care and pharmaceuticals. Even the government's requirements of statistical information are expanding. At one level, greater decentralisation will require statistical expertise at every tier of government. At another

level, globalisation of the economy will require us to institute systems to track the international economy and to provide early warning signals. One example is the growing incidence of "dumping", which requires an information system capable of identifying aberrations and outliers on a real-time basis. Last but not the least, no effort at improving governance can succeed without a proper system of monitoring through the use of statistical techniques.

I would like to share my concern about the state of statistics and generation of statistics in the country today. While it is true that we have a long tradition of a world-class statistical system at the central level, we are still grappling with antiquated methods of generating figures at the district and block levels. Friends, this century belongs to the knowledge workers and knowledge managers and the basis for conversion of knowledge into wealth would be on the way we interpret reliable statistical data into meaningful information. I was in the Forest Research Institute in Dehra Dun recently where I was told that the forest officials had to substantially change their data of forest cover once they were confronted with data generated from satellite imageries. This only illustrates the need for blending technology for generation and dissemination of statistics at the grassroots level.

The whole edifice of national statistics is based on data gathered at the field level and, therefore, we need to have a reliable database in order to draw meaningful conclusions. There is considerable scope for improvement in the present system and I would like statisticians to take up this challenge and see that the statistical systems can be strengthened in the country.

It gives me great pleasure to see that so many bright young men and women have equipped themselves to extend professional statistical skills to areas and activities, which have great need for them. Our vision and hope for the future rest critically upon the skills and capabilities of the younger generation and I am certain that we will not be disappointed. I wish you all the best in the progress of your careers. Thank you.

IMPACT OF WTO AGREEMENT ON SMEs*

I am very glad that ASSOCHAM has taken the initiative to organise this Seminar on the implications and impact of WTO agreements on small and medium enterprises (SMEs). The role of small-scale industries in the development of our country cannot be over emphasized. They contribute about one third of our Gross Domestic Product, provide employment to about 17 million people and generate about 35 per cent of our exports. The contribution of more than 31 lakh small-scale industrial units spread through out the country in the establishment of a wide industrial base, in the dispersal of industries into rural and backward areas and in ensuring a more equitable distribution of income and wealth is widely recognized. In fact, the Ninth Plan projects agriculture and development of rural areas as the centrepiece of our development strategy.

This development strategy recognises the need to encourage rural non-farm activities along with agriculture. This is particularly important in a small farmer-based agricultural system, as we have in India, for its tremendous potential for increasing rural incomes. Traditional skills, technologies and products abound in our country but we need to make concerted efforts to create market opportunities for them and to provide the necessary financial resources for their development.

Over the years, a wide array of policies, programmes, schemes and institutions have been developed both at the national and State levels to provide support to, and promote, the growth of small-scale industries. Many items were reserved for manufacture in the small-scale sector and purchase preferences were extended to them. The focus of policies designed to help the small-scale sector has been to provide them protection from competition from large industries in a more or less closed economic environment. With the opening of the

economy, however, the focus has to shift to preparing the small-scale sector to face exposure to competition by improving the efficiency of their operations.

We have been implementing economic liberalisation policies for quite some time now with the objective of gradually integrating the Indian economy with the global economic system. As a signatory to the WTO agreements, we are bound to fulfil the various obligations such as removal of quantitative restrictions on imports, tariff reduction and conforming to international standards etc. so as to ensure a transparent, open and predictable trade regime. We have already removed the quantitative restrictions on the import of a large number of items and the remaining such restrictions are to be lifted by the end of the current financial year. In the case of SSIs, out of the 812 reserved items, 576 were already under OGL prior to April 1, 2000. Under the new Exim Policy 58 more items have been transferred to the OGL list. While there may be reason for genuine apprehension about the immediate impact of liberalised imports on some small-scale industries, I feel our SMEs should seize the opportunity to accept the challenge of discarding their dependence on a protected market and adapt themselves through upgradation of technology, expansion of capacity, aggressive marketing and equip themselves to face international competition. The Government on its part would be prepared to provide the necessary guidance, support and assistance to enable the SSI sector to gear itself up to face the competition and overcome the problems and challenges due to the opening up of the economy and liberalisation.

I feel there is a great need for creating awareness among all concerned about the WTO agreements and the host of issues thrown up by them. I understand that the Ministry of Small Scale Industries is organising a countrywide WTO sensitisation programme with the involvement of industry associations to generate awareness among the participants on the basic features of WTO agreements affecting SMEs. We should also get a feed-back from the industry regarding their views and apprehensions relating to these agreements and what they would like the Government to do in order to allay their fears in terms of

changes in policy. The interaction with the industry will help the Government to formulate its strategy during the next round of trade negotiations, whenever they are held.

The efforts of our SMEs to adjust to the new situation arising out of liberalised imports can be helped to a great extent if we are able to address the various problems faced by them. The vulnerability of SMEs to increased competition is caused by factors like low capital base, poor credit availability, difficulties in accessing technology, absence of economies of scale, low quality human resources, poor marketing opportunities and lack of information about international regulations and standards.

One area where meaningful efforts can be made to help SMEs is to make adequate credit available to them at reasonable cost. Availability of finance is crucial for SMEs to survive, increase capacity, upgrade technology and improve management and productivity. Small industries have traditionally had difficulty in accessing formal credit, particularly long-term finance. This is mainly due to their low capital and asset base and lack of proper accounting practices and financial documentation. Financial liberalisation in recent years has made allocation of funds in the economy more competitive. Measures, aimed at macro-economic stabilisation and austerity, have sometimes reduced the commitment of public funds for supporting SMEs. Hence, it may be necessary to continue the policy of priority lending to small-scale units by banks and other financial institution. The possibility of introducing a loan guarantee scheme, under which a portion of credit to SMEs is guaranteed by the Government, prevalent in some countries, should be examined. The availability of credit is also very important for supporting new entrepreneurs, especially in the high technology areas. I am glad to inform you that a proposal to set up a Credit Guarantee Fund, with contribution by the Government of India and SIDBI in the ratio of 4:1, to provide 75 per cent credit guarantee on loans up to Rs.10 lakh to small-scale and tiny units is under active consideration of the Government.

Another important problem faced by SMEs in India is that of technological upgradation. Generally the technological gap between developed and developing countries is wide. In the case of small-scale units, the investment ceiling and financial and capacity constraints have often come in the way of expansion and technological upgradation. The SMEs may need technology support in areas of research and product development, quality improvement, testing and standardisation, environmental technology etc. We have large R&D facilities in our national laboratories, universities and other specialised institutions. The need of the hour is to develop suitable linkages between SMEs and these institutions so that technological assistance can be extended to meet the distinctive needs of SMEs. The Ministry can consider the setting up of a special institute for inter-mediation between research organisations and SMEs so that technology transfer to them can be facilitated. Further, a technology support system run by an industry association in response to specific needs of particular group of industries can be useful. Areas like development of environmentally sound technologies, biotechnology and development of new materials can present fresh opportunities for the developing countries. As subsidies for research and development activities are permitted under WTO, the Government can play an important role by extending support to efforts aimed at technology upgradation of SMEs.

A serious problem most small-scale enterprises may face is about marketing their products. They should be prepared to compete both with the products of large domestic industries as well as imports. Earlier, the policy of reservation and purchase preferences had ensured an effective marketing mechanism for SSIs. With more and more branded goods with multinational links flooding the domestic market, we should think about ways and means of helping SMEs to sell their products competitively in the domestic and international markets. The emergence of the Internet, electronic commerce etc can definitely help increase the market access of SMEs. Arrangements should be

made to impart training on the use of modern information technology for the benefit of SMEs.

The removal of quantitative restrictions will definitely expose SME products to competition from imports even in the domestic market. The scope for extending tariff protection to SME products is also limited. India's average tariff now is about 30 per cent, which is still high compared to global standards. Tariff rates above 35 per cent are not considered feasible on account of our commitment to bring down tariff levels in due course. Therefore, generally speaking, it may not be possible to afford effective tariff protection to domestic producers facing competition from imports. Import duties can, at best, somewhat alleviate price competition and provide breathing time to SMEs for adjusting to the new market realities.

The role of the Government hereafter will be as a facilitating agency rather than a provider of protected markets for SME products and services. It can encourage quality upgradation through various measures, enlarge credit availability, adopt anti-dumping measures wherever required and help disseminate information about technical standards. I am sure that our SMEs can face with confidence the situation arising out of increased competition from abroad because of certain inherent advantages like availability of better quality human resources compared to most developing countries, the existence of a large and expanding domestic market and the enormous scope for venturing into more knowledge-based industries.

Recognising the importance of the SSI sector and its contribution to employment generation, national income and exports, the Planning Commission has set up a Study Group on Development of Small Scale Enterprises under the Chairmanship of Dr. S.P. Gupta, Member, Planning Commission. I understand the Study Group has held a number of meetings and the work of preparation of its reports is at an advanced stage. I am confident that the Group will come up with useful recommendations, which would enable the SSI sector to meet

the challenge of WTO and the opening up of the economy and lead to its healthy growth and development.

I am very happy to inaugurate the ASSOCHAM Seminar on "WTO Agreements: Implications and Impact on SMEs". I hope that the deliberations here will help to focus attention on important issues concerning the growth of SMEs in the liberalised economic situation. Thanking you

** Inaugural Address at the Seminar on "WTO Agreements – Implications and Impact on SMEs" organised by ASSOCHAM on May 3, 2000 in New Delhi*

POPULATION POLICY*

Today is indeed a very momentous occasion. India's population has reached one billion. The current population growth is due to three factors. The first is the large size of the population in the reproductive age group, whose estimated contribution to the population growth is 60 per cent. The second is higher fertility due to unmet needs for contraception, whose estimated contribution is 20 per cent. The third factor is high wanted fertility due to prevailing high infant mortality rate (IMR), whose estimated contribution about 20 per cent. The population growth due to unmet needs of contraception and maternal and child health will have to tackled energetically.

As you know the Population Policy has been approved by the Cabinet and has been placed in the Parliament. The document has been distributed and so I will not go into the details. The Policy was evolved after extensive discussion with the experts in the field, Central and State officials, non-governmental organisations and civil society representatives. The immediate objective of the NPP2000 is to address the unmet needs for contraception and achieve improvement in maternal and child health so as to reach the replacement level of fertility by 2010. The long-term objective is to achieve population stabilisation by 2045 at a level consistent with the requirements of sustainable economic growth, social development and environmental protection. If the growing population is provided with access to education and vocational training and opportunities for appropriate employment with adequate emoluments, that will improve their own and the country's socio-economic growth and development.

The Population Policy envisages formation of a National Commission on Population in order to ensure comprehensive and multi-sectoral coordination of the planning and implementation of programmes not only of health and family welfare but also all other concerned sectors,

including education, nutrition, women and child development, environment, labour, rural and urban development both at the Centre and the States. The National Population Commission with the Prime Minister as the Chairman and the Deputy Chairman of the Planning Commission as Vice Chairman, Chief Ministers of all States, Ministers of the related Central Ministries, Secretaries of the concerned departments, representatives from NGOs, civil society and institutions as members has been constituted today. The Commission will also have the assistance of eminent experts.

The Commission has the mandate

- ❖ to review, monitor and give direction for implementation of the National Population Policy with the view to achieve the goals set in the Population Policy;
- ❖ to promote synergy between health, educational, environmental and developmental programmes so as to hasten population stabilization;
- ❖ to promote inter-sectoral coordination in planning and implementation of the programmes through different sectors and agencies at the Centre and in the States; and
- ❖ to develop a vigorous peoples programme to support this national effort.

It is recognised that apart from the programmes of the Departments of Family Welfare and Health, other schemes for socio-economic development also contribute to reduction of fertility. High levels of literacy, particularly female literacy, contribute towards reducing fertility rates over time. There is a need to encourage girls' education by coordinated action of Central and State Governments, local bodies, voluntary institutions and organisations and dedicated individuals to exploit the inter-linkages between literacy and health, sanitation etc.

There are schemes for the empowerment of women, such as DWCRA (Development of Women and Children in Rural Areas) and Self Help Groups, being implemented by the Ministry of Rural Development

and Balika Samridhi Yojana and ICDS run by the Department of Women and Child Development. Synergies between these schemes aiming at the same target group have to be realised. In order to make this as a people's movement, the Panchayat Raj institutions and the voluntary sector have to be involved in a big way. The details of the proposed action plan for inter-sector coordination and the role of the Central Government, the State Governments and the PRIs, which have been approved by the Group of Ministers, are given in detail in the documents circulated

It may be recalled that in order to ensure that the country makes the best use of the opportunity window in the demographic transition, the NDC in 1991 constituted a Sub Committee on Population. The Committee made several recommendations not only to give a new thrust and dynamism to the ongoing Family Welfare Programme but also to address the larger issue of population and development so that the country will speedily attain the replacement level of fertility and simultaneously efforts will be made to improve the quality of life. The major recommendations pertaining to the Family Welfare Programme including the formulation of the Population Policy have been implemented. The Family Welfare Programme has undergone a paradigm shift during the Ninth Plan.

Let us now consider the task before the Commission. As per the projections made by the Technical Group on Population Projections the population will increase from 934 million in 1996 to 1264 million by 2016. It is noteworthy that several States have been very successful in reducing the mortality and fertility. There are massive inter-State differences in population, population growth rates and time by which TFR of 2.1 and population stabilisation will be achieved. The five States of Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa constitute 44% of the total population of India. These States will contribute 55% of the total increase in population of the country during the period 1996-2016. In all these States the performance in the social and economic sector has been poor. The poor performance is the outcome of poverty, illiteracy and poor development, which co-exist and reinforce each other.

Urgent and energetic steps are required to be initiated to assess and fully meet the unmet needs for maternal and child health (MCH) care and contraception through improvement in the availability and access to family welfare services in the States of UP, MP, Rajasthan and Bihar in order to achieve a faster decline in their mortality and fertility rates. The performance of these States would determine the year and the size of the population at which the country achieves population stabilisation. The efforts are to provide adequate inputs to improve the performance so that the disparities between States will be narrowed. It is noteworthy that there are districts in these States where CBR and IMR are well below the national levels. Steps may have to be initiated to study and replicate these success stories within each of these States so that the existing disparities between States are minimised.

The Planning Commission had initiated several steps to ensure that the Family Welfare Programme does not suffer due to lack of funds for implementing it. The outlay for the Department of Family Welfare was increased from Rs 6500 crore in the Eighth Plan to Rs. 15120 crore in the Ninth Plan. Of this a sum of Rs. 4770 crore was provided under the Special Action Plan. In addition, under the Additional Central Assistance for Basic Minimum Services the States are being provided with funds to fill critical gaps in primary health care, nutrition, primary education, rural connectivity, access to PDS and housing. In 2000-2001 under the Prime Minister's Gramodya Yojana Rs.2,500 crore have been provided for improving rural roads. This could result in substantial improvement in access to education and health care in rural areas. In addition, Rs.2500 crore have been provided for other sectors for filling the gaps. Responding to the need for making the best of the opportunities provided, the Department of Family Welfare set for itself a higher level of target for reduction in mortality and fertility.

If all these are implemented effectively, the Ninth Plan period may be the beginning of a major acceleration in pace of demographic transition and improving the health status of the population. If the acceleration begun during the Ninth Plan is sustained, the country may achieve

the replacement level of fertility by 2010 with a population of 1107 million. If this were done the country's population may stabilize by 2045.

It is hoped that the country will face the challenge and utilise the opportunity window during the next two decades, when there will be a massive increase in the population in 10-59 age group, to rapidly achieve both population stabilisation and sustainable improvement in human development. Planners, programme implementers and the people themselves have to expedite this process by promoting synergy between developmental programmes. Thank you.

** Opening Statement at a Press Conference on National Commission on Population held on May 11, 2000 in New Delhi*

RAINWATER HARVESTING*

I am glad to be among this distinguished gathering of water scientists and experts who have come from all over the country to participate in this very important National Seminar on "Rainwater Harvesting", organised by the Ministry of Water Resources to focus on what should be regarded as a national priority. This Seminar has been organised against the backdrop of large parts of Gujarat, Rajasthan and Andhra Pradesh reeling under severe water scarcity and drought conditions. On the other hand, there are isolated villages like Rajsamathiala in Saurashtra, which are having no problem of drinking water. Why is this? This is because they have had the foresight to conserve rainwater through watershed management techniques. There are lessons to be learnt from such experiences and you have doubtless discussed these at some length during the course of this Seminar.

Water has been harvested in India since antiquity. Evidence of this tradition can be found in ancient texts, inscriptions, local traditions and archaeological remains. There is some evidence of advanced water harvesting systems even from pre-historic times. The Puranas, Mahabharata, Ramayana and various Vedic, Buddhist and Jain texts contain several references to canals, tanks, embankments and wells. Over the last many centuries our people have developed a range of techniques to harvest every possible form of water – from rainwater to groundwater, stream to river water and floodwater.

In areas with a good groundwater aquifer Indians have harvested rainwater with the help of dug-wells and developed various technologies using local materials to lift that water to irrigate the fields. Wells are an important source of irrigation in groundwater-rich regions like the Indo-Gangetic Plains. But people learnt to harvest groundwater in other ingenious ways too, especially where water in general, and groundwater in particular, was scarce. In the dry areas of Rajasthan,

for instance, people built structures like step-wells and wells below tanks and other types of water storage structures. In this way, when the dry season hit the people and the tank water dried up, people could at least harvest clean groundwater to meet their drinking water needs.

In the hills and mountains of the Eastern Ghats, people learnt the Middle Eastern technology of *qanats* to build subterranean structures or rather horizontal wells, called *surangams*, to tap the water seeping down the hill-slope for use as drinking water. When no options were available, people learnt to rely on rainwater for survival. For irrigation purposes, they would build rain-fed tanks to provide irrigation water for a downstream command area or for cultivating the tank-bed itself. In the *haveli* system of Madhya Pradesh, the soils and traditional crops were such that the farmers found it useful to store rainwater in the agricultural field itself. Such a practice is still in vogue in Bihar and in Andaman & Nicobar Islands. Thus, since time immemorial, people have done whatever they could, and they did a bewildering variety of things, to meet their water requirements within the constraints of the local ecology.

Today, unfortunately, this entire heritage, cultural and technological, lies in tatters. No one can be blamed more for this than we ourselves. As modern technology came in, people became dependent on piped water supply and in the bargain forgot the use of the old time-tested water harvesting techniques. Over the years, therefore, not only have we not developed our traditional wisdom further through the application of modern science and technology but we have also permitted our knowledge and systems to atrophy in favour of exploitative and unsustainable methods. The net result is the growing water distress in increasingly large parts of the country. It is in this context that a Seminar like this assumes the highest importance.

I am sure that we all appreciate the criticality and the vast potential of rainwater harvesting in our country. India has now a population of one billion. Although our country's population is about 16% of the global population, our land and water resources are merely 2.4 per

cent and 4 per cent of these global resources respectively. Due to the growth in population the per capita water availability per year has sharply declined from 8200 cubic metres in the beginning of the 20th century to 5277 cubic metres in 1955 and further down to 1953 cubic metres as of now.

Against a total precipitation of 4000 BCM per year, the annual internal renewable water resources are estimated at 1869 BCM, of which utilisable water resources are taken as 1122 BCM per year. The average annual rainfall across the country is about 1100 mm. So, if we use 3.65 million hectares of land – or a little more than one per cent of our total land area – for rainwater harvesting, it can get us 40 billion cubic metres of water per year, which is 4 per cent of our total estimated utilisable water resources. Assuming that the average daily water requirement of each individual on a nationwide scale is 100 litres, the annual demand for household use of water works out to 36500 billion litres i.e. 36.5 billion cubic metres, which is less than the quantity of rainwater harvested over 3.65 million hectare (mha) of land. Even if the collection efficiency achieved is only 50 per cent, we will need only about 6.3 mha of land. But with urbanisation and greater areas coming under roofs and concrete structures, the collection efficiency should theoretically increase. This is just to show the vast potential that rainwater harvesting holds for our country, which is fortunately endowed with good average rainfall.

This potential of rainwater harvesting has to be seen in the context of the critical situation of our ground water resources. Groundwater is an extremely important, and lately misused, resource. Taking the world scenario, only 1.6% of all the liquid sweet water resources that exist at any point of time is to be found in rivers, lakes and swamps. The remaining 98.4% of freshwater exists in the form of soil moisture and groundwater.

In India the use of groundwater has grown explosively since the 1950s. As a consequence, water tables are dropping, particularly in areas underlain by hard rocks or with low recharge levels. Saline intrusion has also become a problem in many coastal regions. Depletion of

static groundwater reserves is a well-known problem in some areas such as Mehsana district in Gujarat, Coimbatore district in Tamil Nadu, and Kolar district in Karnataka. On a larger scale, the relationship between resource availability and the current level of extraction is poorly known.

Falling water tables and depletion of economically accessible groundwater reserves could have major social and economic consequences. Competition between rural and urban users is growing and has led to conflict in some instances. This is evident from the incident of police firing that took place on 15th December last year at Phalla village, 25 kms away from Jamnagar city in Saurashtra (Gujarat), where people had gathered to protest against the release of dam storage water for irrigation rather than for drinking purposes. Three people were killed in that firing. Falling water tables also exacerbate economic divisions in rural communities. Poor farmers are forced to abandon irrigation as the falling water tables limit the access to those who can afford to deepen wells. Moreover, the dropping water tables increase the pumping energy needed to produce the same irrigation service. With roughly 30.5% of India's electricity production currently devoted to pumping groundwater and massive energy shortages affecting all sectors, the energy-related economic costs of falling water tables could be huge.

Over-exploitation of groundwater resources is increasingly being recognised as a major problem. How to address the problem is, however, not clear. Several States have passed or are considering legislation designed to regulate groundwater extraction. But the chances of success of such legislation appear remote. Where previously attempted, these regulations have been found to be widely ignored. To make matters worse, the existing governmental policies actually encourage groundwater depletion. Electricity subsidies and credit schemes for well development are popular and politically difficult to remove. Government organisations involved with groundwater were designed for the purpose of exploration and credit allocation, not with sustainability, regulatory or management goals in mind. Identifying

management approaches that stand a reasonable chance of success under Indian conditions and developing institutions suited for the job represent major policy challenges.

Equity is also a central issue in areas where groundwater mining is difficult to control. Current limitations on credit availability disproportionately affect the resource-poor groups. More wealthy farmers draw on private capital for well development – an option that is often beyond the reach of the poor. As a result, they are selectively denied access to a common property resource. Since the wealthy can continue with well development, credit limitations are unlikely to control over-exploitation. How appropriate is it to cut the resource-poor out of access to ground water when it is impossible to enforce any management system on wealthy sections is therefore likely to emerge as a major equity and policy issue. The proposal to levelise NABARD funding, coupled with some programme for supporting continued well development by resource-limited sections of society in over-exploited areas, could partially address this issue but it would not be enough. Overall, it may be necessary to explicitly recognize that in most situations control of groundwater mining is impossible and management of ground water will need to focus on equity rather than on sustainability considerations.

This then leaves the issue of sustainability open. Of all the available options, rainwater harvesting appears to have the best chance of success both for recharging the groundwater and for offering an alternative source. Since private behaviour is likely to continue to be extractive and exploitative, public and community action will have to be harnessed for ensuring that our abundant rainwater endowments are utilised efficiently and productively. This would represent a virtual *voilà face* of policies and schemes that have been followed by successive governments for many decades, if not centuries, which focused on making exploitative use of water progressively easier and cheaper. Now we must turn our attention and resources to ensure that private behaviour is not necessarily detrimental to public good by ensuring that availability at least keeps pace with extraction.

In order to achieve this objective, we will not only have to rediscover our traditional knowledge and wisdom but improve on them through the application of modern science and technology. We will also have to develop institutional structures, which are both sensitive to this need and capable of delivering the desired results. To this end, I would like to make a few preliminary suggestions.

First of all rainwater must be treated as a "source" in our planning. So far our attitude has been to take only ground and surface water as sources. This reorientation in mindset must pervade all institutions and individuals involved in planning and implementation of water resources. Rooftop rainwater harvesting is essential for all urban areas. This should be made mandatory and building by-laws should be amended accordingly. Chennai and Ahmedabad have taken a lead in this regard and their example must be replicated in all cities. In order to signal the Government's commitment to rooftop rainwater harvesting, a time-bound programme to install appropriate structure for this purpose in the Central and State Governments as well as PSUs should be taken up immediately. Traditional water conservation practices should not only be revived but also effectively reflected and incorporated in our water resource development programme. A beginning can be made with a revival of our old tank irrigation systems. However, all such programmes should be with the active participation of the people and not as a bureaucratic endeavour.

This Seminar has been an important step in achieving this reorientation and I am confident that we will be able to carry forward this process with increasing rapidity. May I take this opportunity to commend all the participants for making a success of this nationally important endeavour and assure you that we will do our utmost to ensure that this process will be continued. Thank you.

** Valedictory Address at the Seminar on "Rainwater Harvesting" held on May 23, 2000 in New Delhi.*

STRENGTHENING TIES WITH INDONESIA*

It gives me great pleasure to be with you at the inaugural session of this Seminar on "Indonesia: A New Beginning", organised by the Society for Indian Ocean Studies.

With very close historical and cultural ties that date back to thousands of years, there is a long-standing understanding and goodwill between the two countries. It is therefore not surprising that President Wahid made his first public speech after his election to the Presidency at the Gandhi Ashram in Bali. Indonesia, which has opened a new chapter in democratic governance, is seeking to re-evaluate its international linkages, both political and economic. In the not too distant past President Soekarno and Pandit Nehru together were instrumental in launching the Non-Aligned Movement (NAM), which lasted well beyond their individual lifetime. With the end of the Cold War and the emerging pattern of realignment of security, political and economic cooperation, the two countries can together bring about an entirely new perspective on the status of the Indian Ocean zone in the international order.

In South Asia, India's relations with Bangladesh, Nepal and Sri Lanka have perceptibly warmed up in recent times. Relations with Bhutan and Maldives are very close. Relations with China are on the mend. The winds of economic progress and the need to address real problems like poverty and fiscal deficit may well catch up with India-Pakistan relations before long. SAARC looks more promising than it ever did before. The emergence of ASEAN as a coherent economic bloc and Indonesia's position within this formation creates opportunities for our two countries to act as a bridge for an entirely new and dynamic movement in the Indian Ocean region. In fact President Wahid, in a recent interview, has gone to the extent of supporting the participation

of India in the 'ASEAN plus four' meetings, recognising its role along with Japan, China and South Korea. I welcome his call for Asian renaissance, which needs to be pursued.

In the international arena it is not difficult to forecast that the 21st century will see Asia become the focus of attention, both strategically and economically. Japan and China are already recognised as major powers. They could well be joined, among others, by India, Korea and Indonesia. Managing the ambitions of a number of countries, which are in close propinquity, will not be easy and it is desirable that the process begins now. It is equally evident that in the post-Cold War world the economic interests are likely to dominate the foreign policies of governments. Economic blocs are already a reality and enlightened self-interest requires taking strategic positions as early as possible before the positions harden too much. I would suggest that the emergence of a confident Indian Ocean zone consisting of mutually supportive partners would be a positive and healthy development and India and Indonesia are ideally placed to take up the initiative to bring this about.

We are all aware of the kind of agonies that the Indonesian economy, polity and society at large have gone through in the past few years due to the financial and economic crisis that engulfed many countries of the East and South-east Asian region. The crisis adversely influenced the very social fabric of Indonesia and the restructuring process presently under way has to deal with not only the economic downside but also tackle the social maladies that have emanated. The social unrest has risen due to closure of banks, factories, companies and other institutions and their consequent impact on unemployment levels. Politically, the country is in transition to full democracy.

The Indonesian economy is on the road to recovery just as the other crisis-hit economies are. In 1999 the GDP growth turned positive. This was possible due to improved performance of different sectors of the economy such as agriculture and manufacturing. Higher capacity utilisation, increased export earnings and lower volatility in the exchange rate were some of the important factors that contributed to

the recovery. These were brought about with the help of different policy steps aimed at economic restructuring as well as improved demand in the global export market.

India should seriously explore the possibilities of intensifying its trade and investment relationship with Indonesia for mutual benefits. Presently, India's importance for Indonesia as an export destination or an import supplier is not very significant. Indonesia too does not figure prominently in India's export and import baskets. The total trade between the two countries stood at \$ 1299 million in 1997. The two-way investment linkages have also remained low. One may emphasise that Indian companies need to be prompted to go and set up their manufacturing units in Indonesia and also enter into either buy-back arrangement or target the global market. This would be one way in which India could show its solidarity with the Indonesian economic restructuring process. This would particularly be welcomed when the Indonesian economy has suffered from a liquidity crunch.

The agricultural sector could be a major area of cooperation. We know Indonesia grows a variety of crops including rice, rubber, corn, tea, coffee, soyabean as well as several tropical fruits and spices. India too is abundantly endowed with these commodities. Joint commodity marketing and cooperation in the area of processed foods could perhaps forge beneficial ties between the two countries on a sustained basis. Similarly, aquaculture could be another area for cooperation.

The new Government has already ushered in many new measures to transform Indonesia into a vibrant democracy. Removal of all State controls on the press is a welcome step, particularly in this age of the information revolution. That the present Government has given top priority to reform of the legal system and the establishment of a credible and impartial judiciary is another notable initiative. President Wahid, in his efforts at establishing truly democratic governance, has taken the necessary steps to confirm the primacy of civilian rule and make the armed forces accountable to the civilian Government.

The civilian institutions in Indonesia are in the process of being rebuilt. Indonesia appears to be moving towards a political system, which is not dissimilar to ours. A democratic parliamentary system of

governance, independent judiciary, free press and attendant institutions provides ample space to diverse sections of the population to share in, and work for, the realisation of common aspirations. This is our experience in India. Other systems do not provide this platform. I understand that the outlying provinces have begun openly expressing their resentment against an autocratic kind of rule. Many of the provinces are clamouring for greater autonomy and a greater share of revenues from the Centre. The emergence of independent East Timor has given rise to similar calls in Aceh and Paptia (till recently known as Irian Jaya). Violent outbreaks of religious and ethnic clashes have been witnessed in Ambon and other regions. While law and order and the rule of law should be enforced by the security forces, democratic governments have to explore all possibilities of removing the roots of discontent. We in India can understand these problems faced by Indonesia quite readily and sympathetically and can appreciate the political compulsions they generate.

In this context I would suggest that Indonesia may find it worthwhile to examine some of our constitutional provisions governing the relations between the Centre and the States like the mechanism for sharing of resources between the Centre and the States or the provision creating the Election Commission and other institutions intrinsic to the democratic functioning of the Indian polity.

An area, which has been accorded high importance in the economic agenda of the Indonesian government, is the upgradation of human resources. This is another field in which India has, over the decades, created a large pool of highly skilled personnel like engineers, doctors, management graduates, software professionals, accountants, scientists etc. India also possesses a reservoir of medium skilled manpower resources. There is great need for, and interest in, expanding the facilities for Indonesian studies in Indian Universities. Both sides need to take a fresh look at how this process can be expanded and expedited since this is a relatively easy, though long-term, measure through which understanding of each others' societies can be enhanced. One example of such interactions is the India-ASEAN Eminent Persons Lecture Series, conducted by the Research and Information System for the

Non-Aligned and Other Developing Countries (RIS), on behalf of the Government of India.

India and Indonesia have always maintained good relations with each other. Our earlier relationship was based on shared ideological convictions, which was perhaps enough in the bipolar world that existed at that time. The relationship that now has to be established will be considerably more complex and deeper. Mutual understanding and respect will have to become an important feature in this relationship. For this purpose, sustained effort will have to be put in by both sides to understand each other, both as nations and as peoples.

It is time now to widen and deepen the scope of our bilateral relations beyond just economic interests. The cultural ties between India and Indonesia are age-old. There are also common concerns about the future security environment in Asia and an honest elimination of nuclear weapons. There is virtually no conflict of interest. On the other hand, there is a great degree of convergence of interests. Given the geo-political and economic complementarities, it becomes obvious enough that this bilateral relationship should be one of the pillars of the foreign policies of the two countries.

I would like to end with the hope and wish that cooperation between India and Indonesia will flourish in the years to come and will contribute to the prosperity and stability of the Asian region as a whole. It is in this context that I would compliment the Society for Indian Ocean Studies for having convened this Seminar. I hope that at the end of your deliberations, you will be able to formulate a concrete set of suggestions and recommendations for strengthening the relationship between our two countries. Judging by the list of distinguished participants, I am confident you will succeed in injecting a creative and constructive spirit in the discussions.

Inaugural Address at the Seminar on "Indonesia: A New Beginning" organised by the Society for Indian Ocean Studies on May 29, 2000

OPTIMAL UTILIZATION OF WATER RESOURCES*

I am glad to be here today when you are considering an issue of national priority. The management of our water resources to cater to the requirements of growing numbers, economic development, rising living standards and urban migration is going to be one of the most critical challenges facing us in the 21st century. One can already see that some parts of the country are likely to face severe water scarcity unless remedial measures are taken. There is no time to lose.

India now has a population of one billion people. Although our country's population is about 16% of the global population, our land and water resources are merely 2.4 per cent and 4 per cent of these global resources respectively. Due to the growth in population, the per capita water availability per year has sharply declined from 8200 cubic metres in the beginning of the 20th century to 1953 cubic metres as of now. The problem is accentuated by the uneven distribution of water resources.

Let us look at the problem of drinking water in our cities. In the urban areas, although the coverage with regard to drinking water supply is reported to be about 90%, the service levels of water supply in most of the cities and towns are far below the desired norm. We have to therefore improve the delivery mechanism, including handing over of the responsibilities to urban local bodies and civil society organisations. Commercialisation, wherever possible, should be considered to make the service self-sustained. Rooftop rainwater harvesting should be made mandatory and the building bye-laws should be amended accordingly.

According to one estimate, the population having access to safe drinking water supply facilities in rural areas rose from 5.7% in 1970 to about 92% in 1999. However, this estimate appears to be somewhat exaggerated, particularly since this does not appear to have taken into

account the sources, which have gone into disuse. Statistics do not truly represent the hardships being faced by the people, particularly the poor, in terms of quality and quantity of water and regularity in supply. There are also significant regional imbalances in the coverage.

The Government has realised that stepping up investment alone will not solve the problem. What is required is the adoption of more sustainable policies to ensure adequate supply of drinking water to a growing population in the midst of growing and competing demands for water by various sectors, like industry and irrigation. By 2050 India should be a major industrial power in the world. Industry needs water, fresh or recycled. It is estimated that 64 BCM of water will be needed by 2050 to sustain industries. The actual consumptive use of water by industries is only about 20% of their demand. New technologies of treatment like anaerobic sludge blanket, biogas generation from waste, use of oxygen bleaching to replace chlorine in the pulp and paper industry, use of cartridges for treatment of electroplating wastes etc. are well known.

Financial incentives such as investment and depreciation allowances, reinforced by disincentives such as pollution or waste charges and non compliance charges, should be considered for encouraging industries to adopt clean technologies for reducing their fresh water requirement and also waste minimisation. Recycling and re-use of water should form part of water auditing in all industries.

India has created a total irrigation potential of 89.56 million hectares and a net irrigated area of about 55 mha. The expansion of the irrigation system along with the increased use of fertilisers, seeds of high yielding varieties and modern agronomic practices has contributed enormously towards the achievement of the Green Revolution leading to a phenomenal four-fold increase in foodgrain production from 50.82 million tonnes in 1950-51 to 202.54 million tonnes in 1998-99.

However, there is no room for complacency. Nearly 65% of the net cropped area in the country is still rain-fed, where agricultural productivity is quite low. We need to double our foodgrain production to meet the needs of the growing population. This means greater

emphasis on irrigation. The Planning Commission is concerned that a large number of schemes have been spilling over from one Plan period to another. We have to complete these within a time-bound period. I have discussed this with State Government officials and NABARD, which provides funds under RIDF. I am taking up this issue with the Chief Ministers during the ongoing Plan discussions.

The gap between the creation of irrigation potential and its actual utilisation was 8.81 mha at the end of the Eighth Plan (1992-97). This under-utilisation of the created irrigation potential is mainly a managerial problem. The reason is the absence of a management-relevant analytical approach. Engineers are predisposed professionally to see problems and solutions in terms of physical works. Agronomists are concerned with study of crop water requirements. Economists think in terms of costs and benefits and are inclined to recommend regulation through water pricing. Sociologists study water questions at the community level but not at the systemic level. There is no professional discipline for a holistic system management.

Another serious problem of water management arises from uncontrolled and excessive exploitation of groundwater. Wherever pumping is not consistent with the annual recharge rate of the aquifer, it results in a negative water balance and lowering of the water table, sometimes to the extent of complete drying up and non-functioning of village wells. In certain coastal areas like Saurashtra of Gujarat, over-withdrawal of groundwater, with consequent inflow of saline seawater, has impaired the groundwater quality, affecting crop productivity. Moreover, the dropping water tables increase the pumping energy needed to produce the same irrigation service. With roughly 30.5% of India's electricity production currently devoted to pumping groundwater and massive energy shortages affecting all sectors, the energy-related economic costs of falling water tables could be huge. To make matters worse, wherever electricity subsidies and credit schemes for the development of tubewells are popular and politically difficult to remove, the existing governmental policies actually encourage groundwater depletion.

Traditionally, water has been treated as a cheap resource, which is abundant and can be squandered away without assessing future implications. We have to accept that water resource is finite and has an associated economic value. At present, water is a highly subsidised commodity and gross under-pricing leads to considerable wastage.

While there is a need and sufficient justification for increasing the water rates, there is likely to be resistance to such an increase on the part of the users. To make the price hike more acceptable the supply needs to be concomitantly upgraded both in terms of quality and quantity.

In the Planning Commission, in the wake of the drought, we are considering the entire issue of water and watersheds in its totality covering the entire gamut of afforestation, watershed management, re-charge of ground water and surface water with the aim to conserve rainwater and river water to the extent it is practicable and necessary. As you know, water in its various aspects is being dealt with by various ministries. Over the years, the Planning Commission and its divisions have become mirror image of the various ministries. As a result, the natural advantage of coordination has not been fully exploited. It has been my endeavour to increase the level of inter-sectoral coordination first among the divisions of the Planning Commission and, more importantly, among the concerned ministries so that maximum synergies can be realised.

In the Working Group discussions with the State Governments the officers of the Planning Commission have an opportunity to interact with their counterparts and discuss these issues at length. On my part, during my interactions with the Chief Ministers, not only during Plan discussions but also otherwise I have been laying stress on participatory water management and emphasising that the recovery of user charges is the only sustainable option. In fact, I have also told the Chief Ministers that this may not necessarily have a negative political fall-out as the Andhra Pradesh elections have demonstrated. In any case, the time for all of us to act and get over narrow political considerations is now. Failure to evolve appropriate strategies and

implement suitable measures to keep pace with the actual demand of water might throw the whole process of water resource development out of gear and precipitate a serious crisis.

Recently, I have made a call to treat rainwater as a "source" in our planning. Traditional water conservation practices should not only be revived but should be effectively reflected and incorporated in our water resource development programme. At the same time, we need to promote innovative water management techniques and water conservation practices.

While the Government will do whatever is possible, the urgency of the problem requires that alternative sources of funding and management should also be tapped. This implies a shift from exclusive dependence on budgetary support to resource mobilisation through community participation, institutional finance and enhanced participation by the private sector in activities, which can be performed more efficiently by them. At the same time, it is also necessary to adopt appropriate cost-effective technologies based on local materials, which are not only user-friendly but also eco-friendly. We should take full advantage of several studies and experiments, which have already been carried out on various facets of water supply and sanitation. We also need to examine as to which of the successful models prepared in this country or abroad is worth emulating on a wider scale in India to suit its social, political and cultural environment and climatic conditions. We have to evolve a long-term strategy for water management, involving the Governments in the Centre and the States, local bodies, civil society associations and the private sector. I am confident that this Seminar would throw up ideas and a plan of action which could be adopted by both the Centre and the States.

** Inaugural Address at a Seminar on "Optimal Utilisation of Water Resources: Time to Act" held on June 3, 2000 at TERI in New Delhi*

PLANNING FOR AGRICULTURE DEVELOPMENT*

It gives me great pleasure to be here among a galaxy of agricultural experts on this occasion of the Fifth Foundation Day of the National Academy of Agricultural Sciences. Of all the achievements recorded in our post-Independence economic history, the one in which we can take the most pride is the elimination of the scourge of famine from the face of our country. This achievement would never have been possible without the sterling contribution made by our agricultural scientists and the technology transfer and dissemination mechanism established by the Government in the early years. I need hardly emphasise the role that research and development in agriculture plays in the process of accelerating growth, removing poverty or ensuring significant improvement in the living standards of our people.

Our country has still to overcome the problem of poverty. Today an estimated 350 million, out of one billion people, fall below the poverty line. More than 60% of the population is still dependent on agriculture for its livelihood and employment. The major issue of concern is that although the share of agriculture in the national income has come down rapidly, the proportion of the population dependent on the agricultural sector has changed only marginally. Providing gainful employment opportunities for the rural population in the agricultural sector will be an uphill task in a scenario where land holdings are small and continuously shrinking and the pressure on land keeps increasing. This calls for vigorous efforts to create sustainable employment avenues for the rural population, especially the rural poor.

Due to innovative planning, well-focused agricultural research and growth-oriented policies we have become a self-sufficient and food-secure nation. Foodgrain production went up from 82 million tonnes in 1960-61 to a record level of 203 million tonnes last year with an

annual buffer stock ranging from 20 to 30 million tonnes during the nineties. Our agricultural performance has been globally acclaimed for ensuring that the growth in foodgrain production remained consistently higher than the growth in population. The performance of the oilseeds, commercial crops and livestock sectors had also been remarkable. Oilseeds production increased from 7 million tonnes in 1960-61 to 25 million tonnes in 1999. Sugarcane production has gone up to nearly 300 million tonnes from 110 million tonnes in 1960-61. There has been a quantum jump in potato production from less than 3 million tonnes to 23 million tonnes. Likewise, milk production has gone up sharply from 20 million tonnes to 75 million tonnes. Thus, despite rising population, the per capita foodgrain availability has increased from less than 400 gms per day in 1950-51 to 510 gms in 1997. The per capita milk availability has also increased from 125 gms per day to 204 gms. These are no mean achievements and we can take justifiable pride in them. These successes provide reasonable grounds for hope and confidence that our agricultural experts will measure up to the challenges that lie ahead.

However, we should recognise that the task, which our agricultural scientists have to tackle, may be even more complex and difficult than what they faced in the past. The most important challenge before us is to ensure adequate and sustained increase in food production to meet the nutritional needs of a growing, healthier population. Our population has just crossed the one billion mark and experts have projected that we would be overtaking China by 2035 as the world's most populous country. To feed this growing population, an additional 5-6 million tonnes of foodgrains will need to be produced annually. In addition, we have to recognise that balanced nutrition, which is essential for the health of our people, demands the consumption of a wide array of foodstuff. These too must be provided without compromising on the provision of the basic caloric requirements. All this will have to be done in a context, which is less favourable than it used to be.

To begin with, we need to recognise that the scope for expansion of area available for cultivation is limited. In fact, there is a possibility that the cultivable area may shrink somewhat. Environmental considerations, which are just as important for the well-being of our people, demand that the area under forest cover be increased from the dangerously low levels that it has reached. The demands of urbanisation and industry too will eat into our cultivable land, though we should keep this to the minimum. These are imperatives that we cannot ignore. To complicate matters, the past sources of agricultural growth have also been almost saturated. For example, the high-yielding varieties have already spread to more than three-fourth of the area under rice and to more than 90 per cent of the area under wheat. In such a scenario, the question of how to increase our agricultural production takes on an added urgency.

A larger share of growth in the agricultural sector can come from rain-fed regions if region-specific innovative planning is done and appropriate policies are pursued. Rain-fed agriculture today supports about 40% of the population and 75% of the poor in the country. Currently, it contributes nearly 45% of the foodgrain production in the national food basket. Rain-fed regions need protecting irrigation for increasing agricultural production and crop intensification. This can be achieved through improved rainwater harvesting management techniques. Promotion of improved water management practices, use of sprinkler and drip irrigation and farmers' participation in irrigation management need due recognition in the planning process. The Government is already giving considerable attention to rain-fed agriculture and resources have been allocated for watershed development through various approaches ranging from the traditional to the modern. Increasing agricultural production in rain-fed regions will not only increase total agricultural production but also generate employment opportunities for the rural poor and check degradation of soil and water resources. To achieve these goals, region-specific planning would be required due to the wide range of agro-ecological variability that exists in our country.

While our past efforts have undoubtedly contributed to the overall growth process, region-specific planning would also be necessary to

rackle regional disparities in agricultural productivity and income, which have increased perceptibly, and the gulf between developed and underdeveloped regions, which has widened. Whereas the northern and western regions have performed remarkably well, the eastern and northeastern regions have lagged behind in agricultural development. For example, the yield of rice in the eastern States is still only half of what has already been achieved in the northern region. In some of the eastern States the current yield levels of rice are as low as what Punjab achieved in the early 1970s. It may well be that in the past higher priority was given to the better-endowed regions with the expectation that the spillover effect would carry the benefits to the other regions. However, we need to recognise that this has not happened.

As a result of this unbalanced regional development and widening disparities, a large number of rural poor have been forced to migrate to developed regions and urban areas in search of jobs. Mitigating, and eventually bridging, regional imbalances through increased agricultural productivity and creation of more productive job opportunities must be high on the priority list of agricultural planners during the 21st century.

Fortunately, the eastern and northeastern regions have large untapped groundwater reservoirs. These regions are endowed with enough natural resources but the production levels are low. Systematic efforts to harness the potential of these regions for agricultural development and growth should form an important component of our strategy for this sector. However, these regions are lagging behind in infrastructure development. Investment in groundwater development, electrification, markets and roads would yield high private as well as social dividends. Many of the improved science-based agricultural technologies have not reached these regions due to poor infrastructure facilities and this would need to be remedied expeditiously.

There is a need to improve the information stock of the farmers in such regions. In fact, the extension service network needs to be strengthened in all regions. It should be fully supported by a strong service sector, which would ensure timely supply of the required inputs

to increase agricultural productivity. The planning process in the 21st century should take full advantage of the reach and enormous potential of information technology for rapid information dissemination in the rural areas.

In the past, diversification of agriculture was not given due attention. There are ample opportunities for diversification of agriculture through development of livestock, horticulture and fisheries. The livestock sector has immense potential for complementing and accelerating the growth of the agriculture sector. The productivity of our livestock sector, in terms of milk, meat, wool, and eggs, is the lowest in the world. Though we are the largest producers of milk, we are far behind many developed countries in terms of productivity and per capita availability of milk. The fishery sector has remained underdeveloped. There is ample scope to increase inland fish production. We have about 14 lakh hectares of brackish water area suitable for production of shrimps. Hardly 10% of this area had been utilised for production purposes. These sectors would have to grow in the 21st century and contribute significantly to the economic growth of the nation. These sectors can also provide considerable employment opportunities, especially to small and marginal farmers and landless labourers. Our planning process should take greater cognisance of these sectors for achieving value-addition and thereby raising incomes and generating employment opportunities in the rural areas.

There is also the issue of environmentally sustainable agricultural development. In the past the excessive focus on intensive agricultural growth has resulted in the degradation of natural resources. The Green Revolution of the mid-1960s could have also contributed to the over-exploitation of natural resources. To an extent, this exploitation and mismanagement of natural resources was induced by an under-estimation of the capacity of our farmers and made worse by over-enthusiastic populism. For example, high subsidy on canal waters, electricity and nitrogenous fertiliser, among others, induced the farmers to over-exploit soil and water resources without recognising the dangers inherent in such behaviour. Problems of soil salinity, waterlogging, declining water table, deteriorating water quality, nutrient mining

and acidification of soils are often reported in those regions which witnessed the green revolution. On the other hand, the regions, which are still operating at subsistence levels, are experiencing large-scale degradation in the form of soil erosion, nutrient mining, deforestation and desertification due to the low investment capacity of the farming community and inadequate focus by the Government.

The cumulative effect of degradation of natural resources has led to deceleration of agricultural growth. Conserving natural resources to meet the current and future requirements of the growing population would be the biggest challenge in the 21st century. Sustainable agricultural production calls for effective planning and environment-friendly technologies and policies.

Declining public investment in agriculture is another area of concern. During the early-1980s, about 9% of the net domestic product was ploughed back for capital formation in agriculture, which has come down to only 5% during the 1990s. This trend needs to be reversed to avoid the potential adverse effect on agricultural growth and regional performance. Inadequate public investment in the rural infrastructure is also a major challenge. The planning process has been laying emphasis on development of irrigation, roads and transport facilities, credit institutions, markets, warehousing and cold storage facilities, electrification, etc. but considering the vast geographical dimensions of the country and the order of investment required, the existing allocations are relatively scanty and inadequate. The resolution of this problem calls for considerably greater private sector involvement and partnership in infrastructure development and the processing industry. Any policy and procedural hurdles in encouraging greater private sector participation will have to be identified and removed with a sense of urgency.

The domestic and international economic environment is changing rapidly since the early 1990s. Agricultural and food subsidies have been very sensitive issues but they have been very much in public debate in the context of the rising fiscal deficit. Considering the social objectives of subsidies in agriculture and their high political sensitivity,

any reforms in the input sectors involving the withdrawal of these subsidies have to be handled with care by the policy makers, who have also to take into account the opening up of international markets for agricultural commodities in the wake of implementation of WTO agreements. As a member of the WTO, we have to remove quantitative restrictions and reduce tariff rates. The import regime will also not be the same. We may trade freely in international markets but the real issue, which we have to analyse and assess, is as to how it would affect our producers and consumers in terms of efficiency gains and equity aspects. The new trade regime may also affect our natural resource base. These issues need careful and objective assessment. The emerging trade environment calls for appropriate planning for those regions and groups, which we expect to be adversely affected. The growth and development of our agricultural sector will depend on our clear-sighted pursuit of national interests and our ability to respond swiftly to a rapidly changing international economic environment.

Globalisation, however, is not just a threat. It also throws up a number of opportunities. We are richly endowed with natural resources and climatic variety. We have one of the largest reservoirs and potential for bio-diversity in the world. There is hardly any crop that cannot be grown in our country. Implementation of WTO agreements is expected to increase our access to the world market. Currently, our share in world export is less than one per cent. We need to identify commodities where we have a comparative advantage in the global market. We need to improve our quality standards if we have to compete in the world market. We have the advantage of availability of a relatively cheap and extremely hard-working labour force. We need to assess how this important resource can be utilised more productively to promote labour-intensive activities for competing in the global market.

We also have among us some of the best agricultural brains in the world, who have always risen to the occasion in the past. I have no doubt that these scientists will again take up the challenge and come up with innovative solutions. The nation expects no less of them.

In the agricultural sector, it is high time that India takes stock of all available technologies and devises ways of using them for foodgrain

and other crop production. This not only calls for extensive exploration of alternative possibilities but also requires an immediate long-term technology plan for Indian agriculture. In this direction, the frontier technologies, including biotechnology, should be included in the overall work programme so as to get viable solutions to the productivity-related problems. Some of these technologies are capital intensive. In their case, one may consider co-operation between industry and Government to exploit economies of scale and overcome capital and infrastructure deficiencies. Finally, I would like to reiterate that our country has great expectations from its agricultural scientists and the system, which is responsible for transferring agricultural technologies to the farmers. Our hopes rest on them and I am certain that we will not be disappointed. Thank you.

* Fifth Foundation Day Lecture of the National Academy of Agricultural Sciences on June 5, 2000

STRATEGIES FOR SOCIAL DEVELOPMENT*

Mr. President, the Social Summit held in Copenhagen in 1995 made a commitment to improve the quality of the life of people in all regions of the world. While it was agreed that the primary responsibility for poverty eradication and social development rested with national governments, the international community including the UN and its development agencies would provide effective support for that effort. For developing countries, which accepted the goals of the Summit by consensus, international support was considered crucial. A review of the progress in the last five years indicates that the goals set out in the Copenhagen Programme of Action have been only partially achieved. We are now considering new initiatives to ensure attainment of these objectives. In his report to the Millennium Summit, the Secretary General has also challenged our leaders to agree to a set of tasks and objectives, which draw on the commitments of the Copenhagen Programme of Action.

We also have to achieve our goals in the specific context of globalisation. It is now widely acknowledged that through the demands, which globalisation places on governments, on traditions, on social units and on individuals, a market economy in an era of globalisation involves enormous destabilising social costs and pressures. The challenge then is how to secure the benefits of globalisation, particularly for vulnerable societies, and safeguard social systems.

Mr. President, we agree with Professor Amartya Sen, as all democratic governments will, that development is the process of expanding human freedoms and the assessment of development has to be informed by this consideration. However, there is a tendency to attribute problems and lags in development to failures of governance, described sometimes as the weak link in social development. This assumption needs to be looked at closely. Governance must be democratic, open

and participatory. These are preconditions for success but in an era of globalisation the governments are rarely the most powerful actors even in their own countries.

The World Bank's Comprehensive Development Programme acknowledges that the process of development now presupposes a co-operative relationship between governments, donors, the private sector and civil society. However, though governments are only one of the players involved—often weaker than some others—it is they who bear the responsibility for failures.

As the Committee for Development Policy recommends in its latest report, "the achievements or otherwise of international development strategy objectives and targets should be reviewed not only for the developing countries, individually and in groups, but equally for the developed countries and indeed for the international economic system generally". It is only when we view the failures and achievements in this broader perspective that we can get a clear idea of the problems that need to be addressed. At this Special Session, in this international setting, we should focus on areas where progress will be impossible without international support and action.

Mr. President, I will refer briefly to some areas where international cooperation will be critical to our success. The first is the eradication of poverty, Commitment 2 in the Programme of Action, which is crucial to social development. As per the Poverty Report of UNDP the number of poor in the developing world has been estimated at 1.2 billion in 1998. The WHO has listed extreme poverty in its International Classification of Diseases, reminding us that over one billion people have entered the 21st century "with their lives cut short or scarred by this ruthless disease". It is therefore natural that poverty reduction through growth and social development is a key global objective. The IMF now has the Poverty Reduction and Growth Facility (PRGF), which seeks to promote both growth and social development. Without sustained economic growth, poverty will not be reduced, let alone eradicated. We accept all the caveats of the 1996 Human Development Report—growth must not be jobless, ruthless, voiceless.

rootless or futureless. But without sustained growth at a level of 6-7% per annum much of the developing world will remain mired in poverty. Nationally, several countries have formulated their own strategies for poverty eradication.

Broadly, the strategy is a three-pronged one: (i) economic growth (ii) direct State intervention through programmes of poverty alleviation and (iii) investment in human capital. In most developing countries, including India, agriculture and allied activities are the primary source of livelihood for the majority of their population. Therefore, investment in these sectors through development of appropriate technologies would generate both higher levels of output and greater employment. Support also needs to be extended to micro enterprises, village and small industries, as the scope for stepping up organised sector employment in the short run is limited. However, we should be cognisant of the warnings of the Committee for Development Policy, issued in April, that targets for poverty reduction set in the past were unrealistic in that they provided no useful basis to monitor either what the developing countries had done to improve livelihoods, or what the industrialised countries had done to establish and implement supportive policies of trade and aid. While ambitious targets are desirable, it is equally important to link them to both domestic and international effort.

Let me add that in all efforts at poverty eradication special care has to be taken to meet the needs of women and other marginalised and vulnerable groups. Gender inequalities are rooted in the socio-cultural milieu of many countries. These call for affirmative action. In India, the empowerment of women and socially disadvantaged groups has been woven into our development effort and comprehensive legislation has been enacted for persons with disabilities.

Crucial to the global effort are the problems of the youth of the world, that have rarely been addressed. The problems of children have been considered in a Summit and are a continuing concern of UNICEF. The problems of young women were discussed in the discussions at the World Conference and in the recent Special Session on Women.

But no forum or organisation looks at the special problems of adolescents and youth, though in most developing countries they constitute an increasingly dominating proportion of these countries' populations, a critical human resource and the severest challenge. Commitment 3 cannot be implemented when the ILO estimates that there are at least 60 million young people currently unemployed, with their numbers rising. In his report to the Millennium Summit, the Secretary General has asked the international community to develop strategies that will give young people everywhere the chance of finding decent work. In its report to the Preparatory Committee, the UNDP has also emphasised the importance of promoting sustainable youth livelihoods as part of a strategy of social development. We believe that youth employment must be a priority for all of us.

In India as in many developing countries a large proportion of the labour force as a whole works in the unorganised sector but often at distinctly lower levels of wages and productivity. For those, who are unable to earn enough for subsistence, there are State-funded programmes, which create supplementary employment and incomes. For those who are not in the work force but are poor, social assistance is provided by the Government. Access to food at affordable prices is an integral part of the strategy of poverty eradication.

As for today's children, it is necessary to build their capabilities and to make them more employable as tomorrow's workforce. This calls for greater investment in education and health and qualitative improvements to make the delivery system more efficient and cost-effective. Priority needs to be given to education of the girl child. Vocational education, training and skill upgradation must be important elements in any strategy to impart employment skills to facilitate productive employment. It is necessary to establish a link between education and the job market.

Similarly, access to primary health care is vital. India has one of the largest primary health care networks in the world. Its role in improving the health status of our population is reflected in improvements in our health indicators. Life expectancy has increased from 32 years in

1951 to 61 years in 1996. Crude Death Rate has declined from 25.1 to 9.0 over the same time span. These are largely due to control of communicable diseases.

I would also like to stress the effectiveness of participatory approaches to development. There are several instances of successful involvement of people in programmes for poverty eradication and social development through elected local bodies, user groups and the civil society. People's participation is aimed at bringing about greater transparency and accountability through a process of social audit.

Central to our success is the perennial problem of resources. The World Education Forum, held in Dakar in April, estimated that an additional \$8 billion would be needed per year only to meet the target of universal primary education, one of the agreed objectives of Commitment 6. On health, the figures put out by the World Health Organisation are truly revealing. Of the \$60 billion spent each year on health research, only 10% had been devoted to the health problems endemic in the developing countries. The WHO estimated last year that malaria alone had an economic cost to Africa equivalent to 1% of the continent's GDP. Tuberculosis is making a comeback. The economic and social costs of HIV/AIDS, 95% of whose victims are in the developing world, have not yet been accurately assessed but will be even more steep. The WHO notes that TRIPS could help in the development of new drugs and vaccines to treat the diseases of the poor but it could also make matters worse by leading to steep increases in prices. This has happened already and is a problem that can only be tackled through international cooperation.

Mr. President, the shortfall in resources simply to meet these two essential social goals—universal primary education and basic health care—is huge and clearly beyond the capacity of the developing countries to meet. It shows why the Official Development Assistance has a critical role to play in social development, in which the private sector rarely invests and which is why it is disturbing that the levels of ODA continue to fall. As the World Bank has noted, though the fiscal problems given as the reason for the drop in ODA have eased,

with fiscal deficits in the OECD declining from 4.3% of GDP in 1993 to 1.3% in 1997, the ODA also fell by 14% in this period. The developed world has to recognise that a reversal of this trend is essential to meet the ambitious goals set at the Copenhagen Summit.

Mr. President, it bears underlining that the progress of Africa will be key to the success of the developing world. The progress on Commitment 7 has been uneven. The series of reports on Africa brought out in recent months drives home the enormity of the challenge and the imperative need for the international community to do more. We are heartened by the World Bank's assessment in its recent report "Can Africa Claim the 21st Century?" that, "with effective regional cooperation and donor support, including for international public goods such as new vaccines, Africa could solve its human development crisis in one generation". For this, however, as the Bank again notes, the goal must be "trade with aid" rather than "trade not aid". And, as it reminds us, African GDP needs to grow at a sustained rate of 7% to break the back of poverty. There is a huge financing gap that needs to be bridged if Africa is to do this.

International cooperation is also essential to defeat the forces of the global "uncivil society". These are much too powerful for governments to counter alone. Terrorism, transnational crime, drug trafficking and xenophobia undermine social development and social values. Drawing up international strategies to defeat them must be a priority for all of us.

As the World Bank has also pointed out, the well-being of the poor depends increasingly on forces originating outside the country borders. The impact of globalisation is of course so well documented that it needs no further illustration. What is of central concern to the poor of the world is that the spin-offs from globalisation must translate into social benefits for the 1.2 billion marginalised people. India would favour any move to channel as much as possible of the gains of globalisation into time-bound poverty eradication initiatives. The Human Development Report estimated in 1992 that if the industrialised countries followed less restrictive trade policies, the

developing world would earn in trade ten times what is received as ODA. And, as the Bank notes, the solutions to major problems faced by the developing world also need the investment of resources in the industrialised world on research to overcome the challenges facing developing countries. Resources do not only mean a greater flow of funds in the form of aid, external assistance and direct foreign investment but also of knowledge and technology. These various forms of support have to be organised on an international scale and in a manner, which makes them accessible to the poor. In this age of the knowledge society, information, education and communication (IEC) should be a powerful tool for human development. Global networking will enable us to pool our resources in our fight against poverty, which is a stigma on the face of all humanity and not just of a particular region or nation. While we welcome the flow of capital, the developed countries must seriously consider the disadvantages imposed on developing countries by the restrictions on mobility of labour. In today's global village, peace and sustainable development will ultimately rest on our sensitivity to each other's concerns.

Mr. President, let this session be remembered for giving a firm commitment to pool all global resources to eradicate poverty, which, despite all our efforts, continues to afflict large populations across the globe.

** Address at the Second Plenary meeting of UN General Assembly Special Session on World Summit for Social Development and Beyond* held on June 26, 2000 at Geneva*

ENERGY EFFICIENCY & CONSERVATION*

Prime Minister, Dr. Pachauri and friends, I am happy to associate myself with this function. Many countries have developed habitat models to demonstrate the effectiveness of new ideas, technologies and devices to conserve energy and materials and evaluate their costs and benefits in economic, social and financial terms. As far as I know, this is the first comparable effort in India.

I have known Dr. Pachauri for a long time and have been aware of the skill and tireless effort with which he has built up TERI from scratch into one of the apex institutions in the field of energy and environment. Today is a milestone in TERI's journey for which I congratulate Dr. Pachauri and his colleagues.

The TERI, like so many other governmental and non-governmental groups and institutions, has devoted itself to the goal of sustainable development. The goal is accepted universally but the road ahead has many visible and invisible obstacles. For one thing, sustainable development rests on the twin pillars of sustainable production and sustainable consumption. It implies a shift from non-renewable to renewable resources. However, there is little evidence of such a shift either in the patterns of production or consumption or the powerful, indiscriminate promotion of consumerism that is being beamed into more and more homes every day.

A further complication is that in developing countries like ours, we have to balance environmental sustainability against basic human needs. The tackling of severe problems like poverty, hunger, ill health and illiteracy without damaging the ecosystems, on which we depend for our well-being, calls for the active involvement of the people in the process of development.

The goal is not only rapid development but also the right pattern of development. In a democracy only that pattern of development will be sustainable, which has the support of the people. It is clear that energy and environment are inextricably linked and of all the sectors that have a bearing on our environment, energy is the most crucial. Greater efforts are needed for using energy and natural resources in an economically efficient and environmentally sound manner. This can be realised by encouraging the dissemination of existing environment-friendly and clean technologies, promoting R&D in environmentally sound technologies, encouraging the use of renewable sources of energy and minimising the generation of wastes.

I am given to understand that various techniques of energy efficiency have been used for designing the building and its systems under the RETREAT project. It has a climate-responsive architecture, uses solar energy for its hot water requirements and integrates energy-efficient lighting with daylight. It would also recycle the wastewater generated in the complex. I hope it will also adopt rainwater harvesting.

The Prime Minister has given a call to build the edifice of a "knowledge society" in India. The Planning Commission, with the help of some active and creative minds, is engaged in, and working on, an agenda for responding to this call. In the 21st century, knowledge will be an important resource. India has the potential to become a powerhouse of knowledge, of ideas, of research and innovation. But to realise that potential we shall have to foster and encourage institutions of excellence like IITs, IIMs, IIMSc and ICAR, FRI and TERI as well as the best of the institutions in the field of social sciences. In our quest for sustainable development, we should recognize knowledge as a renewable resource as well as a global currency.

* Speech on the occasion of inauguration of TERI's new complex 'RETREAT' on July 3, 2000

TASKS BEFORE NORTH EASTERN COUNCIL*

I would like to thank Lt. Gen. Sinha, the Governor of Assam, for inviting me to the 43rd meeting of the North Eastern Council. Though I had something to do with the formation of the NEC many years ago, this is the first time I am attending one of its meetings. My long association with the north-east naturally attracts me to all the activities for the region.

It is a beautiful part of the country, with its mighty rivers, lush green forests, rolling hills to the south and high mountains to the north. It is a rich tapestry of cultural and ethnic groups, which have, over the centuries, enriched India in many ways.

Though well endowed with natural resources, the NE region has remained under-developed partly due to its difficult terrain and long distances. Communication is still the main problem. When the NE region was reorganized in the early 1970s, a number of different administrative units were formed. But it was recognised that an integrated development of roads, communications, power, water transport, etc. would benefit all the units. The NEC had its origin in this concept.

The Council's mandate was to act as an advisory body, empowered to discuss matters of common interest and recommend to the concerned State Governments and the Central Government appropriate action in this regard. This Council acts as a regional planning body for the formulation, implementation and monitoring of Plan schemes.

Over the years, there have been significant changes in the overall environment, in view of which the functions of NEC now include, in addition to zonal planning, implementation and monitoring, development of infrastructure and manpower, including educational and vocational training and employment of the youth. The

infrastructure development projects of the NEC, I understood, include linking of all the States of the Region at least by two roads. Construction of bridges, connecting the roads and providing pucca bridges, where there are kutchha ones, are also receiving the attention of the Government. The development of hydro electric power is the other priority. Doyang and Ranganadi hydro power projects are the main projects developed by the NEC.

As you know, the Central Government pays special attention to the provision of funds for the development of the North Eastern region. I remember that the 10th Finance Commission had given special consideration to the NE region while deciding on the sharing of taxes and grants in its recommendations. These are non-Plan funds. On the Plan side, the States in the NE region are treated as Special Category States and the funding pattern for these States is therefore, much more favourable than for the other States. As I have already said, funds are provided to the NEC for projects of inter-State importance. In addition to these, for the last two years projects and schemes are also being financed through Non-lapsable Central Pool of Resources. An amount of Rs 542 crore has been released during the last two years.

The NEC projects are implemented by the State agencies or by Central public sector undertakings. It needs to be pointed out many of these projects have taken more than the scheduled time. This has also led to cost over-runs. In some cases the cost has gone up many fold. I am told that while planning the projects, the estimates are not always based on the current level of prices. Sometimes, the cost estimates are not correct. The EFC/PIB memos prepared for the projects do not meet all requirements. The planning agencies need to check these estimates to avoid time and cost over-runs. Hence, it is necessary that before submitting the proposals for consideration and investment a thorough check should be made. Once a reliable project report has been prepared, you should press for an early approval to avoid any delay in the implementation of the projects.

It is found that quite a few of the old projects are pending for some reason or the other. This not only delays the commissioning of the project but also results in cost over-run. The NEC should pay attention to such projects by providing funds for these projects so that the intended benefit could be derived from such projects. These projects need to be completed on a priority basis.

In the course of its long journey, the NEC has constructed a network of roads in the North Eastern States. These roads were handed over to the State Governments for maintenance. It has been seen that the State Governments are not maintaining these roads, as a result of which they are in a very bad condition. Other infrastructure projects, like hospitals and colleges etc., are also facing the same problem. This needs urgent attention as huge investment has been made in creating this infrastructure.

The funds provided to the NEC in the Annual Plans have not been fully utilised. This needs your special attention. During 1997-98 as against the allocation of Rs 324.00 crore the actual expenditure was Rs 319.16 crore. For 1998-99 an outlay of Rs 440 crore was approved but the actual expenditure was Rs 368.55 crore. Similarly, for 1999-2000 a sum of Rs 450 crore was approved but the actual expenditure was Rs 413.53 crore only. Unless funds provided are fully utilised there will always be a gap between the targets and the actual achievements. The Government of India is giving funds for the NEC and the State Governments for the development of the region and it is but reasonable to expect that they will work together for the formulation of plans. Proper coordination between the States and the NEC would help in faster development of the region. It would be in the fitness of things that before finalising the schemes the State Governments and the NEC discuss the plans and their financing.

The North Eastern States have not been able to implement the plans for agricultural and industrial development of the region. Though their economy is predominantly agricultural, they have not been able to exploit the rich potential of agriculture, horticulture and floriculture. The farmers need to be acquainted with the latest farm

technology. Industrial development is also lacking. One of the options for the region is to use indigenously developed technology for processing of farm produce in the region. Marketing of such products would require the attention of the agencies working in the field. The basic requirements are peace, infrastructure and a conducive environment.

I would emphasize that it should be the endeavour of the NEC to have a vision for the region for the year 2020. A Perspective Plan projecting the goals for the future would make it possible for dovetailing the development schemes and projects taken up for execution under the Perspective Plan. Such a Plan should consider how to consolidate fiscal health so that the expenditure on non-Plan items is met out of States' own funds and the entire Government of India assistance is available for the Plan schemes.

In the end I would once again like to impress upon the distinguished leaders of the region to work in close cooperation with the NEC for the faster development of the region.

* *Speech at the 43rd meeting of the North Eastern Council on July 14, 2000*

UPDATING NATIONAL WATER POLICY*

Water is a critical natural resource and is a crucial input for development. Our country has been endowed with rainfall of as much as about 4000 billion cubic metres per year over the landmass of the country. In this sense, we are comfortably placed. On the other hand, however, the spatial and temporal distribution of rainfall is highly uneven and skewed, due to which we are not comfortably placed in terms of per capita water availability for utilisation. This fact further gets compounded due to population growth. In this context, watershed management and our time-tested traditional water conservation practices, including rainwater harvesting, need to be specifically and adequately focussed in the updated National Water Policy.

The National Water Policy was adopted in September 1987 by this very forum. It was a good beginning. It takes note of the emerging environmental concerns but, perhaps, not adequately. It does refer to equity but again, perhaps, not strongly enough. Despite the intention of shifting the focus from project to resource policy issues, it still devotes what may now be seen as a disproportionate amount of space to irrigation projects. In the last one decade the issues relating to resettlement and rehabilitation as well as environmental concerns have not only become more complex but also more sensitive. These factors need to be adequately reflected in the Water Policy, which is to be updated.

Secondly, to my mind, it is desirable if this Policy is backed up by an Action Plan with a specific timeframe. For example, in the wake of the National Water Policy of 1987, it was expected that States would evolve their own Water Policies. However, even after 13 years, barring a few States, most of the States are yet to evolve and adopt their State Water Policies within the framework of the National Water Policy. I

would urge that an Action Plan for implementation both by the State Governments and the Central Government should be made a part of this Policy.

The National Water Policy, both the original as well as the updated, provides for the order of priority for various water uses. In the draft updated National Water Policy priority has been accorded to drinking water. Against the backdrop of water scarcity faced by some States recently it needs to be made explicitly clear that water is a basic human need for drinking, cooking, and cleanliness. Similarly, use of water for irrigation of foodgrain crops needs to be distinguished from that used for non-foodgrain crops including cash crops, with priority being accorded to foodgrain crops. Further, I find that ecology needs have not been covered in the water allocation priorities recommended in the draft updated Policy. This priority should be clearly indicated in our Policy for sustainable development.

The draft updated National Water Policy also calls for the provision of modern information system permitting free exchange of data among the various agencies. It is a very progressive step, particularly when we have already entered the Information Age. In order to achieve this goal, however, we need to address the existing lacunae in the data relevant to proper planning of water resource projects, monitoring of various water uses and assessment of their impact. We need institutional arrangements to compile and update data on a continuing basis by basins and sub basins on the availability of water on the surface and under ground, on the quantum used and the sources tapped for various purposes, on the spread in conjunctive use and other relevant aspects. This is an essential pre-requisite for the preparation of integrated long-term, basin-wise plans for water resources development. Similarly, there is also a need for a thorough recasting, both at the conceptual and operational level, of statistics on irrigated area and productivity. Also, the present arrangements for collation of such data and keeping them in a retrievable form for users need to be improved. We need to induce our universities and research institutions, which devote so much time and resources and take such pains in collecting data, to match it

with systematic analysis of the data. All these aspects need to be adequately reflected in the National Water Policy while being updated.

Another important issue is regarding the pricing of water. Both the original as well the draft updated Policy recommend fixation of water charges for various uses in such a way that they cover at least the operation and maintenance charges of providing the service initially, and a part of the capital cost subsequently. After the original Water Policy was adopted in 1987, the Planning Commission took the initiative to go into the various aspects relating to water pricing and set up a Committee on Pricing of Irrigation Water in Oct. 1991 under the chairmanship of Dr. A.Vaidyanathan. The Committee in its Report of Sept. 1992 made a number of useful and wide-ranging recommendations on pricing of water. Despite such an elaborate exercise carried out for the pricing of water, most of the States are yet to rationalise their prevailing low water rates. In the case of certain States, the prevailing water rates are more than two decades old. Recently, the Planning Commission undertook an exercise to analyse the pattern of expenditure being incurred on the operation and maintenance of the existing irrigation systems. It was found that in almost all cases the staff salary component constitutes about 70-80% of the total expenditure on O&M. Should we not decide on a certain limit on the staff expenditure to be included as a part of total O&M cost for the purpose of water pricing?

Another serious problem of water management arises from uncontrolled and excessive exploitation of ground water. Where there is no rational scientific withdrawal of ground water consistent with the annual recharge rate of aquifer, it results in a negative water balance and rapid lowering of the water table to the extent of complete drying up and non-functioning of the village wells. In certain coastal areas like Saurashtra of Gujarat, over-withdrawal of ground water with consequent ingress of saline seawater has impaired the quality of ground water, affecting crop productivity. All these are multi-dimensional problems with wide socio-economic and environmental concerns. Of late, arsenic contamination of ground water due to indiscriminate

pumping has become a cause of great concern in parts of West Bengal. To tackle this serious problem, people's active involvement should be central to all our policy formulation and programme implementation. The draft updated National Water Policy needs to highlight this aspect with a view to making water resource management a programme fully involving the people, rather than being a State-driven programme.

** Speech for the 4th meeting of National Water Resources Council held on July 7, 2000 in New Delhi*

POPULATION STABILISATION PROSPECTS*

I welcome you all to the first meeting of the National Commission on Population. As you may know, India became the first country in the world to initiate a National Family Planning Programme as far back as 1952. The Programme is Centrally Sponsored and 100% Centrally funded.

As was brought out in the presentation, over the years there has been a rapid decline in the death rate and a slower decline in the birth rate. India's population has grown from 36 crore in 1951 to 100 crore in May 2000. If the current trend continues, the replacement level of fertility will be achieved in 2010 only and the population will stabilise in the late 21st century. This would have serious implications.

We see the consequences of population growth all around us. India has only 2.4% of global land but 16% of global population. We have so far been successful in meeting the food requirements of the growing population. How will this be affected by a declining land-man ratio and further fragmentation of land holdings? Urban basic services are struggling in vain to cope with the rapid pace of urbanisation. The per capita water availability has been declining all over the country with some areas facing the spectre of water scarcity. Many other ill effects of population growth can be cited. Suffice it to say that population stabilisation is necessary for sustainable development.

It is a sobering thought that the experts do not expect India's population to stabilise before 2045 at a level of 1500 to 1600 million. To reach that goal, the National Population Policy 2000 seeks to achieve the replacement level of fertility by 2010 with a population of 1110 million. That this goal is attainable in our democratic polity while respecting human freedom and dignity is supported by a number of success stories in different parts of the country.

Kerala, the first State to achieve the replacement level of fertility, did so in spite of a relatively low per capita income, perhaps because of high female literacy and low infant mortality rate. The decline in Tamil Nadu, in spite of higher IMR and lower female literacy rate than Kerala, was attributed to political commitment, bureaucratic support and effective health infrastructure. Andhra Pradesh is likely to achieve the replacement level of fertility in the next two years. The State has recorded a steep decline in fertility in spite of a relatively lower age at marriage, low literacy and poorer outreach of health care infrastructure. The reason, perhaps, is the empowerment of women and commitment at all levels. In the North Eastern States of Tripura, Manipur and Mizoram, despite difficulty in accessing primary health care facilities, it has been possible to achieve not only low fertility rates but low infant mortality, suggesting thereby that a literate population with awareness can overcome substantially the difficulties and attain success.

During the presentation you saw that currently five States viz. Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa, constitute 45% of the total population of India. The population in these States has poor access to health services and poor health indices. It is estimated that the unmet needs for contraception are between 25-30% in these States. It is estimated that these States will contribute 55% to the total increase in the population of the country during the period 1996-2016. Their performance would, therefore, determine the size of the population and the year in which the country achieves population stabilisation. I should point out that even in these States there are districts with health indices comparable to the national levels. These experiences have to be studied and replicated so that there is rapid improvement.

All these States have excellent human, mineral and agricultural potential, which have not been fully utilised or realised. For this, they have to overcome poverty, illiteracy and poor development, which coexist and reinforce each other. This calls for political commitment, good governance and planned coordinated efforts from all sectors and all sections of the population.

In a vast and diverse country like India, we have to assess the area-specific needs and respond to them. It is important to ensure that all births and deaths are registered and the data utilised for decentralized planning and monitoring. In all the States a vast health care infrastructure has been created by the Departments of Health and Family Welfare, Municipalities and Zilla Parishads. However, much of it is functioning sub-optimally. Part of the problem lies in lack of facilities like labour rooms and operation theatres or lack of drugs and diagnostic facilities. Sufficient resources have to be provided by each State and the Centre to meet these requirements. At the same time, the existing infrastructure has to be restructured so that it functions effectively and provides the needed quality services to the population near the vicinity of their homes. The Panchayati Raj institutions should take up increasing responsibility for monitoring the delivery of primary health care services. It is of paramount importance that accountability and governance improve so that the existing infrastructure and resources are utilised appropriately.

Resources are important but it is even more important to use them efficiently. During the Ninth Plan every effort has been made to provide additional funds to social sector programmes. The outlay for the Department of Family Welfare was increased from Rs.6500 crore in the Eighth Plan to Rs.15120 crore in the Ninth Plan. In 2000-2001, under the Prime Minister's Gramodya Yojana, funds have been provided for improving rural connectivity, health, education and nutrition. All these have a direct bearing on population stabilisation. The Planning Commission provided "earmarked funds" to meet the arrears payable to the States every year. However, the basic problem that leads to the recurrent arrears payable to the States has to be tackled. The recommendations of the Consultative Committee on restructuring of the family welfare infrastructure and revision of norms have to be discussed with the States and implemented.

To achieve the goals set in the Population Policy it is crucial that there is the widest participation of the civil society, NGOs, voluntary organisations, corporate sector and labour. The media will have to

utilise their talent and reach to create awareness of the benefits of small families, like better health of mothers and better education of children. Men will have to assume their rightful role in promoting planned parenthood.

The education and empowerment of women is one of the critical factors that helps to achieve their reproductive goals. There is a need to give a special thrust to girls' education. Schemes for empowerment of women such as DWCRA can play critical roles both in population stabilisation and human development. Programmes like Balika Samridhi Yojana and Maternity Benefit Schemes can help women to access facilities and services to promote small healthy families. Synergies between various schemes aiming at the same target group have to be promoted at the village level through active involvement of peoples' representatives and the people themselves.

To turn the programme for population stabilization into a peoples' movement calls for partnership between various agencies and groups, like village-level functionaries of various government departments, members of co-operative societies, self-help groups, thrift and credit societies, joint forest management groups, Mahila Swasth Sanghs, NSS volunteers and Nehru Yuvak Kendras.

Planners, programme implementers and the people themselves have to bring about synergy and accelerated convergence between the ongoing demographic, educational, technological and info-tech transitions. With all these efforts and the active cooperation of the distinguished members of the Commission I am sure that the country will optimally utilise the demographic opportunity window during the next two decades to achieve rapid population stabilisation, sustainable human and social development and improvement in the quality of life of the people of India. Thank you.

TOWARDS GENDER EQUALITY & DECENTRALISATION*

Both the UN system and the Government of India have a common set of goals, namely, poverty eradication and human development, within a macro economic framework, which seeks to promote economic growth with social justice. The objectives of the Ninth Plan include generation of productive employment and eradication of poverty through agriculture and rural development, provision of basic minimum services, empowerment of women and socially disadvantaged groups, promotion of people's participatory institutions like Panchayati Raj Institutions, cooperative and selfhelp groups. Population stabilisation, food and nutrition security for all and selfreliance are also among the specific objectives. The need for social protection, specially for those who are poor and marginalised, through specific programmes and schemes are an integral part of the planning effort. Over time, the UN system has also contributed to the development process in India through innovative projects, dissemination of information and action research in these priority areas. I am sure that they will continue to do so.

It gives me great pleasure to be here today. First, a word about the UNDAF process and its genesis. While the various UN organisations have been working in partnership with their counterpart Ministries and Departments, it is for the first time that the UN system has come together to act collectively with the objective of bringing about greater synergy in their operation and increasing the impact of their actions. This has led to the evolution of UNDAF. This was finalised after extensive discussions with various stakeholders including the Government, civil society, the private sector and donors.

However, despite 50 years of planned development, the gender inequalities continue to persist. A large proportion of women suffer from inadequacies like poor literacy, poor nutrition, inadequate health care and low share of assets and incomes. Some also suffer from historic disadvantages. Therefore, in today's context, there is need to create a

sociocultural milieu that is conducive to improving the status of women in our society by ensuring their greater participation in economic activity as also by facilitating their access to basic minimum services. We recognise that the empowerment of women is critical to improving the quality of life of our people. I am, therefore, glad that gender equality has been identified as one of the central themes in the UNDAF process.

I am also glad to note that decentralisation has been identified as the second over-arching objective of the UN system in India. In a large and diverse country like ours the success of the development process depends crucially on the active involvement of the people. In other words, decentralisation of development is an imperative. In the forward to the Ninth Five Year Plan, the Prime Minister of India also stressed the need for decentralisation so as to realise the 'latent productive and entrepreneurial talent' of our people. The Panchayati Raj institutions are a reality and the strengthening of these institutions is a prerequisite for participatory development activities at the grassroots level. The mandatory provisions for inclusion of women and of vulnerable groups in these bodies would ensure that the local needs and priorities are addressed. However, in its broader context, decentralisation also encompasses other institutions like NGOs, user groups and co-operatives working at the grassroots level.

As I mentioned earlier, the UNDAF document is the outcome of extensive interaction among the UN agencies as well as their joint interaction with Government Departments and other stakeholders. I would like to conclude by assuring you that the Planning Commission, which has been identified as the nodal agency for the UNDAF process, will be supportive of the UN system in India in its new dispensation.

I have no doubt that this new initiative would provide yet another opportunity for furthering cooperation between the UN system and the Government and for working together to bring about peaceful and meaningful social transformation and accelerate human development in keeping with the common objectives.

**Address at the interaction meeting on UNDAF "Human Development Report 2000" and "Progress of Indian Women" Report on July 31, 2000 in New Delhi*

RURAL INDUSTRIALISATION*

I am glad to be among you today at the Expert Group Seminar on "Rural Industrialisation in India", being organised by the South Asia Multidisciplinary Advisory Team (SAAT) under the aegis of the International Labour Organisation (ILO).

The emphasis on rural industrialisation is very topical and timely for us in our current phase of demographic transition. The proportion of the population in the working age group of 15-59 years is going up significantly. Despite the expected reduction in the growth rate of population to 1.58 per cent per annum by the end of the Ninth Plan, it is expected that labour force growth would reach a peak level of 2.51 per cent per annum. One of the most daunting challenges facing us is to improve the skills and capabilities and provide decent employment opportunities to this young population.

If we look at the structure of employment of around 400 million persons today, 60 per cent are deployed in agriculture, 15 per cent in industry and 25 per cent in the services sector. As the economy grows and diversifies the work opportunities have to be created more and more outside the agriculture sector. It would be difficult to absorb the work force in the agriculture sector. This is not to belittle the scope for increasing agriculture productivity by better land and water management, switching to high-value crops and adopting better post-harvest technology and practices.

The manufacturing and services sectors need to grow at a very high rate if they are to play a greater role in future in regard to employment. However, within the manufacturing sector, the large and medium industries, which contribute about 65 per cent of the gross domestic product of manufacturing industries, provide only about 16 per cent of the employment opportunities. It is the decentralised segment of manufacturing industries, comprising of modern and traditional

manufacturing activities that provides 84 per cent of the work opportunities in the manufacturing sector. Even within the decentralised segment, we have the modern small-scale industries and power looms, which have 56 per cent share in employment with the rest 28 per cent being in the traditional manufacturing activities. Thus, about 120 lakh employment opportunities exist in the traditional activities segment of manufacturing.

We believe that the rural and village industries sector has immense potential to generate new jobs with relatively low direct investments by utilising local skills and resources or by meeting the local demands by adoption of simple techniques. Development of this sector would also prevent migration of rural population to urban areas in search of employment and reduce the pressure of increasing urbanisation.

Rural industrialisation could reduce, if not stop, the skill drain from the countryside if sufficiently lucrative alternatives for employment are provided. Rural industrialisation will also have a significant spin-off for agricultural development. Creation of better rural infrastructure could raise agricultural productivity through provision of better roads, canals, storage facilities, commerce, transport and communication facilities, etc. There would be increased availability and improved capacity for maintenance, repair and improvement of farm machinery. Further, rural industrialisation would also help in reducing regional disparities through location of industrial units in backward areas. Rural industries would thus help in generation of new employment opportunities, creation of new skills and opening up space for rural entrepreneurship. Rural industries could also use local 'slack' resources, which are not capable of being used in modern industry. The social cost of such raw materials is very low and benefits high, as, for example, agricultural waste utilisation, waste recycling activities, etc.

Rural poverty is inextricably linked with low rural productivity and unemployment, including under-employment. Employment at low levels of productivity and incomes is already a problem of far greater magnitude than unemployment as such. Some States like Bihar, Uttar Pradesh and Rajasthan are likely to have a wider differential between

the labour force and employment growth in the Ninth Plan. This would not only imply greater migration from these States but also that real wages would not improve much unless a regionally differentiated approach, based on creating employment especially through strengthening of rural infrastructure and rural industrialisation, is taken. This would of course require strengthening rural infrastructure, which is also necessary *per se* for improving the quality of life in the villages. Rural roads, rural energy, rural communications, rural services for commerce such as banking, insurance, trade etc. have been accorded high priority in the Plans.

In the Planning Commission we have been constantly reviewing as to how the resources can be targeted better for the purpose of improving rural infrastructure. We have had, in the past, schemes, which started in the shape of minimum needs programmes and then continued as basic minimum services, in conjunction with other programmes of rural development. To give a more focussed attention to the time-bound implementation of programmes for rural infrastructure, Pradhan Mantri Gramodaya Yojana (PMGY) has been launched in the current year. The allocation for PMGY in the current year is Rs.5000 crore of which the Rural Roads Programme of PMGY has been allocated Rs.2500 crore. Other sector-wise programmes of PMGY include elementary education, primary health, drinking water, nutrition and housing. As per the guidelines, a minimum of 15 per cent of the allocation of the Additional Central Assistance to a State under other programmes of PMGY must be allocated to each of the five sectors.

A number of policy measures have been taken to promote rural industrialisation. The Government is focussing on rural industrialisation through institutional support from organisations like Khadi & Village Industries Commission (KVIC), District Industries Centres (DIC), Development Commissioner (Handlooms), Development Commissioner (Handicrafts), Small Industries Development Organisation (SIDO), etc.

There are many poverty alleviation programmes under implementation by the Government of India, which have a bearing and effect on

promoting rural industrialisation. The Jawahar Gram Samridhi Yojana promotes creation of infrastructure for education, health, roads etc. The Swarna Jayanti Gram Swarozgar Yojana (SGSY), aims at development of a large number of micro enterprises in rural areas with emphasis on the cluster approach, focussing on the organisation of rural poor in Self-Help Groups, capacity building, planning of activity clusters, creation of infrastructure, technology, credit and marketing, etc. The Swarna Jayanti Shahari Rozgar Yojana seeks to provide gainful employment to the urban unemployed or under-employed poor through encouraging the setting up of self-employment ventures or provision of wage employment. Under the recently launched National Programme for Rural Industrialisation (NPRI) 100 rural clusters are to be set up or strengthened every year to give a boost to rural industrialisation and to provide benefits to rural artisans and unemployed youth.

The KVIC assists in the promotion and development of khadi and village industries with the main objectives of rural industrialisation, skill development, transfer of appropriate technologies to rural industries, income generation and promotion of self-reliance among the rural people. Under the Rural Employment Generation Programme (REGP) the KVIC has planned to create 10 lakh new jobs, most of them through village or rural industries by the end of the Ninth Plan.

The expansion of cottage and small-scale industries depends upon a number of factors like provision of raw materials, availability of power, technical advice, organised marketing of their produce and where necessary, safeguards against unequal competition from large-scale manufacturers. Some of these issues have been considered by the Study Group of the Planning Commission, which has recently given its interim report. An authoritative policy statement for strengthening the small-scale sector is expected to be made by the Prime Minister by the end of the month.

Information technology is opening up tremendous possibilities for modernising the non-formal rural economy. The communication channels opened up by Internet have to be exploited in full measure. However, the resources may not flow into certain areas where information technology is at an infant stage.

In the North East as a pilot measure a scheme for providing connectivity among all the 250 Blocks has been initiated this month. The level of literacy in the North East is high and the youth can take full advantage of modern information technology if the connectivity is improved. Such ventures have also to be supported by the private corporate sector and other agencies having an interest in economic and social development.

In the large and medium sectors and the modern segment of manufacturing the stress will have to be on achieving and improving competitiveness to face the challenges and exploit the opportunities arising out of globalisation and the WTO regime. With India being a signatory to the WTO and bound by its regulations, all quantitative restrictions on imports will go by 31st March 2001. This will pose a challenge, particularly to the traditional segment of manufacturing or the unorganised sector. The traditional segment of manufacturing will need to be nurtured not only to remain competitive but also to facilitate further expansion of the work opportunities to accommodate the new work force and reduce the backlog of unemployment.

I may point out that more than employment it is the quality of employment that is crucial. I say this because about a third of the employed in our economy do not have such work as can keep them above the poverty line. Even outside the farm sector, the situation in non-farm rural activities and urban informal sector activities may not be very different. Therefore, there is need to monitor the impact of the programmes for the traditional industries not only in terms of the numbers that find employment but also of the conditions in which such work is available to them. There is need to gather more information and monitor the performance of programmes in terms of wage and income levels of the workers in traditional industries.

For rural industrialisation to be possible appropriate skill base has to be developed. So far we have focussed somewhat excessively on the development of literary skills and medium and secondary level education. There has to be a paradigm shift in human resource development towards vocational training and a direct relationship has to be established between such training and employability to make it more attractive for the youth. So far the linkage in this respect has been very weak in rural areas. Our ITIs have done well but the base is still largely urban. The national vocational training system has to be supported by appropriate State-level vocational training fora so that the infrastructure for skills specific to a particular region gets developed rather than the present uniform national level approach.

I would urge all the institutions, the civil society at large, the Ministries and Departments in the Central and State Governments and the private sector to adopt rural industrialisation and poverty alleviation as a mission so that the presently estimated number of persons below the poverty line is brought down to around 10 per cent of the population by the end of the 10th Five Year Plan. The exercise for formulating the 10th Plan will start shortly and proper focus would be given to all these aspects.

While the Government has taken a number of steps to tackle this problem, I feel that it is now time to consider whether the programmes and schemes taken up are the most cost-effective to achieve the goals. There are far too many schemes, all focussing on the same target group with very little convergence or even co-ordination and, therefore, there is little possibility of realising synergies.

I am very happy that SAAT under the aegis of ILO has organised this Seminar on rural industrialisation in India to consider various issues and policies. I look forward to the recommendations of this Expert Group, which I am confident, would give practical suggestions that could be considered in the formulation of the 10th Plan. I wish the Seminar all success.

** Inaugural Address at the Expert Group Seminar on 'Rural Industrialization in India - Issues and Policies' held on August 25, 2000 at the Heritage Village, Manesar (Haryana)*

VISION OF INDIA IN 21st CENTURY*

It gives me great pleasure to be with you here today at the Combined Operational Review and Evaluation (CORE) 2000 Programme. It is also a matter of some satisfaction that I have been asked to speak on my vision for India in the 21st century. In a word, I would like to see India grow from strength to strength, drawing sustenance from its rich past, while keeping in step with a fast-changing world and building a dynamic modern nation, providing opportunities for fulfillment to all its citizens in a climate of peace, harmony and security.

National security is not only about our state of defence preparedness but also about the entire gamut of characteristics, which enable us to withstand external pressures of various kinds. Not the least among these is the state of the economy and the well-being of our people. Normally such discussions get confined to the immediate circumstances – a short-term SWOT analysis, if you will. But this is not sufficient. Strategic considerations require a longer-term perspective and a consensus on what we desire to achieve as a nation. This is where a vision statement becomes important.

As I see it there are three principal objectives that underlie the need for a vision statement. These are (a) to articulate a vision for the country, which stirs the imagination and motivates all segments of society to greater effort; (b) to seek political consensus on a broad national development strategy, which encompasses, *inter alia*, the roles and responsibilities of various different agents in the economy, such as the Central, State and local governments, the armed forces, the private corporate sector, the small and tiny sector, people's organisations etc; and (c) to identify the potential risks and bottlenecks and their possible solutions in order to mobilise the efforts in a focused manner.

It should be clear, therefore, that to meet these three objectives the vision statement has to operate at several levels of generality and

specificity. The vision statement itself needs to be general enough to encompass all segments of society. It has to be as inclusive as possible. It should go beyond merely economic issues and cover strategic and ethical issues as well. The development strategy embedded in the vision, however, necessarily has to be more specific in terms of its sector-wise focus and the extent and nature of government intervention in each sector. This, after all, is what political and ideological differences are primarily about. The identification of constraints and solutions requires even further specificity in terms of well-defined targets, inter-sector consistency and resource requirements. It needs to be emphasised, however, that as one moves from the general to the particular, strict consistency must not only be maintained but also clearly articulated so that there is no ambiguity.

It will be appreciated that this is by no means an easy task. The complexity of our country and the myriad problems facing it are difficult to capture in a brief, emotionally compelling formulation. I can perhaps do no better than to echo the vision of Gurudev Rabindranath Tagore:

*Where the mind is without fear and the head is held high,
Where knowledge is free,
Where the world has not been broken up into fragments
By narrow domestic walls,
Where words come out from the depth of truth,
Where tireless striving stretches its arms towards perfection,
Where the clear stream of reason has not lost its way
Into the dreary desert sand of dead habits,
Where the mind is led forward by thee
Into ever-widening thought and action,
Into that heaven of freedom, my Father, let my country awake.*

The vision articulated for the country by Gurudev in the above lines is complete in every sense. At one level, there is no doubt that it has stirred the hearts and minds of generations of Indians. At another level, it lays down what he considered to be the basic constituents of

the "heaven of freedom". There are, by my count, eight distinct elements to this vision. However, as is true of most great visions, both the vision and its constituents are aphoristic in nature. Therefore, to translate this vision into an operational strategy, each aphorism has to be interpreted in more mundane terms. Such interpretation is necessarily subjective and that is the reason why the vision retains its universal relevance and timelessness. For purposes of illustration, I attempt an interpretation of this vision at the present juncture. Let me begin by outlining the eight constituents of the vision as I see them.

Where the mind is without fear: It is not surprising that the first component of Gurudev's vision brings to mind issues of security. The latent potential of any nation, community or individual cannot be brought to its full flowering in the absence of peace and security. To safeguard its independence and territorial integrity, preserve its multicultural identity, strengthen its development process and ensure the well-being of its people, India needs peace. Because of its size and location, India's security concerns and interests extend to regions far beyond its immediate neighbourhood. All differences in perception can be removed on the basis of a pragmatic understanding of India's genuine security concerns and *de facto*, if not *de jure*, acceptance of the reality of India's nuclear-weapon-state status. The draft Indian Nuclear Doctrine is nothing more than a logical follow-up of the nuclear tests. It fleshes out the concept of a nuclear deterrent within the parameters laid down by the Prime Minister earlier.

It is clear that in today's world, security has many dimensions. Our security concerns are dynamic and cover the environment within the country i.e. internal security; around the country i.e. regional security and the global environment i.e. international security. Thus security can be perceived as concentric circles, interacting with each other.

Our major internal security problems relate to the continued cross-border terrorism in J&K and the continued acts of terrorism by some groups in the North East. These activities are sustained by helping hands across some of our borders. Recently, this has been brought into sharp focus by the number of direct attacks on the security forces,

aided and abetted by Pakistan both in Kashmir and in the North East. For many years now, Pakistan has been trying to destabilise India without success by arming, training and equipping extremists and by aiding militant organisations as well as some fundamentalist groups in India. These factors have made it necessary to deal firmly with such elements.

The issue of cross-border terrorism has also assumed a new dimension with the direct threat of Jihad by Osama Bin Laden. This requires a different level of preparedness. More and more countries, which are affected by Islamic fundamentalist groups, are likely to coordinate their efforts to combat the growing scourge of global terrorism. You may be aware that India has authored a draft convention against international terrorism particularly when it is promoted by a State, which provides sanctuaries, financing and other encouragement to terrorists. This position has been reaffirmed during Prime Minister's recent visit to the United Nation and the United States.

Another type of violence, which our internal security agencies have to face in some parts of the country especially in Andhra Pradesh and Bihar, is organised, at least to begin with, by left-wing extremists. It needs to be recognised, however, that the Election Commission and the security agencies have seen to it that elections are successfully conducted even in the most disturbed areas, despite threats of disruption and violent incidents. It augurs well for democracy when people refuse to be cowed down by such threats and exercise their right to vote. While there is always room for differences in a democracy and for dialogue with those who do not use violence as a political instrument, no government can negotiate with anti-social elements who have taken the law into their own hands and who have violated the rights of others.

However, the internal security problems cannot always be dealt with as mere law and order problems. It is necessary to uncover their roots and take remedial measures. Rapid economic development, declining disparities in income and well-being between regions and individuals, curbing population growth, restoring the credibility of the

administration and progressing steadily towards equality of opportunity are necessary to combat the maladies of cynicism, social disharmony and despair on which the forces of disorder thrive.

Where the head is held high: National pride and personal self-esteem are the hallmarks of a confident society. They are expressions of the essential equality of all humanity. Sometimes, however, national pride is projected as attainment of regional power, if not super power, status. I believe this to be wrong. The power status of any kind carries connotations of hegemonistic ambition. This is not our culture or our ethos. As a nation we have never coveted dominance nor should we do so now. Nevertheless, given our size and capability, it is incumbent on us to take a lead on major issues in various international fora and in multilateral and regional groupings. But this leadership has to do more with asserting and securing the rights of all nations and peoples than to seek dominance in one form or another. Our efforts must be towards strengthening international institutions, which represent strong democratic values, such as the United Nations. If this necessitates our involvement in democratically mandated military action then we must be prepared to accept it as a legitimate obligation. In the ultimate analysis only a self-confident nation willing to stand up for its beliefs can attain its rightful place in the comity of nations.

National pride, however, is by itself not enough. Not only must the country be proud of itself but also every Indian must be proud to be an Indian. This requires that every community in our country, and indeed every individual, must be empowered to fully participate in the process of nation building and their roles given due recognition. Our diversity must itself be a matter of pride and not be subjected to unnecessary pressures for conforming to a stereotype. An important component of individual self-esteem is the feeling of making a contribution. This cannot happen without adequate avenues of employment and work. Productive work is not merely a means to the ultimate end of economic well-being. It is a basic source of human dignity and self-respect and thus an integral element in nurturing national identity and social cohesion.

Where knowledge is free: Development has always emanated from acquisition and utilisation of knowledge. This is true more today than

ever before. We now talk about the emergence of a "knowledge society". It is the next stage in mankind's journey from a "hunting and gathering society" to agricultural, industrial and post-industrial societies. But this term is understood in various ways by different people. At its crudest, it tends to project the generation of knowledge as an industry in itself. I disagree. Such a view reflects again a hierarchical structure of activities in which a particular activity, i.e. the knowledge activity, is held to be superior to all others. To my mind, a 'knowledge society' is one in which every human being is empowered with the ability to access knowledge wherever it exists and, even more importantly, to develop his or her own capability for generating knowledge. Application of knowledge can be in any field of human endeavour and the process of generation of knowledge does not necessarily define its worth. Thus a trial and error experiment of a common farmer deserves to be held in as high esteem as the output of a sophisticated research laboratory. The central requirement for becoming such a society is universal literacy and education and the existence of institutions, which can impart knowledge and skills throughout a person's life.

Where the world has not been broken up into fragments by narrow domestic walls: The concept of globalisation cannot be better expressed than in these words of Gurudev. The limited definition of globalisation, that is in currency today, encompassing only the elements of trade and investment does not do justice to the world view that was expressed by our forefathers as "*Vasudhaiva Kutumbakam*" – all the world is one family. The demographic changes occurring all over the globe are inexorably leading to a situation where the concepts of dependence and inter-dependence will have to change. The time is not far when the younger populations in the developing countries may have to support the aging populations of the developed countries not only in production but also in the provision of critical services. In return the developed countries will have to provide the necessary capital, knowledge and technology. It would be best if this mutual interdependence could be expressed as a harmonious and cooperative world order but that is not how human nature works. Over the next

couple of decades we will witness increasingly vigorous jockeying for position and dominance. The recent East Asian crisis is but a precursor to what is to come. Thus, we will have to prepare ourselves to face such onslaughts as we take forward the process of global integration. There are a number of strategic issues involved. In particular we have to work out the optimal extent and pace of our exposure to international economic forces. This is perhaps as important as any other aspect of national development and security.

At the same time, we should not lose sight of the fact that there are still many divisions within our country. The rifts that exist in our society need to be eliminated even faster than the breaking down of international barriers. Divisions on the basis of region, religion or caste weaken the country and make it more vulnerable to exploitation by inimical forces. It is in this context that secularism and removal of caste barriers assume the highest importance. It would be a tragedy indeed if parts of our society were to feel greater kinship to foreigners than to their own brethren.

Where words come out from the depth of truth: No enduring relationship can be built on deceit. Trust is the essential bond that holds people and nations together. In recent years there has been a perceptible decline in the level of integrity of various tiers of our socio-economic system. This trend must be halted and decisively reversed. Nowhere is this need more evident than in the growing realisation of the importance of governance, both public and corporate, for growth and development. We must make every effort to re-establish ethical and moral behaviour as the single most important yardstick for assessing individual and organisational action. This is a social imperative and I believe that the starting point would be to establish its primacy in our public life. Issues of governance and accountability need to be taken as central features of our efforts to change the political, legal and administrative structures in the country. To my way of thinking, the next phase of reforms has to be in these areas. Judicial and civil service reforms, which are consistent with the democratic nature of our system, have to be articulated and implemented right down to

the lowest tier of our governmental system. Unless we do so, all our other efforts would be in vain.

Where tireless striving stretches its arms towards perfection: There is a serious charge that in our country we have evolved institutional structures where ability and merit are discounted and mediocrity promoted. There is a certain degree of truth in this. No country can progress unless it actively encourages every citizen to give of his best and incentive structures must be established to promote this. It can be nobody's case that all people are equally endowed in terms of their abilities but that cannot be an excuse to settle for the least common denominator. Within the natural limitations every human being has a potential to grow and every opportunity must be made available and every incentive given to encourage him or her to do so. Expanding the capabilities of our people through provision of health and educational services is clearly essential but the encouragement of merit requires a reconsideration of our institutional structures, particularly its excessively hierarchical nature, which stifles the full expression of individual capabilities.

Where the clear stream of reason has not lost its way into the dreary desert sand of dead habit: Here again we have a trenchant criticism of our institutional structures, which place greater value on precedents than on logic. This is most evident in our governmental system but has also infected other sectors of our economy. Encouragement of "scientific temper" was a basic credo for development enunciated by Pandit Nehru and which has been faithfully echoed ever since. I am afraid we only pay lip service to this concept and by and large we discourage logic and dissent at the operating level. In an important sense this is linked to the trend towards mediocrity that I have already talked about. The willingness to listen to alternative points of view and to consider departures from precedence are attributes of a self-confident mind operating in a context where risk and failure are accepted as an integral part of the process of progress.

Where the mind is led forward by thee into ever-widening thought and action: I have already talked about the coming "knowledge society".

An essential component of such a society is that in it creativity and innovation are promoted and encouraged at all levels. For too long have we stifled the innate creativity of our people. That the ability is there has only recently been forcefully driven home by the remarkable success of the information technology sector in the country. However, we have yet to fully recognise that such talent exists across the length and breadth of this country and, with the right conditions, can manifest itself in all fields of human endeavour. Creating these conditions will be the single most important challenge in the coming years and we need to apply our minds to how this can be done most effectively and expeditiously.

Let me now try and integrate these eight components of Gurudev's vision into a development strategy, keeping in mind the objective realities of our economy. Since Independence, we have equated development with industrialisation and our dependence on agriculture has been treated as a symbol of our backwardness. Even the service sector had been given the status of a mere ancillary in our development thinking. At one level, we have certainly succeeded with this industry-centric view of development. India today can boast of a highly diversified and productive industrial sector, which has steadily gained in strength over the years. At another level, however, our dreams have been belied. Even today above 70 per cent of our population live in the rural areas and more than 60 per cent derive their livelihood from agriculture. Thus the impact of the benefits of an industrialisation-based growth strategy on the lives of the majority of our citizens has been below expectation.

The state of rural India, although much improved since our Independence, is still a matter for grave concern. Despite considerable increases in agricultural output and expansion in non-farm rural activities, over one third of our people in the rural areas continue to live below the poverty line. Some studies show that rural poverty is not declining in a manner commensurate with the acceleration in growth rates that we have witnessed in the 90s. Despite having attained self-sufficiency in food, there is evidence that under-nourishment and malnutrition are endemic in our rural areas,

particularly among women and children. This is a state of affairs that no democratic government with deep concern for the welfare of its citizens can ignore. The problem does not appear to be in employment *per se*, since rural areas exhibit low levels of unemployment. The incidence of under-employment, however, is significant and of great concern. Too many of our people are working for long hours without commensurate returns for their labour.

This problem is likely to become even more acute in the coming years. The projections made for the Ninth Five Year Plan indicate that our labour force will be growing at a rate of about 2.5 per cent per annum for the next decade, which is the fastest growth that has ever been recorded. This high rate of labour force growth has its origins in the population explosion that occurred during the late 70s and 80s. Our past experience and projections for the future indicate that even with optimistic assumptions almost half of this increasing labour force will have to be absorbed by agriculture. Therefore, unless our agricultural sector grows sufficiently fast, we face the spectre of growing unemployment and of even greater under-employment of our work force. This would place an intolerable burden on the fabric of our society and would eventually unravel all our development efforts.

This recognition has significantly affected the way we think about development. The Ninth Five Year Plan reflects a subtle shift in our development perspective but a shift, which can have far-reaching implications. The fundamental message conveyed by the Ninth Plan is that the agricultural sector can no longer be treated as being a residual and peripheral component of our growth path but must take centre stage of all our development efforts. This recognition stems from two important observations. First, our experience since the mid-1980s, and more particularly since the initiation of economic reforms in the early 1990s, strongly indicates that the Indian industrial sector has reached a stage of maturity whereby it no longer requires the focused attention of Government. Our industrial and commercial entrepreneurs are perfectly capable of generating high growth rates in industry on their own and the government needs only to play a facilitative role by creating a conducive policy environment. Secondly,

it has become increasingly clear that there is a tremendous potential, which remains untapped in our agricultural economy. It is possible to achieve and sustain high levels of agricultural growth for a considerable period of time even on the basis of existing technology. With induction of new technology, the prospects are virtually unlimited.

In the Ninth Plan, therefore, agriculture is projected to be the centrepiece in our development strategy. Its importance is highlighted in three distinct components of the broad objectives of any development strategy. First, it is essential for the acceleration of the overall growth rate of our economy not only by achieving a high rate of growth itself but also through pulling up the growth rates of other sectors through a widespread distribution of purchasing power and demand. The alternative to high agricultural growth as a source of aggregate demand is excessive reliance on high export growth. This will needlessly expose our economy to external pressures. Secondly, agricultural growth is the surest way to bring about equity in income and wealth, both at the individual and regional levels. The evidence for this is overwhelming both from our own and from international experience. Finally, it is central to all our efforts at self-reliance. No country can call itself secure unless it has food security not only in the aggregate but also at the level of every household and indeed every individual.

Rapid growth of agriculture will not take place on its own. It will require concerted and co-ordinated efforts across a broad front. Some of these actions are directly within the domain of the Government but many others require participation of a wide range of people and institutions. A sober and careful assessment of our resources indicates that both land and water will be constraints on our efforts. As a nation we are already in a situation where the extent of forest cover has declined alarmingly. Although in recent years there has been some improvement, we are a long way from our eventual target. In such a situation we do not see any possibility of increase in the cultivated area in the country and indeed, perhaps, an eventual decline. Similarly, our water resources are under stress. Without active measures this

may emerge as the single most important limitation on our efforts. There is, therefore, no alternative but to focus on raising the productivity of our land, water and human resources in a manner, which is sustainable over the longer term.

The first, and possibly the most important, area of focus must be to raise the cropping intensity of our existing agricultural land. Climatically we are fortunate in that it is possible for us to have multiple crops practically all over the country. However, most of our agricultural land continues to be under a single crop system, particularly in the rain-fed and dryland areas. The problem here is water. Despite large investments in irrigation in the past, only about 40 per cent of our agricultural area has been irrigated. The progress on this front, particularly in terms of major and medium irrigation projects, has slowed down considerably in recent years. Public investment in irrigation has fallen significantly. This is only partly due to resource constraints faced by governments both at the Centre and the States. A major reason is also that potential irrigation projects are located in areas, which are either more difficult or environmentally more sensitive. This of course does not mean that efforts at tapping these resources in an environmentally sustainable manner and with due regard to the vexatious issues of rehabilitation and resettlement will not be carried forward. What it does mean is that considerably greater attention will have to be paid to rain water harvesting and increasing the irrigation potential through scientific watershed development. Furthermore, there is considerable scope to improve the efficiency of our existing irrigation infrastructure through better, and more of, participatory management practices.

The second area that needs to be addressed is infrastructure that supports not only agriculture but also all rural economic activities. A number of recent studies have indicated that the rate of growth of rural incomes and reduction in rural poverty are most strongly influenced by the provision of rural road connectivity. No doubt other forms of infrastructure are also important but none can compare with the impact of rural roads in widening the opportunities and alternatives available to our people. Our past record in the creation of rural

connectivity, with a few honourable exceptions, has not been very good. Although this is an area, which is in the domain of the State governments, the Centre has taken the initiative to provide dedicated funding for a significantly accelerated rural road programme. We have also reoriented our poverty alleviation programmes in a manner that they contribute more efficiently to the creation of rural assets, both private and community. The pure employment generation schemes, however, are being focused on those areas, which have significant underemployment in order to ensure that the problem of providing adequate employment opportunities are not lost sight of.

The third area that needs attention is the development and dissemination of agricultural technologies. Over the years we have developed an extensive system of agricultural research centres and extension services. Although these have had a significant impact on our agricultural growth, much more needs to be done. Strengthening of our agricultural research and development system and a significant improvement in the sophistication of the technology dissemination methodologies are essential to achieving rapid and sustained growth in agricultural productivity.

Finally, we need to recognise that the true potential of Indian agriculture can be realised only when we can diversify our agricultural products, both geographically and over time. The food and nutritional requirements of our people for leading healthy lives demand a wider range of food products than are presently consumed on the average. Most of the non-foodgrain food products are, however, perishable in nature. In order to encourage this diversification through minimisation of wastage considerable focus will be required on post-harvest technologies and marketing infrastructure. It would also require a reconsideration of the various rules and regulations that govern agricultural trade, which frequently act against the interests of the farmers and distort their incentive structure.

We also need to fully appreciate the organic linkage that exists between agriculture and rural non-farm economic activities, particularly in a small farmer-based agricultural system as we have in India. Non-farm activities have tremendous potential not only for increasing rural

incomes directly but also for making available resources for investment by the farmers themselves. Traditional skills, technologies and products abound in our country but we need to make concerted efforts to create market opportunities for them and to provide the necessary financial resources for their development. Micro-finance is one method of providing the latter, which has recorded tremendous success in a number of other developing countries. We too are making determined efforts to develop and encourage institutions, which are capable of taking up this critical activity. However, the attitudes and skills required for micro-finance are quite different from what exists in the normal banking sector. Entirely new and innovative approaches and, perhaps, institutions will have to be evolved to address this issue.

Gentlemen, I have a vision of India in which we are not only a leading industrial and IT power but also where a large proportion of our people continue to live in the villages enjoying a lifestyle that is comparable to, if not better than, what the cities can offer. As Gandhiji said, "India lives in her villages". Our social structure, culture and indeed our national values and ethos emerge from rural India and so it should remain. In the industrialised countries of the West, people are beginning to move back to the villages from the cities in order to rediscover the values and the lifestyles that they had lost. This is, perhaps, one area where we can leapfrog. We must create conditions in the rural areas of our country whereby this vision becomes a reality in the not so very distant future. In order to do so, we have to realise that rural activities, whether they are agriculture or manufacturing or commerce, are just as sophisticated and demanding as any urban industrial or commercial activity. Everybody recognises that information and management are the two critical components of industrial growth. I submit to you that these are just as important, if not more, for the gamut of rural activities.

The use of information technology is spreading rapidly in the country but its penetration in rural areas is still at a nascent stage. Objective appraisal of the possibilities indicates that information technology can yield vast returns when applied to our rural areas in a creative and systematic manner. This applies not merely to issues of disseminating

technological and market information but also to ensuring better and more responsive governance. We shall make all efforts to ensure that such a development does take place. Nevertheless, for the optimal use of such technologies, the people themselves will have to be empowered to tap into the IT revolution. This will not only require a rapid spread of education but also of education, which is relevant to the requirements of the rural populace and enables them to take advantage of the technological possibilities unleashed by the information revolution. Non-government organisations will have a central role to play in this and all encouragement will be given to them to play their role effectively.

At the end of the day, however, all initiatives in developing and modernising our rural areas will depend upon the quality of management. To my mind, organisation of rural economic activities requires qualities of management, which are probably far more sophisticated and complex than those required by the industrial economy. Standard forms of industrial organisation cannot be readily transmuted for application to rural areas. New and more appropriate forms of organisation will have to be devised. Co-operatives and self-help groups have played a significant role in our rural areas and they need to be unshackled from political and bureaucratic interference to enable them to grow faster and prove their worth. The Panchayati Raj institutions also represent an exciting area of experimentation in rural governance. We have great hopes that these organisations would soon become the most powerful and eloquent champions of the aspirations of our people.

These tasks will require both resources and markets for the output of the rural sector. In addition, we need to clearly recognise that despite our best efforts we will be increasingly dependent upon energy imports. Greater engagement with the global economy will therefore be necessary. But today I believe we are clearer about what we expect from such an engagement and what the dangers are. Economic destabilisation is an ever-present danger and control of international institutions, such as the World Bank, the IMF and the WTO, is a central element of international power play. To protect and further

our interests, we must ensure that we are prepared with our own agenda and mobilise support from wherever possible in an issue-based manner. I believe that the vision I have articulated will render us less susceptible to external economic pressures while we gear ourselves up for the next phase of international economic development, where our bargaining position will be considerably more credible.

In the end, I would like to thank the organisers of this programme for giving me another welcome opportunity to interact with officers of the defence forces, for whose abilities and sense of dedication I have over the years developed great respect. I sincerely hope that my efforts to expose you to the wider concerns that impinge on the overall security environment will deepen your understanding of our policy imperatives. Thank you.

** Address at the College of Air Warfare, Secunderabad, on "VISION STATEMENT: India in the 21st Century" on September 22, 2000*

DEVELOPMENT OF METALS & MINERALS SECTOR*

I am happy to note that the Indian Institute of Metals, Delhi Chapter, has continued with its efforts to expose the Indian minerals, metals and metallurgical sector to advances in technology by sponsoring the Third International Exhibition "Minerals, Metals & Metallurgy 2000".

I am told that the Institute sponsored the first Exhibition in 1996 on the occasion of its Golden Jubilee and the second in 1998. I am happy to note that as against 180 firms in 1996 and 200 in 1998, more than 250 firms from 25 industrialised countries and India are participating this time.

Iron has contributed to the evolution of human civilization. In the light of modern radiocarbon dating evidence, it can be stated that iron was in use in India around 1000 years before the Christian era. The choice of Delhi as the venue of these Expo reminds us of the ancient iron pillar at Qutab Minar, which has not gathered even a speck of rust over the centuries. It is but one sample of the metallurgical skills developed in India. Metallurgy was an advanced science in ancient India.

Modern iron industry was established in India when pig iron was made in 1875 by the Barakar Works at its Kulti Plant. The Bengal Iron & Steel Company was incorporated in 1891. The IISCO was born in 1918. Good iron ore was discovered in 1906 in Singhbhum, Bihar. The TISCO was established in 1912. The industry has grown further in the public sector during the first four decades of planned development. Since 1991, however, its growth has been mostly in the private sector.

India has vast potential not only in mining and ferrous metallurgy, as symbolised by large coal and iron ore mines and the steel plants, but

also in the non-ferrous sectors of copper, aluminium, zinc, lead, brass, bronze, etc. The country has now entered a competitive phase of development with all its challenges and opportunities. Above all, the new situation calls for investment in modernisation and upgradation of technologies and a major thrust to raise overall efficiency in the use of our scarce resources.

We need modern technologies, information and expertise for achieving the objective of creating a vibrant economy and a competitive industry. The interaction between Indian and foreign experts during the trade fair being organised today will, I hope, contribute meaningfully to this objective. As we take steps to open up our economy, growth with justice continues to be our motto. There is no substitute for growth and we need economic growth to tackle the problems of poverty and employment.

Rapid economic growth requires quality infrastructure. For instance, no technological innovations or modernisation can help us to achieve our goal unless there is adequate and efficient supply of electrical power. Though there has been more than 44 times increase in the installed generation capacity since Independence, the increased availability of electrical power has not kept pace with the growth in demand. Power shortage and poor quality of power supply continue to affect different economic activities.

The task of additional capacity creation in the power sector, therefore, is a matter of priority. This would call for new initiatives by both the State and Central utilities along with significant private investment for adding to generation capacity and improving the transmission and distribution network, bringing down line losses sharply and speeding up reforms in the power sector.

The economy cannot grow and the needs of the people cannot be met without more capacity in oil, telecommunication, railways, roads and ports. The investment in infrastructure, therefore, would have to be stepped up to at least 6% of GDP, if not more. The cumulative investment requirement of these sectors over the next five years is estimated to be around US\$ 250 billion at the very minimum. There

is, thus, ample room for all modes of investment – public and private, domestic and foreign.

There is a strong link between infrastructure development, which needs long-term finance, and financial sector reforms. Further reforms in the financial sector are, therefore, necessary so that the flow of both domestic and foreign funds to the infrastructure sector is enhanced substantially. I think there is enough room for public and private sector companies to co-exist and compete in the financial sector as well.

Coal will continue to be a very important source of energy in the country in view of the relatively abundant resource position of this important form of energy apart from being an essential input to the metallurgical industry. Coal must, therefore, be developed to the fullest extent possible to obviate the possibility of large outgo of foreign exchange. This will have to be our long-term objective. Technology will play an important role in developing an internationally competitive coal industry.

Rapid industrialization has been one of the key elements in India's strategy to foster economic growth. Realisation of the desired rate of growth will require massive capital investment and modern technology. For this, the process of reform will not only have to continue but also have to be further intensified. Coupled with this, we will have to take up policies to stimulate domestic savings and capital formation. Though the bulk of the required inputs will come from within the country, we welcome foreign investment, particularly if that foreign investment also brings in modern technology and management practices and creates new markets for products manufactured in the country.

India is the 11th largest steel producing country in the world. We have vast recoverable reserves of iron ore, chromite, limestone, dolomite, etc. We have a qualified and experienced work force. The steel industry is poised for rapid growth as is the non-ferrous industry such as aluminium, zinc and copper. I am told that there are about 10,000 foundries in India with an annual capacity of about 4 million tonnes

of castings. The industrial base has been created to produce metal castings and forgings for international consumers. The Indian foundry industry can produce castings of small as well as large sizes to world-class specifications and quality as well as at internationally competitive prices. Many foreign multi-nationals are sourcing their castings from India, but our share in the world castings market is still rather small. It needs to be increased quite substantially. The Indian forging industry with a size of around Rs.20000 million has recorded an average annual growth rate of around 10 per cent. Press forgings, ring rolling and rolled forgings are some of the recent examples of technology up-gradation in this industry.

The demand for finished steel is expected to reach a level of around 50 million tonnes during the next five years. To meet this demand and also increase our steel export, which at present is around 2 million tonnes per annum, more finished steel of international quality and price will have to be produced. For this, new units will have to be set up based on internationally competitive technology, apart from up-gradation and modernization of the existing units.

The per capita consumption of aluminium in India is still low. The metal has comparatively limited applications in India. With 7.5% of world resources of bauxite, India's share in the world bauxite and alumina production is only 4 per cent. India's exports of bauxite and alumina are 1.0 lakh and 4.0 lakh tonnes as against world trade of 35 million tonnes and 17 million tonnes respectively.

The relatively low per capita consumption of steel and non-ferrous metals is a pointer to the vast potential that exists for expansion of their consumption and production in India. Moreover, there is considerable scope for raising the productivity levels in their manufacture.

While India is fifth in the world in bauxite reserves, it is deficit in copper and lead-zinc ores. Aluminium is a power guzzler. Power is scarce in India but we can consider entering into joint ventures in aluminium production with countries having abundant power, say in

the Gulf. We can, however, produce more alumina for export using the latest state-of-the-art technology.

We will have to carry out geological exploration quite intensively for establishing more copper, lead and zinc mineable deposits in the country. The mining activity has been thrown open to the private sector. The MMRD Act, 1957 has been amended for making it more investment-friendly with emphasis on development rather than regulation. With this measure, it is expected that foreign direct investment in the mining sector will flow.

I would now like to refer briefly to issues related to pollution arising out of production of non-ferrous metals. While our present aluminium, copper and zinc smelters have pollution control technologies in position, that is not so in the case of secondary lead and zinc production. Production of secondary lead is the worst culprit. The secondary zinc producers have taken measures to put in position pollution control technology. The problem is acute with the backyard secondary lead smelters. These are small highly polluting units. These smelters have to organise themselves and set up effluent treatment plants either individually or collectively. I need hardly point out that no non-ferrous smelter can be set up without pollution control measures being in position as an essential component of the overall technology package because of various international conventions, protocols and declarations to which we are signatories.

Presently, we do not have an organized mechanism of collecting and recycling used lead acid batteries. There are many small units, which collect these batteries for re-processing without having any regard for pollution control measures. The problem would not be there if these batteries were to go back to large lead acid battery producers for recycling without causing any damage to the environment. There is a need, therefore, for a law, which will tackle the problem of disposal and recycling of used lead acid batteries.

We must not forget that over the years we have created the third largest pool of skilled work force and other facilities in the country particularly in research and development in the metallurgical field.

The progress made in our defence as well as space technologies is ample testimony, among other things, of the success of our metallurgical science and technology. I am confident that our present capabilities will be continuously enhanced through upgradation and modernisation of the existing technologies, creation of new technologies, etc.

Studies have shown that India's comparative advantage lies more in metal-based industries than in chemical-based units. However, for various reasons, we have been unable to exploit this advantage to the fullest. Expositions like this will help us to realise our inherent strengths so that we can play our rightful role in the global economy.

Let us hope that this International Exhibition will also enable the domestic industry to take full advantage of the exposure to state-of-the-art technologies and equipment available in India and elsewhere. This will also enable and facilitate promotion of joint efforts for modernising and enlarging our minerals and metallurgical industry.

I wish the organisers of this function all success.

** Inaugural Address at the third International Exhibition of "Minerals, Metals & Metallurgy 2000" in New Delhi on September 26, 2000*

SCOUTING FOR GRASSROOTS INNOVATIONS*

I am happy that we are launching the national campaign for scouting grassroots innovations today. Indeed such a step should have been taken long time ago in consonance with Mahatma Gandhi's wishes to give prominence to learning from the people and increasing their stakes in the entire development process. His approach can be illustrated by recalling Gandhiji's answer to some young people who sought his advice on how to approach the issue of developing villages. He said, "if I were to work in a village, say in a dairy sector, I would first identify the most efficient dairy producer. I will document his or her technological and management practices from morning till night. Then I will look at the average practices pursued by the other livestock producers and dairy farmers in the village. The gap between the two is my plan of work."

In other words, Indian society has a pool of contemporary innovations and traditional knowledge from which there is much to learn. The validity of the approach is fully accepted by the Planning Commission, which has set up a Task Force on the development of India as a knowledge society. In its discussions with experts from various fields, it has been recognised, *inter alia*, that innovations are required at all levels in our society.

The spirit of innovation prompts the innovator to take up the challenge of real life problems and find ways and means of solving them. The underlying spirit is common to all innovations from the grassroots to the highest form of R&D. In fact if we did not have this spirit of innovation, our society would not have been able to overcome the formidable hurdles it has faced. It is the essence of our civilization. Yet our history shows that we have not done as well we could have. This lends special meaning to the Prime Minister's slogan, "Jai Vigyan", which reinforces the role of science and technology in our national development.

I am happy that the Departments of Science and Technology, Scientific and Industrial Research and Agricultural Research have initiated efforts to involve people in the formal R&D system. The Technopreneurial Promotion Programme, started recently, has provided support to several grassroots innovators.

The scientific culture of our society and the scientific temperament of the people will be nourished if the fruits of science are seen as a response to their felt needs. A lot of research in our universities and other institutions does not seem to be directed at the problems faced by local communities in rural or urban areas. This is what is reflected in the gap between the level of technological efficiency achieved in some of the advanced sectors of our economy *vis-à-vis* the technological levels in disadvantaged segments of our society.

It is this gap, which has to be closed. The National Innovation Foundation has been set up to bridge this gap. The Foundation's mandate is to build a national register of inventions and innovations, set up incubators to convert innovations into enterprises and products and make all efforts to link excellence in formal and informal science to make India a global leader in sustainable technologies. With a corpus of Rs.20 crore the DST set up this fund with headquarters at Ahmedabad under the chairmanship of Dr. R.A. Mashelkar.

I have written to all the Chief Ministers and administrators of Union Territories recently to take personal interest in the activities of NIF and to appoint a senior dedicated officer as a Nodal Point in their States. Nine Chief Ministers have already responded assuring full cooperation and seven have in fact appointed Nodal Officers.

The first annual competition to scout grassroots technological innovations is being launched today. It will lead to building up a national register of contemporary grassroots innovations as well as outstanding examples of traditional knowledge relating to sustainable use of bio-diversity or other resources.

In the present day context there is no venture capital support available to a small entrepreneur if the capital requirement is less than Rupees 50 to 100 lakh. We have micro credit but we do not have micro

venture capital. Just as micro finance has changed the concept of credit at the grassroots level, 'micro venture capital' will change the concept of venture capital by linking innovation, investment and enterprise. It is imperative that a mechanism be developed and institutionalised to help provide financial and capital support to the entire value chain from innovation to product and in turn to the setting up of the enterprise. This is one of the major objectives of NIF to modulate the macro policy in support of such measures that help grassroots innovators. The funds of NIF are a small token contribution by the Government. Much more contribution is expected from the civil society as well as other corporations and foundations.

The NIF will provide facilities for innovators to register their innovations by post or directly through the IT kiosks being set up all over the country. The intellectual property protection to these innovators will require changes in our policy. The NIF will also nudge the formal scientific system so that it accords greater priority and space to the innovations attempted by grassroots level innovators.

The NIF will function as a clearing-house to link innovation, investment and enterprise. It is possible that a venture fund in the west may pick up an innovation from NIF's database and help in setting up an enterprise in Africa. The NIF will try to develop domestic as well as global markets for the products and services developed by innovators.

As I mentioned earlier, the Planning Commission has been pursuing systematic efforts to make India not only a knowledge-based learning society but also a creative community to which knowledge and innovations matter. The NIF would like to reach the nooks and corners of the country to identify the "unsung heroes" of our society. This is a task in which media support is crucial.

The NIF is focusing on grassroots innovations through which poor artisans, farmers, slum dwellers, labourers, small-scale or tiny-scale entrepreneurs are trying to solve problems on their own. If India has to develop and be counted in the world, it can do so only when it can

improve the quality of life in millions of villages and slums and release their latest energy for constructive order. It is here that Honey Bee Network has distinguished itself.

The NIF will have a small team and work primarily through a network. The Honey Bee Network has already built up a database of more than ten thousand contemporary innovations as well as outstanding examples of traditional knowledge produced or maintained by individuals and/or communities. The Honey Bee Network was started at Indian Institute of Management, Ahmedabad (IIMA) about eleven years ago. The Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI), an independent NGO set up in 1993, provided institutional support to Honey Bee Network in collaboration with IIMA. The support from IIMA has been very crucial in pursuing policy changes as well, without which efforts like these would have remained localised. These would not have become institutionalised, which is necessary to make innovations as a second nature of every Indian. Today the Honey Bee Network has blossomed into a unique voice of creative people of not just India but also many other developing countries. Eventually, it is hoped that the NIF will provide a nursery or sanctuary for creative ideas from all over the world so that small innovations will find a nurturing host in the NIF.

It will deal with contemporary innovations as well as outstanding examples of traditional knowledge. Some of the innovators have been invited here today. Innovations are a new way of solving an old or new problem using new material or old materials in new combinations as per existing methods for old use or a new use. That is, in every innovation either the material used are new or the methods used are new or the end-use itself is new.

Traditional knowledge is an accumulated experience of a community or of individual knowledge experts such as healers or herbalists or weavers, metal workers, leather workers etc. What is traditional knowledge in one place may be an innovation in another place. That is how so many drug companies are bio-prospecting herbal diversity from developing countries without, of course, any reciprocity. This

bio-piracy must stop and a national register of local knowledge, innovations and practices related to bio-diversity as well as other resources will prevent anybody from using these without either authorisation from the knowledge providers or proper benefit-sharing agreements. The conservation of knowledge is very essential and erosion of knowledge is as important as erosion of resources itself. The Bio-diversity Bill is before the Parliament and will certainly help in stopping the bio-piracy. The NIF will provide one of the institutional mechanisms of registration, which will help the grassroots innovators and other traditional knowledge experts to secure what they are indeed entitled to.

It is obvious that these tasks require a very flexible organisation and a highly people-friendly approach. It is my hope that the NIF will receive all the support from the Government as well as non-governmental agencies and most importantly from the media in converting this dream into reality. This is a very big task and it needs and merits support from all segments of our society. Together, we can make India innovative. JaiVigyan. Jai Hind.

** Address at the launch of National Campaign to Document Grassroots Innovations and Build a National Register of Innovations and Inventions by NIF on October 3, 2000*

REJUVENATING INDIA-UK BONDS*

It is indeed a pleasure for me to be here for the second meeting of the India-UK Round Table. I would like to thank Lord Swraj Paul for the excellent arrangements made for our stay and for the excellent choice of the venue for our meeting. The opening remarks of Lord Paul have already provided a useful insight into the inception of the Round Table in the context of our bilateral relationship.

In this the new millennium both India and the UK face new challenges and exciting opportunities in the economic and political arenas. As a member of the European Union, the UK will surely play a leading role in this increasingly important political and economic entity. Driven by the desire for integration with the global economy, India has also taken purposeful strides as a democratic nation to build its economic strength.

India and the UK are linked by traditional bonds, by their common democratic way of life, by their membership of the Commonwealth and by the presence of a large and successful community of Indian origin in the UK. However, all relationships need to be nurtured. Therefore, in consonance with the changing times we have recognized the need to re-focus and rejuvenate our relationship.

Mutual understanding and respect have become integral part of our relationship. In the last two years, our Governments have engaged in regular and high-level exchanges. It would not be an overstatement to say that our bilateral ties at the official level are at their zenith today. The ongoing political interaction has fostered a stimulating ambience for the development of our partnership.

The visit to India by Foreign Secretary Robin Cook in April this year was a reiteration of the significance attached by both countries to our 'modern partnership'. Mr. Cook's assertion that India was a natural contender for a permanent seat in the UN Security Council has been

welcomed in India. The visit of the Home Minister to the UK in June and that of Mr. Jack Straw, British Home Secretary, to India in September this year have both provided opportunities for reviewing and consolidating our valuable cooperation in combating international terrorism. In November the Indian Foreign Minister Mr. Jaswant Singh will visit the UK and Mr. Peter Hain, MOS for Foreign Affairs will be coming to India to take forward the ongoing dialogue.

In addition to our bilateral interaction India and the UK continue to cooperate closely in the Commonwealth fora in pursuance of our shared commitment to democratic values. Both countries are committed to the identification of some more areas of common interest and concern. I am looking forward to the presentations by Ambassador Rasgotra and Prof. Anthony Giddens on the global perspectives of our respective countries in the year 2000. The ensuing discussions, I am sure, will allow an in-depth and stimulating exchange of views on this subject.

The launch of the Labour Friends of India last year and the Libdem Friends of India in September this year deserve special mention. Spurred by a growing realisation of the scope of mutual enrichment these groups have committed themselves to building bridges of understanding. Since the beginning of this year India received two visits by LFIN MPs in February and October and also by Libdem parliamentarians in January 2000. These visits are instrumental in conveying to large sections of the British polity a balanced image of India and its diverse facets as also its vibrancy and optimism. We do hope that their efforts and initiatives will continue to contribute to the reinvigoration of our bilateral ties.

The political dialogue has raced ahead of other equally significant spheres of activity. On the economic front, notwithstanding its considerable potential, the bilateral trade amounts to a meagre 3 billion Pounds Sterling per annum. The investment figures are equally disheartening, although there are indications that trade and investment flows may register an increase in volume owing to governmental commitment to achieving a trade target of 5 billion Pounds Sterling

per annum. This could be the critical first step in addressing the long-pending need to consolidate the economic aspects of our bilateral ties.

The Round Table has been established at a time when India is teeming with the spirit of economic freedom. In the last decade, India has registered an impressive economic performance. According to advance estimates, the Gross Domestic Product has grown at 6.4% in 1999-2000.

In recognition of the exciting prospects and the potential for mutually beneficial commercial ties, the Round Table has given thought to the ways in which bilateral trade and investment could be strengthened further. We note with appreciation the constructive role that the Indo-British Partnership has played by forging closer linkages between the private sectors. The recently launched 'Global Enterprise Initiative' is another step in this direction aimed at promoting collaboration between small and medium enterprises of India and the UK. However, considering the untapped potential of the Indian economy and its market, there is a vast scope for diversification and expansion of bilateral trade and investment. We will, during the course of this second meeting, examine the ways in which we can complement such initiatives. Members will recall that during our first meeting in New Delhi, in acknowledgement of the impressive growth of the Indian information technology sector, we had proposed the establishment of a joint web site to promote British investment in the IT sector. We had also pointed out that with concerted efforts and strategic alliances, the bilateral software trade, which amounts to US\$ 500 million, could be augmented to nearly US\$ 6 billion per annum in the coming years.

The possibilities of further interaction in the area of education will also be considered during the next two days. During our first meeting we had identified several factors, which had impeded full-fledged educational exchanges between India and the UK. The Indian student community has responded with enthusiasm to the recent measures adopted to encourage greater exchanges in this field between the two

countries. The Round Table has also pointed out the need to promote awareness about Indian history and culture in the British academic world. We hope that our suggestion for the establishment of 'India Chairs' in leading British universities will be implemented.

In the last fifty years our cultural interaction has been spearheaded largely by governmental efforts and organisations. The Nehru Centre and the British Council have been instrumental in allowing us to appreciate each other's cultural diversity and vitality. However, in the era of market forces, there is ample room for support and involvement of private and corporate entities. The Round Table will have the opportunity to discuss such possibilities in the area of cultural exchanges. The task of building bridges of understanding can best be achieved by increasing people-to-people interaction and also awareness about each other's perceptions. We will, therefore, consider the ways in which the media of India and the UK can also play a role in broadening and deepening mutual understanding between our peoples.

In the first half of September this year I had the opportunity of discussing with Lord Paul in New Delhi the agenda and the preparatory work leading up to this second meeting. In pursuance of our discussions, our deliberations during this meeting will allow for a focussed exchange of views on key areas of mutual interest.

Ladies and gentlemen, as I see it, this Round Table is an indication of the shared desire of both countries to develop a modern partnership, with new dimensions. I am confident that the Indian and British members of the Round Table will, through our deliberation in Warren House, lend a new dynamism to our multifaceted ties.

** Opening Statement at the second meeting of the India-UK Round Table held on October 9, 2000 in UK.*

REFLECTIONS ON STATE OF ECONOMY*

Good afternoon, ladies and gentlemen, it is indeed a pleasure to be here with you today to exchange views on the current state of the economy and discuss the prospects for the future. I am certain that during the past one-and-a-half days the Finance Minister and my other Cabinet colleagues have already given you a fairly detailed exposition on many of the topical issues and I may have but little to add. Nevertheless, before we go into the interactive session, it may be desirable for me to briefly outline the views of the Planning Commission on some issues, which have been in the news recently.

Let me begin with some reflections on the current state of the economy. I am aware that there is a certain degree of apprehension that the economy is again slowing down after a brief period of upturn during the last fiscal year and that the growth target of the Ninth Plan may not be achieved. The quarterly estimate of GDP put out by the CSO for the first quarter of this fiscal year and the index of industrial production appear to support such a view. Although short-term forecasting is not the *metier* of the Planning Commission, I would advise against pronouncing any judgement on the basis of trends observed in the immediate past. The likely future behaviour of the economy needs to be seen in the context of the causes of the slow-down and the probable trajectory of these causal factors in the coming months.

As you may be aware, the draft mid-term appraisal of the Ninth Plan, which is adequately covered in the background material circulated to you has identified the significant short-fall in public investment, particularly in infrastructure, as the single most important cause of the slow-down in industrial growth witnessed during the past three years. An additional causal factor has been the relatively slow growth

of our exports in the past as a consequence of the East Asian crisis and a general slackening in the international trade scenario. The latter factor has already reversed and our exports are showing a healthy 20 per cent plus growth. In so far as public investment is concerned, I must frankly admit that we had underestimated the impact of the Pay Commission award, particularly on State Governments. As a consequence, although the Central Government and the public sector enterprises achieved about 47% of their target investment during the first three years of the Plan, the States achieved only about 28 per cent.

However, the signs are propitious. The impact of the Pay Commission award is more or less over and we expect to see a rebound in public investment in the coming months. Indeed, this recovery should already have happened but there has been delay in launching new public investment projects. For example, although the National Highway Development Project is progressing reasonably well on the strength of the resources raised through the diesel cess, the rural roads programme is yet to get off the starting block. Other Central and State Government investment projects have also been languishing due to the non-availability of committed funds. This has of course been an error and preparatory work should have been initiated on the expectation of fiscal recovery. But things appear to be coming together now and hopefully public investment will pick up rapidly in the near future. How soon this will happen and whether it will generate the kind of momentum necessary to regain the growth trajectory is difficult to say but I am optimistic in this regard.

Matters have become somewhat more complicated because of the rise in international price of oil and the need to make corresponding adjustment to our domestic prices of petroleum products. Such external shocks do have stagflationary consequences, as we know from our past experience, but they can be ameliorated through policy measures. In particular, I do not believe that we should take an unnecessarily hard anti-inflationary stand at this stage and thereby choke the growth

impetus. We need to accept the fact that relatively high oil prices will be an abiding feature of our economic environment and take suitable measures to adapt to it as best as we can. It is absolutely essential for us to vigorously pursue policies, which lead to increase in energy efficiency in the economy. We had, perhaps, become a trifle complacent in this regard due to weak international oil prices and our strong balance of payments position.

I am sure that all of you will be wondering that in the current context how could the Planning Commission be considering a growth target of 9 per cent for the Tenth Plan as mentioned by the Prime Minister. In the first instance, I would like to make it clear that the Prime Minister has only directed the Planning Commission to examine the feasibility of a 9% growth target. We will be embarking on this exercise shortly and the results will hopefully be embodied in the Approach Paper to the Tenth Plan. Nevertheless, I would like to point out that this is not an impossible target and the main question would be whether or not the necessary measures can be taken within the stipulated time frame. The other issue would be whether or not every region of the country is in sufficient state of preparedness to record growth rates, which would eventually add up to the aggregate target. These are matters in which considerable research would have to be done and it would be premature for me to take a position.

Finally, I am sure that all of you are very eager to learn about the poverty estimates for 1999-2000, about which a lot has been written in the media in recent days. Let me make it absolutely clear that the methodology of poverty estimation used by the Planning Commission relies on the full data set being available. At the moment the data for only half the sample is available to us and the remaining half will become available by the end of the year. In addition, the Planning Commission has certain concerns regarding the comparability of the 1999-2000 NSS data with those of 1993-94, which is the previous full sample. In order to assess the degree of comparability, I am setting up a small group of experts to go into the issue. Hopefully the Report

of this Expert Group will be available to us by the time the full data set is ready and we can take a reasoned decision on further course of action. In the meantime, we fully support the decision of the Department of Statistics to release the data of the first half sample so that independent analysis by academics and researchers can proceed. Such transparency is desirable for the credibility of our statistical system.

With these opening remarks, I am open to your questions.

** Opening Remarks at the Economic Editors Conference-2000 held in New Delhi on October 17 2000*

TONING UP INFRASTRUCTURE SECTORS*

I am happy to learn that India-Tech Foundation is organising a series of activities such as International Exhibition and Conference under the aegis of Power-Tech India-2000 and Constru-Tech India-2000. The theme of the conference being organised on this occasion is "Quality, Efficiency and Economy in the Construction and Power Sectors". This theme is topical if our infrastructure sector is to keep pace with the more rapid growth, which we hope to target for the Tenth Plan.

The road sector is an important infrastructure sector, which has received focused attention in the past two years. The National Highway Development Project, for example, is a major new initiative recently announced by the Prime Minister. It consists of 4 and 6 laning of the Golden Quadrilateral and North-South, East-West corridors having an aggregate length of 13252 kms. The total length includes around 7300 kilometres of road development under North-South and East-West corridors. Work on the Golden Quadrilateral is to be completed by 2003. The work on the corridors is scheduled to be completed by 2009. The implementation of this programme will be on the basis of the new policy regime for road improvement and construction announced in the past couple of years.

The implementation of a project involving over 13,000 kilometres of road length poses a major challenge as well as an opportunity to the construction industry under the overall auspices of National Highways Authority of India. A number of technological as well as HRD measures would have to be taken to ensure that there are no time over-run and cost over-run. I understand that many of the important qualitative changes taking place in the construction sector have been displayed in the Exhibition, which dwells at length on construction materials,

construction machinery and equipment, material handling equipment etc. I am confident that the construction industry would rise to the occasion.

High-quality road development may appear expensive to begin with but it will provide many benefits to the economy during the life of the project, as the current investment in the construction of high-quality infrastructure will substantially reduce the future maintenance requirement and help conserve resources in the future. The provision of other infrastructure sectors should also have this quality dimension in the forefront. Gradually, the various agencies involved will have to achieve high efficiency and capabilities so that the programme is implemented within this overall framework of timeliness and high quality. As the programme progresses, I have no doubt that it will give a fillip to the road construction industry providing steady flow of orders.

The Government has already declared the construction sector as an industry. It has also provided a framework within which the private sector can construct and maintain roads, which was hitherto thought to be the exclusive domain of the public sector. In the implementation of road projects, which have high gestation periods and funds requirement, the crucial potential bottlenecks have been recognised and an exclusive fund created through the imposition of levies on fuel. This will provide a steady flow of resources to the sector and after completion of NHDP these funds will be diverted to other programmes. I will be happy if the International Conference focuses on some of the micro issues, which confront the implementation of this programme.

The construction industry has the potential for providing work opportunities to a large segment of our work force. Seen in relation to the output of the construction sector, i.e., the value added here, the elasticity of employment has been observed to be the highest. It is closer to unity in this sector than in agriculture where the employment elasticity is 0.5.

The power sector is one of the main drivers of the economy of any country. The Ninth Five Year Plan envisaged substantial additions to capacity and production in the power sector. The mid-term review, however, indicates that there would be a substantial shortfall in achievement i.e about 24310 MW against the target of 40245 MW. Against the targeted growth rate of 9% during the Plan, the electricity generation during the first three years in public utilities was around 6.8% annually. It is unfortunate that the capacity addition in the private sector was only 44% of the target set for the private sector. The private sector projects have not come up as expected mainly because the policy framework, needed to encourage private investment, has not yet been put in place. The poor financial condition of the SEBs has been a major constraint in achieving financial closures. The power sector reforms are, therefore, the crying need of the hour.

The reforms in this sector were expected to focus on two thrust areas, namely, establishment of rational tariff structures through independent regulatory commission and restructuring of the State Electricity Boards separating generation from transmission and distribution to bring about greater efficiency in each area. These reforms are now under way though the process is not complete. The Central Electricity Regulatory Commission has been constituted in July 1998 and is in operation. The State Electricity Regulatory Commissions have been set up in 14 States. However, even in the States where the Electricity Boards have been unbundled, tariff revision has not been an easy task. It would be pertinent to mention in this context that agriculture accounts for about 30% consumption of power in the country but many States have not imposed reasonable rates of tariffs. In fact, in some States, power for agriculture is given free. It would be necessary to build a national consensus on the tariff revision, especially for power for agriculture, if the power sector reforms are to proceed smoothly. Securitisation of the dues of the State Electricity Boards will help in attracting private investment in the power sector but it may not be sufficient to catalyse private sector investment without a national consensus on tariff revision.

It is also necessary to lay greater emphasis on different renewable sources of energy including hydro power, wind power, solar power,

bio-mass power and ocean energy. It is rather disturbing to note that the share of hydro power in the country has been steadily declining from over 50% in 1963 to 25% in 1999. The long gestation period of hydel projects and the environmental concerns, including the rehabilitation problems, are the major stumbling blocks. Harnessing of wind power for electricity generation in recent years has been quite impressive. India is ranked 5th in the world after Germany, USA, Denmark and Spain. However, there is great scope for tapping the hitherto untapped wind power potential as the country has the potential of 45,000 MW. The participation of the private sector in this area has been satisfactory and needs to be encouraged.

Solar power is an obvious choice for a country like India to bridge the demand-supply gap. A lot of R&D is necessary to harness solar energy for generation of electricity economically. Bio-mass offers an ideal option for rural electrification. Of late, this is gaining priority in certain hilly areas and islands. These schemes for decentralised power plants have particular relevance in the North Eastern States, J&K and Sikkim. Energy from waste remains to be tapped. There is a potential to generate 1700 MW of electricity comprising 1000 MW from urban and municipal wastes and 700 MW from industrial waste. Technologies are now available to treat the garbage to meet the required pollution control standards besides generating power. It should be our endeavour to exploit these various resources for producing energy to meet the deficit, as these are basically environment-friendly.

I am told that Power-Tech India-2000, which is a part of Infrastructure Vision India, is highlighting the recent developments in technology, featuring plant, equipment and instrumentation for power generation, transmission and distribution, co-generation and energy conservation. One of the neglected areas relating to power and construction sectors has been the need for safety training, which covers various short and long-term goals and activities. These goals and activities could emerge from the deliberations during this Conference, which has representatives of Government, industry, professional bodies and perhaps trade unions also. I strongly feel that India-Tech Foundation and the *Economic Times* through the organisation of similar activities

can help in the evolution of networks, which can facilitate in solving various issues confronting the construction industry today.

The construction industry is crucial to our country and it has many spin-off effects. It would be desirable to take a holistic view of this industry as it spans many sectors of the economy and to formulate an investor-friendly policy regime. The Conference may like to come out with specific suggestions in this regard.

I congratulate the India-Tech Foundation and the Economic Times for organising such stimulating activities.

** Inaugural Address on the occasion of the events organised by India-Tech Foundation in Mumbai on October 18, 2000*

PROMOTING E-GOVERNANCE*

I am happy to be here among you today. It is only fitting that IT.COM 2000, organised by the Government of Karnataka in partnership with the United States of America, is being held in Bangalore.

We in India have respected knowledge since ancient times. Our sages have extolled *Gyan* or knowledge as one of the paths to salvation and Godhead. In that sense, India has always been a Knowledge Society. What is new is the enthusiastic harnessing of *Gyan* for the generation of wealth. Knowledge has become a powerful tool for Sarvodaya. You will be interested to know that a group consisting of experts has been set up under my Chairmanship by the Planning Commission to define the contours and prospects of developing India as a knowledge superpower. The group which has, among others, Dr. APJ Abdul Kalam, Dr. R A Mashelkar and Shri Narayan Murthy apart from Dr. Venkatasubramanian, is likely to finalise its report soon.

The digital era is silently but surely transforming the social infrastructure within our own nation for its socio-economic development as well as acting as a vehicle to prepare itself to become a part of a wider networked economy. It has its own distinct opportunities and its own rules. Those who play by the new rules are likely to gain and those who ignore them may lose out. In the present era of globalisation information technology is an essential factor in determining the common future of all nations. In this millennium comparative advantages and competitiveness may need to be redefined in terms of the effectiveness of IT usage. With the establishment of WTO it is left to the capability of each nation to get a larger share of the world economy and much of this will be defined by the countries that have provided leadership to the IT revolution.

The Government of India has taken several initiatives for the promotion of IT. Among the most important of these is the "Information

Technology Act 2000". The Act will facilitate the growth of e-commerce, electronic communication through Internet and accelerate induction of IT in critical sectors of the economy. It is noteworthy that the Government has also allowed 100 per cent foreign direct investment in e-commerce and decided not to tax such transactions. E-commerce, as you well know, is seen by many as one of the most exciting applications of the Information Revolution. It transcends the barriers of distance and time. The promise, sweep and potential of electronic commerce are only now beginning to be felt by the layman.

One of the agendas under the Special Action Plan of the Prime Minister is to make India a global Information Technology Superpower and one of the largest generators and exporters of software in the next ten years. This is our national mission. The Government constituted a National Task Force on Information Technology and Software Development. The first Report of the IT Task Force, containing 108 recommendations relating to telecommunication policies and procedures, cyber laws, labour laws for IT industry, fiscal incentives and financial matters, promotion of IT in schools and rural areas, increasing computer literacy and computer penetration in the country etc., has been fully accepted and is under implementation.

Today, the US is predicting a shortage of over 300,000 professionals across its industries. Indian software talent is already plugging a part of the demand-supply gap in the US. Other nations are also showing interest in our skilled professionals. The numbers mentioned in this context speak for themselves i.e. 20,000 professionals for the German market, 15,000 skilled personnel for Austria and 40,000 experts for Japan.

A Task Force on Human Resource Development in IT has been set up to prepare a long-term strategy for significantly increasing the number of well-trained IT professionals. The Task Force has drawn up a plan to optimally use the existing infrastructure of the IITs, RECs, other engineering colleges and educational institutions to double the student intake from the next academic year and triple it in the next two years. We realise that India has the potential to make its mark in the field of

information technology and we will extend all possible support to investors in this field.

The Indian software professionals have established themselves as a global brand, signifying cost-effective and high quality IT solutions. They are the appropriate vehicles for India's quest for supremacy in the next wave of opportunity, which is probably best thought of as an opportunity for human development services. This is a sterling achievement considering that Indian software exports make up a small 2.5 per cent of global software revenues. If the growth rates stay in the 50 per cent region for the next 5 years, as they have over the previous five, Indian software exports will account for over 6 per cent of global software revenue in 2005 and the Indian brand will probably get further strengthened. The Indian software industry is the arrowhead of our IT weaponry. It has made tremendous strides, improving its stakes in markets both at home and abroad. Another recent and welcome development, which is expected to provide a further fillip to this sector, is the arrival of venture capital in the country.

In India we are at the same time concerned with what has come to be known as the digital divide. It may not be realistically possible to completely eliminate this division. The Government alone cannot tackle this problem. All sections of society, including IT professionals, have a role to play in ensuring that the benefits reach everyone in the society. The Government on its part has taken up a project for setting up Community Information Centres in 486 blocks in the North-East to provide connectivity at the block level. A pilot project in 30 blocks has been completed. These Centres will give a fillip to sectors like health, energy, water, education and literacy as well as poverty alleviation. However, a lot is required to be done in those States, which are late starters in the field of information technology.

Some states, including Karnataka, have already shown the advantages of e-governance. Guidelines have already been issued to all ministries and departments of the Central and State Governments to make use of IT and Internet so that the benefits of transparent and hassle-free administration through e-governance reaches the common man.

A number of far-reaching decisions have been taken recently to enable the growth of the communication and IT sectors and to march towards an age of universal connectivity at affordable prices. Internet Service Providers (ISP) have been permitted to set up international gateways and hire bandwidth on foreign satellites to enable increased availability of bandwidth and facilitate Internet expansion in the country. Recent steps in the telecom sector, like formation of Bharat Sanchar Nigam Limited and full deregulation of the national long-distance operations as well as opening up of ISD with no restriction on the number of players, will help in the development of telecom infrastructure.

The IT-enabled services will also receive a shot in the arm once the infrastructure improves and we are able to alter some laws governing connectivity. Such services, including call centers, medical transcription and other support options, will not only generate massive employment opportunities across India but will also help rope in India's educated "woman power" that will be able to work from home by pressing the right keys.

We now need to take the IT revolution to its next logical phase. We need to use the gains and advances made in the IT sector to spur 100% literacy, more employment, entrepreneurship and economic growth.

Events like IT.COM 2000 will not only motivate the participants and industry but will also provide a good platform for attracting business and showcasing innovations. I am told that the event has both exhibitions as well as conferences. The thrust of the conferences should be on how best to ensure that the benefits of the revolution can be fully shared by the people at the grassroots level. Your suggestions in this regard would surely be helpful in guiding the Government for further action.

I thank the organisers and participants for giving me this opportunity to be here with you today. Thank you.

* Address at the inaugural function of IT.COM 2000 held on November 1, 2000 at Bangalore

ROLE OF NATIONAL COMMISSION ON POPULATION*

At the outset I would like to offer homage to the founder of this institution, the late Shri JRD Tata. Shri Tata was a visionary, a pioneer and a builder of institutions. A many-splendoured personality, he made a rich and lasting contribution to various facets of national life. I am thankful to the Population Foundation of India for giving me this opportunity to share some thoughts with you on a subject, which was of deep and nagging concern to him. JRD Tata had recognised the critical linkages between population and development and strove to accelerate the process of demographic transition by paying attention to meet the needs of individuals.

India's population reached the one billion-mark on the 11th May this year. With 16 per cent of the world's population, India has only 2.4 per cent of the world's land resources. In 1901 the country's population was 238.4 million and the current level shows an increase of about 760 million in the last 100 years. Of this increase, 84% has occurred during the second half of the century i.e. after 1950. If the current trends continue, India may become the most populous country in the world by 2045.

In India the improved quality and coverage of health care has resulted in a rapid fall in Crude Death Rate (CDR) from 25.1 in 1951 to 9.8 in 1991. In contrast, the reduction in Crude Birth Rate (CBR) has been less steep, declining from 40.8 in 1951 to 29.5 in 1991. As a result, the annual exponential population growth rate has been over 2% during the period 1960-1990.

The picture is, however, not uniform across the various regions of the country. Currently, five States—Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa—constitute 45% of the total population of India. With present trends, these States will contribute 55% of the total increase in population of the country during the period 1996-2016.

The tragedy is that at least some of this growth was, and is, preventable. It is estimated that the unmet need for contraception is between 25% and 30% in these States. Such a state of affairs is inexcusable. Urgent energetic steps are required to be initiated to assess and fully meet the unmet needs for maternal and child health (MCH) care and contraception. The performance of these States would determine the year and size of the population at which the country achieves population stabilisation. In all these States performance in the social and economic sectors has also been poor. The poor performance is the outcome of poverty, illiteracy and poor development, which co-exist and reinforce each other.

However, several States in India have made enormous progress in improving the health status of women and children and achieving rapid decline in fertility and mortality rates. Their success stories have demolished several assumptions. Kerala, which was the first State to achieve replacement level of fertility (TFR of 2.1), did so in spite of relatively low per capita income, proving that in the Indian context high income level is not an essential prerequisite for achieving the small family norm. Tamil Nadu, which was the second to achieve replacement level of fertility, did so in spite of a higher IMR and lower female literacy rate than Kerala. Andhra Pradesh, which is likely to achieve replacement level of fertility in the next two years, has recorded a steep decline in fertility in spite of relatively lower age at marriage, low literacy and relatively poor outreach of the primary health care infrastructure. The North Eastern States of Tripura, Manipur and Mizoram, despite substantial difficulty in accessing primary health care facilities, have achieved not only low fertility rates but also low infant mortality, thereby suggesting that a literate population with awareness can successfully overcome weaknesses in the primary health care infrastructure. In every State, including those, which currently have poor health indices, there are districts with health indices comparable to the national levels. It would, therefore, appear that in the Indian context one of the major determinants of health and demographic indices is the decision of families about their health

and fertility. Enabling them to achieve their goals by improving access to good quality services should, therefore, be the central agenda of all the concerned agencies in the Government, voluntary and private sector.

India's demographic profile is undergoing rapid change. Projections by the Registrar General of India reveal that the percentage of population in the age group of 0-4 years will decline from 12.8 % in 1996 to 9.7% by 2016. On the other hand, the population in the reproductive age group will undergo a massive increase from 519 to 800 million. I feel that for India this demographic transition is both a challenge and an opportunity. In the next two decades, the size of India's population will be determined mainly by adolescents and young adults, who will be hopefully more literate, aware and able to make better use of the opportunities that arise. If their felt needs for health and contraceptive care are met, there will be a steeper decline in mortality and fertility, helping the country to achieve replacement level of fertility earlier. This is an opportunity to utilise the abundant available human resources of the country to accelerate economic development, take advantage of this period of low dependency ratios to improve the quality of life and promote savings. The challenge is to develop synergy between ongoing demographic, educational, economic and technological transitions so that India can hasten population stabilisation and rapidly achieve sustainable development—social, economic and human.

According to some experts, the current growth in population is basically due to three factors. About 60% of the growth can be attributed to the large size of the population in the reproductive age group. We refer to this as "momentum" and this growth is bound to take place because of what has happened in the past. Another 20% of the growth will take place due to high unmet needs for contraception and the balance 20% due to other socio-economic factors like high infant mortality, status of women, gender bias against girl babies, poverty etc. In this perspective let us consider the National Population Policy 2000. The Policy is noteworthy in that it transcends demographic concerns and aims at the over-riding objective of economic and social development to improve the quality of life of the

people of India, to enhance their well-being and to provide them with opportunities and choices to become productive assets in society.

The National Population Policy affirms the commitment of the Government towards voluntary and informed choice and consent of citizens in availing of reproductive health care services. While continuing with the target-free approach to family planning, it lays down a number of socio-demographic goals for 2010. These goals not only relate to family welfare and maternal and child health care but also include goals like making school education up to the age of 14 years free and compulsory, reducing dropouts at primary and secondary levels, promoting delayed marriage for girls and, most importantly, bringing about a convergence of various social sector programmes so as to make family welfare a truly people-centred programme. The immediate objective of the National Population Policy 2000 is to meet all the unmet needs for contraception and health care for women and children. The medium-term objective is to bring down the total fertility rate to the replacement level (TFR of 2.1) from the present level of 3.3 by 2010. The long-term objective of the Policy is to achieve population stabilisation by 2045.

The population policy envisaged the setting up of a National Commission on Population, which was in fact notified by the Government of India on 11th May 2000. Incidentally, this was the day that India's population reached the one billion-mark. The National Commission on Population is headed by the Prime Minister as the Chairman and the Deputy Chairman of the Planning Commission is the Vice Chairman. All Chief Ministers, relevant Central Ministers, all major political parties, specialists, NGOs, private sector and media representatives are the other members of the Commission.

The Commission is a very good forum, which can be used to build public opinion and create consensus. The very first meeting of the Commission gave a clear and categorical message. What came out very clearly was the widespread national concern to achieve early population stabilisation and a sense of urgency to take effective steps to accelerate the process. There also appeared to be a strong political

will and commitment from all the State Governments and political parties present. Some States, like Madhya Pradesh, Rajasthan, Himachal Pradesh, Andhra Pradesh and Orissa, have already debarred candidates with more than 2 children from standing for local body and PRI elections through legislative enactments. Some States wanted to introduce similar conditions for seekers of Government jobs. An alternative view was that such measures might discriminate against women, who have little or no control over their fertility in our social milieu. The experts, representatives of media, corporate sector, NGOs and civil society offered all assistance, that they could provide, to further the cause of rapid population stabilisation and human development.

The functions of the Commission are firstly to review, monitor and give directions for the implementation of the policy, secondly to promote synergy between demographic, educational, environmental and developmental programmes so as to hasten population stabilisation and thirdly to promote inter-sectoral coordination in planning and implementation across government agencies, involve civil society and the private sector and explore possibilities of international cooperation. Lastly, and perhaps most important of all, the Commission is to facilitate the development of a vigorous people's movement in support of this national effort.

Convergence of services and coordination among Government ministries and departments is one of the most important roles that the Commission will have to play. The Prime Minister has already announced the setting up of an Empowered Action Group in the Department of Family Welfare to address the specific problems of the backward areas and States lagging behind in addressing the population issues. Synergies between various schemes aiming at the same target group have to be promoted at the village level through active involvement of people's representatives and people themselves. We should take into account and utilise the large human resource base right at the village level. The youth has a special responsibility. The NSS volunteers and Nehru Yuvak Kendras are to be sensitised and utilised for promoting small families and developmental programmes.

After the first meeting of the Commission, we have set up the following Working Groups:

- (i) Working Group on Strategies to meet the unmet needs. There are four Sub-Groups to address the strategies to meet the unmet needs for contraception, the unmet needs for maternal and child health, the unmet needs for public health, drinking water, sanitation and nutrition, and the unmet needs for empowerment of women and development of children. This clearly shows that the Population Commission is looking beyond the unmet needs not only in the health and family welfare sector but also in the areas of women's empowerment, development of children, nutrition, sanitation and drinking water, all of which impact on population stabilisation and vice-versa. However, considering that the unmet needs for contraception are in the range of 20%, the Sub-Group on this subject acquires special significance.
- (ii) Working Group on Primary and Secondary Education in relation to population stabilisation. The very high correlation of education with population issues is well recognised. Education, particularly of girls, was seen as one of the single most important factors that will accelerate population stabilisation. Emphasis must be given to primary and vocational education. We have seen that while the total fertility rate (TFR) for illiterate mothers is 4.03, it is 2.15 for mothers educated up to and beyond high school. Similarly, infant mortality rate for illiterate mothers is 101 but it is 37 for mothers educated up to and beyond high school. Population and sex education at secondary and higher education levels has also proved its utility, and should be incorporated into school syllabi.
- (iii) Working Group on Registration of Births, Deaths and Marriages. It is universally accepted that the status of women is a key factor in fertility decline and the quality of life. It is, therefore, necessary to increase female literacy and awareness, their political participation, reduction in child marriages, promote women's health in totality and enhanced opportunities for women's income generation. The need to enforce the legal age at marriage was

clearly discernible, for which the mindset and attitudes have to be changed. Laws alone will not suffice. Today, we have a massive problem in enforcing or even determining the exact age at marriage due to lack of registration in this regard. This Group will grapple with this problem.

- (iv) Working Group on Media for information, education, communication and motivation. This is one area that has tremendous scope and potential and we would like to explore all possibilities through an area-specific, need-based approach. We have added motivation to the traditional concept of IEC. Even if one has information and it has been communicated properly, if one is not motivated, there will be no action. The very crucial role of the media, both print and audio-visual, is well recognised. But the presentation must be innovative and well designed. Quizzes, game shows and dramas, for instance, are likely to be considerably more effective than mere exhortations. Advantage should also be taken of traditional forms of social interaction, such as 'haats' (local markets) and 'melas' to spread the message. Members of the Commission with mass following and credibility have offered their services in putting population issues on the national agenda and sensitising the people. A popular TV channel has generously offered access and support at prime time. The power and reach of the media—print, radio, television and, more recently, the Internet—are force multipliers in the national campaign for arresting population growth. There is a strong demand for a much greater use of easily intelligible Hindi in the communication materials. Much more attention needs to be given to regional language media. We must also not neglect the use of local languages to focus on the under-performing areas even within States reporting relatively good performance.
- (v) Working Group on the Role of Panchayati Raj Institutions and Self-Help Groups in Population Stabilisation. The population programme has to be made a people's movement. It has to be adopted as their own programme by the local self-government

institutions of the Panchayati Raj and self-help groups of the community. The challenge before this Group will be to so fashion this programme that every individual and social group will recognise and accept that having small families is in their own interest.

Another Working Group on Private Sector, Labour and NGOs is also being set up. As the problems at hand are so stupendous, the Government alone cannot possibly find solutions. The private sector, labour unions and NGOs have a vital role to play in this regard. At the meeting of the Population Commission, I may add, the corporate sector lent wholehearted support to the issue of population stabilisation and offered to involve the industry through their resources, marketing and managerial competencies. Labour and trade union leaders also offered their wholehearted involvement.

These groups have been entrusted with the task of identifying gaps and examining and suggesting alternative strategies in the light of recent developments and innovations with the objective of contributing to the fulfillment of the objectives of the National Population Policy. To facilitate its working, the Population Commission has formed a Strategic Support Group with the Secretaries of all the concerned Departments of the Government of India as members. This Group will bring about coordination and synergy among the ongoing programmes in all these Departments.

India has a rich tradition of indigenous systems of medicine like Ayurveda, Siddha and Unani. There are more than six lakh registered practitioners of these systems in the country. Their services have not been fully utilised in improving the access to reproductive and child health care services. In order to ensure optimum utilisation of this human resource, the Population Commission has set up a high-power Advisory Committee on mainstreaming ISM&H in the health system.

A Task Force on monitoring, which is one of the prime functions of the Commission, has also been set up. It will be through this Task Force that the Commission will review and monitor selected indicators.

which impact on population stabilisation. They will also go into the feasibility of collecting and corroborating data from two or three different sources.

A National Population Stabilisation Fund is also being put in place. The Planning Commission has already announced corpus seed money of Rs.100 crore for the Fund. It is hoped that the private sector in India as well as non-resident Indians will contribute generously to the Fund. Contributions to the Fund are exempt from income tax. The Fund will be used to support, among others, innovative, demand-driven, people-centred projects at district and sub-district levels, which contribute to population stabilisation. Community-based organisations (CBOs) and non-governmental organisations (NGOs) will be encouraged to avail of this facility. We would like to concentrate our efforts in the identified backward districts.

In order to lend focus to our efforts an exercise to rank districts on the basis of 13 select indicators and identify the most backward districts from the point of view of social deprivation and population stabilisation has been initiated. Care has been taken to select indicators from all sectors and not only family welfare-related ones. These 100 to 150 most backward districts will be given special focus. We will also identify the 20 percentile most backward districts in each State, so that the State Governments can plan accordingly. This will also help the private sector and other non-governmental bodies to decide where to intensify their activities.

The State Governments are also being encouraged to formulate their own Population Policies and set up Population Commissions. Uttar Pradesh, Madhya Pradesh, Rajasthan, Andhra Pradesh and Maharashtra have so far formulated their own Population Policies.

Over the last five decades, international experience has demonstrated that the forms of government, religion and poverty are not barriers to achieving rapid decline in fertility and population growth. Success stories in this regard in countries like Bangladesh, Malaysia, Indonesia

and Iran need to be studied and widely disseminated. Support of opinion makers like political and religious leaders in this national effort will be of paramount importance.

The role of men in the movement towards population stabilisation, not only by adopting family planning for themselves but being supportive of their partners in all reproductive health matters also, would need to be promoted and encouraged. This is central to all efforts at empowering women in our society. In furtherance of this a Group of Ministers (GOM) has been set up specifically to address issues of women's empowerment.

The task at hand is urgent and stupendous and the time is limited. It will be only with the concerted efforts of all those who are concerned about population issues that we would be able to achieve the goals of the National Population Policy. Above all, we must make it a people's movement. Everyone has a role and everyone's role is important. So, let us all put in our best.

In JRD Tata's own words "yesterday would not have been too early, tomorrow may be too late"

"The Sixth JRD Tata Memorial Oration on "National Population Policy 2000 - Role of the National Commission on Population" on November 3, 2000 in New Delhi

ROLE OF PRIVATE SECTOR IN NATION BUILDING*

I am happy to be with you on the 116th Founder's Day of the J.K. Organisation. At the outset, I would like to offer my homage to Sh. Kamlapatji, who laid the solid foundation of the J.K. Organisation. My family has been in contact with the JK family for many many decades. When Gandhiji launched the Swadeshi movement in the early twenties Kamlapatji set up textile units so that Indians could use textiles made in India rather than those imported from England. In the process, he created a cadre of Indian technical and managerial personnel and generated much-needed employment.

Lala Kamlapatji contributed to social good in a number of ways. He established a number of hospitals, housing complexes and townships and had the vision to set up research centres and educational and vocational institutes as essential inputs for the sustained development of modern India.

At this juncture of our economic development we can look back with a sense of pride at the achievements of our private and public sectors. Our GDP growth increased from 3.5% to 4% per annum during the first three decades after independence to 5.8% in the 1980s. It further rose to around 6.5% during the Eighth Plan period (1992-93 to 1996-97) and this is expected to be maintained in the Ninth plan period as well.

During the four and a half decades of planned development we were able to achieve a significant growth in agriculture and now we have surplus food stocks. We created a large manufacturing base and a developed services sector. In the human resource sector institutes of excellence, such as IIMs, IITs, Indian Institute of Science, etc., have been established. Many universities and national laboratories are producing high-quality brainpower. A chain of vocational centres like ITIs etc. caters to the manpower needs of industry. A wide network of

institutions for training and research in economics, public administration, etc. has been set up. We have made significant progress in space, atomic energy and science and technology related to defence. More recently we have made a noticeable progress in knowledge-based industries, especially software.

We must, however, recognise that there are many areas in which the performance has lagged behind expectations. Faster growth has not reduced poverty as much as it should have nor has it created the number of high-quality jobs we need to satisfy the aspirations of our increasingly educated youth. Growth has not been as regionally balanced as it should have been. The deficiencies in social development indicators have also continued and our low level of social development is today a major constraint to reaching a growth rate of 8-9 %, which should be our medium-term target. For the future we can set a policy agenda by looking at the existing strengths and weaknesses and building on the strengths, while correcting the weaknesses.

At the same time we must keep in mind that internationally changes are taking place very rapidly and we have to be dynamic so as to even retain our relative position. An important first step is to sharply rein in our rate of population growth. The National Commission on Population has been set up by the Government of India to give focused attention to population stabilization. Some of you may be aware that a Population Policy has been approved earlier this year, which makes an explicit mention of the role of the corporate sector as a partner in this endeavour.

The performance of our infrastructure has been below expectation so far and needs to be improved. The task of additional capacity creation in the power sector is enormous. This would obviously require new initiatives by both the State and Central utilities. At the same time the private sector needs to respond to these initiatives. The mid-term review of the Ninth Plan indicates heavy shortfalls, mostly on account of the private sector, and also identifies the impediments to greater private participation.

The private sector and foreign direct investment will have to play a significant role in building up further the power capacity and its transmission and distribution in the country. Policies have been made conducive for enabling the private sector, including foreign companies, to invest in the power sector and more will doubtless be done.

The economy cannot grow and the needs of the people cannot be met without more capacity in oil, telecommunication, railways, roads and ports. The investment in infrastructure, therefore, would have to be stepped up to at least 6% of the GDP, if not more. The cumulative investment requirement of these sectors over the next five years is estimated to be around US\$ 250–300 billion at the very minimum. There is, thus, ample room for all modes of investment – public and private, domestic and foreign.

The absence of competitive technological dynamism in India has been the main cause of erosion of our comparative advantage. What enabled the Asian tigers to overtake us was their higher productivity of inputs, especially labour and energy, facilitated by the internalisation of better and advanced technologies, economies of scale and related factors.

The main challenge lies in the manufacturing sector. For far too long have we existed in a protected environment and lost self-confidence in our ability to face competition. I would strongly urge you to recall the circumstances under which your own organisation was formed. Not only was there no protection, the colonial government actively discriminated against the so-called 'native' entrepreneurs. Despite such formidable obstacles, Kamlapatji and other Indian entrepreneurs established modern industrial empires successfully and against all competition. Do you believe that we cannot do so again? I have full confidence in our collective ability to face and master all the challenges but we cannot do so with the old mindset.

As you know, the Government has announced that all quantitative restrictions (QRs) will be removed by the year 2001 and this is being done in a phased manner. It is a good sign that the time frame for the transition has been accepted by the Indian industry. The Government

has given a broad indication that tariffs will be reduced to bring them in line with East Asian countries in a period of about 3 years. A phased programme for the elimination of tariff anomalies is being contemplated.

At the same time we have to examine whether our present anti-dumping mechanism and procedures are as effective as they should be. It seems clear that these would have to be made more effective for ensuring speedy disposal of the cases so as to reassure the industry that they will not be subjected to unfair competition.

There are some general areas of concern, which I would like to highlight. The key to faster economic growth of India is rapid and optimum mix of labour and capital-intensive industrialisation. The corporate sector has played a significant role in building a strong and modern India. It would have to further create conditions in which the working class of the country is able to make its contribution with enthusiasm.

The revolution in information technology, taking place around the world, holds the prospect of considerable economic gains for India, both in the domestic application of information technology and in our economic interaction with the rest of the world. The spread of information technology in India would not only help our industrial sectors, especially the software industry, but would also enhance the effectiveness of dissemination of technologies for strengthening of rural economic activities and social infrastructure. India has the potential to carve out a niche for itself in the software sector in the next 10 years. The Government has already taken a number of steps in this direction.

One of the biggest challenges facing the Indian industry and, in fact, the entire economy is that of increasing its overall productivity. This, along with higher volumes of investment, could spur the country into a trajectory of even 9% rate of growth. In a governmental framework increased productivity will manifest itself in efficiency of resource use and improved governance.

In the context of the industry, in the present age of globalisation and ICT revolution, the Indian corporate world will have to prepare itself for a period of restructuring in order to become more effective, productive and competitive in the world market. As I said earlier, we have to build on our strengths and at the same time we have to address our weaknesses. We are working on the thrust areas of the Tenth Plan and to my mind one of the areas, we must focus on, is the area of productivity.

The Indian industry should now gear up for performing its role in developing an internationally competitive industry. It should also pay more attention to R&D and increase its investment in science and technology so that it advances to the frontiers of the latest technology.

I am confident that the J.K. Organisation will continue to contribute to the development of Indian industry and keep up its tradition of helping good causes and promoting public welfare under the able stewardship of Shri Hari Shankar Singhaniya ji, President of the J.K.Organisation. There can be no better tribute to the memory of Kamlapatji than to dedicate ourselves to the task of nation building to which he had unsparingly devoted his life.

I wish the J.K.Organisation all success in its future endeavors.

**Speech on the occasion of The Founder's Day of JK Organisation and The 116th Birth Anniversary of Lala Kamlapat Singhania held in New Delhi on November 16, 2000*

CONVERGENCE AMONG INFRASTRUCTURE SECTORS

Shri Shekhar Bajaj, distinguished participants, ladies and gentlemen, it gives me great pleasure to be here with you at this inaugural session of the Powercom India 2000: Conference-cum-Exhibition organised by the ASSOCHAM and Independent Power Producers Association of India.

We are in an era of fast changes and quantum jumps in the application of technology. The digital revolution is leaving hardly any sector untouched. The rapid spread of Internet, telecom and IT and the impact of e-connectivity on, *inter alia*, governance and commerce offer tremendous opportunities. Convergence of the communication industry with power and other utilities the world over has been accelerating the telecom revolution. Various electric and gas utilities in Europe and USA have diversified into telecommunication.

The challenge before us is to provide infrastructure facilities of international standards, particularly in the telecom and power sectors and at affordable costs. The ASSOCHAM has rightly decided to deliberate on the relevant issues of convergence and review the progress achieved so far.

One of the issues brought out in the mid-term appraisal of the Ninth Plan is the lack of convergence among the activities of different Ministries and Departments. It will be the Planning Commission's endeavour in the days to come, and more so in the Tenth Plan, to promote the realisation of the potential synergies for greater convergence to maximise efficiency.

More specifically in respect of power utilities, convergence offers an excellent business avenue to provide telecommunication services, capitalising upon the utility's infrastructural advantages. The transmission and distribution networks in the power sector and the

gas pipelines of gas utilities can work as basic infrastructure over which telecom, IT, cable and Internet service could be provided to the consumers. There could be opportunities of laying down fibre optic cables along the power transmission and distribution networks or the right of way existing in the power sector could be shared with telecom and IT companies. The power sector assets in transmission and distribution can, therefore, enable such converging industries to save a great deal of time and money. It is for this reason that various power utilities have emerged as telecom infrastructure providers in addition to telecom service operators. These networks also improve internal communication and provide a new source of revenue for power utilities.

It has been estimated that to meet the growing capacity in telecom the investment needed will be rising from the present level of about Rs. 12,000 crore to over Rs. 1,40,000 crore by the year 2005 and to over Rs. 2,80,000 crore by the year 2009. In the power sector too we need very large investment in the next ten years. We have an installed capacity of about 97,000 MW and the projected demand growth for the next ten years is as high as 100,000 MW. This virtually means an addition of approximately 10000 MW per annum. The Government will obviously find it very difficult to provide the required level of investment from its own funds. Therefore, the private sector has to play a very important role in the growth of the power sector. I would like to take this occasion to express my concern that the response of the private sector to our various initiatives in the infrastructure sector has been much below our expectations. We are now identifying the thrust areas for the Tenth Plan and I shall look forward to constructive suggestions from organisations like ASSOCHAM to enhance private sector investment in the infrastructure sector, particularly power.

The Telecom Policy of 1999 allows the usage of backbone network of public and private transmission and distribution companies, Railways, Gas Authority of India Limited and ONGC for national long distance data communication and voice communication. Keeping in view the possible benefits, POWERGRID, BSES and Gas Authority of India Ltd. have drawn up ambitious plans to diversify into the IT sector. It is understood that the Gas Authority of India Ltd., which supplies

natural gas, plans to lay optic fibre cables for bandwidth communication along its 4,500 km-long pipeline network in the country.

Our country has a large power transmission line network of about 20 lakh circuit kilometres. POWERGRID alone is operating and maintaining over 39000 circuit kilometres of transmission lines crossing the entire length and breadth of the country. With a view to supporting the Supervisory Control and Data Acquisition System (SCADA) & Energy Management System (EMS) requirements, about 4100 kms. of Fibre Optic System and 3900 kms. of digital microwave radio system are already under installation in the Northern and Southern Regions. Another 2200 kms. of fibre optic system and 4000 kms. of microwave radio system are also being planned and engineered for the East, West and North-Eastern Regions. POWERGRID is proposing to install optical fibre along these networks. In this context I would like to place on record my deep appreciation of the strenuous efforts made by my young and able erstwhile colleague, late Rangarajan Kumaramangalam, to reform and strengthen the power sector.

While convergence would bring down cost and ensure better delivery of services to customers, it cannot be a substitute for addition to capacity. Therefore, we should continue to accelerate the pace of reforms in the power and telecom sectors.

The financial position of SEBs in the country is not satisfactory. Minimising the pilferage and thefts in the distribution system, having an efficient mechanism for collecting user charges and an effective system of redressal of consumer grievances are three important areas that need to be addressed in the power sector. As you are aware, reforms in the power sector have been initiated in a number of States.

In this context the utilities have to take full advantage of information technology. E-commerce needs to be adopted as an effective way of collecting user charges to improve the financial health of the distribution companies and State Electricity Boards. Besides efficiency, it will usher in a regime of complete transparency of consumer accounts. E-governance holds great promise for deployment of a

responsive and transparent system for redressing consumer grievances. Efforts to build such a system in a time-bound manner need to be initiated in right earnest. Necessary funds need to be earmarked on a priority basis for developing IT-based pilferage detecting systems. These measures are expected to accelerate the pace of reforms.

The convergence of power, IT and telecom sectors would facilitate increasing the revenue flows in both the sectors. This, in turn, would protect the customer and increase the customer base by cross-selling the bundled services to the present customers and attract new customers with expanded services. Convergence would facilitate leverage of assets to generate additional revenues and leverage of competencies by employing better customer services.

Convergence also offers higher growth as well as better business opportunities for the utilities involved, provided we have a facilitating policy framework in place. In the telecom sector, telephony, paging, VSAT and internet services require different licences with almost no inter-utilisation of these facilities and the focus should, therefore, be on facilitating convergence first within the telecom sector. The Government has already taken initiatives in regard to the IT Sector and the Convergence Bill, 2000 is under consideration.

I feel that the task before us is to develop and promote business models, which enable pooling of the resources and common assets of these sectors. We should also think of developing a regulatory framework to facilitate convergence among power, IT and telecom sectors. I hope that Powercom India 2000 will come up with practical suggestions and strategies on this important subject, which it has chosen as the theme of the conference.

I have great pleasure in inaugurating the Conference and Exhibition.

Inaugural Address at 'Powercom India 2000: A Conference cum Exhibition' organised by the Associated Chambers of Commerce & Industry of India on November 20, 2000 in New Delhi

NEED FOR STATE-LEVEL REFORMS*

It is a pleasure for me to be here at the inauguration of the India States' Reform Forum 2000. This Forum, co-sponsored by a number of Indian and international agencies, including the Planning Commission, reflects the growing recognition that a large, federal country like India requires all its constituent parts to march in unison in order to progress rapidly. It is a recognition that we have had for many years now and is reflected in our planning system. But given our diversity and the magnitude of our development problems, a variety of initiatives is always to be welcomed. An important component of such initiatives is the sharing of expertise and experiences, particularly in an interactive manner. The India States' Reform Forum is designed to do precisely this. It is particularly appropriate that this Forum focuses on the timely theme of "Fiscal and Governance Reform for Poverty Reduction".

The single biggest challenge facing us is to eradicate the scourge of poverty as quickly as possible from the face of our country. It is an endeavour, which calls for determined and coordinated efforts of all segments of our society and of our well-wishers abroad. The role of the State Governments is central to this effort. They are ultimately at the cutting edge of all strategies for poverty eradication. They deserve all support and encouragement to help them to devise strategies appropriate to our specific situation. There are no doubt numerous dimensions to economic reforms, and it is not possible to do justice to them all in just one meeting. A selection, therefore, has to be made. The focus on fiscal and governance issues reflects an urgency that arises from the dwindling capacity of many of the State Governments to intervene effectively in poverty eradication measures. Both the magnitude and effectiveness of the available resources are a matter of concern. Fiscal and governance reforms are, therefore, essential for further progress. The presence of internationally renowned experts as

well as senior policy makers and officials from the State Governments will, I hope, provide to all of us a useful opportunity to learn how best to address key issues relating to State-level reforms and how they can impact on poverty eradication.

If we look back at the last decade as a whole I think there can be no doubt that the process of economic reforms, taken up in earnest by us since 1991, has yielded rich dividends. From a situation of crisis at the turn of the decade India is today one of the ten fastest growing economies in the world with an average annual GDP growth rate of 6.35% since 1991-92. Despite several international shocks such as the East Asian Crisis, rise in international oil prices and economic sanctions, the growth momentum of the economy has not been seriously affected. Price stability has been by and large maintained and the balance of payments position has also remained comfortable, reflecting the growing competitiveness of the economy as well as the increased confidence of the international financial community in the country.

On the demographic and social front there have been significant improvements in the last decade with the overall literacy level going up from 52% in 1991 to 62% in 1997, infant mortality rate declining to 72 per thousand and the rate of population growth, which had been relatively stable in the 1980s, declining significantly from 2.06% in 1990 to 1.74% in 1998. Preliminary indications of the impact of reforms on the percentage of people below the poverty line are positive. However, we still have to wait for all the numbers to be firmed up.

As we look ahead, an unfinished agenda awaits us. At the top of this agenda is the task of ensuring that the reforms pick up momentum, spread across the country and disseminate their benefits visibly to the poorer sections of the Indian people. The States will have to take the lead in this endeavour.

A major area of State-level reform is finance. The finances of the State Governments are presently under tremendous stress. The fiscal health of the States has shown deterioration in the last few years. A number of factors have contributed to the worsening of the fiscal situation,

including the implementation of the Fifth Pay Commission recommendations. The revenue deficit of the States has increased substantially, with increased borrowings being undertaken to meet consumption expenditure. In a number of States current revenue is just sufficient to meet wages and salaries, pension and debt service obligations, leaving little for development expenditure.

Fortunately, a number of States have started to take seriously the task of reforming their public finances and mustering sufficient courage to take politically unpopular decisions. The emphasis on the fiscal reforms at the State level, however, needs to be seen as part of a larger shift in the perception of the role of government in economic and social development.

There is recognition of the need to control the fast-growing burden of subsidies by ensuring that these are transparent, closely targeted and are not open-ended. Non-merit subsidies must be phased out, if it is not possible to stop them in one go. Appropriate user charges must be levied for power, irrigation and other major economic and social infrastructure services and these should be periodically revised.

There is considerable scope for increasing the tax revenues as the tax-SDP ratios in some States have shown a declining trend in recent years. Tax revenues can be increased by rationalising the tax rates, plugging loopholes and improving the tax administration and compliance.

Reforms must be initiated to ensure that the State-level public enterprises make their due contribution to the resource mobilisation efforts of the State Governments. We must also consider disinvestment of public enterprises, which have outlived their utility or relevance in the current context.

The overall climate in the country today is certainly more conducive to fiscal restraint. The smooth implementation of harmonisation of sales tax rates across the country is a testimony to the desire among States to abandon the earlier self-defeating policies of tax wars and competitive populism. The decision to implement VAT by April 2002

is a step in that direction. At the same time, there is a need to modernise the prevailing tax system to remove its distortion effects, increase its buoyancy and make it more transparent and tax-payer-friendly. Many States are seized of this matter and that is a good sign.

Closely allied to the fiscal sector is the power sector because of its huge impact on State finances and its crucial role in fiscal sustainability. The objectives of power sector reforms are to generate electricity at an economic cost, provide reliable and high-quality service to the consumers, ensure that the sector is financially viable and provide an attractive environment to bring in private investment. The weak link here has been the financial health of the SEBs, which has deteriorated over the years due to low tariff, large subsidies in agriculture and domestic sectors and poor operational efficiency.

With a view to improving the performance of the SEBs, the Government had promulgated the Electricity Regulatory Commissions Ordinance in April 1998, under which State Electricity Regulatory Commissions (SERCs) have been set up in fourteen States. The setting up of regulatory commission is only the first step and needs to be accompanied by steps that aim at making the climate attractive for private investment, improving efficiencies and creating suitable incentives. However, the reforms, in order to be carried out with a high degree of public support and satisfaction, require major capital investments to demonstrably improve the service standards. In this regard I am happy to note that both the World Bank and Asian Development Bank have in the recent past supported capital investments to reform-minded States. Such reform initiatives need to be taken in other sectors as well and would constitute a key element in the overall theme of fiscal reform.

Although fiscal reforms are undoubtedly important, the efficiency and effectiveness of resource use is no less so. It is in this context that governance comes into prominence. An administration or a delivery system, which is animated by a desire to fully involve the people and give them a sense of ownership, will be significantly more successful

in reaching the targeted beneficiaries than the one, which is aloof. The impact of such a transformation can be striking.

Governance is not merely about probity and integrity in public life. It is primarily about institutional effectiveness. It is essential that the institutional structures that govern the provision of public service should be sensitive and responsive to the people that they serve. This requires careful thought about designing of institutions and their modes of accountability. Such a design would of course need to be sensitive to the prevailing socio-cultural mores but much can be learned from the experience of others.

The Planning Commission supports strongly all efforts for reform by States. We are bringing about changes in our own functioning in order to send out the right signals in this regard. The mid-term appraisal of the Ninth Plan has recently been concluded. It is a frank and soul searching attempt to assess our present status and also to set out what needs to be done to put us back firmly on the path of sustainable poverty-reducing growth. I understand that the Planning Commission Secretary will be making a separate presentation on this in the Forum.

In our interactions with States we have from this year introduced the concept of a Core Plan. This concept has been introduced in response to the undesirable trend of a growing gap between Plan outlays and performance in many States, which in turn seemed to encourage arbitrariness in resource allocations. The Core Plan is designed to assist the State Governments to forecast, prioritise and programme their investments realistically in order to optimise the use of scarce resources and harmonise the patterns of spending with policy directions. I am happy to note that most States have responded constructively to this approach.

We hope that the States would also appreciate the advantage of encouraging more and more performance-linked schemes in the Central Plan allocations to States. One example is the Accelerated Power Development Programme introduced this year, under which funds are available only to the reforming States. We have also

encouraged States to sign MoUs with the Ministry of Finance for a programme of fiscal reforms to be supported by temporary and medium-term accommodation by Government of India to help in overcoming the financial difficulties.

In line with the vision for doubling the present growth rate of larger and less developed States, we have commissioned State Development Reports to set out the strategies for achieving this objective. These Reports would be documents sponsored by the Planning Commission and involving the concerned State Government but prepared with the help of reputed external agencies in order to take an independent analytical look at the State's development in its various aspects. We hope that these Reports, which will be publicly released and published, would highlight critical issues, stimulate debate and set the agenda for the economic growth of these States.

The final issue I would like to touch upon is the flow of external and institutional finance to the States. Available information on private investments indicate that such investments have been flowing mainly to those States, which are more developed with better infrastructure. Similarly, the State-wise figures on credit-deposit ratios indicate that the flows of institutional finance are also concentrated in just a few larger and more developed States. These are trends, we should take note of, since they signal diverging growth prospects of developed and developing States, which is not something we can live with comfortably.

On the other hand, it is heartening to note that the flows of external assistance, while still concentrated in a limited number of States, have been going to many less developed but reforming States as well. Apart from the larger and better developed States, many relatively less developed States, like Andhra Pradesh, Uttar Pradesh, West Bengal, Orissa and Madhya Pradesh, have in recent years, through more progressive policies and better implementation, succeeded in attracting significant amount of external assistance. From the States' point of view, external assistance must be seen as opportunities for the relatively less well-off States to augment their developmental resources. The

representatives of bilateral and multilateral financial agencies, present here, may like to keep this in mind and lean a little more heavily on the side of the less developed States that are reform-oriented. Towards this end, the Planning Commission has also created a Project Preparation Facility to assist the States, which have been less successful in attracting external and institutional finance in professional preparation of project proposals with the help of outside expertise. This, we hope, will help these States to keep pace with the faster growing States, which have earned a well-deserved reputation for better performance.

I look forward to a lively and stimulating discourse in this Forum on these and many other problems relating to State-level reform. I do hope that it helps in motivating the States, which are not reforming, to look afresh at their policies and the States, which are reforming, to intensify their efforts. The participants from States should also use this opportunity for networking with resource persons and experts who can help them in this task. The Planning Commission stands ready to support all the States in their efforts to reform.

I hereby inaugurate the Forum and wish it all success.

* *Inaugural Speech at the India States Reform Forum on November 23, 2000 in New Delhi*

INVESTMENT OPPORTUNITIES IN ENERGY SECTOR*

I am glad to be here this morning at the inauguration of India Energy Day. I take this opportunity to congratulate the Indian Member Committee of the World Energy Council for organising the new millennium's first Executive Assembly of the Council in India. The World Energy Council, as a leading global, multi-energy, non-governmental organisation dealing with issues relating to sustainable supply and use of energy for the greatest benefit of all, has appropriately chosen "Investment Opportunities in the Indian Energy Sector" as its theme for India Energy Day.

Energy plays a crucial and catalytic role in economic growth. In fact, there is a close correlation between the GDP growth rate and the growth rate of energy consumption. But this is not a linear relationship. The International Energy Agency has projected the world economy growth rate at 3.1% and the world energy growth rate at 1.8% per annum for the period 1995–2020, which yields an elasticity of energy consumption of about 0.6. In the case of India, and indeed most developing countries, the elasticity of energy consumption is significantly above the world average. For India, this elasticity for the period 1953–1996 has been estimated to be more than unity and in recent years it has been around one, with the demand for energy growing at an average rate of 5.7% with a GDP growth rate of 6 per cent. Both the growth rate and incremental energy demand will have to be higher in the coming years to enable us to mount a sustained attack on poverty in the country. The total requirement of primary commercial energy is likely to increase over three-fold by 2012 and a similar quantum jump is expected in the demand for electricity generation and for petroleum products.

The Energy Policy of any country has to be guided by indigenous availability of energy resources, technology available to exploit these

resources, level of linkage with the market economy, balance of payments position and political relations with the energy exporting countries. India's Energy Policy till the end of the 1980s was mainly based on the availability of indigenous resources. Coal was by far the largest source of energy. Things have changed since then. Coal's share in the primary energy mix has today come down to 56 per cent. In contrast, the share of oil and natural gas has gone up to 42% in 1999-2000 against 34% in 1973-74. Concerted efforts made in the exploration and development of hydrocarbons had led to a significant step-up in the production of oil and natural gas in the country. However, in recent years, the production of crude oil has been stagnating but its demand continues to grow. As a result, today India meets 25% of its energy needs through imports. The demands of energy security would suggest that coal would continue to be the predominant form of energy in the future. However, imports of petroleum products would continue to increase substantially in absolute terms, involving a large energy import bill. There is, therefore, an urgent need to reduce energy requirements by demand side management and by adopting more efficient technologies in all sectors. The inter-modal transport policy in particular needs a fresh look. Long haul and heavy freight movement by railways is 4 to 6 times more energy efficient than movement by road. Therefore, there is a need for a shift from road to railways, *inter alia*, by suitably designed fiscal measures. Acceleration of electrification programmes in the railways will also help in a saving of imported diesel fuel and, therefore, of foreign exchange.

As the energy needs of the country are going to increase at a rapid rate in the coming decades, it is imperative to take steps to increase the proven energy resources available indigenously. To avoid having to rely excessively on external sources, there is an urgent need to step up exploration for coal as well as for oil and natural gas. Private sector exploration and mining in coal will have to be allowed. There is also an urgent need to take up exploration of on-shore and offshore hydrocarbon basins including deep-sea with greater vigour.

Over the years, India's energy sector received significant allocations of Plan resources. Its share of funds rose from 15% in the Third Five

Year Plan (1961-66) to nearly 27% during 1999-2000. The actual expenditure during the Sixth, Seventh and Eighth Plan period was about 26-28 % of the total Plan outlay. Going by the past experience, investment of a much larger magnitude would be required in future and the Government may not be in a position to provide all the necessary funds. Thus private sector participation assumes considerable importance.

A series of measures have been taken in recent years for reforms in the energy sector in tune with the liberalisation of the economy. The recent initiatives taken in the power sector include privatisation in generation and distribution of power, enactment of Electricity Regulatory Commissions Act, (1998), formulation of the National Policy for Hydro-Power Development and the Mega Power Projects Policy.

The draft Electricity Bill 2000 is on the anvil. It recognises the need for massive private sector participation in generation, transmission and distribution and the need to assign regulatory responsibilities to independent regulatory commissions. In response to the Government's Energy Policy, both domestic and foreign participants have shown keen interest in the Indian power sector. So far, 24 projects with installed capacity of 5066 MW have been commissioned and 19 projects with installed capacity of 5296 MW are in various stages of consideration. However, the macro view is that capacity addition in the private sector during the Ninth Plan is expected to be only 44% of the target. There are still certain policy and procedural glitches standing in the way of financial closures and implementation of the private power projects. The main roadblock has been the poor financial health of the State Electricity Boards and non-availability of payment security mechanisms. The crux of the reforms lies in tariff setting and in taking up distribution in the private sector, independent of transmission. Fourteen States have set up State Electricity Regulatory Commissions and six States have taken steps for unbundling the SEBs. It is expected that more States will follow suit and give a push to power sector reforms for attracting private investments. There is a

need for building a consensus on economic user charges for power, especially for the supplies to the agriculture sector.

In the hydrocarbon sector, a number of steps have been initiated. These include the New Exploration Licensing Policy leading to the opening of exploration to foreign and domestic private sector investors, phased opening of refining sector to private investors, dismantling of administered pricing mechanism with the goal of total dismantling by April 2002 and the proposal for new regulatory mechanisms for the oil sector, both upstream and downstream. In the coal sector, the Government has initiated steps for amendment of Coal Mines (Nationalisation) Act, 1973. As coal continues to be the largest source of energy and in view of the fact that 70% of electricity generation is based on coal resources, private sector participation in coal mining would be required for coal production to keep pace with the anticipated growth in demand. The Government has already deregulated coal prices and reduced duty on imported coal. There is need to promote sustainable technologies and commercial exploitation of coal-bed methane, which holds considerable promise in the Indian context.

The emerging patterns of energy consumption, i.e. increasing share of fossil fuels, bring to focus many ecological and environmental issues, which have serious long-term implications. With increasing public awareness, these issues are gaining importance. Prudent management of the indigenous energy resources, judicious approach to energy imports and progressive shift in favour of environmentally benign sources of energy, including non-renewable sources, should be the guiding principles of a long-term energy policy of the country. The options available with reference to nuclear and hydel energy as well as non-conventional sources of energy need to be seriously looked into. Non-conventional sources of energy may come to play an increasing role in meeting the energy needs, particularly of the rural population, which depends mostly on non-commercial sources of energy today.

The country has uranium and thorium resources, which could be exploited to generate electricity. It is estimated that thorium resources alone, when used through breeder reactors, have a potential to produce

about 9,000,000 BKWH of electricity. Another potential resource, which is abundantly available in our country, namely solar energy, has hardly been exploited. Technologies like thin film have to be developed for producing cost-effective solar cells. A lot of research and development is called for in all these areas. In fact, R&D activities in the energy sector need to be stepped up.

If India is to compete in the global economy, its energy industry will have to play the role of a frontline industry. For sustained economic growth and energy security, proper, effective and timely implementation of reforms will be crucial.

I look forward to the recommendations emerging from this daylong interaction among experts and hope that they will be helpful to us in designing our policies in the years to come.

I have great pleasure in inaugurating India Energy Day.

"Inaugural Address at India Energy Day on "Investment Opportunities in Indian Energy Sector" on November 24, 2000 in New Delhi

DIMENSIONS OF UTTARANCHAL DEVELOPMENT*

I deem it a privilege to be asked by this great university, the first technical university of India, to share some thoughts with you on this solemn occasion. I congratulate the recipients of degrees and prizes, which they will no doubt treasure all their lives.

The unrelenting emphasis placed on quality by the university and its known commitment to national goals and objectives have enabled it to contribute alumni of distinction to the national mainstream for the last hundred and fifty years. As a result, the new-born State of Uttaranchal has the privilege of being endowed with a university that has the capacity to help it fulfil its vision of a better tomorrow; a university that can play a sterling and inspirational role in its development by imparting high quality technical education and producing men and women of calibre and character who understand the problems of to-day and are imbued with the desire to serve the cause of building a great future for a fledgling State.

The birth of a new State is a time for toil and determination, for energy and dynamism, for strength and vigour. It is a time for clear thinking and selfless action, a time for construction and creation, a time for sowing but perhaps not a time for reaping. In words reminiscent of President Kennedy, we could well say "Ask not what the new-born State of Uttaranchal can do for you but what you can do for Uttaranchal". The new State of Uttaranchal will need, more than any thing else, well-qualified young people who match high purpose with high ideals. There are surely many amongst you, sitting before me now, who will have the satisfaction of acting in accordance with ideals that will make a difference to the lives of others.

As you are well aware, the creation of Uttaranchal is the result of a people's movement at the heart of which were the people's democratic and developmental aspirations. These aspirations are now to be fulfilled

through self-governance and self-determination. In the past the people of the region have contributed significantly to national life in all spheres of activity, be it statecraft or governance, academics or sport, arts or sciences, literature or painting, the civil services or the armed forces. The freedom fighters of Kumaon and Garhwal have an honoured place in the inspiring saga of the historic struggle for independence under the unique leadership of the Father of the Nation. The soldiers of Garhwal and Kumaon, when called upon to safeguard this hard-won freedom, have been conspicuous for their heroism and demonstrated their unvanquishable spirit, time and again, to uphold the glorious reputation of the Indian troops. Such a people have the courage and the capacity to win through against any odds. Above all, they are a worthy tribute to the women who raised them. Is it surprising, therefore, that the women of Uttaranchal were at the forefront of the movement that culminated in its creation? Their courage and dignity, grace and tolerance are the hallmark of their character.

Let us, for a moment, look at the vision that Uttaranchal has for its future. Uttaranchal is the land of the mighty Himalayas, the source of the sacred Ganga, the towering abode of sages and rishis in search of the ultimate Truth and realisation of the Self. What should be its vision of the future? Clearly the people of Uttaranchal want development in all the multi-dimensional areas that the word has come to connote, dimensions which are material, social and also spiritual. The challenge lies in approaching this goal without disturbing the calm of its valleys, the serenity of its hills, the depths of its forests, the clarity of its springs and running waters, the song of its birds, the bloom of its flowers, the purity of its air. In the peaceful atmosphere of the University you have, perhaps, more time to ponder over these questions and look for the right answers. What seems clear to me at the moment is that the direction we choose must be selected with infinite care so as to achieve that perfect confluence between the ancient and the modern to form a mighty developmental stream that carries the people towards their vision of the future without detracting from the pristine beauty of their land or striking a discordant note in the wonderful symphony of nature that is Uttaranchal.

The same spirit must animate the thinking and action of the administration. Governance and development must be with the wholehearted participation of the people and in keeping with their genius. The objective clearly is to raise the standard of living of all the people through sustainable economic and social development and equitable distributive justice. A sound development strategy based on sensible planning for the future would constitute the first step towards our goal.

Let us look at the advantages that Uttaranchal has. Its literacy level is the highest compared to the other regions of UP. Its people are keen on higher education. Great centres of learning and R&D institutions could be ideally located in the scenic and unpolluted environs of its hills. What is needed is constant development of human resources in keeping with the needs of the economy and the opportunities offered by the rapidly expanding sectors like IT and biotechnology.

Fortunately, Uttaranchal has the Roorkee University and the Pant University at Pantnagar, which together can underpin and guide the industrial and agricultural development of the new State. The hills, bhabar, terai and the plains of Hardwar, each offer unique locational and developmental advantages. We have, therefore, to devise a plan that provides an impetus to both agricultural and industrial output in Uttaranchal as also to other sectors of great potential such as the cultivation of medicinal plants and herbs for commercial purposes, the promotion of horticulture and floriculture to serve economic and aesthetic ends and the promotion of tourism.

We have the advantage of being able to draw useful lessons from past experience to avoid repeating our mistakes. We must realise that different sectors of development can no longer be isolated from each other. Let us take a small example. If we want tourism to succeed in Uttaranchal we must ensure that the policies of all the departments work towards it. The location and siting of industries, for example, cannot depend on the whims and fancies of powerful vested interests but must be carefully planned so as not to detract from the environs of tourist resorts. Human settlements must be attractively planned

and managed without allowing accumulation of garbage and plastic all over the hill sides. Architectural controls must be imposed to prevent a hotchpotch of ugly structures from coming up. Land use instruments must be drawn up to prevent unauthorised use. Chemicals and pesticides must be judiciously used by the farmers to protect the health of rivers, forests, flora and fauna. Vehicular movement through vulnerable resorts must be regulated. Railway tracks and highways must not be permitted in reserve forests. Mines and quarries must not be operated in sanctuaries.

Environmental impact assessments must be conducted and carrying capacities carefully gauged to regulate tourist traffic. Those who provide support services—be they tourist guides or policemen—must be trained to conduct themselves in an appropriate and helpful manner. The visitor must feel secure and welcome. Sports and leisure facilities must be provided, meditation and health centres set up, artistic and cultural activities encouraged, handlooms and handicrafts developed, dairy farms and fisheries set up and non-seasonal vegetables and seeds cultivated. A fine food culture supported by foodcraft institutes of excellence must be developed. All this is essential to achieve success in the domain of tourism alone. While the Swiss model of tourism may be an obvious choice for the State of Uttaranchal, success therein lies in the host population being courteous and likeable, healthy and clean. It requires strict controls and discipline even in sectors not directly or obviously related to it. This is difficult to remember when pressures build up for short-term gains and easy options but the lesson must be learnt if results of any quality are to be achieved. Uttaranchal, therefore, must think its strategy through in an integrated way and avoid a piecemeal, haphazard and myopic approach. It must think in terms of master plans and transparency in implementation.

The next step, thereafter, would be to attract the required investment. Again, let us take the example of tourism. The investor must be able to rest secure in the knowledge that arbitrary shifts in policy and land use planning would not occur to nullify his investment and nature's abundant and generous gifts would be managed with care and foresight to avoid irrevocable damage. While an investor-friendly atmosphere

may not necessarily imply tax havens and holidays, it would certainly require a clear and firm enunciation of long-term policies that would not be subjected to whimsical changes to accommodate individual interests. It would require wise governance and strong commitment to the implementation of those policies. This in turn would require the active support of the people. Unless the people understand the reasons for the adoption of particular policies and approaches they are unlikely to lend their wholehearted support, thus making the implementation difficult. The people, therefore, are the key to successful implementation and must be made fully aware of the benefits to be derived. They must be convinced of the wisdom of the policies formulated for their well-being and also contribute to the formulation of those policies. Close involvement of the people leads to a sense of ownership and ensures the success of the collective enterprise. An effective development strategy, therefore, must necessarily begin with well-integrated plan, actively supported by the people in an investor-friendly atmosphere provided by wise governance.

Let us now look at the possible developmental choices open to Uttaranchal. The State's dust-free atmosphere, high altitude and low temperatures make it a highly conducive location for the setting up of high-value-added, high technology, electronic industries. The University can be of great assistance in this regard by providing the necessary expertise for developing the sector on a firm basis. In its role as knowledge disseminator it can lay the foundation for the growth and development of electronic governance and electronic commerce in the State. It can be of enormous help in several areas of vital importance to Uttaranchal. The exploitation of hydropower generation, the optimal utilisation of water resources, the development of non-polluting industries and information technology projects are some of the areas in which the university can play a crucial role. It can aid the development of an environmental impact assessment protocol specific to the hills and the foothills to ensure the protection of the environment in a manner that causes no impediment to development programmes. It can help evolve joint forest management and disaster mitigation strategies. It can devise action plans for the management of landslides

and flash floods and the creation of earthquake resistant structures. It can advise on the development of road communications and networks. With its highly qualified and dedicated faculty, the University can render invaluable service in helping to evolve an effective, pragmatic and well-integrated development strategy for Uttaranchal. I would, therefore, welcome its active involvement in preparing a blueprint for the progress of Uttaranchal. The Planning Commission, which proposes to bring out an Uttaranchal State Development Report, would certainly welcome such an initiative.

The moment has come to invite the participation of the young in the noble task of building a brave new state. We need their energy and enthusiasm, their dedication and commitment, their scientific temper and their great capacity to give largely of themselves. We are aware of the remarkable qualities that a young graduate from a university such as this must possess. We are proud of those qualities and proud of the fact that they are highly sought after by the most developed nations in the world. But we also want our young people to remember that they shall be the architects of India's future and the hope of the future generation. Let them test their mettle in other lands by all means, but do so with a view to making a greater contribution to their homeland and taking the lead in the task of nation building. George Bernard Shaw has said "This is the true joy in life, the being used for a purpose recognised by yourself as a mighty one, the being thoroughly worn out before you are thrown on the scrap heap, the being a force of Nature instead of a feverish, selfish little clod complaining that the world will not devote itself to making you happy." You, the youth of today, are that force that will build a great and golden future for the new State. We know the task is a redoubtable one requiring breadth of vision and clarity of purpose, indefatigable energy and unswerving commitment, an unshakeable will and a tenacious pursuit of the goal. We look to you now to take up the struggle and banish poverty and ignorance from our midst. We know that you shall not be found wanting. We believe that you shall keep faith with the future generation and work collectively towards the development and well-being of the new State.

For centuries our people have invoked the Vedas, chanted since the dawn of time, praying that the light of knowledge pervade their lives and dispel the darkness of ignorance. Today, as before, knowledge holds the key to all progress.

Let the light of knowledge spread through every nook and corner of our land to enable us to realise our full potential as a nation and let temples of learning such as this help unfold the Indian intellect to greater and still greater heights of knowledge.

* Convocation Address at Roorkie University on November 26, 2000

IMPORTANCE OF KNOWLEDGE MANAGEMENT*

It gives me great pleasure to be here with this distinguished gathering that has come together this morning to celebrate "AIT DAY" and participate in the Seminar on "Knowledge Management".

I have known about the Asian Institute of Technology for a while. It is a matter of great satisfaction and credit for the Institute that a large number of AIT's Indian graduates are working in important positions – both within and outside India. These are positions that enhance the role of your graduates as leaders and agents of change in today's technology-driven world. This should be a matter of pride for you and of hope for the nation.

The knowledge economy has already become a reality for many segments of society and for some nation-states. The rapid development of information and communications technology (ICT) has changed the basis of comparative and competitive advantage of countries and businesses. The wealth of a nation no longer depends solely on its ability to acquire and convert raw materials but on the abilities and intellect of its citizens and the skills with which organisations harness and develop those abilities.

Since ancient times we in India have respected and indeed revered knowledge. Knowledge to us is more than merely a means to the end of material prosperity. It is one of the means to salvation. But we can ignore its material dimension only at our own cost. We have before us many examples of nations that are not only smaller in physical size but also in their resource endowment. Yet they have made significant progress in the economic and technological spheres on the strength of their knowledge base. We too have certain distinct advantages that we need to take note of.

This is just an example to underline our awareness of the need to harness our knowledge resources for the benefit of the nation. To this end we have constituted a High-Level Task Force on creating a Knowledge Society in India. Dr. Kalam and Dr. Mashelkar—two of the tallest figures in the sphere of S&T in India—are taking active interest in the work of the Task Force. The deliberations of this Task Force highlight both the opportunities and challenges that we face.

India is the second largest in the world, next to US, in terms of English-speaking scientific and professional manpower. It also has a growing resource bank of 4.1 million technical workers, produced by over 1,832 educational institutions, which train more than 75,000 computer software professionals and many more in other technical disciplines every year. The Government has already increased the intake in the engineering colleges and universities for IT and other technology-related courses to meet the requirement of manpower. It is important to ensure quality as well as quantity.

With liberalisation of investment and improvement in the communication network, the IT Industry is witnessing new investments, restructuring of existing activities and diversification into new product ranges. India is a signatory to the Information Technology Agreement and is committed to promote the spread of IT, India has also agreed to gradually reduce the tariff on IT products to zero by the year 2003. The penetration of computers in India, which is at present four per thousand of the population, is expected to grow to ten per thousand by the year 2001.

Software exports have been growing at more than 56% in the last few years. According to one study, the size of India's IT business will swell to an annual revenue of \$ 87 billion (presently \$4 billion) and its software exports to \$50 billion by the year 2008. The share of exports of the Indian IT sector is likely to be as high as 35% of the country's total exports by 2008. The share of information technology is expected to be over 7.5% of Gross Domestic Product (GDP) by the same period. On the employment generation front, the Indian IT sector will require 2.2 million globally competitive professionals.

Recognising the scope and potential of the IT sector and the need to nurture its rapid growth and development and remove obstacles in its path of progress, the Government has set up a new Ministry for Information Technology, which will accelerate the information revolution in India and coordinate all the efforts in the field of information technology.

In order to facilitate the growth of e-commerce and electronic communication through Internet and accelerate the induction of IT in critical sectors of the economy, an Information Technology (IT) Act 2000 has been approved. It provides a legal framework for recognition of electronic contracts, prevention of computer crimes, and electronic filing of documents. Moreover, it will legalise digital signature. As a promotional measure Government has also decided not to tax transactions carried on in e-commerce mode.

Another important initiative has been taken by the Government as much to promote employment as to remove a sense of neglect and remoteness. The Government has taken up a project for setting up Community Information Centres (CICs) in 486 blocks in the North East States and Sikkim at an estimated cost of Rs.220 crore to provide Internet connectivity at the block level to be completed within two years. Fifteen such Centres have already been set up.

A "knowledge society" is more than just information technology or, for that matter, information. It is the application of science and technology and indeed even traditional wisdom to all aspects of human life and endeavour. Every activity needs to be touched by the application of knowledge. For this to happen, knowledge must not only be generated, it must also become available and accessible. It must be sought from diverse sources, not merely the laboratories, research institutions or universities. Traditional knowledge and wisdom abound in our country and a "knowledge society" must tap into this rich heritage. The essential task of knowledge management is to access knowledge wherever it is available and make it available wherever it is needed. It is not a trivial task. It requires both a great deal of ability and also humility and open-mindedness. The technical solutions to

knowledge management exist but the cultural and psychological requirements have to be created. This is the challenge that faces this Seminar.

There is no denying the fact that today creation of wealth through the application of technology has become primarily a product of knowledge generation and utilisation. The knowledge of individuals and the collective knowledge of organisations are the only real competitive advantages that any country can rely upon to develop in the 21st century. India, fortunately, has recognised this need early and has made good progress in this direction. This, however, should not make us complacent as the challenges are diverse and complex and the competition tough.

Given India's diversity and the varying levels of economic and social development, the technological needs of the country are diverse too. The challenge before us, as you all will agree, is to bring about synergy in our actions so that knowledge generation and utilisation benefits all segments of the Indian community without causing disparities or lopsided development.

It is a challenge for you, the AIT graduates, to work in such a competitive environment and achieve success. Against this backdrop, the Seminar on Knowledge Management, scheduled today, is certainly a step forward in the most desired direction. I am confident that all of you would spend the day deliberating on various challenges to be addressed and solutions to be worked out.

I have great pleasure in inaugurating the AIT Day and I wish you all success in your endeavours. Thank you very much

**Inaugural Address on the occasion of Asian Institute of Technology Day and International Seminar on 'Knowledge Management' organised by the AIT Alumni Association (India Chapter) on November 30, 2000*

ISSUES IN MANPOWER RESEARCH*

Distinguished members of the General Council, I welcome you to this thirty-seventh annual meeting of the General Council of the IAMR. We will review today the activities of the Institute in the past year and consider the programme for the future.

The Institute activities are organised under five theme areas for research in manpower planning, which are presented in page 9 of the Report before you. As we enter the next phase of economic reforms, the most important area is employment and unemployment. Another area is social concerns that arise with unemployment or a poor quality of employment.

In the wake of the restructuring of the public sector enterprises and the activities of government, the IAMR can provide an assessment as to how the workers are adjusting, and should adjust, to the new situation. There is a surplus of manpower in some parts of the governments at the Centre and the States, which has to be redeployed. Some of the enterprises may have reduced workload or even no work. At the same time, there are public services, health, education and basic civic services that need to be expanded. Could this be the basis of a feasible approach for redeployment of the surplus manpower? Can some of the manpower of Central enterprises be deployed under the State Governments? It is an obvious fact that if the production unit is not working then a study is needed as to how the labour is utilising its time. It is only when the magnitude of manpower that is surplus and that which needs redeployment is assessed that a feasible approach can be formulated. Studies by the IAMR being independent of the Ministries can provide very useful inputs.

To handle surplus labour various State Governments and also the Central public enterprises have formulated voluntary retirement or voluntary severance schemes. An assessment of the relative merits and

performance of these schemes is needed, now that they have been under operation for a few years.

An emerging area of concern is the increasing incidence of unemployment among the educated. It is important to go into the question as to why more education leads to more unemployment. Has there been a mismatch between work opportunities and the system of education and training? As we move towards universalisation of primary and then elementary education, we need an urgent answer to this question to prevent a further spurt in educated unemployment. The IAMR should interact with education and training experts to come up with practical solutions.

The IAMR has for some time now been operating an information system on technical manpower at the degree level. I feel that we have a pressing need to understand how vocational training and vocational education enable the trainee to face in the employment market. In other words, we need a manpower information system for the products of vocational training institutes and the schools imparting vocational education. Related to this is the training in skills pertaining to various health services, information technology, tourism, transport, trade etc. This is a segment of labour force entrants, which is much wider than technical manpower at the graduate level. I am sure, the IAMR can provide a useful action plan to make vocational education and training demand-oriented.

After more than 50 years of experience and knowledge in various aspects of planned development we are starting our journey into a new millennium with high aspirations and an improved hi-tech background. This has enabled the country to take rapid strides in information technology. The IT policy should be designed in such a way that the common man receives the benefit of IT. The IAMR can take up studies on the scale, extent and type of employment opportunities, which IT has created. As against this, has the IT revolution resulted in any reduction in employment opportunities or redeployment of the workforce? It would be useful to carry out studies on the net impact of IT and IT-enabled services on employment.

Indications are that software alone will provide extensive opportunities to suitably educated manpower. Today's economy is driven by knowledge.

I would like to place on record sincere thanks to the present and past Vice Presidents of the Institute, the Chairman of the Executive Council and the Chairmen of the Standing Committees on Research Programmes for their valuable contribution to the work of Institute.

I hope the Institute will continue to explore new and challenging areas of work. I am confident that the staff of the Institute would continue to extend support and cooperation to the Director in sustaining the pace of development achieved and to increase the boundaries of the Institute's progress and development.

With these words, I am happy to inaugurate the thirty-seventh meeting of the General Council.

** President's Speech at the Annual Meeting of the General Council of Institute of Applied Manpower Research (IAMR) on December 1, 2000 in New Delhi*

ISSUES IN TRANSPORT PRICING*

Friends, it gives me great pleasure to be here today. I am glad that UN-ESCAP in association with the Government of India and the Asian Institute of Transport Development is holding this Seminar. I understand that UN-ESCAP and AITD have now established a very fruitful working relationship under their memorandum of understanding. I wish them all success for their continued cooperation.

In 1991 India started its process of economic reform. The objective, to the extent feasible in the given circumstances, was to place increasing reliance on markets. It was hoped that this shift would lead to more efficient economic outcome compared to the earlier system of central command-and-control economics. Central to this was the role that prices would play in different sectors of economy.

I think there can be no doubt that the process of economic reforms taken up in earnest by us since 1991 has yielded rich dividends. From a situation of crisis at the turn of the decade, India is today one of the ten fastest growing economies in the world with an average annual GDP growth rate of 6.3% 1991-92. Despite several international shocks such as the East Asian Crisis, rise in international oil prices and economic sanctions, the growth momentum of the economy has not been seriously affected. Price stability has been by and large maintained and the balance of payments position has also remained comfortable, reflecting the growing competitiveness of the economy as well as the increased confidence of the international financial community in the country.

Gaps, however, remain and an unfinished agenda lies ahead. At the top of this agenda is the task of ensuring that the reforms pick up momentum, spread across the country and disseminate their benefits visibly to the poorer sections of the Indian people. We must also ensure that in our quest for bettering the quality of life of the present

generation, an unduly heavy burden is not placed on future generations. It is an unfortunate feature of modern democracies, however, that the current and future costs are not always kept in suitable balance. Thus, even though there is a cost involved in producing goods or service in question, there is sometimes an attempt to prevent this cost being reflected in the price either fully or even partially. The difference is passed on to the future.

Another key policy issue is of ensuring that the fruits of reform become available to all the regions. It is also important to note in this context that India has a federal structure in which the interests of the States have to be kept in view at all times. Excessive imbalances entail a strain on the political fabric of our country, which may not be entirely mended by economic gains.

In other words, while the prescription for the growth problem has been defined and accepted, the distributional problem has not received the same attention. While discussing the role of prices, I would urge you all to bear this aspect in mind. There are, as I see it, three main distribution issues, which have to be kept in mind while discussing the efficiency aspects of transport prices. The first is the inter-personal, which is to ensure that no section of society is deprived from its just claim on this crucial infrastructure. The second is inter-temporal, which indeed is nothing but the issue of sustainability. The third is inter-regional which arises from political compulsions of unity in a federal system.

As far as the issue of meeting the needs of the poor is concerned, it is not merely a question of the relative importance placed on personal versus mass transport. Even in the category of mass transport, differential pricing has to be taken into consideration. I do not believe that anyone would seriously dispute the need for such cross-subsidisation. However, both the magnitude and the manner in which cross-subsidies are given need to be considered carefully. There have been too many cases where poorly designed cross-subsidy schemes have not only adversely affected the efficiency of the sector but also had negative effects on inter-generational and inter-regional equity.

Perhaps, then, the starting point of all discussions needs to be the issue of sustainability or inter-generational equity. For this at least there is a very simple rule of thumb, which can be followed. It is that the present generation must pay at least all the variable costs and the depreciation of capital assets. I realise, of course, that this is easier said than done. The transport sector is extremely intensive in the use of energy and it is not obvious that energy prices accurately reflect the true costs. As a consequence, to discuss transport pricing independently of the pricing of energy does not make too much sense, at least at the present time when there is excessive dependence upon exhaustible sources of energy.

The second complication in defining costs arises out of the environmental effects of most forms of transport. We are today very conscious about the current costs of pollution but we have paid less than adequate attention to the cumulative costs that we are leaving for our children. Inter-generational equity demands that these costs must also be factored in, while computing appropriate prices.

The issue of inter-regional balance has for long been a matter of concern. Freight equalisation was our traditional instrument to address this issue. Today we realise the serious distortions that were introduced by this policy. There is considerable evidence that economic growth and development are intimately linked to the degree of integration of different parts of the country with each other and with the global economy. The operative concept is integration and not equalisation. Differences in costs and prices will always exist and are indeed essential for an efficient and rational distribution of economic activities on the basis of comparative advantage. However, the absence of adequate connectivity can never be made good simply by subsidised prices.

Once we take these distribution issues into consideration, the efficiency gains from a free and competitive market will lose some of their attraction. It appears quite obvious that a pure market approach cannot work in the case of transportation. There are too many dimensions in which market failure can occur and, therefore, some form of public

intervention becomes essential. The question that arises is whether such intervention should be purely governmental or can there be a better model.

Past experience also suggests that a purely governmental approach may not entirely fit the bill. In a democracy, political populism can lead to policy failures, which can be as damaging as any market failure. A possible solution is to appoint independent regulators to guide the markets for transportation activities. But the nature of such a regulatory system is in itself not entirely obvious. There are a number of dimensions that need to be considered.

The first and foremost is the issue of whether there should be different regulators for different forms of transport or a single regulator who can look at the transport activity in its totality. Intermediate regimes can also be considered. The pros and cons of different regulatory structures need to be discussed and analysed.

Secondly, the terms of reference of the regulator need to be specified very carefully. On the one hand, regulatory oversight could be restricted to the immediate requirement of efficiency and vertical equity. But this will leave uncovered the broader issue of sustainability in terms of financial and environmental liabilities of future generations. On the other hand, the regulator could be charged with taking these issues into account as well. But that may prove to be unmanageable.

Thirdly, the issue of horizontal equity is almost impossible to be left to the regulator. It falls in the domain of practical politics. Decisions regarding geographical dispersion of transport facility, particularly in the public domain, will have to be taken by government at various levels. But almost all such decisions will impinge upon the regulator's domain. How this issue can be resolved without undue curtailment of the two spheres of responsibility needs to be considered carefully.

Friends, I have tried to place before you some issues regarding transport pricing and sustainable development. The transportation sector is so critical for the development of the country that even small errors can

have major consequences. I sincerely hope that this Seminar will address at least some of these issues so that it would be easier for us to develop a coherent policy structure. I look forward with anticipation to the proceedings of this Seminar and I am certain that I will not be disappointed. With these few words I have great pleasure in inaugurating this Seminar. Thank you.

** Inaugural Speech at the UN-ESCAP/AITD Seminar on Transport Pricing and Charges for Promoting Sustainable Development" held in New Delhi on December 6, 2000*

TECHNOLOGY FOR INFRASTRUCTURE DEVELOPMENT*

I am happy to be amongst you today at the annual function of the Indian National Academy of Engineering. I am particularly happy to learn that, among other awardees, Dr. A.P.J. Abdul Kalam, Principal Scientific Adviser to the Government, will be honoured with the Lifetime Contribution Award in Engineering 2000.

Institutions like the Indian National Academy of Engineering help in the development of advanced technologies, which are necessary to survive in today's global society, which is becoming increasingly competitive. Technology is the most powerful weapon for creating a competitive edge. The global economy of today carries the message 'Innovate or Evaporate'. To survive in this global economy, technological advancement has to be not only rapid but also more widespread. India, therefore, needs to do much more in two key areas, i.e. substantive corporate innovations and rapid diffusion of technology. We may be proud of our great scientific heritage and our contributions to the world of science but we are still dependent on external technologies in many areas. Hence, new policy initiatives are needed for deepening, and broadening, India's technological base so as to meet the challenge of techno-globalism. I hope—indeed I am confident—that the Indian National Academy of Engineering will continue on its path of excellence and contribute thereby to the technological advancement of India.

Under pressure, India has given impressive proof of its inherent capability to find indigenous technological solutions, as is evident in the cases of agriculture, atomic energy and space. There is a need to extend this capability even under normal circumstances to the entire techno-economic spectrum of the country. This Academy must ensure that excellence in science leads to the blossoming of appropriate technologies to suit Indian conditions. The Academy is, I am sure,

conscious of the importance of its role. My purpose here is only to emphasise the urgency and speed with which it has to perform.

A review of the developments of the last fifty years indicates that there is inadequate linkage between Indian science and technology and Indian industry. Except for atomic energy, space and defence, this is generally true. The Indian heavy industries have been set up predominantly with foreign collaborations and have not felt any great pressure to carry out independent or in-house research and development. Indian industry must make more efforts to upgrade its existing technological levels if it is to survive and thrive. In this respect, the Indian National Academy of Engineering can play an important role as an interface and facilitator of technological development and diffusion in the country.

In particular, I would like to draw your attention to the fact that it is infrastructure development, which provides the backbone for the all-round growth of a nation. Inadequacy and imbalances in the infrastructure are today threatening to become a major constraint on growth partly because there was inadequate investment in this area and partly because of technological inadequacy. The challenge before us is to provide infrastructure facilities of international standards, particularly in the transport, telecommunication and power sectors and at affordable cost. This will require a major effort in the form of technological upgradation of facilities in all these sectors. This is particularly essential since the projected growth rate of at least 7 to 8% would make heavy demands on the infrastructure. Since infrastructure is non-tradable, the additional demand has to be met by expanding domestic supply.

A Task Force on Infrastructure has been set up by the Government. An important initiative that has been launched within the ambit of this Task Force is to develop the National Highways. This National Highway Development Project (NHDP) would enable the development of a transport network. The Golden Quadrilateral will link Delhi, Mumbai, Chennai and Calcutta. The North-South Corridor will connect Kashmir to Kanyakumari and the East-West

Corridor will connect Silchar to Saurashtra. This project is being executed by the National Highway Authority of India. This will result in improving accessibility, enhancing mobility and adding to the existing capacity. The successful implementation of this project would address the important issue of capacity constraint experienced in the transport sector. This project is likely to be completed in ten years, at the end of which about 13,000 kms. of road would provide proper transport infrastructure.

There is, likewise, a need for upgradation and modernisation of infrastructure in railways, ports, power and telecommunication sectors. In the power sector, we need very large investment in the next ten years since an addition of approximately 10000 MW per annum is required. The Government will obviously find it very difficult to provide the required level of investment from its own funds. Therefore, the private sector has to play a very important role in the growth of the power sector. In addition, every effort will have to be made to improve our energy efficiency, which will require considerable technological upgradation of practically every sector of the economy.

The telecommunication sector too needs to expand particularly in keeping with the prospect of gradual convergence with the power, IT and entertainment sectors. The Government has already taken the initiatives regarding this convergence and the Convergence Bill 2000 is under consideration. At the same time, there is a need to continue with acceleration in the pace of reforms in the power and telecom sectors in order to bring about the desired synergies. It will be the Planning Commission's endeavor during the Tenth Plan to promote the realisation of the potential synergies of greater convergence to maximise efficiencies.

While the Government recognises the need for a well-developed and efficient infrastructure, it will find it difficult to provide the required level of investment from its own funds. The scale of expansion required in infrastructure needs resources of an unprecedented magnitude. It is only by forging public-private partnerships in both technological

know-how and financial resources that India can move faster towards achieving the requisite infrastructure. Such interfaces are only in their nascent stage, and considerable efforts will have to be made to bring them about in a fairly short time frame.

The Planning Commission recognises the role of private initiative in nation building. Private initiative, whether individual, collective or community-based, forms the essence of the Ninth Plan development strategy. Events like this function organised today play an important role by bringing together the private and public sectors. The private sector must come forward to contribute further to the growth of infrastructure sectors through advancement in technology. One of the problems facing various sectors including infrastructure is that the productivity levels are substantially lower than international standards. The low productivity is, *inter alia*, on account of inadequacy of training and research and development efforts. The Indian industry has not invested sufficiently in the creation of technological capability to enable it to compete globally. The Indian industry must increase its investment in research and development so that the supply side of technology improves.

Another reason for low productivity and lack of proper quality is our tendency to accept comparatively lower standards. Engineers, therefore, have an important role to play by not accepting any work below a particular standard. This would give the right message to all those who are engaged in the provision of goods and services, including infrastructure. It may also be necessary to encourage those who contribute towards raising productivity and quality levels.

There is another area of concern, which I would like to share with you. The Indian National Academy of Engineering is associated with the creation of a large supply of technical manpower. However, there is a trend for a significant number of technocrats educated and trained in India to work abroad. The task of nation building can move forward only with the help of indigenous human resources. Engineers and

other technocrats must stay in India and contribute to its technological advancement. For this to happen, a conducive environment needs to be created not only in the conditions of living but also at the workplace. We must give our technical manpower the recognition and credit that they deserve.

I have great pleasure in inaugurating this annual function of the Indian National Academy of Engineering.

**Speech at the Annual Function of the Indian National Academy of Engineering on December 8, 2000*

ROLE OF C E A IN POWER DEVELOPMENT*

At the outset let me congratulate the engineers and employees of the Central Electricity Authority on the occasion of the Silver Jubilee Celebration and place on record my appreciation for their contribution to the power sector in our country. The inauguration of today's function by the Prime Minister reflects the importance attached by the Government to the power sector.

Before Independence the growth of the power sector was governed by the need to cater to the urban and industrial demand. After Independence power development was recognised as a critical component of overall economic development and our plans and programmes gave it primary importance along with extension of power supply to all parts of the country with special emphasis on rural electrification. A comprehensive legislation, the Indian Electricity (Supply) Act 1948, was enacted for restructuring the power industry. As a consequence, the Central Electricity Authority was created for developing the national power policy and coordinating power development at the national level.

The power supply industry has met big challenges during the past fifty years in augmenting generating capacity, updating the technology and indigenising the manufacture of power supply equipment. My association with the power sector began in 1974. I recall the lively discussions, in which the CEA fully participated and which led in 1975 to the Central Government's decision to participate in a big way in the fields of power generation and bulk transmission of power with a view to supplementing the efforts at the State level. The Government established three corporations viz. the National Thermal Power Corporation (NTPC), the National Hydro Electric Power Corporation (NHPC) and the North-Eastern Electric Power Corporation (NEEPCO). To meet the social requirement of supplying

power to rural and remote areas the Rural Electrification Corporation (REC) was established for financing the rural electrification programme. The Power Finance Corporation (PFC), the Nuclear Power Corporation (NPC) and the Power Grid Corporation of India were also set up in the Central Sector.

Let us now briefly survey the progress made by the power sector in the past fifty years. The installed capacity has increased from less than 1500 MW in 1947 to about 100,000 MW. The transmission and distribution network has also increased substantially. Besides all the urban centres, 86.35% of the villages of the country have been electrified up to the end of July 2000. However, even though electricity generation has registered an average annual growth of about 9.52% in the past 50 years, the demand for power, which has been the backbone of the industrial and economic development of our country, has outstripped the supply. The impact of power shortage is cushioned in past by expensive diesel generation. Our endeavour should be to ensure that the people of our country have access to affordable and quality power in the shortest possible span of time. While pursuing this goal, we have to keep in mind the energy security of the country.

Shortage of power cannot be made good by import. Mr. Jack Welch of GE told me recently that in the USA the growth in demand for power, as a result of the rapid growth of the IT sector, was not fully anticipated or provided for. The US, therefore, experienced both brown-outs and black-outs. As the IT sector is expanding rapidly in India as well, we must factor in the demand of IT sector for power in our projections and plans.

One of the areas of concern in the power sector has been the sub-optimal hydel-thermal mix. It is rather disturbing to note that the share of hydro power has been steadily declining from over 50% in 1963 to 25% in 1999. The country has a vast hydro electric potential, estimated at 84,000 MW at 60% load factor. Hydro power is clean and renewable. It can provide a fast response to peak loads. Wherever feasible and cost-effective, preference should be given to run-of-the-

river (ROR) projects causing minimal submergence to facilitate quick commissioning. In any case, it is necessary for all projects to adopt a humane and sensitive approach to the rehabilitation of project-affected persons so as to cushion the impact of dislocation on the displaced families.

There is tremendous scope for development of nuclear power in the country. Nuclear power has a share of about 78% of the total electricity generation in France, 27% in the UK and 19% in the United States. It is unfortunate that in India the share of nuclear power is only 2.74 per cent. Apart from uranium, India has large deposits of thorium—a resource, which is yet to be exploited. Programmes for further development of the fast breeder reactor and of thorium burning reactors should be accelerated. Dr. Kakodkar recently gave me his vision of a thorium-based programme. Without going into figures, I can only say that it has the potential of transforming the architecture of the power sector.

The Ninth Five Year Plan envisaged substantial addition to capacity and production in the power sector. The mid-term review, however, indicates that there would be a substantial shortfall in achievement with 24,000 MW against the target of 44,000 MW. It is worth mentioning that there was a capacity addition of 16,423 MW during the Eighth Plan against 21,401 MW during the Seventh Plan. In other words, capacity addition during Five Year Plan periods has more or less plateaued. It is of utmost urgency to have much larger capacity addition during the Tenth and the Eleventh Plans to sustain the projected GDP growth rate of about 8-9 per cent.

The performance of the Central and State sectors during the Ninth Plan is expected to be 60% and 90% of the targets respectively as against only 44% in the case of the private sector. This is particularly disturbing in view of the fact that private sector participation is of paramount importance to achieve the goal of electricity for all by 2012. Private sector projects have not come up as expected mainly due to the poor financial health of the State Electricity Boards.

Recognising this, the Government has set in motion power sector reforms aimed at levy of economic user charges by setting up independent electricity regulatory commissions and unbundling the SEBs. So far, the Electricity Regulatory Commissions have been set up in 14 States. Even in the States where Electricity Boards have been unbundled, tariff revision has not been an easy task. The time for populist policy is over. The transition from the concept of "the State must pay" to that of "the consumer must pay economic user charge" is long overdue. Coupled with this, privatisation of the distribution network should get an overriding priority to convince the generators that they would get a fair return on their investment. We must press ahead with a sense of urgency to ensure the success of power sector reforms in the shortest possible time.

Another aspect, which needs emphasis, is that in order to augment power availability in a short period, renovation and modernisation works should be given priority. Recognising the importance of R&M works and improvement in the transmission and distribution systems, the Government has recently initiated an Accelerated Power Development Programme under which the States will get special grants for taking up these works. The States willing to avail of the assistance will have to agree to take certain measures for reforming the power sector. All the State Governments should come forward to take advantage of the new dispensation.

The Central Electricity Authority has been, as I mentioned earlier, playing a crucial role in the development of the power sector in the country, charged, as it is, with the responsibility for policy formulation, planning and coordination, techno-economic clearance of projects, etc. It has made perspective transmission plans for 2011–2012, which would provide a blueprint for the emerging national grid. The challenge, however, is to create an efficient national power grid with low T&D losses. Moreover, energy consumption per unit of output is relatively higher in India. The CEA must devise a package of measures for energy audit and energy conservation.

With the fund of expertise and long experience at its disposal, it is time for the CEA to spread its wings even beyond the SAARC countries

where it is already engaged in rendering design engineering services to various utilities. The CEA has many successes to its credit but it cannot rest on past laurels. Now that it has turned 25, it has entered the phase of vigorous youth. I am sure it would continue to serve the country even more energetically in the years to come.

** Silver Jubilee Lecture at Silver Jubilee Function of the Central Electricity Authority on December 11, 2000 in New Delhi*

DECENTRALISED GOVERNANCE*

I am happy to be present here today at the National Workshop on 'Community Driven Management and Decentralisation' organised jointly by the Planning Commission, the World Bank, the United Nations Development Programme and the Swiss Agency for Development Cooperation. In this country we have a long tradition of political decentralisation. Village republics existed in ancient India. Mahatma Gandhi, the father of our Nation, was an ardent advocate of democratic decentralisation and the involvement of people in the decision-making process. The Constituent Assembly recognised this principle and enshrined it in the Constitution as one of the Directive Principles of State Policy.

Several initiatives were taken in the 1950s and 1960s to promote decentralised planning and community development. However, as you are all aware, the process of democratic decentralisation was given a renewed thrust with the passage of the 73rd and the 74th Constitutional Amendment Acts, which bestowed a constitutional status on Panchayati Raj institutions (PRIs). Now, the institutions of local self-government have been assigned the responsibility of preparing plans and implementing programmes, which impinge on day-to-day living. In the international arena too, when the forces of globalisation have gained ascendance, there is recognition that greater devolution of powers to the lower levels of governance is essential in order to make development people-centered. I am glad that the World Bank, the UN family and other bilateral and multilateral donors are helping in this endeavour to bring democratic decentralisation on the international agenda. In fact, the UN family has identified decentralisation and gender empowerment as the central theme of its activities in India.

The PRIs in most of the States have come into existence after elections under the new Act. In many States, elections for the second time have

taken place. We have gained considerable experience over the past 7-8 years. However, we must be clear that decentralisation *per se* is not an end in itself. It is a process for releasing, harnessing and channelling the energies of the people with a view to unleashing forces, which would bring about social transformation in such a manner that every member of the society comes to occupy his or her rightful place in the social, economic and political firmament. In this context, the PRIs have to play a multi-faceted role. They are vehicles of political education and training in leadership. They have to be responsive to the needs of the community and impart values of equality and liberty. The PRIs are expected to be transparent, accountable and efficient and to provide opportunities for mass participation in the process of development. In the ultimate analysis, however, the success of this experiment would be judged by the extent to which the PRIs are able to provide a better system for delivery of services to the people and for implementation of developmental programmes.

Another measure of success would be the impact of democratic decentralisation on social transformation including empowerment of women, scheduled castes, scheduled tribes and other communities currently at the periphery. Many of the schemes implemented by the Government for poverty alleviation and for provision of education, health, water supply and other basic services to the people have been placed under the control of PRIs. Considerable progress has been made by most State Governments in terms of devolving administrative responsibilities, personnel and finances to the PRIs. Further, the financial position of the PRIs will be strengthened to the extent the recommendations of the State Finance Commissions are taken into account in the devolution of the Central Finance Commission. The Eleventh Finance Commission (EFC) has provided for transfer of additional funds to PRIs in rural areas.

Given the centrality of PRIs in the development process, we have to reflect for a moment whether the experience of the last 7-8 years bears out the expectation that the PRIs would be able to perform the role assigned to them. I am aware of the good work done by many sarpanches. The 33% reservation for women in the elected bodies of

PRI has ushered in a silent revolution in the country. Women are beginning to discover the potential of this process to contribute to local governance, to better their lot and acquire a decisive say in matters crucial to their livelihoods. I am told that some women Sarpanches recently participated in a Conference in New York and left a lasting impression on the participants. However, we have to be aware of the fact that the dominant interest groups will try to capture PRIs to their own advantage. It is important that the community at large keep a close watch on the activities of the Panchayats. In this context, the Panchayati Raj Acts passed by the States give a central role to the Gram Sabha in most States. But, so far the functions assigned to the Gram Sabha are more in the nature of approvals and recommendations rather than final decision-making. In my opinion, empowerment of Gram Sabhas through local community participation is necessary for the success of panchayati raj.

In this context, it is necessary to evolve systems and processes that engender a co-operative spirit and enable the vulnerable and marginalised sections of the society to have a say in the decision-making process at grassroots level. It is also necessary to encourage local initiatives and the culture of self-help.

The four sessions, that have been planned for this Conference, address some of the important issues with which we have been grappling. I am sanguine that the discussions in these groups would throw up valuable insights and would help us to formulate a strategy for making PRIs effective instruments of governance with the ultimate objective of improving the quality of life of our people.

* *Inaugural Address at the National Workshop on 'Community Driven Management & Decentralisation' held in New Delhi on December 12, 2000*

INTEGRATED MANAGEMENT OF WATER RESOURCES*

First of all I would like to compliment the National Institute of Hydrology, appropriately located at Roorkee, for organising this International Conference on Integrated Water Resources Management for Sustainable Development. I am happy to be present here and to welcome the eminent scientists and engineers from all over the country and abroad. I wish you all a pleasant stay and fruitful discussions in this Conference.

Water is one of the most critical of natural resources. This precious gift of nature is the essence of life and the cradle of life on our planet. Throughout the wide spectrum of historical experience, we find that civilisations were born and flourished around water sources. Water crises have precipitated social and political turmoil throughout human history, and for good reason. Life cannot be sustained without water. Moreover, it is a crucial input for development.

There is a growing water crisis today. One can understand the scarcity of water when nature has withheld its bounties but there should be none as a result of mismanagement of the available resources. Humanity is confronting a self-generated environmental crisis. The patterns, and the ever-accelerating pace, of economic development have been in conflict with the environment for quite some time now, stretching well beyond the 20th century. If this trend continues, the cumulative effects of population increase, resource depletion and degradation of the environment will take a heavy toll. Statistics accumulated over the years show yearly deterioration in global resources. Our air, soil and water are getting polluted. There is ozone depletion in the upper part of the atmosphere, while accumulations in the lower part are leading to global warming. Something must be done urgently and on a large enough scale to arrest this deterioration. There is a need for an agreed agenda of action promoting an all-encompassing concept of

sustained development in order to ensure that the needs of the present generation are met without compromising the ability of the future generations to meet their own needs. This implies a commitment not to damage or destroy the basic life support system of our planet Earth, i.e. the air, water, the soil and the biological system. Development must be economically sustainable to ensure a continuous flow of goods and services derived from the earth's natural resources to all generations. This also requires sustainable social systems at international, national, local and family levels to ensure the equitable distribution of the benefits of goods and services produced.

Water engineers and scientists are confronted with the challenges of sustainable development and have the responsibility to meet these challenges both at the macro-level of overall demand and supply and at the micro-level by designing, operating and maintaining water resources and water projects in a manner consistent with the objective of sustainability.

Our country has been endowed with precipitation of about 4000 billion cubic metres per year but its spatial and temporal distribution is highly uneven and skewed, thereby resulting in wide variation in the availability of water for utilisation. Thus, though over 90% of the run-off in the peninsular rivers and over 80% in the Himalayan rivers occur during monsoon months, spread over four months in a year, most of the rainfall contributing to the river flows occurs in a period of 3-4 days, i.e. in a period of about 100 hours and unless this is harnessed, it cannot be utilised. The limitations of resource availability get further compounded due to the growth in population, which has already reached a billion. The modern age is as much an age of resource exploitation as of development and management, with water being no exception. For example, building reservoirs and exploring ground water are two very important components of resource development but they can cause serious disturbances to the cycle of natural balance. Increased human activity and growing requirements on the one hand and limitations in supply on the other have made it absolutely necessary to pay a greater and closer attention to the management aspects of water resources.

Maintaining sustainable hydrological systems is complicated by the conflicting demands among the various water users. The National Water Policy (1987) provides for various water uses with priority being accorded to drinking water. Against the backdrop of water scarcity faced by some of our States recently, water use for drinking, being a basic need for the survival of human beings and cattle, has to be accorded the highest priority. Similarly, priorities in irrigation also need to distinguish between water use for foodgrain and non-foodgrain crops, including cash crops. Irrigation for foodgrain crops should obviously have a higher priority. Likewise, the priority of water use for ecology needs to be clearly recognised as part and parcel of our concern for sustainable development.

A serious problem of water management arises from uncontrolled and excessive exploitation of ground water. When there is no rational and scientific withdrawal of ground water consistent with the annual recharge rate of the aquifers, it results in a negative water balance and a rapid lowering of the water table to the extent of complete drying up and non-functioning of village wells. Arsenic contamination, saline ingress etc. have been reported in the wells due to this over-exploitation of ground water. All these are multi-dimensional problems with wide socio-economic and environmental ramifications. The active involvement of the people both in policy formulation and programme implementation is necessary to tackle these problems effectively.

Some of the country's water resources rise from, or flow into or through, India's neighbours. This geographical reality, particularly with regard to the Ganga-Brahmaputra-Meghna River System, promotes the idea of bilateral or regional co-operation for long-term planning for meaningful water resource development or for flood control and management in relation to these rivers. India is engaged in bilateral negotiations with Nepal and Bangladesh in regard to integrated water resource development and is collaborating with Bhutan in developing that country's rich hydro potential for mutual benefit. Nevertheless, it would be desirable to encourage consultation and data exchange

between relevant technical bodies in the eastern Himalayan region as a whole so that there is, over time, a smooth and logical progression from individual projects to basin-wise and region-level co-operation.

I am sure that this august gathering will deliberate on some of these issues. I am very happy to note that the Conference organisers have very thoughtfully included all the important aspects related to integrated water resources management under the eight themes slated to be covered in the various sessions. I am also glad to see that there has been an overwhelming response from national and international experts who have contributed more than 130 papers, which have been included in the pre-conference proceedings.

I would urge the experts to also deliberate on some critical issues, which are important not only for India but for the whole region. On the demand side, these would include strategies for managing demand for water services, reducing pollution from human activities and human adjustments to floods and droughts. A paradigm shift is necessary to emphasise demand management particularly in the urban context. The first step is to promote a conservation ethic all round, especially among the users. Public awareness should be generated through a massive campaign through all available media. All urban dwellers should be made aware of the source from which water is being brought to the city and that from which future additional requirements are to be met and the costs involved. In this context, pricing can be a tool for demand management. It is necessary to operate water supply systems treating water as an economic goods and not as a free commodity. The measures for water conservation should include metering of supplies as a policy and increase in tariff rate on a sliding scale. Commercial establishments should be asked to meet their water needs other than for drinking and cooking through treated or recycled water.

Fitting of "waste not taps", i.e. auto closing cast-iron taps, on public stand pots to avoid wastage of water should be encouraged. Use of treated effluents in place of filtered water for horticulture and large gardens should be made mandatory. For flushing systems in the private

and public buildings, the use of 6-litre-capacity flushing systems is to be encouraged to replace the conventional 12-litre-capacity cisterns. With the technological innovations available today, urban water consumption could be curtailed at least by one third without sacrificing the quality of life.

Augmentation of urban water needs can also be achieved by encouraging rooftop rainwater harvesting for which the existing building bye-laws need to be suitably amended. Such activities would also help in the recharge of the ground water aquifers.

The "Upland Watershed" context is certainly of great importance to all the countries of the region and I am sure that you will deliberate on this crucial issue. Lastly, I would like to stress the need to identify for appropriate implementation programmes and to adopt proper institutional arrangements. The water problems are large and difficult but not impossible to solve. I am sure that with vision, concerted and sincere efforts, we shall be able to tackle them to mutual advantage.

I am sure that the organisation of this International Conference will provide a welcome forum for the exchange of ideas among scientists, academicians and field engineers. I hope this Conference would be able to suggest action plans and useful solutions for meeting the complex challenges relating to water resources development, planning and management, not only in India but also across our region.

I wish you all success and thank you for providing me an opportunity to share some thoughts with this enlightened gathering of national and international experts working in the field of hydrology and water resources.

I formally declare this International Conference on Integrated Water Resources Management for Sustainable Development open. Thank You

industries for pollution control. Another World Bank-assisted project on industrial pollution prevention is under way with the objective of strengthening SPCBs of Andhra Pradesh, Karnataka, Madhya Pradesh and Rajasthan, providing technical assistance and facilitating priority investments for promoting the development and adoption of clean technologies including water reuse and recycling.

To control the problem of river pollution, the National River Conservation Plan now covers 18 major rivers in 10 States of the country. Programmes on interception and diversion works, sewage treatment plants, low-cost sanitation schemes, electric crematoria and schemes of river front development have been initiated and are at various stages of completion. The river action plans now seek to promote low-cost technologies and greater people's participation for greater impact in controlling pollution. To tackle the problem of water pollution from the agriculture sector, sustainable agronomical practices and use of bio-pesticides and bio-fertilisers needs to be encouraged.

The Government has from time to time enacted a number of laws for environmental protection. The Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Wastes (Management & Handling) Rules, 1989 and the National Environment Tribunal Act, 1995 are some of the important legislative measures. However, despite having a number of laws, their implementation has remained rather weak in checking the pollution and degradation of the environment. Special courts have not yet been set up in all the States for expeditious disposal of pollution-related cases. Continuous monitoring of polluting industries is another weak area where further efforts are required.

Administrative and legal measures for controlling emissions, while important in themselves, are no substitutes for appropriate pricing regimes on the one hand and development of requisite technologies on the other. Since energy usage has strong externalities through its impact on the environment, there is good economic rationale to tax