

**Bihar**  
**Approach to 11<sup>th</sup> Five Year Plan**  
**VISION FOR**  
**ACCELERATED INCLUSIVE GROWTH**



**Government of Bihar**  
**Planning & Development Department**  
**Patna**

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**BIHAR APPROACH TO 11<sup>th</sup> FIVE YEAR PLAN – VISION FOR  
ACCELERATED INCLUSIVE GROWTH**

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cum-Member Secretary, Bihar State Planning Board
- Concept and Creation : **Sri N. K. Singh**, IAS (Rtd.)  
Dy. Chairman, Bihar State Planning Board, Patna
- Guidance : **Sri A. K. Choudhary**, IAS  
Chief Secretary, Government of Bihar  
**Sri R. J. M. Pillai**, IAS  
Development Commissioner, Government of Bihar  
**Sri N. S. Madhwan**, IAS  
Agriculture Production Commissioner, Government of Bihar
- Edited by : **Sri Chaitanya Prasad**, IAS  
Secretary, Planning and Development, Government of Bihar
- Organisation and compilation : Dr. Arvind Kumar, Planning Officer
- Statistics Compilation : Bijoy Pratap Singh, Director, Statistics, Government of Bihar  
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Back Cover : The famous 'Madhubani Painting' of Madhubani in which damsels enjoying a vibrant fanfare of colourful bangles, the symbol of consistent happiness.

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**Nitish Kumar**

Chief Minister, Bihar

cum

Chairman

Bihar State Planning Board, Patna



1, Anne Marg

Patna, Bihar

## Foreword

Development is always a complex matrix. In the case of Bihar, considering its low levels of development, this is doubly so. Simultaneous action is required on multiple fronts to pull the State from the morass of poverty and give the people of the State a life quality consistent with human dignity. This requires accelerated growth, creation of gainful employment opportunities, strengthening infrastructure and enhancing human resource development. After the bifurcation of Bihar, our comparative factor advantages lie in the young demographic profile, fertile soil conditions, abundant water resources and a growing market which can enable value added harnessing of the rich agro-processing potential of North Bihar. South Bihar requires an innovative approach to rejuvenate its water systems and harness newer technologies for more optimum water utilization and conservation. Over the next five years, we will strive to grow at 8.5% of GDP and also ensure that the fruits of development redress income inequities and confer benefits to the disadvantaged, particularly the Schedule Castes, Schedule Tribes and the Minorities.

The Approach Paper outlines our broad development strategy and the sectoral policies covering Agriculture, Industry, Infrastructure and the Social Sector. Redressal of poverty and inequities in multiple forms remains our principal objective. I do believe that the contours of our policy outlined in the Approach Paper and which will be reflected in the final 11<sup>th</sup> Five Year Plan for Bihar will be a milestone in rapidly improving our growth indices and making Bihar a constructive partner in national growth initiative.

  
(Nitish Kumar)

## Preface

Improving governance is inextricably linked with enhancing the reach and efficacy of public delivery system. Besides, accelerated growth must be Inclusive for enabling the benefits of development to be shared equitably by all segments of society. This would not be possible without qualitative improvement in human resource development by way of ensuring hundred percent enrolment for primary education, a sharp decline in dropout ratio, investing in teachers' training and creating additional and more diversified Secondary Vocational Education. Inculcation of skills based on emerging demands is necessary to make the educated employable. Similarly improvement in the health of the population, apart from welfare gains, has many virtuous circles and enhances productivity.

Strengthening infrastructure and making its cost more affordable and more reliable, particularly in roads and power, is central to any growth strategy. This is also critical in shaping perceptions and creating an attractive overall environment for investment as well as harness the scope for public-private partnership.

The strategy for 8.5 percent growth rate necessitates much higher levels of both public and private outlays as well as incentivising creative public-private partnership. This will enable the XI<sup>th</sup> Plan to build on Bihar's comparative factor-advantage in agriculture, value added agro processing, a young demography with falling age dependency ratio and a large growing market.

The Approach Paper outlines the strategy for achieving the aforesaid objectives and lays down the critical parameters which will make the targets monitorable. This will also improve accountability.

Bihar looks forward to a period where a developmental centric approach can make the State more prosperous and be a significant partner in emerging national prosperity.

*N. K. Singh . .*  
**(N. K. Singh)**

*Deputy Chairman*

Bihar State Planning Board, Patna

## Acknowledgements

The Approach Paper for the Eleventh Plan for the State of Bihar is an effort to lay down the broad macro framework of the State Government and give proper direction to the growth process on the basis of well conceived priorities and appropriate correction strategy to reverse the retarded growth trend of the economy of the State. The Approach Paper is the first scientific attempt made in Bihar to conduct simulation exercises for working out investment requirements for alternative scenarios of growth on the basis of Incremental Capital Output Ratio (ICOR) for different sectors. It also outlines the broad vision and strategy of the State Government and it is intended to serve as a guide for the preparation of the Eleventh Plan proposals of the State.

The Approach Paper has been prepared in tune with the policy framework and inspiration provided by the Hon'ble Chief Minister of Bihar, Mr Nitish Kumar, and has been formulated under the direction and design of the Deputy Chairman of the Bihar State Planning Board, Mr N. K. Singh. This Approach Paper would not have been possible but for his able guidance and constant monitoring.

I would especially like to thank Mr N. S. Madhavan, IAS, for the inception of the work of preparation of the Approach Paper. I am also indebted to Mr A. K. Choudhary, Chief Secretary, Bihar, Mr R. J. M. Pillai, Development Commissioner, Bihar and all the Departmental Secretaries who have contributed various sections of the Approach Paper or improved on the quality of the Approach Paper.

I am pleased to record my appreciation for the unstinting efforts of the officers and staff of the Planning and Development Department and the Bihar State Planning Board. Dr Arvind Kumar and his team for the Eleventh Plan deserve special mention for their immense organizational support and coordination work. Thanks are also due to Mr Nanda Dulal Ray, Research Officer, Bihar State Planning Board for his econometric exercises related to the formulation aspects of the Plan, Mr Bijay Pratap Singh, Director, Statistics and Evaluation, for his invaluable statistical groundwork for the Plan and to the Officers and Staff of the Computer Cell of the Planning and Development Department and the Directorate of Statistics for assistance in printing and publication.

  
**Chaitanya Prasad**

*Secretary,*

Planning and Development Department

# Overview

Bihar approaches the Eleventh Plan with optimism. Though the state is almost at the lowest rung of the developmental ladder, a process of gradual growth based on the state's tremendous potential has been set in motion during the last year. Thus the Eleventh Plan provides Bihar with a unique opportunity to restructure policies to achieve a new vision of growth that will be much more broad based and inclusive. With almost all its human development and economic indicators far below the national average, prioritizing Bihar's focus for the Eleventh Plan is a challenge; in reality, the state needs to focus attention on all fronts.

Many significant initiatives recently taken are beginning to yield results. The objective of the Eleventh Plan is to significantly raise the growth trajectory and improve the livelihood of its millions of poor people. At the same time we must avoid a period of jobless growth but rather foster policies which will increase growth

and also create avenues for meaningful employment for the young demographic profile of Bihar. By the end of the Eleventh Plan, Bihar believes it can redress its development deficits and join the national mainstream of the fast growing states. When a state of the demographic size of Bihar does so, it can easily propel growth elsewhere and Bihar could become the engine to propel India's economic growth in the Eleventh Plan.

## 1.1 Macro Overview of the State

### 1.1.1 Growth Trends

The trend in the growth rate of Bihar's Gross State Domestic Product (GSDP) during the Tenth Plan has been volatile, mainly because of the dominance of the agricultural sector in the state's economy (see Table 1.1). During this period, against an average growth rate of 7 percent for the Indian economy, Bihar's average annual growth rate was 4.01



**Table 1.1 : Trends in Bihar's Gross State Domestic Product  
(Ninth & Tenth Plans)**

Year	State Domestic Product (lakh Rs.)	Change over Previous Year (%)	Annual Average Growth Rate (constant 1993-94 prices) (%)
1997-1998	25,92,076	(-) 3.85	3.25
1998-1999	27,88,792	7.59	4.10
1999-2000	28,91,397	3.68	4.03
2000-2001	34,50,098	19.32	6.09
2001-2002	31,25,936	(-) 9.40	4.02
2002-2003	36,15,961	15.68	5.25
2003-2004 (P)	32,90,950	(-) 8.98	3.73
2004-2005 (Q)	36,88,196	12.07	4.46
2005-2006 (A)	36,19,819	(-) 1.85	3.92

(Note : P : Provisional, Q : Quick Estimate, A : Advanced Estimate)

percent.

During the Tenth Plan, Bihar's economy grew at a rate that was marginally

higher than its growth rate in the Ninth Plan period and even its per capita income just crept up. However, the state's growth rates

**Table 1.2 : Growth in Income and GSDP : Bihar vs. India  
(Ninth and Tenth Plans)**

	Ninth Plan		Tenth Plan		(Percent)	
	India	Bihar	India	Bihar	According to Planning Commission CAGR 3 Years (2001-02 to 2004-05)	
	India	Bihar	India	Bihar	India	Bihar
Per capita GDP growth rate	4.00	1.00	5.50	2.00	NA	NA
Growth in GDP of which	5.50	2.90	7.00	4.01	6.45	5.67
(a) Agriculture	2.00	(-) 1.14	1.80	0.96	1.03	5.01
(b) Industry	4.60	7.53	8.00	9.80	6.96	10.58
(c) Services	8.10	6.37	8.90	5.08	8.64	5.12

have been low compared to the national average.

### 1.1.2 Structure of the Economy

Bihar's economy over the years has experienced little structural change and is not well diversified. It is a predominantly agrarian economy with a small manufacturing base. While the share of agriculture has declined, it remains very large, the share of industry has remained stagnant, and services sector has increased its share from 41 percent to nearly 50 percent of GSDP, which is in line with the national average (Figure 1.1).

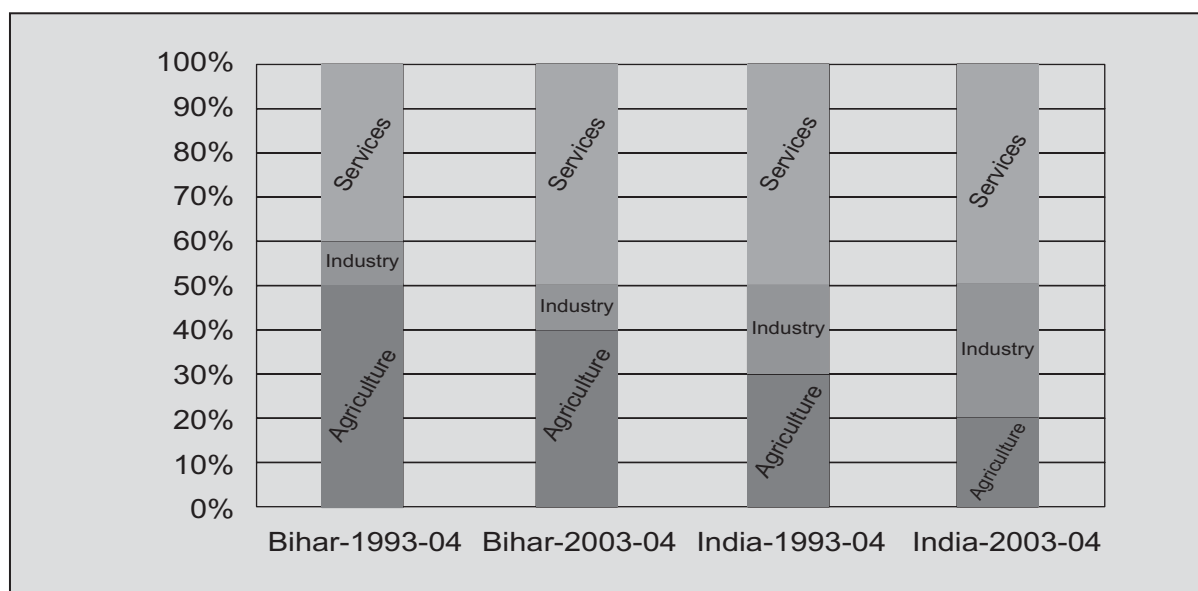
The share of the primary sector has been declining from 58.77 percent in 1980-81 to 50.6 percent in 1990-91 and further to 44 percent in 2000-2001. However, this is

still higher than the average contribution of agriculture at the national level which was 27 percent in 2000-01.

The bifurcation of the state in 2000 had an impact on the structure of the economy; the state of Jharkhand was created from the industrially advanced and mineral-rich southern-half of the state. While 46 percent of the land area was transferred to Jharkhand, 75 percent of population remained with Bihar, leading to an increase in population density in the latter. The contribution of the secondary sector, which was 15.39 percent in 1980-81, rose to 20.98 percent in 1990-91 and fell to 10.55 percent in 2000-01, less than half the share of the secondary sector nation-wide which is around 25 percent.

The tertiary sector has grown

**Figure 1.1 : Sectoral Distribution of GSDP, 1993-94 and 2003-04**



disproportionately and without concomitant growth in the secondary sector. Its contribution was 25.84 percent in 1980-81, but its high growth in the 1990s raised its contribution to 49.77 percent of SDP in 2000-01, which is at par with the country at large.

In the year 2004-05, the contribution of Agriculture, Industry and Services Sectors in GSDP at 1993-94 prices was 40, 12 and 48 percent respectively as against 20, 27 and 53 percent respectively at 1999-2000 prices for the country as a whole.

In spite of the efforts of planned development in the past several decades, the regional disparities have widened and several states like Bihar are at the lowest rung of the development indicators. Infrastructural developments like roads, power, health and sanitation and other socio-economic indicators are abnormally poor compared to developed States. The backwardness of Bihar is due to historical reasons - low per capita plan expenditure, inadequate central assistance, recurrence of floods and droughts, low C-D ratio, etc. The bifurcation of the State has added further miseries to it. With 46 percent of land transferred to Jharkhand, it has to sustain 75 percent of population of the undivided State, leading to an extremely high density

of population. The land area transferred to Jharkhand was very rich in mineral wealth, power plants, industrial units and human development institutions. The bifurcation of the State has had its impact on income and revenue raising capacity of the State and consequent fall in State Domestic Product has been of the order of 40 percent while revenue receipts have fallen by 33 percent. As a result of bifurcation, the State has become deficient in natural resources and minerals including coal which has impeded its industrial development. For a long term solution of this problem of energy deficiency, the State should be assigned mining blocks and not mere coal linkages. The National Plan should look into this problem in order to bring Bihar on the targeted industrial growth path.

### **1.2. Eleventh Plan Objectives**

Bihar has a lot of catching up to do, and it has to do this rapidly. If the economies of Bihar and the country continue to grow at their respective Tenth Plan rates during the Eleventh Plan period, the per capita income of Bihar in 2013-14 will be Rs 5,589 and India's would be Rs 23,209. In this scenario, at the end of the decade, India's per capita income will be 4.15 times Bihar's per capita income. Thus the gap has to be bridged by a significant

increase in the growth rate and a pattern of growth which can permeate its benefits to all sections of the society. In Bihar's context, the Eleventh Plan mantra is all-inclusive growth at an accelerated pace, accompanied by improved delivery of social services.

### 1.2.1 Inclusive Growth : Reducing the Poverty Headcount

Even after the formation of Jharkhand, Bihar remains the third most

populous state in the country with 83 million people. Around 40 percent of the population is below the poverty line, which is the highest in the country. As per Planning Commission figures of 1999-2000, rural poverty (44.3 percent) was substantially higher than urban (24.7 percent), but with 9 out of every 10 persons in Bihar living in villages, poverty in Bihar is significantly a rural phenomenon. The rural poor have limited access to land and livestock,

**Table 1.3 : Development and Demographic Indicators**

Indicators	Bihar	India
Total population (million)*	83.0	1,028.8
Population (rural) (%)*	89.6	72.2
Birth rate**	30	24
Child population (0-4 years) (million)*	11.0	110.4
Sex ratio (all)*	921	932
Sex ratio (0-6 years)*	942	927
Literacy rate (total) (%)*	46.96	64.59
Literacy rate (females) (%)*	33.12	53.67
Life expectancy at birth : male***	61.4	61.6
Life expectancy at birth : female***	59.5	63.3
Infant mortality rate**	61	58
Underweight children (below 3 years) (%)	54.4	47.0
Gross enrollment ratio(6-14 years, %)	47	65
Complete immunization (all) (before 24 months) (%)	12.8	56.6
Maternal mortality rate (MMR)	371	301

\*Census 2001

\*\* 2003--05, SRS

\*\*\*1998-02 (CSO)

education (80 percent of the bottom quintile household's heads have no education), health care, and well-paid jobs. Their main source of income is agricultural wages or casual non-farm jobs. A large percentage of them are landless or near-landless, the livestock they own is of poor stock, and they are often denied opportunities for social reasons, such as caste.

The state managed to reduce its poverty levels during the 1990s (1993-94 to 1999-2000) by about 7 percentage points, but this was far below the national average. Bihar's HDI rank among the states has remained unchanged at 15 since 1981, while its score increased marginally from 0.237 in 1981 to 0.308 in 1991 and then fell to 0.267 in 2001.

Rapid growth has to be an essential part of the strategy since it is only in a rapidly growing economy that incomes of the majority of the population will be raised sufficiently to bring about a general improvement in living conditions. Further, the country's own experience with growth throws up some lessons for Bihar. Accelerated GDP growth in India during the 1990s did not ensure a similar growth in employment. According to NSS (large

sample) data, the rate of rural unemployment (current daily status) increased from 5.6 percent in 1993-94 to 7.1 percent in 1999-2000 and from 7.4 percent to 7.7 percent in urban areas. Thus, along with faster and more equitable growth, sustained and gainful employment generation at a faster pace - to tackle the unemployment backlog - will be one of Bihar's key goals for the Eleventh Plan. Vigorous efforts will be needed to create an investment - friendly environment in labour-intensive sectors such as agriculture, animal husbandry, MSEs and the services sector.

### **1.2.2 Social Delivery : Access to Services for All**

Education and good health are essential to empower people to be productively employed in their future. The state's poor social indicators underline the importance of improving access to essential public services, especially education and health (Table 1.3). Educational indicators for Bihar are abysmally low compared to the national average, largely because of the lack of educational institutions and staff. Poor delivery of education has resulted in a high degree of migration from the state for education and employment, resulting in a large and continuous loss of human

potential. The situation is almost identical in health service delivery, where the shortages in medical personnel and physical infrastructure are far higher than the national norms. The entire social delivery system - covering *anganwadis*, ration shops, schools, hospitals, and so on - needs substantial inputs and improved efficiency to be rejuvenated and made purposive. A World Bank study indicates that at the present rate of progress, by 2015, Bihar will be able to achieve only two (reduction in child malnutrition and access to safe drinking water) of the eight Millennium Development Goals. These can only be accelerated if the social sectors receive substantial investment during the Eleventh Plan.

At the same time, social services will have to be well targeted and responsive to the community's needs. There is sufficient evidence to show that funds are not the binding constraint to improving the delivery of service; rather it is the implementation capacity of the delivering agencies and appropriate monitoring of outcomes.

### **1.3. Growth Potential in the Eleventh Plan**

The low growth of Bihar's GSDP compared to the national average can be

attributed to the low accumulation of physical capital and lack of efficiency in the use of capital. From 1999-2000 to 2003-04, the investment rate has been around 27 percent for the country, against which Bihar's average rate of investment was an abysmally low at 15 percent of GSDP (see Table 1.4). Of this, private investment as a percentage of total investment for the state was on average 59 percent.

The Planning Commission has projected an average growth rate close to 9.0 percent with acceleration through the plan period to end with a rate of around 10 percent during the Eleventh Plan. For Bihar, four rates of growth of SDP - at 7 percent, 8.5 percent, 9 percent and 10 percent - have been assumed for working out different investment scenarios in the Eleventh Plan. Table 1.5 presents an assessment of investment requirements in Bihar for these target growth rates, which will call for varying average rates of investment, public and private.

For Bihar, acceleration from 7 percent growth to 10 percent will require an increase in the total investment rate from 19.72 percent to 27.52 percent. The scale of the increased investment is substantial and will have to be financed by increased

**Table 1.4 : Trends in Rate of Investment**  
(Percent of GSDP)

Year	Public	Private	Total
1999-2000	6.72	8.97	15.69
2000-2001	5.28	8.79	14.07
2001-2002	5.68	8.58	14.26
2002-2003	4.70	8.94	15.64
2003-2004	8.55	9.86	18.41

**Table 1.5 : Alternative Investment Scenarios for the Eleventh Plan**

(Percent)

Target rate of growth	7	8.5	9	10
Average investment rate	19.72	23.65	24.95	27.52
Public investment as % of GSDP	6.90	8.28	8.73	9.63
Private investment as % of GSDP	12.82	15.37	16.22	17.89

**Table 1.6 : Projected Eleventh Plan SDP at Alternative Growth Rates**

(Rs. crore at 2006-07 prices)

Year	State Domestic Product			
	7% rate of growth	8.5% rate of growth	9% rate of growth	10% rate of growth
2007-08	70,784	71,776	72,107	72,769
2008-09	75,739	77,877	78,597	80,046
2009-10	81,041	84,497	85,671	88,050
2010-11	86,714	91,679	93,381	96,855
2011-12	92,784	99,472	1,01,785	1,06,541

domestic and government saving. These different growth scenarios give rise to alternatives estimates of GSDP for the state economy (Table 1.6)

### 1.3.1 The Incremental Capital Output Ratio

Based on data on capital formation in the state for the period 1999-00 to

2003-04 and data on SDP with a lag of two years, the incremental capital-output ratio (ICOR) for major sectors works out to 2.78 (Table 1.7).

In the Eleventh Plan for Bihar the ICOR can be realistically be assumed to be higher than the ICOR for 1999-2004, at 3.0 as the state will be incurring vastly higher

capital expenditures on developing infrastructure projects in roads, bridges, power, irrigation and flood control.

Based on this postulated ICOR, proposed outlays for the Eleventh Plan for the alternative rates of growth have been estimated (Table 1.8). Although private investment is currently 59 percent of total

**Table 1.7 : ICOR by Broad Sector (1999-2004)**

	<b>Sector</b>	<b>ICOR</b>
1	Agriculture & allied activities	3.36
2	Industry	4.66
2.1	Mining, manufacturing and construction	4.54
2.2	Power, water supply and gas	5.04
3	Services	2.18
3.1	Transport and communications	5.99
3.2	Others, including social services	1.02
	<b>All sectors</b>	<b>2.78</b>

**Table 1.8 : Projected Eleventh Plan Outlays at Alternate Growth Rates**

(Rs crore)

<b>Rate of growth (Percent)</b>	<b>Proposed Outlay</b>		
	<b>Public</b>	<b>Private</b>	<b>Total</b>
7.0	46,600	86,551	1,33,151
8.5	58,310	1,08,283	1,66,593
9.0	62,355	1,15,804	1,78,159
10.0	70,680	1,31,257	2,01,937



investment, with the recent encouraging spurt in private investment, a moderately higher proportion of 65 percent has been assumed for the Eleventh Plan. It may be recalled that the Planning Commission has assumed the share of the private sector in total investment in the country to be 70 percent. The projected outlay for the Eleventh Plan estimated at Rs 58,310 crore would enable the state to grow at 8.5 percent (see Annexure 1). The loan component of this outlay is calculated and pegged in conformity with the physical correction path under the FRBM Act. While the Planning Commission projects a growth rate of 7.6 percent, we believe that 8.5 percent growth rate is feasible for the reasons explained below.

### **1.3.2 Feasibility of 8.5 Percent Growth**

The question arises as to whether an 8.5 percent growth rate is feasible for Bihar, given its present growth trends. The answer is in the affirmative, considering that the country has managed to make the transition from 5.5 percent growth during the Ninth Plan to 7 percent in the Tenth Plan. Recent initiatives in institutional and policy reforms are yielding results, with private capital beginning to enter Bihar. The investment projections do not include direct investment

by the central government. Such investments in strategic areas such as power, flood control, construction of roads and bridges, and so on, will further enhance the attractiveness of Bihar as an investment destination. Growth in the state will be based on the efficient use of existing potential and tapping into hitherto hidden potentials, especially in the primary sector.

The scope for increasing efficiency in certain sectors is very high, as many public sector projects are functioning far below capacity. Areas in which efficiency level can be increased have been identified: for example, power policies, on the anvil, for improving efficiency, will benefit not only the public sector but also the private sector. There is enough evidence to believe that a large stock of existing capital assets in publicly funded infrastructure like power, roads and irrigation have been lying idle for years. Priority will be given to completing and upgrading such projects, as this would be more cost-effective than undertaking new projects.

### **1.3.3 Sectoral Growth Rates**

The sectoral growth rates consistent with an 8.5 percent growth rate of GSDP during the Eleventh Plan Period have been

projected at 5% for Agriculture, 11% for Industry and 10% for Services. It has been mentioned earlier that we expect agricultural growth to be around 5% (even though Planning Commission expects this to be 7%, which is not unlikely). But unlike the Planning Commission's Projection of 8% growth in industrial sector, we expect 11% growth in Industry, given the new surge of private investment. Agriculture has shown a decelerating trend after the '90s. The average annual growth rate of Agriculture in the Ninth Plan was negative and that in the Tenth Plan has been less than 1 percent. The deceleration in Agriculture has been mainly due to supply side constraints like irrigation, power supply, seeds, fertilizer use, etc., along with certain institutional factors. The Eleventh Plan will endeavour to remove these supply side constraints and also create adequate demand for agricultural products by increasing the real income of the rural and urban poor and setting up agro-based industries. Security of tenure of small, marginal farmers and landless labourers will be ensured by the implementation of effective land reform measures. The performance of the Industry sector has been on the whole satisfactory during the Ninth and the Tenth Plans. The trend rate

of growth of Industry during 1994-2006 has been of the order of 5.26 percent. With proper infrastructural development and implementation of the new industrial policy, increased private investment in the industries sector is expected. With proper emphasis on the agriculture and the industry sectors, services sector will get an automatic boost which has hitherto shown a trend rate of growth of around 6 percent.

#### **1.3.4 Pattern of Investment**

The declining trend in the share of the primary sector in the state's economy can be expected to continue. But public investment needs to be directed so that this trend is accompanied by an increase in the share of the secondary sector. This, however, does not mean that the agricultural sector will be neglected. The Eleventh Plan will raise the growth rate in agriculture by promoting measures to improve productivity through increased access to basic inputs like irrigation, power, seeds, improved technology and marketing linkages which can incentivise value added agriculture activity, etc.

Sectoral programmes and policies need to be comprehensively restructured for faster and more inclusive growth. New

initiatives are to be taken up and individual sectoral strategy devised to enable the state to achieve its targeted growth rate.

Public sector outlay in the Eleventh Plan is proposed to be double the actual expenditure of the Tenth Plan. Much of this outlay will be allocated to the infrastructural sectors: about 18 to 20 percent of the total outlay to be allocated to the power sector, about 15 percent to irrigation and flood control and 23 percent to transport and communication. Social infrastructure such as education, health, sanitation, will also receive adequate outlay.

The private sector is expected to play a greater role in the Eleventh Plan, with its participation expected to rise from 59 percent to 65 percent of the total investment on the basis of the postulated ICOR of 3.0. The state has unexploited potential for the setting up of industries based on agricultural products, food, leather, handlooms, etc., and private entrepreneurs will face a vastly improved climate coupled with investment in social sectors and will be given incentives to invest in these areas. The role of the Public sector in this sector will be facilitative and the public sector outlay for industries will increase substantially over the outlay in past

plan periods to enable the public sector to play this role.

The real breakthrough in the Eleventh Plan would therefore lies in success in attracting a large share of private investment and foreign direct investment; this can be brought about through infrastructure development, and investments in social sectors such as education, health and nutrition. Bihar's ambitious plans to raise the state from its 'least-developed' ranking to an engine of growth for the rest of the economy will call for urgent attention to some of the major challenges and impediments to inclusive growth during the Eleventh Plan.

### **1.3.5 The Public-Private Investment Mix: A Critical Role for Both**

One of the most serious impediments to the state's growth has been the shortage of investment flows from public sources, which in turn has impeded private capital formation. This has constrained other sectors of the economy, such as agriculture and industry.

#### **a. Public Investment**

The Eleventh Plan period targets will rely on stepping up public investment, doubling the Tenth Plan levels, to about an average of between 8-9 percentage points

of GSDP, while emphasizing improved utilization of existing assets. Increased public savings and utilization of central government funds for Bihar's development are crucial for financing the increased public investment and better utilization of existing assets, as well as improving social services. Accordingly, a well-planned fiscal adjustment path and strategy to mobilize resources and savings is a core component of Bihar's development strategy. This will call for strong budgetary discipline in

government expenditure. Efforts to increase tax revenues will need to be combined with restrictions on the growth of current expenditure (especially subsidies) and a reduction in the losses of public sector undertakings. The state government has recently begun to take serious steps towards fiscal reform (see Box).

#### **b. Private Investment**

While improving private investment rates will be enabled by more and better

#### **State Government Initiatives in Improving Fiscal Management**

The State Government has recently begun the process of fiscal reform. It has

- Enacted the Bihar Fiscal Responsibility and Budget Management Act 2006 (FRBM) which aims to: eliminate the revenue deficit by 2008-09 and contain the fiscal deficit at 3 percent of GSDP from 2008-09 onwards; pursue policies to raise non-tax revenue with due regard to cost recovery and equity; prescribe norms for prioritization of capital expenditure; and pursue expenditure policies that would provide an impetus for economic growth, poverty reduction and improvement in human welfare.
- Presented the State's first Medium-Term Policy Statement consistent with the FRBM.
- Passed a full budget before March 31, so that the government could begin spending by April. In the past, the state's budget used to be passed in two stages: in March through a vote on account for four months, and in June/July for the full year. As a result, funds were allotted in instalments to Directorates and Districts, implementing agencies were kept waiting for the receipt of the funds, and this shortened the time frame for implementation of projects.
- Decentralized financial powers: Departments can now sanction schemes up to Rs 20 crore (compared to Rs 25 lakh earlier) for schemes sanctioned in the Budget.
- Presented the Finance Bill for the first time in 15 years (with the exception of 2001); and the outcomes budget for the first time.
- Introduced the VAT system instead of the sales tax.
- Introduced the defined contributory pension scheme for all new employees from September 1, 2005.
- Begun the process of unbundling state electricity services, to improve the functioning of the SEB and attract private companies into distribution.

public investment in core public services, specific sectoral policies and improved governance and public administration will help lay the foundations for accelerated private investment that is essential if the state is to meet targeted growth rates and social objectives.

The sectoral sections that follow detail many areas for active participation by private investment, either directly or through partnerships with public agencies. Private entrepreneurs will be given incentives to invest capital in these areas, such as agro industries, infrastructure, technical training and educational institutes, health services, etc. The state government has already introduced several measures aimed at improving the climate for private investment. The New Industrial Policy incorporates several incentives for private business, the state has established a single-window clearance system by enacting the Single Window Act, 2006, which is decentralized to district level, and signed contracts with IDFC to provide technical and other assistance for fast-track PPP proposals.

Agri-business, an important area for private investment, will be encouraged by the several recent agricultural reforms such

as setting up of the Land Reforms Commission and Agriculture Commission, and repealing the Agricultural Produce Market Act. Several new reforms (protection abolished, policing priorities established, Arms Act implemented to shorten court procedures and reduce prosecution delays, conviction rate increased and court cases proceeding in anti-corruption activities intensified) have meant a marked change in the law and order scenario improving the level of confidence and new investment proposals have begun entering the state.

### **1.4. Cross-Cutting Issues: Meeting the Major Challenges**

#### **1.4.1 Infrastructure: For an Improved Investment Climate and Quality of Life**

The task of rebuilding Bihar depends on setting up good infrastructure through investment in new projects and upgradation of existing ones. This is vital for growth in key sectors such as agriculture, for an improvement in the quality of life, and to attract much-needed private investment into the state. A major reason why Bihar attracted very little private investment in the last decade was the state

of its infrastructure. Per capita power consumption in Bihar is only 76 units against the national average of 612 units; National Highways per lakh of population is about 33 percent less than the national average; of 57.26 lakh hectares of net sown area, only 34.62 hectares is irrigated (net).

This large-scale requirement of funds will place a heavy burden on the public sector, and PPPs will be actively promoted in projects and services in which they are feasible. The state has already begun to explore and introduce these options in some sectors, and is planning to expand these initiatives. It will also actively encourage direct private investment in large infrastructure projects in power, road projects, and so on. Major institutional reforms have been undertaken and more have been proposed to increase transparency and reduce the time taken to clear investment proposals, which have begun to yield good results.

#### **1.4.2 Focus on Agriculture and Allied Sectors: Core Competence**

Agriculture is the core competence of the state. In the 1980s, Bihar's agricultural growth rate of 4.6 percent was above the national average, but this plummeted between 1991-92 and 1995-96

to - 2 percent. While growth rates have revived somewhat in recent years, agricultural productivity remains below its potential. Given the high proportion of workforce engaged in agriculture, its large share in the GSDP, and the high incidence of rural poverty, the Eleventh Plan's emphasis will need to be on agriculture and allied services to effectively reduce rural poverty and fuel growth in the other sectors.

Bihar has enough potential in agriculture to address the short-term concerns over food security of the country. To realize this potential, the Eleventh Plan will place greater emphasis on agricultural extension, crop diversification, increased yields from rainfed agriculture (which accounts for 62 percent of cultivable land), and narrowing the demand-supply gap in animal products. Sustained agricultural growth will be based on a rapidly expanding food-processing industry, rejuvenation of irrigation infrastructure, a network of farm roads, better marketing of farm products and flow of agricultural credit. Also issues that impede agricultural growth like land reforms and tenancy relations need to be addressed. Therefore the Eleventh Plan will be based on a holistic model for agricultural development, at the end of which the state will transit from a self-sufficient state in food grains.

### 1.4.3 Public Administration and Governance:

#### A Caring Government

Public and social services have deteriorated in the past few decades. Bihar used to have a sound administrative structure and the State, though poor, was reasonably well-governed. However, in recent years, this structure has crumbled under relentless pressures of bad governance, dysfunctional politics, massive corruption and the near absence of law and order. The outcome is that Bihar is lagging far behind other states in development. There has been a steep deterioration in the system's capacity and delivery of public services, especially for the poor. This deterioration in capability has come at a time when the demands on the system have increased manifold, with greater awareness and the introduction of new concepts and approaches in development which require greater inputs from the field machinery.

The poor service delivery and implementation of programs and projects result from a variety of issues such as poor human resource management, planning and monitoring (the lack of robust baselines and systems) to underutilization of funds, duplication and poor coordination and

convergence between departments and complicated systems of checks and balances that led to paralysis amongst decision makers. A symptom of the system's decline is the large number of vacancies in key field posts, for example, 188 out of 534 blocks have no Block Development Officers. There are large shortages in Assistant Project Officers in District Rural Development Agencies, Extension Officers in blocks and Panchayat Sevaks and other village functionaries in the panchayats.

Corruption flourished even in rural development and relief schemes for the poor and distressed. Politicisation of transfers and postings led to loyalty to political power brokers and not to government policies and programmes. This had its effects on other sectors: private investors were reluctant to invest in infrastructure or industry in Bihar because of the general perception of a lack of governance and a lethargic and non-transparent administrative machinery. Some institutions and individuals continued to perform outstandingly even in these adverse circumstances. But there was almost complete stagnation in the implementation of programmes and schemes, which are mainly financed through central schemes.

However, in the past, a large share of resources allocated were not being released, which had a deleterious effect on poverty and adversely affected the delivery of social and basic services.

President's Rule in the state addressed several administrative bottlenecks, and procedural simplifications initiated at that time have been consolidated over the last twelve months of the present government. However, changes at the top have yet to fully permeate down to field and grass-roots functionaries. The work culture needs a radical overhaul; the increasing pace of development calls for fast communication with field offices, and technological cost-effective solutions need to be implemented.

The Eleventh Plan proposes to strengthen service delivery through a multidimensional approach. Administrative reforms have been initiated and will be followed up to build capacity and strengthen institutions for skill upgradation, which will equip projects to avail funds from the Central Government and other sources. At the same time, the effectiveness of the service delivery systems will need to be improved by preventing leakages and improving expenditure efficiency. The approach targets an overall improvement in

education and health outcomes through combined inputs from private, public and non-governmental organizations. This is especially important in rural areas where the quality and access to services have been weakest and the indicators poorest.

### **1.5. The Role of Local Bodies**

An important dimension of the approach to improving public administration and governance in the Eleventh Plan will be increased accountability both at the level of the state and within sectoral service delivery units. The lack of public accountability has increased corruption. Inclusive growth will call for the government to become more accountable to the people by strengthening institutions that enforce accountability such as local bodies.

People's participation in programmes through community-based organizations and Panchayati Raj Institutions is thus extremely necessary for ensuring accountability. One way is to devolve responsibilities to local government bodies that can plan and implement programmes with the participation of civil society. PRIs will play a definitive role in formulation and implementation of the Eleventh Plan objectives. The state has already made



progress in devolution to the third tier as Panchayati Raj Institutions' (PRI) elections have been held; against 50 percent reservation for women, 58 percent were actually elected.

Bihar's extensive network of women's self-help groups is another avenue for collaboration. Using such resources to further effective service delivery will also empower local people.

### Overall: Action Points

- Focus on improving physical infrastructure especially in key sectors such as agriculture and industry.
- Focus on increasing productivity in agriculture and allied sectors through better implementation of schemes, by building related infrastructure, and strengthening marketing and distribution networks.
- Undertake fiscal reforms to mobilise public resources and savings vital to finance the state's ambitious development strategy.
- Undertake administrative reforms, capacity building and institutional strengthening to improve delivery of services to the poor.
- Improve governance through increased transparency, instituting the Right to Information, and more intensive use of information technology to increase the participation of citizens and non-governmental organisations in developmental programmes.
- Strengthen programmes and schemes by monitoring outcomes rather than outlays.
- Adopt a multi-dimensional approach to improving educational and health outcomes with participation from private, public and non-governmental organisations.
- Increase community participation in service delivery by promoting PRIs and women's SHGs.
- Facilitate an enhanced role for private investment in key areas such as power, agri-business, technical training and educational institutes, ancillary health services, etc.

## Accelerating Growth

### 2.1 Agriculture

Agriculture is the mainstay of Bihar's economy, contributing 35 percent to state GDP and employing 77 percent of the work force. The state has the ideal natural resources : fertile flat land, plenty of water, both surface and underground, and agro-climatic conditions suitable for cultivating a variety of crops to make agriculture its core competence.

#### 2.1.1 Issues and Constraints

In Bihar, agriculture has not benefited from the Green Revolution that ushered in a significant increase in productivity in several states in the country. The growth of food grain production at less than 1 percent over the last decade has been far below potential; food grain production has increased from an average of 106.38 lakh MT in the mid-1990s (1993-94 to 1995-96) to 113.23 lakh MT in

recent years (2000-01 to 2003-04). Low crop productivity, poor connectivity between farms and markets, and weak distribution and marketing links have meant that much of the vast demand from Bihar's local market is met by produce from outside the state, such as fish from Andhra Pradesh and milk powder from Gujarat. Even the local feed producers buy their maize from Andhra Pradesh, while Bihar's maize producers have to resort to distress sales to get rid of their produce.

Cereals dominate the cropping pattern. The rice-wheat cropping system occupies more than 70 percent of the gross cropped area, but productivity has remained low despite very favourable soil, water and climatic conditions. Many reasons, technological, managerial and situational are attributable to the low productivity of crops in the state (see Box).

### Bihar: Main Reasons for Low Crop Productivity

#### Poor Quality and Supply of Inputs

- | The lack of an assured, timely supply of quality seeds for high-yielding varieties, and hybrid varieties. Seeds of high yielding varieties have been critical in increasing crop production. Dwarf gene of rice and wheat did wonders in the 1960s as these varieties were short-statured and could respond well to fertilisers, irrigation and other management practices. Development of hybrid varieties in many crops opened yet another opportunity to further increase crop production and productivity.
- | Low and regionally unbalanced fertiliser use : The present level of fertiliser application in the state is 98 kg/ha whereas it is more than 175 kg/ha in Punjab.
- | Lack of access to credit (this has hindered, among other things, the adoption of technology; as an example, for 104 lakh farm holdings in the state, there are only 20 lakh kisan credit cards).

#### Agricultural Practices

- | Lack of mechanisation: Farm techniques remain archaic. For example, Bihar has 17 tractors per 1,000 hectares against Punjab's 68 tractors per 1,000 hectares.
- | Small, fragmented holdings: Small and marginal farmers account for more than 90 percent of all holdings. These small holdings work against economies of scale and deter the adoption of modern technology.
- | Diesel-based irrigation: Irrigation is largely dependent on diesel-operated tubewells, the cost of running which has risen with recent increases in diesel prices.

#### Technology Transfer

- | Weak Agricultural Extension System: The system for transfer of technology is very weak structurally and in its capacity to absorb and disseminate modern technology. In fact, several extension systems exist simultaneously, and these need to be rationalised.
- | Flood and drought risks: Recurrent floods in North Bihar districts and the paucity of rainfall in the South have hampered technology adoption.

#### Weak Marketing and Distribution Chain

- | The lack of procurement has meant that farmers in Bihar often have to resort to distress sales in a season of plenty.
- | Inadequate storage and processing capacity: An estimated 25 lakh MT storage capacity is required by the state, against an existing capacity of only 12 lakh MT. Proper storage infrastructure is also lacking at the primary level, and this has led to losses amounting at times to 50 percent.

### 2.1.2 Vision for the Eleventh Plan

The mantra for the Eleventh Plan for the State can be stated in a few words: To maximise the use of vast untapped potential and natural endowments of the State, thereby ensuring food and nutritional security and better farm incomes, through environmentally sustainable agronomic practices.

### 2.1.3 Strategy

The above objectives can be achieved through interventions that increase crop productivity, maintain soil health, enhance produce quality and strengthen the existing marketing chain.

### 2.1.4 Growth Rate Projections

On a cautious estimate, the State has projected a 5% rate of growth although the Planning Commission believes that 7% rate of growth is feasible. The average use of fertilizer per hectare still continues to be low and also agricultural prices mechanism needs to be stabilised. Based on both these, it is possible to achieve the projected growth indicated by the Planning Commission in their State level disaggregated data.

A slew of initiatives taken during the final year of the Tenth Five Year plan is

expected to yield perceptibly good results in this sector during the Eleventh Plan. Three major factors that impact agricultural production, viz., prices, fertilizer consumption and rainfall are expected to follow much more favourable trajectories during the Eleventh Plan. These are briefly discussed below :

**v Agricultural Prices :** Massive road construction programme, started in 2006-2007, would continue in full steam during the next plan too. This would be opening up huge markets, something that Bihar farmers were always deprived of. Strengthening of cooperative institutions and other focused actions have yielded impressive results in procurement of foodgrains against MSP.

**v Fertiliser Consumption :** The trend of fertilizer consumption in Bihar may apparently look good, since the figures are above the national averages. But, as per Statewise consumption of fertilizer during 2001-02 and 2002-03 (for these years figures are available), per hectare consumption of fertilizer in Bihar during 2002-03 (87.15 kg/ha) is much lower than Andhra (128.44), Tamil Nadu (114.00) Haryana (152.79), Punjab (174.99), UP (126.51) and West Bengal (122.33).

## Strategy for Major Food Grains

### Rice

- | Propagation of rice intensification (SRI) technology, hybrid varieties, boro rice supported by a strong seed programme, and fine and scented varieties to increase incomes
- | Replacement of long-duration varieties with short and medium duration varieties
- | Upgradation and strengthening of milling facilities, a strong procurement and MSP.
- | In the terminal year of the Eleventh Plan, the targets for rice are as follows :  
Area-33.98 lakh hectares; Production- 72.72 lakh M.T.; Productivity - 21.43 q/hectare

### Maize

- | Popularisation of hybrid varieties supported by strong seed programme ;
- | Encouraging the cultivation of rabi maize, and baby corn, sweet corn and quality protein maize varieties for raising income, particularly in diara areas ;
- | Proper storage (including drying) and procurement and MSP ;
- | Promotion of a maize-based processing industry (animal feed, corn oil, starch, ethanol, etc.) ;
- | Popularisation of maize as food for people.
- | In the terminal year of the Eleventh Plan, the targets for maize are as follows :  
Area-7.65 lakh hectares; Production- 28.61 lakh M.T.; Productivity - 37.41 q/hectare

### Wheat

- | Timely sowing and harvesting ;
- | Development of short- and medium-duration varieties ;
- | Mechanisation (combine harvesting and zero-tillage sowing)
- | In the terminal year of the Eleventh Plan, the targets for wheat are as follows :  
Area-20.85 lakh hectares; Production- 48.06 lakh M.T.; Productivity - 20.05 q/hectare

### **Pulses**

- | Expansion of area (particularly of lentils, moong, and gram) ;
- | Popularisation of high-yielding varieties supported by a strong seed programme ;
- | Rehabilitation of gram in agro-climatic Zone I after the harvest of medium and late rice ;
- | Use of bio-fertiliser including Rhizobium ;
- | Improvement in farm drainage to reduce water logging.
- | In the terminal year of the Eleventh Plan, the targets for pulses are as follows :  
Area-8.50 lakh hectares; Production - 10.12 lakh M.T.; Productivity - 11.94 q/hectare

### **Oilseeds**

- | Area expansion ;
- | Replacing lathyrus and low-yielding wheat with rai, sarson, sunflower ;
- | Popularisation of high-yielding varieties supported by a strong seed programme ;
- | Popularisation of paira and intercropping of mustard :
- | Use of sulphorous fertilisers.
- | In the terminal year of the Eleventh Plan, the targets for oilseeds are as follows :  
Area-1.77 lakh hectares; Production- 1.73 lakh M.T.; Productivity - 9.76 q/hectare

### **Fruits and Vegetables**

- | Rejuvenation of old orchards :
- | Area expansion ;
- | Assured supply of quality planting material ;
- | High density planting ;
- | Irrigation with drip and micro-sprinkler ;
- | Mechanisation of harvesting, grading and packing ;
- | Processing and cold chain.
- | In the terminal year of the Eleventh Plan, the targets for fruits and vegetables are as follows :  
Area-6.75 lakh hectares; Production- 112.65 lakh M.T.; Productivity - 16.70 q/hectare

However, recent trend in consumption of fertilizer in Bihar shows an upward trend and this would have a positive impact on growth rate.

v **Rainfall :** Nearly 60% of area under cultivation in Bihar is rainfed. Any projections regarding growth rate would have to take into account this crucial variable.

## 2.1.5 Crop Diversification

The cropping pattern in the state is dominated by rice and wheat, which cover more than 70 per cent of the gross cropped area. Efforts will be made to increase the production of maize from 1.5 MT to 4.5 MT by year-round cultivation, and raise its productivity above the national average. While cereals will continue to dominate the cropping pattern, the strategy will promote crop diversification during the next Plan so as to improve people's nutritional balance and generate higher incomes for farmers.

Cultivation of fruits and vegetables has been an age-old practice in the state, but has not been oriented towards the market or exploited the potential available in the state.

It may be mentioned that while fruits and vegetables occupy only 10 per cent of the gross cropped area, they account for 50 per cent of the income from farming. An

annual growth rate of 10 per cent for fruits has been targeted for the next decade, which should favourably impact on growers' incomes and livelihoods. This will be done mainly by increasing the area under litchi, mango, banana, guava and makhana cultivation by first identifying appropriate fruits for cultivation for each geographic area. For vegetables, a moderate annual growth rate of 6 percent has been targeted for the next decade. Vegetable cultivation will be promoted in areas with an assured source of irrigation.

## 2.1.6 Agricultural Programmes: Laying the Framework

Achieving the Eleventh Plan objectives of increasing productivity and crop diversification will require the government to take a very pro-active role in laying the framework which will include: strengthening the agricultural extension system, research and education, improving access to inputs such as quality seeds, fertiliser, and improvements in the marketing chain.

## 2.1.7 Inputs: Improving Quality and Reducing Costs

### v **Appropriate Fertiliser Use**

Balanced and integrated fertiliser use will be promoted to achieve higher

production on sustained basis. Soil testing infrastructure will be extended to the block level, and agro-clinics will be encouraged to bring soil testing services to the farmers. Every farmer will receive a farm plan card within five years. Efforts will be made to strengthen and create facilities for fertiliser and micro-nutrient testing, and fertiliser companies will be encouraged to spread their network to the village level.

#### **v Integrated Pest Management Approach**

Chemical pesticides will be replaced by vigorous promotion of the Integrated Pest Management (IPM) approach, in which chemical pesticides are used only as the last resort. IPM technology will be carried to every farmer within the plan period.

#### **v Organic Farming**

Protocols for organic certification will be standardised and institutional arrangements for organic certification will be set up to enable producers to avail of these. For products with a comparative advantage in marketing and export, quality consciousness about sanitary and phyto-sanitary standards will be strengthened. In areas with high dependence on chemical fertilisers, inputs of these will be discouraged to reduce cultivation costs, protect the

environment, and increase the export market acceptance of farmers produce. Crop straw and other agro-wastes can be substituted; vermiculture has been identified as a thrust activity, and during this plan period, vermiculture technology will reach every farmer, and every farm will have a vermi-compost.

#### **v Mechanisation and Conservation**

Given that the timely completion of agronomic practices has enormous benefits for productivity and output, agricultural mechanisation will be promoted for timely sowing, harvesting and post-harvest handling of crops. Priority will be given to zero-tillage machines, raised-bed planters, small combine-harvesters, mobile harvesting units for orchards, graders, winnowers, small tractors/power tillers and other new and innovative machines. Training and demonstration of these machines will be encouraged, and incentives provided for their adoption.

#### **v Strengthening Education and Research**

Despite the prominence of agriculture in the state's economy, there has



been very little attention given to agriculture education; this will be rectified as new agricultural colleges will be set up in agro-ecological Zones II and III. Horticulture research and education will be given greater impetus with the opening of a state of the art horticulture college at Nalanda. Rajendra Agriculture University will be developed along world-class lines to become a hub for agricultural knowledge, spreading information on new technologies to farmers, extension workers and entrepreneurs. It will develop protocols for pre- and post-harvest technologies, exports and organic certification, and will introduce courses in agri-business management and biotechnology, and on cutting-edge technologies, such as genetically modified crops and precision farming.

## **2.1.8 Strengthening Technology Transfer**

### **v Rationalising Extension Systems**

Agriculture in the state functions under several co-existing, overlapping extension systems resulting in inefficient utilisation of resources. A new integrated system will be created borrowing from the strengths of prior systems.

The Agriculture Department will be

reorganised to better meet the needs of farmers. Greater responsibility and accountability will be introduced. Infrastructure for training extension functionaries will be strengthened. Extension functionaries will receive technical training twice a year, and post-training performance assessment will be linked to career advancement.

### **v Wider Role for Agri-clinics**

Agri-clinics will be used to disseminate inputs, and technical information. For this, they will be given priority in the allocation of seeds, fertiliser shops, outsourcing of block-level soil labs, etc. Through the extension system, these clinics will carry public programs to the farmers, and their expertise will be used in training and demonstration, and they will be used as a convergence point for all programmes.

### **v Extensive Quality Seed Supply Programme**

The current rice and wheat seed replacement rate of less than 10 percent cannot sustain higher productivity. Given the criticality of seeds in modern agriculture, and its paucity in the state, investment in the public and private

sectors needs to be increased. The objective of the seed production programme would include increasing the seed replacement rate, and promoting hybrid seeds and new crop varieties, adapted to the agro-climatic conditions of the state.

The public sector approach will encourage government farms to revive seed production; the Pusa Seed Society to improve the supply of quality seeds and the Bihar Rajya Beej Nigam to undertake seed multiplication and to make recent public sector varieties available on time to farmers at a reasonable price. However, the cornerstone of the Eleventh Plan strategy will be seed production through farmers' direct participation under the seed-village programme. The Bihar Rajya Beej Nigam and Pusa Seed Society will be encouraged to buy back seeds produced under the seed-village programme and to provide processing and marketing support to farmers. Private seed companies will be encouraged to make the most recent technology available to farmers and by providing competition to the public seed companies, benefitting farmers through lower prices.

#### v **Support for Krishi Vigyan Kendras**

Given their utility in spreading agricultural knowledge among the rural population, the Krishi Vigyan Kendras

(KVKs) will continue to receive support; they will also be encouraged to cater to the post-harvest handling of the agricultural products and the development of entrepreneurial skills among the rural youth. The KVKs will focus on five missions: honeybees, seed production including seed villages, conservation of agriculture, integrated farming and vermi-compost.

#### v **Role of Agriculture Technology Management Agencies (ATMAs)**

Agriculture Technology Management Agencies (ATMAs) will be set up in all districts to support the extension efforts of the government, and to promote convergence of farming systems, the group extension approach and increased use of ICT in agricultural extension. The overall aim will be to bring every farmer into the ambit of agriculture technology training within a five-year period. These agencies will explore sustainability and encourage public-private partnerships in agriculture extension.

#### v **Farmers in Extension**

Progressive farmers will be used in extension efforts through a scheme to recognise and reward such farmers.

Farmers will receive awards based not only on productivity, but on their efforts in processing and marketing, and on their success in disseminating methods and technologies to fellow farmers.

### **v Information and Communication Technology**

The focus here will be on developing application software that will provide useful farmer services, and it will be used to transfer information, technology and services to farmers as rapidly as possible.

#### **2.1.9 Improved Marketing and Processing**

The state has a genuine comparative advantage in some crops at the farm level, but loses this advantage at the wholesale level, for a number of reasons, including wastage, transportation costs, and lack of marketing outlets. A recent study shows that the quality and quantity of marketing outlets in Bihar is among the worst in the country. Furthermore, a World Bank analysis of some commodity supply chains has shown that up to 40 percent of the margins along the value chains are lost to wastage and transportation costs.

Crop diversification, especially into the relatively more perishable fruits and vegetables, will increase the need for effective marketing linkages supported by modern marketing practices, including introduction of grading, post-harvest management, cold chains, etc. Modern agricultural markets will need to be developed, and the state has taken initial steps for this by repealing the Agricultural Produce Market Act (APMC) which allows the introduction of private and co-operative markets, of contract farming and enables direct purchases to be made from farmers.

Several initiatives are planned to bring the farmers closer to the markets. Farmers will be organised along enterprise-lines to establish economy of scale and to provide a collective voice to safeguard their interest. This will include excursions into processing and marketing centres of excellence in the country, formation of farmers' interest groups and federating them at the various levels. Co-operative marketing of fruits and vegetables will be encouraged along the lines of milk and dairy producers.

Information on market demand and agricultural prices will be widely

disseminated to farmers so that crop planning can become more market oriented. Market yards and rural hats will be rented to farmer groups to make marketing more organised. The private sector will be encouraged to develop modern and speciality markets, and terminal market will be established in strategic locations.

#### **2.1.10 Private Investment**

Private investment will be promoted to help develop a marketing infrastructure, as well as in contract farming, export of fresh and processed fruits, processing of ethanol, corn oil, in the feed and starch industry, export of baby corn, and to make litchi honey.

#### **2.1.11 Natural Resource Management**

In South Bihar, where rainfall is sparse and agriculture is mostly rain-fed, watersheds will be adopted as developmental units. Activities and programmes will be

converged, so that appropriate technology for watershed management can be used to recharge the groundwater table. Vegetation will be the preferred method for conserving the soil, and dry land plantation and horticulture will be used for soil and water conservation.

#### **2.1.12 Risk Management**

Risks from natural disasters will be minimised through appropriate crop technology and the extension of crop insurance to all farmers. Insurance cover will be extended to horticultural and cash crops, a seed bank will be developed to allow quick supply of seed materials and human resources will be developed to respond quickly to restore normalcy in case of a natural disaster. It is envisaged that after taking the above measures the risk will be minimized to a great extent and natural disasters can be fought successfully.

### **AGRICULTURE: ACTION POINTS**

- | Increase crop productivity
- | Promote crop diversification through increased maize production and the promotion of fruit and vegetable cultivation
- | Improve technology transfer by strengthening the agricultural extension system to improve the quality and timeliness of inputs supply
- | Improve education and research into state-specific issues and varieties
- | Strengthen the existing marketing, processing and distribution chain
- | Promote micro-irrigation programmes to enhance water-use efficiency

## 2.2 Animal Husbandry and Fisheries

Animal husbandry and its allied activities, such as poultry farming, fisheries and so on, if developed appropriately, have the potential to significantly enhance the rural economy. Even at the present slow pace of development and underutilisation, animal husbandry contributes 16 percent to the GSDP (despite its low share of 0.75 per cent of total state budgetary allocation), a situation which is mirrored in the fisheries and dairy sectors. Despite this contribution, the state is still not self-sufficient in milk, meat, eggs and fish production. These sectors have the capacity to provide opportunities for livelihood to people at the place where and in the situation in which they presently reside.

Bihar has abundant water resources such as ponds and tanks (covering approximately 65,000 hectares) and major flowing rivers (around 2,700 km in length), which are fertile breeding grounds for pisciculture. North Bihar also has captive fisheries resources like chauris (low-lying depressions filled with water) and ox-bow lakes. Converting these capture fisheries to culture fisheries could make them important sources of income and employment for fishing communities, apart from being an

excellent source of cheap protein for people.

### 2.2.1 Vision for the Eleventh Plan

Given the potential these sectors have to impact on rural poverty, incomes and livelihoods, animal husbandry, fisheries and the dairy sector will be promoted so that the state becomes self-sufficient in these products. As major inputs for agro processing, dairy and fisheries produce can become an important source for value addition within the state itself, which in turn opens up income and employment opportunities.

### 2.2.2 Animal Husbandry : Approach to the Eleventh Plan

#### 2.2.2.1 Animal Healthcare

v Upgrading veterinary healthcare services by opening new veterinary hospitals, dispensaries and polyclinics, so that the state eventually meets the norm of one veterinary hospital for every 5,000 livestock (at present there is one hospital for every 20,000 livestock). The target is to set up 1,000 new hospitals so as to narrow the gap to at least one hospital for every 10,000 livestock.

- v Modernising and strengthening the Institute of Animal Health and Production, Patna to improve the quality of bacterial and viral vaccines produced, set up facilities for producing new vaccines, implement national immunisation programmes and provide comprehensive disease diagnostic, and disease infertility control programme support.
- v Establishing a veterinary public health service to regulate and monitor the production, processing, storage, transport, marketing and quality control of animal protein and animal feed.
- v Establishing the newly constituted Bihar Livestock Development Agency.
- v Developing human resources by strengthening facilities in the Bihar Veterinary College and upgrading the skills of government veterinarians.
- v Improving the health of small ruminants (sheep and goats).
- v Promoting small units in poultry (with 20 birds per family), piggery (8 piglets per family) and dairy (2 cows per family) for rural families below the poverty line.
- v Increasing interactions between the Animal Husbandry Department and national level veterinary research institutions like IVRI, NDRI and other institutions for research on cattle, buffalo, equines, goat, sheep, wild and zoo animals.
- v Building and developing infrastructure for the Animal Husbandry extension network.
- v Establishing infrastructure for mastitis control and training farmers for milk production with a lower somatic cells count and low residual antibiotics levels in keeping with international standards.
- v Setting up systems for monitoring and evaluating animal husbandry programmes.
- v Implementing the activities of the Assistance for Control of Animal Diseases (ACAD) scheme; and the Animal Diseases Monitoring and Surveillance (ADMAS) scheme as well as zone-wise surveillance to assess the situation of animal diseases.

### **2.2.2.2 Dairy Production**

Making dairying a more lucrative and income generating occupation for farmers will require an increase in the productivity of milch animals and reduction in the cost of production of milk. This will be done by providing better

breeding, animal health and feeding inputs to milk producers. The overall strategy will be to increase the production of clean milk, strengthen the cooperatives, enhance the skills of milk producers for better management of stock, increase the capacity to process milk and set up a marketing chain for the output.

### 2.2.2.3 The Eleventh Plan will focus on :

**v Increasing milk production :** Through improved breeds, and better health care and management of milch animals. This will reduce operating costs for milk producers, thereby increasing income levels. So far, milch animals have been procured from surplus, neighbouring states and distributed to the farmers, but little effort has been made to become self-sufficient in good crossbreeds for distribution. The Government will provide inputs and subsidies to farmers to set up breeding units in milk-sheds. Institutional finance will play a crucial role in this.

**v Improving animal feed :** Around 80 percent of the cost of milk production depends upon the cost of feeding the animals besides the labour and management costs. The state has three cattle-feed plants in the cooperative sector with total installed capacity of 260 MTs per day. The plant at Patna is working at almost full capacity, so

would need to be expanded to meet the growing demand of balanced cattle feed and protein-enriched feed. The capacity of this plant is proposed to be augmented from 100 to 200 MTs per day.

**v Building skills of milk producers:** To improve feeding and stock management.

**v Expanding the cooperatives network to cover more farmers :** The dairy cooperative societies (DCS) which at present cover 6,750 villages in 28 districts will be expanded to cover more districts. The dairy sector in the state is presently being served by 5,123 dairy co-operative societies with 2.54 lakh farmer members, the largest among the eastern states. The thrust on dairy development in the state during the Eleventh Plan will leverage the existing co-operative network, as well as focus on expanding and strengthening its coverage in terms of area and processing infrastructure.

**v Conducting milk production and demand surveys :** Data on milk production, local consumption and marketable surplus for all villages and districts is not available. This information is important for dairy development in the



state.

### **v Promoting clean milk production :**

At the village level, as the quality of finished products depends on the quality of raw materials, apart from processing, packing and handling. Quality with cost control will be the key challenges for the dairy plants in the next plan. Farmers will be encouraged to produce clean milk by maintaining hygiene at their doorsteps. Incentives will be given to them through dairy cooperatives for hygienically better quality milk.

### **v Creating adequate plant capacity :**

By expanding the capacities of existing plants and setting up new plants at strategic locations. Existing plant capacities will be increased from 650 thousand litres per day (TLPD) to 1,250 (TLPD) to process the increased milk supply to dairy cooperatives by milk producers. Four new dairy plants with 2 lakh litres capacities will be set up at Biharsharif, Purnia, Chhapra and Mohania. The plant capacities will finally depend upon the field survey and DPRs prepared by NDDDB.

### **v Additional processing capacities :**

Also proposed are a 30 MT per day powder plant, ultra-heat treatment (URT) plant with aseptic packaging facilities to conserve the

surplus milk solids during flush seasons for use when milk is low. The aim is also to supply packaged milk to milk deficit areas like Madhubani and Darbhanga within the state and the north-eastern states.

**v Marketing :** This will be another thrust area during the coming Plan. With increased production and processing of milk in the state, avenues for evacuation of this output (forward linkages) are needed. Unlike other states, towns in Bihar are small and there is no metro city, so there is little or very limited infrastructure for marketing.

**v Private investment :** This will be required to supplement government efforts in achieving the Eleventh Plan goals. Private parties will be encouraged to invest in dairy equipment and fodder-block making units, and to set up processing infrastructure (for milk powder, packaging material), and marketing infrastructure.

### **2.2.3 Fisheries : Background**

Bihar is one of the few states with large inland fisheries and aquaculture resources. The paradox of fisheries development in Bihar is that while it has large, untapped water resources for aquaculture, it depends on states like

Andhra Pradesh for the supply of about half of its annual fish demand. The annual consumption of fish within the state is nearly 4.5 lakh tonnes, against the present annual production of around 2.25-2.50 lakh tonnes. The underutilisation of aquaculture resources, unscientific management of water bodies and lack of entrepreneurship are some of the most obvious reasons for the gap between demand and supply. The major challenge, therefore, is to develop aquaculture resources for productive, sustainable fisheries to meet the local demand and enhance the nutritive and livelihood security to farmers as well as consumers.

### **2.2.3.1 Approach in the Eleventh Plan**

The goal for fisheries development during the Eleventh Plan is for the state to expand production and increase productivity to national levels through the development of ponds and adoption of technically sound pisciculture practices. In addition, the establishment of hygienic storage conditions, rapid transportation systems and an efficient marketing network for fish will also help to increase socio-economic security in fishing communities.

For fish production to reach self-

sufficiency levels, annual production levels would need to rise from the current 2.8 lakh tons to about 6 lakh tons. These calculations are based upon the average annual growth rate of 4 percent in the fishery sector at the national level which could easily be increased to 10 per cent and 15 percent in Bihar, because vertical and horizontal expansion of aquaculture is possible in the state.

### **2.2.3.2 Strategy for the Eleventh Plan**

Output will be expanded through the creation of new water areas and renovation of the old ones, by bringing open water areas like ox-bow lakes, chauras and command area flood plains under culture-based fisheries, and renovating ponds to increase cultivable water areas.

The quality of output will be upgraded by providing regular training to fisher folk, supplying quality fish seeds, setting up private and government carp-seed hatcheries; gradual and scientific conversion of capture fisheries resources into culture fisheries resources. National welfare programmes will be introduced to improve the livelihoods of fishing communities.

### **2.2.3.3 Culture Fisheries**

The major portion of fish production in Bihar is from ponds and tanks, but the share of culture fisheries in gross fish production can be increased threefold. Only 30 percent of the ponds and tanks are scientifically managed, the rest need renovation and deepening. Farmers will need to be given proper technical training and incentives for composite fish culture. Private ponds and tanks will be developed through the cluster approach through bank financing coupled with subsidies. Funding from centrally sponsored schemes like NREGP (National Rural Employment Guarantee Programme) for renovation of government tanks will need to be increased.

### 2.2.3.4 Capture Fisheries

With improved management, catches from open-water bodies in Bihar can increase many-fold, as can overall sustainability and

the quality of output. More than one lakh hectares of water area are still untapped, used only to catch fish which have entered the waters during floods. If open-water fishery is to remain a major contributor to overall inland fish production, some parallel processes to intensify yield have to be instituted. Several new techniques have been developed which could be appropriate for application in these areas. With this, output per hectare annually should rise to 600 kg of fish. The proposed Eleventh Plan targets of Fisheries are at Table No. 2.1

### 2.2.3.5 Timely Supply of Quality Seeds

The overall quality seed requirement to stock water-bodies annually has been estimated at 600 million. If we include open-water areas of riverine command into culture-based fisheries, the additional annual demand would be

**Table No. 2.1 Fisheries : Proposed Eleventh Plan Targets**

Growth Indicators Physical Targets	2007-08	2008-09	2009-10	2010-11	2011-12
Fish production (lakh metric tons)	340	350	360	370	380
Fish seed production (million)	450	470	490	520	550
Farmers' training (no)	4000	4000	4000	4000	4000
Housing & other civil amenities for fisher folk (no.)	400	400	400	400	400
Construction of seed hatcheries (no.)	4	4	4	4	4

around 200 million fry. For self-sufficiency in the timely supply of quality seeds we have to ensure at least one carp hatchery in each district along with availability of seeds, in each block headquarter. The construction of fish seed hatcheries and renovation of government seed farms are also necessities. Farmers also need to be sensitised to avoid the use of weak and unhealthy seeds.

### **Other**

The Central Government has recently constituted National Fisheries Development Board (NFDB) which can help to substantially increase fish production

through effective planning and implementation. The State government shall utilise the schemes of NFDB fully. In order to fully exploit the water resources for qualitative and quantitative sustained development of fisheries sector, a substantial increase in outlay will be required.

Fish feed production will be enhanced by private production; private investors will also be given incentives to invest in a cold chain and other marketing infrastructure as well as in aqua-tech and amusement parks.

## **ANIMAL HUSBANDRY: ACTION POINTS**

### **Animal Husbandry**

- | Improve the health of livestock by
  - v Establishing 1,000 new veterinary hospitals
  - v Modernising and strengthening the Institute of Animal Health and Production in Patna
  - v Establishing a veterinary public health service to regulate and monitor various functions
  - v Establishing the newly constituted Bihar Livestock Development Agency
  - v Enhancing the skills of government veterinarians
- | Improve the stock of small ruminants (sheep and goats)

- | Promote backyard poultry, piggery and small dairy units
- | Establish infrastructure for mastitis control and training

### **Dairy**

- | Increase milk production
  - v Through improved breeds, proper health care and management of milch animals
  - v Building skills of milk producers in proper feeding methods and better management of stock
- | Strengthen milk co-operatives and increase mopping up of surplus milk
- | Popularise clean milk production
- | Expand the coverage of milk co-operatives to include more areas and villages
- | Create additional processing capacities by expanding existing plants and setting up new ones
- | Promote production with Total Quality Management, ISO and HACCP certification and better dairy plant management for cost control
- | Enhance capacities of enriched feed production plants

### **Fisheries**

- | Restore and renovate traditional water bodies
- | Popularise fish seed production (the state produces only half its fish seed requirement)
- | Bring ox-bow lakes under culture-based fisheries
- | Develop water-logged areas into aquaculture estates
- | Optimise fish yield from reservoirs
- | Popularise integrated fish farming
- | Establish a network that links farms to retail outlets
- | Provide insurance coverage for houses, drinking water, community centres, health and family welfare facility for fish farmers

## 2.3. Water Management and Irrigation

### 2.3.1 Vision for the Eleventh Plan

Irrigation is a key enabler for agriculture-based growth. Through improved technical, financial and economic use of water resources, the sector's contribution to the agriculture development plan would be crucial. Other objectives will be to enhance sustainability of growth through proper management and upkeep of water resources systems, improve equity through better targeting of development programs to the rural poor, and increased use of IT for real time-monitoring for flood forecasting and in managing overall water resources.

### 2.3.2 Strategy

Achieving the growth rate proposed

for the Eleventh Plan will require the creation of 13.86 lakh hectares of additional potential (see table 2.2).

There will be an emphasis on rainwater harvesting and propagating rain-fed agriculture, especially as large areas in the South Bihar are devoid of assured irrigation due to various factors. There is increasing acceptance that proper maintenance of the conveyance requires management by the beneficiaries. The State Government has made significant progress in this area by transferring the operation, maintenance and upkeep of 32 distributaries aggregating a total command of 1,10,549 hectares to water users associations (WUAs) (see Table 2.3).

In keeping with the overall strategy to decentralise delivery systems, the

Department proposes to hand over

**Table 2.2 : Irrigation : Additional Potential During the Eleventh Plan**

(lakh ha.)

Schemes	Creation of Additional Irrigation Potential	Restoration of Lost Irrigation Potential
On-going schemes	3.19	-
ERM schemes	-	1.87
New schemes	8.80	-
Total	11.99	1.87
<b>Grand Total</b>	<b>13.86 L Ha.</b>	

operation, maintenance and upkeep of all the conveyance systems to WUAs by the end of Plan period.

Attention will be given to environmental sustainability through mitigation of land degradation owing to salinity resulting from a rising water table especially in North Bihar. The Government is taking measures to decrease water logging, and to promote rain-fed agriculture, for which the command area development program may be utilized. However, environmental clearances and interstate matters remain a major impediment in the timely execution of irrigation projects.

Recurring floods damage agricultural production as much as it plays havoc to various infrastructure. An innovative disaster management system which deals with flood management needs to be put in place. This requires concerted

action both at national and international level. At international level, we need to impress upon the Central Government to initiate a dialogue with Nepal for reforestation in the upper catchment area as well as creating irrigation structures upstream both for harnessing benefits of irrigation as well as enormous hydroelectric potential. In addition to this, a strategy needs to be evolved which can anticipate and contain the enormous damage due to periodic floods both to crops as well as the vital infrastructure. This requires an integrated plan to be prepared in close partnership with the Government of India.

### 2.3.3 Interlinking of Rivers

The scheme of interlinking of rivers has been identified as an important initiative for ameliorating the endemic problems of floods in North Bihar and recurrent droughts in South Bihar. An expert Committee formed by the State

**Table 2.3 : Progress on Transfer of Maintenance to WUAs**

Number of systems transferred to WUA	32
Number of farmers societies registered.	07
Number of societies who have applied for registration	38
Number of societies whose applications are being formalised	15
Number of societies in the process of being formed	518
<b>Total</b>	<b>610</b>

Government has recommended that rather than inter-state linking of rivers, it is important for the State to formulate and implement schemes of intra-state linking of rivers. The Committee has held that the objective of interlinking of rivers should not be limited to transferring water from water surplus to water scarce basins but should also address the entire gamut of issues related to water management. The scheme of interlinking of rivers, while addressing the problems of floods and droughts in different basins, should also provide for augmenting the ever depleting lean season flow of the river Ganges, especially in the part flowing through Bihar. A general consensus has emerged among experts, public representatives and other interest groups in the State on the requirement of intra-state linking of rivers.

In light of the recommendations of the Expert Committee, 4 schemes have been identified in the Flood Sector and 9 schemes in the Irrigation Sector by the State Government and more are in the process of identification. The State Government plans to get the Feasibility Studies for the identified schemes of intra-state linking of rivers completed in the first half of the Eleventh Plan period and after prioritization, commence implementation of the schemes as an important component

of the Eleventh Plan. It is anticipated that these schemes would spill over into the 12th Plan. Support of the Central Government would be solicited and expected for the implementation of these schemes.

#### **2.3.4 Minor Irrigation**

Minor irrigation includes all irrigation schemes, surface and groundwater, covering a cultivable command area up to 2,000 hectares, and include minor surface water-flow irrigation schemes, surface water-lift irrigation schemes, and groundwater utilisation schemes through open wells, shallow tube wells and deep tube wells.

##### **2.3.4.1 Strategy for the Eleventh Plan**

To meet the irrigation needs of the state, the strategy during the Eleventh Plan will be the speedy development of potential, improving the utilisation of developed potential, expanding irrigation benefits to unirrigated land, increasing the supply of private electric-based tube wells, increasing subsidies for tube wells and pumps; and increasing sustainability by strengthening water users associations.

##### **2.3.4.2 Surface Irrigation: Creating and Restoring Irrigation Potential**

About 1,65,000 hectares of additional potential will be created and



4,00,000 hectares of lost potential restored through surface irrigation schemes mainly through restoration and renovation of Ahars and Pynes (Traditional water bodies).

V The State Government will add minor irrigation potential of 80,000 hectares by completing surface schemes under RIDF Phase XII, through the repair, renovation and restoration of water bodies under the Bharat Nirman Programme for the first two year of the Eleventh Plan. The same rate of creation of additional minor irrigation potential will be maintained for the last three years of the Plan by creating additional 85,000 hectares of potential under these schemes.

V The State Government will also undertake the repair, renovation and restoration of traditional water bodies like Ahars and Pynes. Under the RSVY, about 8,000 Ahars and Pynes will be repaired and renovated, which will restore about 4,00,000 hectares of lost potential. Other schemes under RIDF will include wier, sluice gate and check dams on small streams and rivers.

### 2.3.5 Groundwater Resources

The ultimate potential of annually replenishable ground water resources reserved for irrigation is 48.57 lakh hectares. Potential of about 30 lakh hectares will be created by 2006-07. This leaves about 18.57

lakh hectares of unexploited irrigation potential from ground water to be developed during the Eleventh Plan. There is no immediate threat of over-exploitation of ground water resources as ground water depletion is on average 50 to 55 percent of the annual replenishable resources.

About 14.4 lakh hectares of additional irrigation potential can be created by exploiting the ground water resources through various schemes: extending the private shallow tube well programme under the RSVY; schemes to build 3,000 medium-duty deep tube wells under the NABARD's RIDF Phase-XI and 6000 medium-duty-deep tubewells under RIDF subsequent phases. About 2.10 lakh hectare of lost potential of state tubewells will be restored by renovation of 4500 old state tubewells which have completed their useful life for which a scheme will be posed to NABARD under RIDF phase XII.

The life of ground water irrigation structures like tube wells and pump sets is approximately 20 years, so on average 5 percent of ground water structures go out of service every year. To maintain the level of created potential, about 25,000 shallow private tubewells and 1,000 state deep tubewells need to be replaced every year beyond the Tenth Plan period.

#### 2.3.5.1 Groundwater Recharging

Table 2.4 : Minor Irrigation Potential Created and Utilised

<b>Minor Irrigation Potential in Bihar</b>	<b>Area (lakh hectares)</b>
Surface schemes including traditional ahar and pynes	15.44
Groundwater utilisation schemes of open wells, shallow tube wells, deep tube wells	48.57
<b>Total</b>	<b>64.01</b>
<b>Minor Irrigation Potential Created</b>	
Groundwater schemes	28.99
Surface water schemes	7.27
<b>Total</b>	<b>36.26</b>
<b>Irrigation Potential Utilised in 2005-06</b>	
Surface water including lift and barge schemes	0.49
Surface water ahar, pynes and traditional systems	3.32
State Tubewells	0.25
Private tubewells and irrigation wells	27.64
<b>Total</b>	<b>31.70</b>

Groundwater recharge is required in the drought-prone south Bihar districts. Given the current exploitation levels, direct groundwater recharge is not required, and the government encourages indirect recharge through the percolation of water stored in ponds, ahars, chauras and other water bodies. In some stressed areas, direct ground water recharge will be resorted to. The State Government is formulating the Bihar State Ground Water (Regulation &

Control for Management) Act, which will help in notifying areas where ground water exploitation has become critical.

### 2.3.6 Subsidies for Tubewells

The State Government does not give free or subsidised power for tube wells, and in fact, tubewells function sub-optimally due to non-availability of adequate electric power. Subsidies for private shallow tubewell schemes for general, small, marginal and SC/ST farmers for private

shallow tubewell schemes need to be increased from the present 30 percent, 40 percent and 50 percent to 70-80 percent as the farmers are not in a position to take the burden of about Rs. 20000 to Rs. 30000 as per the present subsidy level. The average depth of shallow tubewells in the state is 45 M. At current allowed rates, the average cost of installation of one unit of shallow tubewell with pumpset comes to about Rs 40,000. The subsidy at the present rate of 30 to 50 percent will be Rs 12,000 to Rs 20,000 and the farmer will have to bear burden of Rs 20,000 to Rs 30,000 by way of bank loan and his own contribution. The farmers, specially of weaker SC/ST, small & marginal section are not in a position to take this burden. Hence the scheme is unattractive for weaker categories of farmers who will be the main beneficiaries of this schemes in future as big and middle farmers are expected to have already taken benefit of the schemes. In this context, to make the scheme attractive for weaker categories of farmers, the subsidy needs to be increased to 70-80% level as allowed in earlier such programmes before Million Shallow Tubewell Programme (MSTP). For boosting the agricultural production and productivity of the state, the scheme of private tubewells has to be continued in the Eleventh Plan period and a liberal view is to be taken for increasing the subsidy for

achieving the proposed agricultural growth.

### **2.3.7 Involvement of Local Bodies**

All new schemes will be executed in a participatory format, after the formation of Water Users Associations (WUAs), which are allowed to collect irrigation revenue at state government rates. WUAs will deposit 10 percent of the revenue accrued in the government revenue account, and use 90 percent of the collected revenue to meet operation and maintenance costs. These WUAs will be supported by Panchayat Raj Institutions at village, block and district level. The State Government proposes to hand over operation, maintenance and upkeep of all the conveyance systems to WUAs by the end of the Eleventh Plan period through Panchayats.

### **2.3.8 Enhancing Efficiency of Water Use:**

The Command Area Development Programme will implement the following schemes during the Eleventh Plan to increase efficient water use:

**V Construction of field channels:** Properly planned, aligned and designed field channels are to be constructed from the

canal outlet to connect every field through channels.

**v Construction of field, intermediate and link drains :** For draining excess water from the field.

**v Enforcement of Warabandi** (deciding the day and time of delivery of water). Area-wise warabandi schedules will be drawn up and implemented.

**v Correction of system deficiencies :** The capacity of the canals up to 150 cusec discharge are to be restored by re-sectioning and de-silting which will increase irrigation efficiency.

**v Training :** Training programme for farmers and CAD personnel will be conducted through the ICAR, Patna, WALMI, Patna and other organisations through continuing education programmes to impart the latest knowledge on land and water management.

### Operational and Financial Goals for Irrigation

Scheme	No.	Operational (lakh ha.)	Financial (Rs Crore)
Execution of new surface & lift minor irrigation schemes under NABAD RIDF	2250	1.650	310.00
Renovation and restoration of ahar and pyne	8000	4.000	1200
Execution of state electric-based tubewells	6000	2.4	390
Restoration of old state tubewells and lift irrigation schemes	4500	2.1	270
Execution of private shallow tubewells including replacement of old tubewells	600000	12.0	1500
Plan establishment			
<b>Total</b>		<b>22.15</b>	<b>3670</b>

## IRRIGATION: ACTION POINTS

- | Create irrigation potential in 22.15 lakh hectares
- | Restore *ahars* and *pynes*
- | Restore state tubewell and lift irrigation schemes
- | Incentivise execution of private shallow tubewell schemes, including replacement of old tube wells
- | Monitor project outcomes rather than outlays
- | Propagate rain-fed agriculture, giving priority to rain water harvesting; and groundwater recharge
- | Capacity building for WUAs (Water Users Associations)-essential social factors to be looked into

## 2.4 Industry

Industrial growth in the state was abysmally low during the Tenth Plan at only 0.38 percent against the national average of 7.8 percent, mainly because of the lack of any quality infrastructure, finance and credit facilities, poor availability of power, and the absence of entrepreneurship. With the bifurcation of the state, most of its industries and related infrastructure were transferred to Jharkhand.

The national goal during the Eleventh Plan is to raise the growth rate of the industrial sector to 10 percent and manufacturing to 12 per cent. If Bihar is to contribute to achieving these growth rates, it has to aim at a far higher growth in industry: the objective should be to raise its industrial growth rate to at least 15 percent.

If appropriately developed, expansion of Bihar's industrial sector can help stem the high current rate of out-migration of skilled and unskilled labour by creating local employment opportunities. It could also provide a much-needed boost to the rural economy through backward linkages, as well as help generate additional resources which can be ploughed into poverty alleviation programmes.

### 2.4.1 Vision

The Eleventh Plan goals will require intensive efforts to promote industrial growth in areas in which the state has a comparative advantage, such as agro-processing, leather, drugs and pharmaceuticals, textiles etc. At the same time, the marketing and design interventions for handlooms and handicrafts have to be strengthened. Together, these will promote industrial growth that is balanced and integrated, and will create employment opportunities and generate much-needed public resources that can be invested in augmenting social infrastructure.

### 2.4.2 Policy on Public Sector Units

Public Sector Enterprises in Bihar have not performed well and have been consistently making loss. As per the decision taken in the year 2003, except for the Bihar State Financial Corporation and Bihar State Credit & Investment Corporation, the rest of the 10 PSUs under the Industry Department were asked to file liquidation application.

Out of these, the Government has decided to revive only the Bihar State Electronics Development Corporation and the Bihar State Film Development & Finance Corporation.

In the case of Bihar State Financial Corporation and Bihar State Credit & Investment Corporation, the Government has decided to revitalize these two institutions so as to restart financing to small and medium industries. In the first phase, Government has already extended financial support to Bihar State Financial Corporation to repay the loan dues to SIDBI and IDBI. In order to strengthen these two organizations for starting financing to industrial units, Government is considering extension of financial assistance. Also, under the New Industrial Policy, 2006, a separate 'Corpus' will be created for extending loans for equity participation by sick and closed units, under approved revival package for obtaining working capital from financial institutions. The above two financial institutions would be participating in the creation of a Corpus Fund.

In the Micro, Small and Medium Enterprises Development Act 2006, the District Industry Centres are being notified as the Authority for filing memorandum by the medium enterprises. For micro and small enterprises also, the District Industry Centres will be notified as the competent authority.

A New Purchase Preference Policy is

being finalised so as to give a boost to domestic production.

Under the Growth Pole Scheme for unorganized sector and also for the development for the backward regions of the State, Cluster Development Programme is being designed and the project report is under preparation. In the first phase, the Growth Pole Scheme will be implemented in the Kishanganj district in Bihar. Plans are on the anvil to take up more clusters during the Eleventh plan period.

### **2.4.3 Strengths**

Bihar has many untapped advantages that could lay the base for a thriving industrial sector. Its large work force comprises a large pool of scientists and engineers and its vast market should enable it to become a major manufacturing centre. It has a strong agricultural base, which has potential for value addition in agro- processing industries, and its large number of traditional centers and skilled weavers hold excellent potential for employment potential in the handloom and sericulture sectors.

### **2.4.4 Major impediments to investment**

Investment has been reluctant to enter the industrial sector in Bihar in the

past years. Only 0.4 per cent (Rs 7,682 crore) of proposed investments in India is planned in Bihar (according to recent IEM Data).

v Poor social and industrial infrastructure has been a major constraint to the growth and employment-generation capacity of manufacturing. The state has poor roads, communication facilities and power supply, and no dry port facilities or air cargo complexes. The lack of a functional road network has led to high transportation costs which have severely eroded the competitiveness of the units in the state. Teledensity is relatively low in Bihar at 2.09 per 100 persons against the national average of 7 per 100 persons. State-level power reforms need to be supported by a regulatory framework to improve access to quality power.

v The reluctance of private investors to invest in Bihar is also based on the general perception of lack of governance and a lethargic and non-transparent administrative machinery. This has been compounded by the absence of long-term policies, non-implementation or even reversal of policies and inflexibility in labour laws.

#### 2.4.5 Eleventh Plan Objectives and Strategy

The overall objectives during the

Eleventh Plan will be to provide a well-structured, transparent and enabling environment for industrial growth by simplifying rules and regulations and procedures, providing industrial infrastructure (such as land banks, and industrial estates) and improving the skills of industrial manpower. To simplify and hasten clearance procedures for setting up industries, the state government will simplify labour laws, set up a land bank to meet the requirement of land, create basic facilities at par with international benchmarks and encourage PPPs. Key to the industrial development strategy will be the development of infrastructure. The public sector's role in raising industrial growth will be primarily facilitative, for which public sector outlay will increase substantially.

The policy ingredients will include

v **An enabling political environment and a clear mandated incentive policy** with simplified procedures would act as catalysts for industrialisation. The government has taken several steps to begin the process of attracting private investment into industry. It announced a new Industrial Policy 2006 and enacted the Single Window Clearance



Act 2006 and the Bihar Infrastructure Development Enabling Act 2006 for this. The single window clearance system for establishment of industrial units will ensure that delays in land registration, water and utility connections, environmental and other clearances are minimised.

**v Availability of land** at important growth centers is vital. A land policy which clearly spells out the accompanying relief and rehabilitation measures while acquiring land would have a positive impact on the government's developmental initiatives.

**v Industrial parks** are an essential requirement for industrialization in the state, as they provide integrated infrastructural solutions. The state has 44 industrial areas and estates, an export promotion industrial park and an agri-export zone. Five mega-growth centers have been sanctioned at Bhagalpur, Begusarai, Chapra, Muzaffarpur and Darbhanga, and two mega-industrial parks are planned at Bihta and Hazipur, for which the land acquisition process has started. The government also plans to set up special economic zones in Bihar.

**v Technical education and ITI courses** need to be revamped to meet the needs of industry and changing technology. The state plans to set up technical educational institutes and upgrade the

existing ones, and has recently announced a policy for establishing higher technical institutions in the private sector. These will include setting up technical institutions, upgrading ITIs through tool rooms, mini-tool rooms and setting up national-level institutes such as Plastic Engineering and Technology, National Institute of Pharmaceutical Education and Research, National Institute of Fashion Technology. The private sector has an important role to play in meeting the needs for more trained manpower in different skills and trades, keeping pace with the changing needs of the economy.

### 2.4.6 Village and small enterprises

Promotion of village and small enterprises and the activities of khadi societies would help generate more direct and indirect employment. This is one sector that impinges on the lives of the weaker and unorganised sections of the society with a large segment of the employees being women, minorities and the socially marginalised. Special efforts will be made to market products from these enterprises, with an emphasis on promoting their self-sustainability and on ensuring that the benefits of government schemes targeting this segment accrue even to those that are not registered.

### Growth Oriented Policy Initiatives in 2006

- | Bihar Single Window Clearance Act, 2006.
- | Bihar Infrastructure Development Enabling Act, 2006.
- | New Industrial Policy.
- | New Policy for Sugar, Tea Processing, Sugar Industry & Entertainment.
- | Policy for establishing higher Technical Institution in private sector.
- | Simplification fo VAT Regime, 2006.

### Milestones

- | National Institute of Pharmaceutical & Training at Hajipur already sanctioned.
- | Branch of National Institute of Fashion Technology on the anvil.
- | Steps initiated for revival of RBHM Jute Mill, Katihar and IDPL unit at Muzaffarpur.
- | State Investment Promotion Board approved 66 proposals with investment of approx. Rs 206,000 crore.
- | Out of the approved projects, 4 Mega Projects for production of Ethanol from Maize.
- | 10 Mega Projects for production of Ethanol from sugarcane juice.
- | 19 new sugar mills with total capacity of more than 100,000 ton crushing/day and approx. 1200 KLD of Ethanol.
- | Co-generation of power availability likely to be around 1,7000 MW by 2009.
- | Harnessing of solar energy for irrigation in sugarcane cultivation.

### INDUSTRY: ACTION POINTS

#### Short Term

- | Provide a well-structured, transparent and enabling environment for industrial growth
- | Simplify rules and regulations and procedures for setting up industrial units
- | Create a land bank
- | Encourage and provide incentives for upgradation of skills

#### Medium Term

- | Strengthen existing infrastructure related to industry
- | Establish technical institutions for training
- | Create supportive marketing infrastructure
- | Set up new training institutes and upgrade existing ones to meet the technological and skill needs of industry

## 2.5 The Sugarcane Industry

The sugar industry is the largest agro-based industry in Bihar. It generates considerable employment in the farm sector directly as well as through ancillary industries and related activities. An estimated 5 lakh farmers and their dependants are engaged in the cultivation of sugarcane and approximately another half a lakh unskilled and skilled people, including highly qualified and trained technologists, work in the sugar industry in the state (Table 2.5).

The status of sugar cultivation in the state shows that there is considerable potential for increasing the area under cultivation and productivity. Only 2.3 lakh hectares (around 4.5 per cent) of the total of 54 lakh hectares of cultivable land in the state is under sugarcane cultivation. The

productivity of sugar cultivation in Bihar at 56.6 MT per hectare is below the national average of 70 MT per hectare.

The industry also needs rejuvenation and new investment if it is to play a dynamic role in the future. Several sugar mills under the state-run Bihar Sugar Corporation had to be closed, as they had not modernized their plant and equipment or retrained their personnel. Those sugar mills that continue to function have a capacity that is far lower than the national average. Bihar has the lowest sugar recovery rate in the country at 9 percent against the national average 10.36 percent.

### 2.5.1 Vision

Given the favourable agro-climatic conditions for cultivating sugar in the state, and its potential for boosting farm incomes,

**Table 2.5 : The Sugar Industry in Bihar (2005-06)**

Land under cultivation	54.82 lakh hec.
Total area under sugarcane	2.30 lakh hec.
Total sugarcane production	129.95 MMT
Productivity of sugarcane	56.50 MT/hec.
Cane crushed	43.161akh MT
Sugar produced	4.22 lakh MT
Recovery percentage	9.45 %
Crushing duration	122 days

as well as non-farm incomes through its links with agro-processing, the objectives during the Eleventh Plan will be to enhance sugarcane output by increasing productivity as well as area under cultivation, and to provide incentives to boost the sugar industry. This will be in keeping with the stated vision of the Eleventh Plan which is inclusive growth coupled with sustained employment generation.

### 2.5.2 Strategy During the Eleventh Plan

**v Expanding Area under Sugar Cultivation:** Increased output and productivity will increase incomes for the 5 lakh farmers engaged in its cultivation as well as give a much needed boost to the sugar industry in the state. A longer-term goal is to gradually double the area under sugarcane cultivation to 4.6 lakh hectares. This will enable a coherent integration of sugarcane producers and sugar mills leading to higher revenue for farmers.

**v Research:** Increasing productivity of the crop will call for dedicated research into appropriate crop varieties, and development of new varieties for different climatic and soil conditions. Some of this is being done at the Sugarcane Research

Institute, Pusa. The state government has also begun the process of strengthening research on ways to increase sugarcane productivity and improve the quality and quantity of yield from sugar mills in collaboration with Rajendra Agriculture University, Pusa.

**v Incentives to Industry :** To expand the capacity of the sugar industry, the state government has announced an incentive scheme to encourage the establishment of new sugar industries and distilleries in a time-bound manner. The scheme is based on the requirements of the industry taken as a whole and incorporates incentives such as rebates for co-generation of power, incentives for the manufacture of ethanol from molasses, and waivers on administrative charges on molasses consumption by distilleries, as well as streamlining the procedure for getting allotments and permits for the sale of alcohol in Bihar.

Several investors from across the country have since expressed their interest in setting up greenfield and brownfield projects in the state. Five detailed project reports (DPRs) for setting up sugar complexes, including ethanol and co-generation units have been received, two

with an initial capacity each of 5,000 tons crushed daily (TCD) (to be expanded to 10,000 TCD) at an investment of around Rs 500 crore, are at the approval stages. Of the nine private sector sugar mills in the state, seven are currently expanding their production capacity from 36,500 TCD to around 53,000 TCD. The introduction of

the Greenfield Projects will raise production capacity to 63,000 TCD, an increment of 26,500 TCD, which is around 72 percent of existing capacity. This increase in crushing capacity has to have backward linkages with sugar cultivation as the spurt in demand for sugarcane should enhance the area under sugar coverage.

### Sugarcane Policy

- | Promote private investment in new sugar mills and in expanding capacity in existing sugar units.
- | Encourage the manufacturing of ethanol from molasses.
- | Waive administrative charges on molasses consumption.
- | Encourage Co-generation of power and bagasse-based paper.
- | For improving the condition of the Research Institute, the Bihar Government is going to provide the budgetary support.
- | Amended incentive policy to promote private investment for new Sugar Mills, Sugarcane Based Distilleries and Co-generation units
- | Exemption of Administrative Charges on Molasses and reimbursement of VAT.
- | Exemption of electricity duty on Co-generated Power.
- | Capital Subsidy on plant and machinery for establishment of Sugar Industry, Distilleries and Co-generation.
- | Stamp duty and Registration fees exempted for purchase of land for establishment of new green field projects and for expansion of existing units.

**SUGARCANE INDUSTRY: ACTION POINTS**

- | Increase sugarcane inputs by
  - b Increasing the area under sugarcane cultivation progressively from 2.3 lacs to 15.0 lacs hectares
  - b Increasing the production of sugarcane from 13.00 MMT to 46.72 MMT by 2015
  - b Promoting research and development of new varieties of sugarcane through the Sugarcane Research Institute at Pusa
- | Promote private investment in new sugar mills and in expanding capacity in existing sugar units
- | Encourage the manufacture of ethanol from molasses
- | Waive administrative charges on molasses consumption
- | Encourage cogeneration of power and bagasse-based paper

## Infrastructure

### 3.1 Roads and Bridges

The state government proposes to upgrade road infrastructure to the best national standards in the forthcoming plan period. In the face of the present objectives laid down by the Government, any previous targets for achievement pale into insignificance. The task is gigantic and its success requires consummate planning, effective strategies and logistic excellence.

#### 3.1.1 Expanding and Upgrading the Road Network: Initiatives

The poor road network in the state has been a major deterrent to private interest in investment, but in recent months this constraint is slowly being tackled: the State Government is pushing for completion of the Golden Quadrilateral Project within the state, CPMF personnel have been provided to ensure progress in road building under the National Highways project, new funds have been sanctioned

under the state budget for accelerated road construction; the process for procurement and tenders has been improved and upgraded, and the Chief Minister's programme for the construction of small bridges and rural roads is being expedited.

#### 3.1.2 National Highways

Upgrading the road network in the state will involve four-laning of all the major routes in the state. Four-laning of NH 2 (the Golden Quadrilateral of 205.7 km) is nearing completion, the East-West Corridor is in progress (513.3 km) and roads under NHDP-III will be taken up (890 km). Other major corridors that need to be four-laned are the Bakhtiyarpur-Biharsharif-Rajgir-Bodh Gaya and Patna-Gaya-Dobhi routes which will be executed under the Buddhist Circuit Development Programme.

In addition, three proposals (Biharsharif-Nawada-Rajauli, Munger-Bhagalpur, and Aurangabad-Mahabalipur-

Bihta) will be developed either on a BOT basis or, if unviable, through an EPC basis as toll roads. The total length of these routes is 242 km and the likely cost is Rs 1,452 crore. If developed through BOST, the Planning Commission will provide 20 percent of the funds as grant and 20 percent as loan. The state government may need to bear a maximum of 10 percent of the cost.

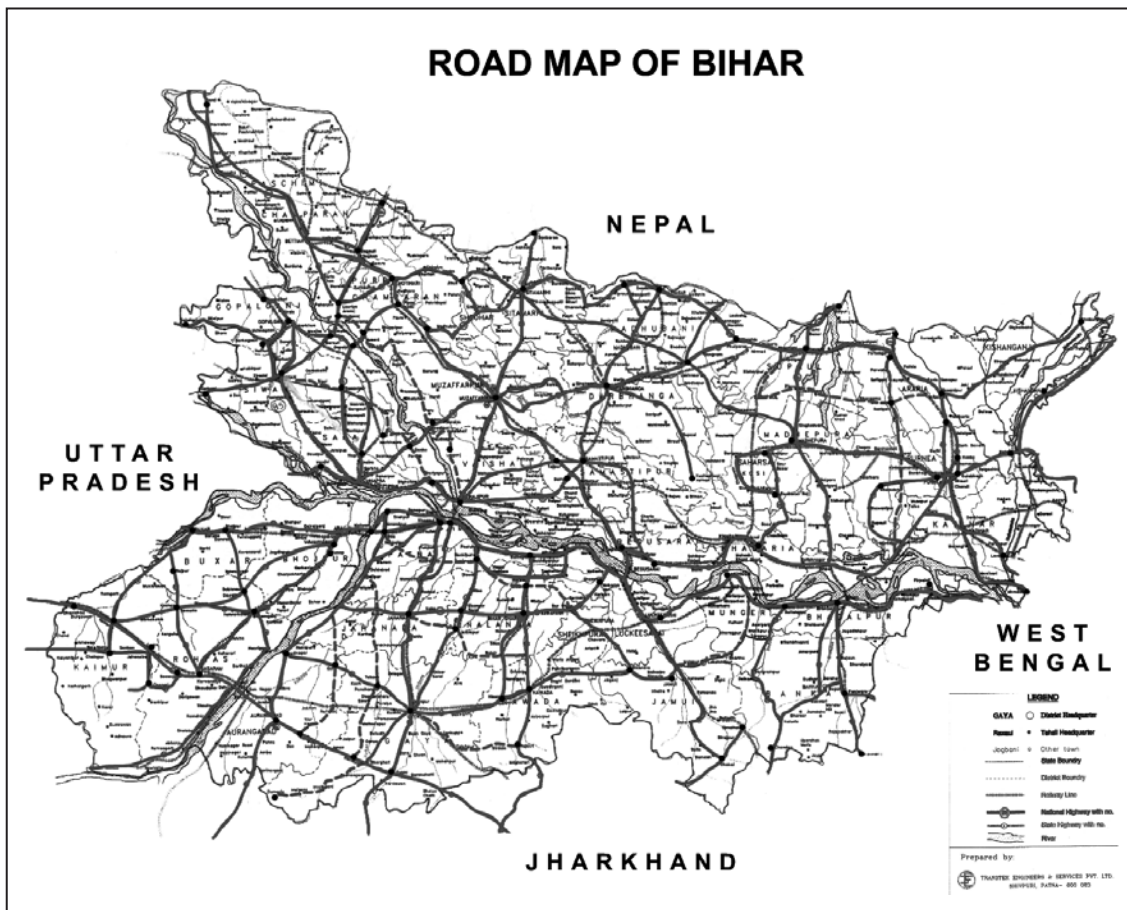
The newly declared National Highways need urgently to be upgraded. A project for upgrading 1,782 km of these highways will be presented to the ADB and the World Bank for funding (see Annexure 3A).

### 3.1.3 State Highways (3,232 km)

The state government shall upgrade all State Highways to at least two lanes.

#### V Old State Highways

All old State Highways (2,178 Kms) are being upgraded under the Rashtriya Sam Vikas Yojana (RSVY). The Planning Commission has agreed to increase the initial outlay of Rs 2,400 crore for a length of 2,045 kms to Rs 3,000 crore to cover the entire 2,178 km of the old State Highways. DPRs have been prepared by CPWD and





IRCON at an estimated cost of Rs 1.7- 1.8 crore per km for two-laning, and the work is expected to be completed by 2008-09.

## v Newly Declared State Highways

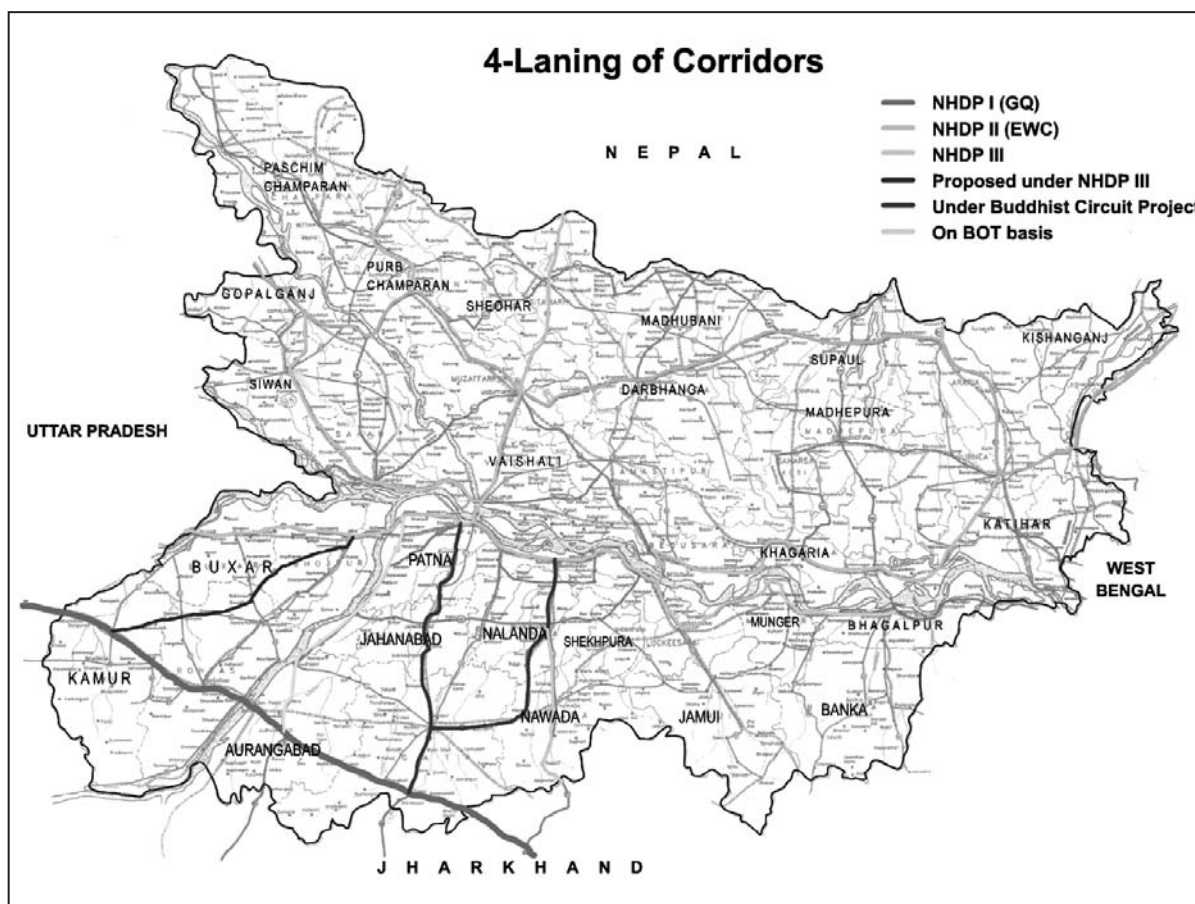
The lengths of National Highways and State Highways within the state are 3,629 kms and 2,178 kms, respectively. To partly rectify this imbalance, an additional 1,054 kms of road connecting two or more districts have recently been declared State Highways. These roads too are to be upgraded to two lanes at a cost of about Rs. 1,800 crore. The project will be implemented with funding from NABARD.

The state's 20 percent share amounting to Rs 360 crore will be given at the rate of Rs. 180 crore per year over the two-year period, 2007-09. The NABARD loan will cover the three-year period at the rate of Rs. 480 crore per year.

A preliminary financing proposal has been submitted to NABARD and work is likely to start by January 2007.

## v More State Highways

Despite declaration of new State Highways, the length of NHs and SHs within the state now stands at 3,629 kms and 3,232 kms (2178 kms + 1054 kms),



respectively, with NH length exceeding the length of SHs by nearly 400 kms. Identifying an additional 500 kms or more of priority roads for upgradation to State Highway standard will rectify this imbalance. There are several roads connecting district headquarters which meet this criterion for upgradation. The state's share of 20 per cent amounting to Rs.170 crore will be made available at the rate of Rs 85 crore per year over 2009-11; the NABARD loan may be obtained over two years at the rate of Rs.340 crore per year starting 2009-10 (see Annexure 3B).

### 3.1.4 Major District Roads (MDRs)

The state government will upgrade all 7,714 kms of Major District Roads to intermediate-lane standards during the Eleventh Plan period. Funding will be from the State Plan, NABARD (RIDF) and the Central Road Fund (CRF). Other sources of funds include centrally sponsored schemes comprising the Central Road Fund (CRF), Roads of Economic Importance, Inter-State Connectivity, and Border Area Development Project (BADP) along with grants-in-aid from the Twelfth Finance Commission (see Annexure-3C).

### Strategies to Achieve Targets

**v Constitution of a flexible autonomous body for Project Development/Management :** The State

Government proposes to set up a flexible autonomous body for project development and project execution / management. This body will have comprehensive delegated powers and regulations which will facilitate quick decision making. It will have the power to hire consultants/experts for preparing DPRs for construction as well as project monitoring. This will lead to efficiency in the preparation of projects as well as project management. This will also be an appropriate body for managing PPP Projects.

**v Maintenance policy:** The Government is framing a comprehensive policy for proper maintenance of all roads in the state. The current practice of cyclic phased maintenance over a period of 4 years will be replaced by maintenance that covers the entire road in one go. Upgraded roads will be maintained by implementing agencies for a period of three years. The draft policy is evaluating the inclusion of collecting toll on stretches where toll revenue will be ploughed back for maintenance

**v Online monitoring :** An online monitoring system is being designed with the assistance of the state centre of the National Informatics Centre which will allow real-time monitoring of all projects. Computerisation for implementing the monitoring system is in progress.

v **Quality control laboratories :** The quality control laboratories at the headquarter level as well as mobile quality assurance units will be upgraded both qualitatively and capacity-wise to meet the QA needs of the projects under execution.

v **Special projects cell :** A special cell has been set up to expedite the process of appraisal and approval of DPRs for PPP projects.

v **Road Cess and Non-lapsable Fund:** Considering the scale of investments required in infrastructure, leveraging private and institutional investment is essential. The State Government is considering a small road cess. The receipt from the cess as well as allocations received under plan / non-plan, are proposed to be consolidated into a non-lapsable Road Fund which will be leveraged for institutional funding in order to finance the ambitious road upgradation programme taken up by the State Govt.

v **Dispute resolution:** The current system of arbitration is saddled with procedural delays and are subject to manipulation by vested interests. Since the Department is going in for large-scale projects and the works are to be executed by

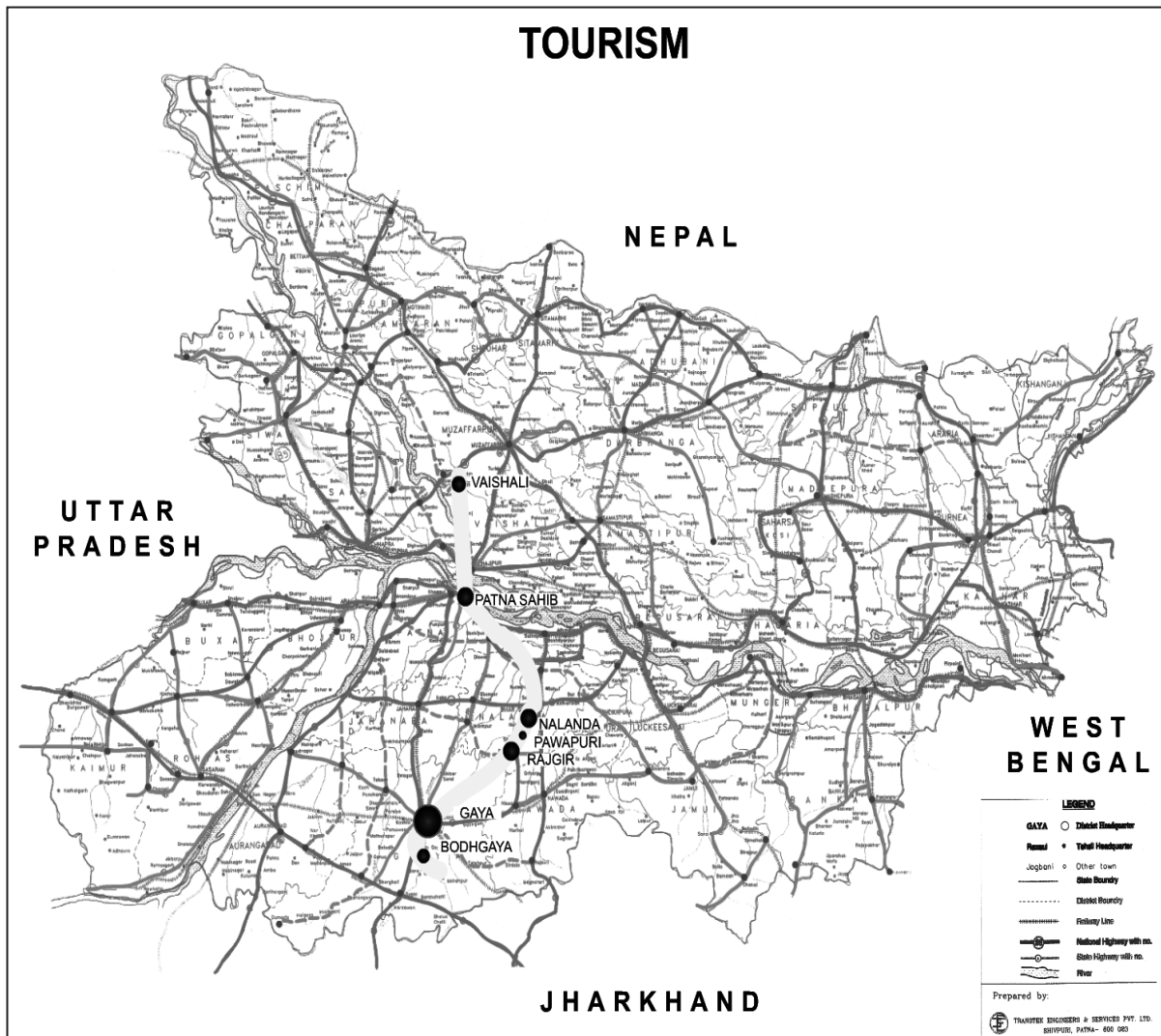
national-level agencies, addressing dispute resolutions through a Central Tribunal is necessary.

v **Preserving Right of Way :** The tendency to encroach on the highways or to make construction along the right of way or to access the Highway at any point needs to be checked. The State Government is drawing up regulation under an enabling Act for this purpose. The regulation will empower Highway authorities to take immediate action to stop temporary / permanent encroachments, and regulate construction along and access to the right of way.

v **Highway Amenities :** It is proposed that all State Highways have Public Conveniences and telephone kiosks at every 25 kms.

### 3.1.5 Tourism

Improvement of modern infrastructure and clean and functional accommodation in tourist places are proposed for development of tourism. The road connectivity to Buddhist and Jain Circuits is very fragile and needs to be upgraded to international standards. The facilities at the International Airport at



Bodhgaya have to be improved and the existing length of the runway has to be increased from 7500 ft. to 9000 ft. for enabling bigger aircrafts to land. Greenfield Airport will need to be sanctioned at Patna and Rajgir.

An International University as a Centre of Excellence has been planned as a regional initiative with the help of major Buddhist countries of Far-East and South-East Asia. A Bill entitled the Nalanda

University Bill, 2006 is in an advanced stage and will be enacted shortly. Land acquisition for the University is in process. This process will be implemented and managed in partnership with several countries to ensure educational excellence both for high research quality to attract students and sustaining excellence in both students and faculty. A Group entitled Vision Nalanda has also been constituted to monitor its progress.

**ROADS AND BRIDGES: ACTION POINTS**

- | Developing a road network equal to the best in the country
- | Upgrading 1,600 km of National Highways (out of total of 3,629 km.) to four lanes, two-laning all State Highways and upgrading all Major District Roads to intermediate lane
- | Providing all-weather connectivity to all unconnected villages with a population of over 500 within five years
- | Implementing the new road maintenance policy
  - b Introducing tolls on some stretches and use revenue for maintenance
  - b Replacing cyclic phased maintenance with covering road stretch in one go
- | Setting up a non-lapsable road fund
- | Setting up a central tribunal for dispute resolution
- | Setting up a specialised cell to expedite the process of appraisal and approval of DPRs for projects
- | Upgrading quality control labs at the headquarters and in the division
- | Monitoring all projects in real time
- | Exploring options for levying a road cess

**Anticipated Expenditure in the next 3 years**

	4 - laning of National Highways (NHAI)	–	Rs 11400 crore
	State Highways	–	Rs 4000 crore
	Major District Roads	–	Rs 2500 crore
	<b>Total</b>	<b>–</b>	<b>Rs 17900 crore</b>

### 3.2. Energy

Rapid augmentation of generation capacity is an overwhelming priority for the state government and a crucial prerequisite to achieving its socio-economic growth targets during the Eleventh Plan. There is severe power shortage in the state, even in a constrained demand scenario where the electricity system covers barely 50 percent of the villages and 6 percent of households. Against this demand, peak availability is about 950 MW, causing a peak shortfall of 550 MW, which results in widespread shortage in supply to all categories of consumers.

Bihar has only 584 MW of installed capacity, of which 540 MW is thermal and the remaining 44 MW is hydel. However,

generation from the thermal power stations is negligible, and most of the power requirement is met by purchases from the Central generating plants: NTPC, Chukha Hydel (PTC) and Rangit Hydel (NHPC).

The annual per capita consumption in Bihar is also abysmally low, which is 76 units, as against a national average of 612 units in 2005 (Table 3.1). The National Electricity Policy aims to increase the average annual per capita consumption to 1,000 units by 2012. The growth is predicated on increasing generation to remove peak electricity shortfalls, as well as implementation of the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), which aims to electrify all villages by 2009 under Central Government grants amounting to 90 to 100 percent.

**Table 3.1 : Average Generation and Consumption of Power-Bihar & India**

	India	Bihar
Villages electrified (%)	84	41*
Household electrification (%)	55.8	10.3
Per capita consumption (units)	612	76
Installed capacity (MW)	1,18,619	584
Actual generation (MW)	71,000-75,000 (approx)	30

Note: \* 20,200 out of 45,103 villages

The financial and operational performance of the Bihar State Electricity Board (BSEB) has declined steadily over the past few years as it has experienced aggregate technical and commercial losses of over 70 per cent. Out of an annual revenue of Rs 985 crore in year 2005, cash losses were estimated to be Rs 970 crore. In the annual ratings of state power utilities in 2006 by the Ministry of Power, Bihar ranked third from the bottom.

The BSEB purchases power worth Rs118 crore every month, but collects only Rs 75 crore as revenue. Added to this, its monthly establishment costs amount to Rs 51.71 crore, which brings the monthly deficit to Rs 107 crore per month. Apart from giving the BSEB Rs 34.37 crore per month as resource gap, the State Government has assumed its resource debts of the past two years, and is also servicing its loans from the Rural Electrification Corporation.

The annual subsidies supporting BSEB have now become unsustainable financially for the state government. The distribution and supply of power have to become commercially viable before the state can achieve its additional generation requirements. Reforms in distribution call

for radical changes in structure and governance, with emphasis on augmenting revenues and bringing operational efficiency.

### 3.2.1 Eleventh Plan Approach

The Electricity Act, 2003 and the National Electricity Policy provide an enabling framework at the national level. In order to realise the objectives of the Eleventh Plan, the state government is finalising a state-level power policy based on specific requirements at the state level. The state has also begun the process of unbundling state electricity services and improving the functioning of the SEBs to reduce its fiscal losses while improving its efficiency.

In the first phase, the registration of eight companies is likely to be completed by March 2007 and the remaining work of distribution of assets, liabilities, etc., shall be done in due course.

### 3.2.2 The Proposed State Power Policy

The policy will have the following key objectives:

- v To create an enabling environment for rapid addition to generation capacity in the state;

v To raise per capita consumption to 650 units by 2012 and above the national average by 2017;

v To ensure efficiency in the generation, transmission and distribution of power, which will involve the restructuring of the BSEB within the time frame of the Act, while fully protecting the terms and conditions of service of the BSEB employees;

v To provide cost-effective, reliable, quality power supply to all consumers connected to the grid, including domestic, commercial, industrial and agricultural;

v The State Government shall expand its Rural Electrification programme under the programme support of the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) which aims at achieving 100% electrification by the year 2009. All future household electrification and agriculture based connections will be done by 2012 on 100% metered basis, even if the load/sector is subsidised.

v Develop infrastructure for the generation of renewable energy in a competitive manner to help achieve the rural electrification target.

### 3.2.3 Generation

During the Eleventh Plan, peak demand for electricity is expected to surge as Bihar is a major beneficiary of the RGGVY scheme which will give new villages and households access to electricity. Industrial demand for power is also expected to pick up substantially in the wake of new incentives for investment provided by the Bihar Single Window Clearance Act, 2006, the Bihar Infrastructure Development Enabling Act, 2006 and the State Government's new Industrial Policy, 2006.

In this backdrop a target per capita consumption equal to the current national average (of about 650 units) by 2012 is realistic. This per capita consumption translates to a staggering 10,500 MW of power generation capacity for Bihar. Achieving minimal levels of self-sufficiency in generation capacity is necessary in the context of such significant growth targets. The role of the public sector is crucial in the transition phase, as the current environment is far from commercial and the poor operational performance of the distribution segment creates significant payment security related risks for private investors in generation.



The approach in the Draft Policy is, therefore, to involve as far as possible Central Public Sector Undertakings (like NTPC) in revamping existing generation assets, expanding existing assets through joint ventures and setting up dedicated units in projects already planned in the state by these PSUs. Since these PSUs have a continuing relationship with the State Government and are secured through the tripartite agreement signed between Reserve Bank of India, the Central Government and the Government of Bihar, they are likely to be relatively more comfortable in executing such projects.

The role of the private sector is important in creating a significant amount of new generation capacity required to meet targets. Private investors in generation are offered attractive investment opportunities in other States, including five ultra-mega power plants being competitively bid out by the Ministry of Power with planned capacity addition of 20,000 MW.

The State Government will create opportunities and incentives to attract investors to fund large generation projects in the State. Priority will be given to remove administrative hurdles in acquiring land

(with associated rehabilitation and resettlement problems) and obtaining initial consents which have tended to give rise to uncertainties in the development of projects. Investors and their project financiers also insist on sound payment security mechanisms and a creditworthy counter-party, to make projects financially.

The State Government considers the involvement of the private sector in the development of thermal power projects in the state, as an important aspect of the Power Policy. As an initial measure towards meeting this objective, the State Government has identified three sites at Nabinagar (2000 MW), Katihar (1000 MW) and Pirpainti (200 MW) where necessary groundwork is being completed by the State Government while inviting tariff-based competitive bids from private developers for development of the projects.

The State Government proposes to form three separate Shell companies for the three above mentioned mega power projects which, in turn, will develop the projects sites by providing necessary infrastructure. These Shell companies are likely to be formed by February 2007.

The State Investment Promotion

Board (SIPB), created under the Bihar Single Window Clearance Act, 2006, in consultation with representatives of BSEB (or its successors) shall periodically review the progress on obtaining the following clearances and consents while inviting final bids from the private developers.

- a. Land Acquisition by BSEB or its successor utility for each of these projects with State Government funding, to be subsequently reimbursed by the successful private developer. This shall include issue of Section 6 notification under the Land Acquisition Act.
- b. Obtain Environment and Forest Clearance from the Ministry of Environment and Forests.
- c. Ensuring Water Linkage for reasonable project requirements.
- d. Initiate the process of obtaining necessary coal blocks/linkages for the projects being tendered.
- e. Projects other than the three identified above, shall be cleared by the SIPB and will subsequently follow the same process as outlined under this policy.
- f. In keeping with the national policy,

where private players are prepared to invest without the above measures, they are free to do so.

To address these concerns, the power policy will include measures aimed at increasing private investment in generation:

v Commitment from the State Government to acquire land required for the project and to transfer it at cost to the project developer;

v Assistance to developers in obtaining all initial consents for the development of power projects through the State Investment Promotion Board (SIPB), created under the Bihar Single Window Clearance Act, 2006.

v Permission to sell up to 50 per cent of the power generated outside the state. Bihar's distribution segment is not perceived as creditworthy (according to Ministry of Power ratings), so having Bihar licencees as the sole off-takers of power increases the risk perception of the project. Besides, mega-power status for projects above 1,000 MW requires sale to more than one state and concessions due to such projects would lower the tariff from such projects, to the benefit of Bihar.

Apart from widening the participation of central PSUs and encouraging private participation in generation development, the Draft Policy seeks to encourage generation capacity through captive power plants and renewable energy-based generation, by providing specific benefits in addition to the incentives provided under the new Industrial Policy, 2006.

The State Government encourages Captive Power generation by industries using any of their waste, by-product or similar substances like bagasse-based co-generation in the Sugarcane industry, provided that for continuity of generation in the off-season, any other substance could be used for generation. The State Government shall provide all such co-generation plants similar incentives as available to Captive Power Plants outlined in this Policy.

v Constituting three Shell Companies for putting up power generating stations at Nabi Nabi Nagar, Katihar and Pirpanthi which will undertake land acquisition, secure coal linkages, environment and other clearances before being promoted in joint-venture partnership with either private or Central Government public entities.

## 3.2.4 Hydropower

The lack of any medium or large hydropower plants in Bihar restricts its ability to meet peaking requirements or to have the flexibility to meet intra-day changes in system demand. Bihar has a current installed capacity of about 46 MW from small hydropower (SHP) with the potential for 150 MW more. The State also has large hydropower generation potential in Dagmara (Kosi) and Indrapuri, besides five pumped storage projects, pre-feasibility for which have been established by the Bihar State Hydro Power Corporation (BSHPC).

The State Government intends to develop large hydropower projects and the pumped storage schemes either through loans from bilateral and multilateral funding agencies or as joint ventures with Central Government generating companies like the National Hydro Power Corporation (NHPC), or even through private sector participation.

## 3.2.5 Renewable Energy Sources

Renewable energy based generation has a significant role in Bihar especially in the biomass and small hydro section. Given the predominantly agrarian

nature of the economy, such a generation source is cane which is self-sustainable and economically viable.

It is expected that the Plateau and hilly areas as well as the riverine belts in Bihar have sufficient wind speeds suitable for wind power generation. Wind energy potential in Bihar is shortly to be taken up for assessment under the sanction of the Ministry of Non-Conventional Energy Sources.

BREDA has been nominated as a nodal agency to take up the rural electrification work in those villages which are inaccessible or where connectivity is not economically viable. The State Government has decided to sign MoU with the Government of India to take up rural electrification work in those villages. The preparatory work for the survey of these villages is being taken up and accordingly plan estimate would be submitted in due course.

To encourage local private participation in renewable energy power generation projects including solid waste management projects and decentralized distribution generation (DDG), the policy will include incentives such as :

v A single-window clearance system for renewable energy projects and adequate budgetary allocations in the plan funds to augment central sector support.

v The State Government will work with the Electricity Regulatory Commission to fix the renewable energy procurement quota and tariffs for renewable energy-based power over the next six months.

v The State Government will provide banking and wheeling facilities for all grid-connected renewable energy electricity generation projects up to 25 MW in size.

v Entry tax will be waived on capital costs for equipment for DDG renewable-based plants of less than 5 MW.

v The State Government shall encourage project developers to install mechanisms such as the Clean Development Mechanism (CDM) for leveraging funds for renewable energy-based power generation projects. BREDA is the nodal agency for helping private developers apply for CDM benefits. Bundling of projects shall be encouraged for CDM application to make the initiatives viable.

### 3.2.6 Energy Conservation

Understanding the importance of energy conservation, the State Government shall accord priority to it. There is an urgent need to have a system that encourages energy conservation and provides disincentives for inefficient use of energy. The State Government shall promote measures for economy and efficiency in energy consumption. The State Government also proposes to implement the provisions of the Energy Conservation Act 2001 and to set up the State Resource Fund to promote activities for energy conservation.

### 3.2.7 Transmission

Transmission is treated independently under the new Policy, in line with requirements of the Electricity Act, 2003. Investment projects to strengthen the transmission system in North Bihar under the Rashtriya Sam Vikash Yojana are nearing completion. An additional sum of Rs 1,780 crore for augmentation and strengthening of transmission has been assessed jointly by the CEA, PGCIL and BSEB and the work is being executed in two parts.

An additional amount of Rs 7000

crore will be required by 2012 in order to cope with the expansion of generation capacity, the expansion of grid to meet the requirements outlined in the Policy and to augment the transmission system to handle evacuation of the increased supply. The State Government will provide active support to ensure the financial viability of developing new transmission capacity in the State, and the SIPB will give priority to the clearance of new transmission systems. Wherever required, the State Government will also provide counterpart funding and guarantees for obtaining lines of credits from Central financial institutions and international funding agencies like ADB, World Bank, JBIC, etc.

### 3.2.8 Distribution Reforms

The real challenge of reforms in Bihar's power sector lies in improving the efficiency of distribution. The current power distribution system is characterised by Aggregate Technical and Commercial (AT&C) losses of over 70 percent, which calls for a radical change in the way electricity distribution is managed. Fundamental restructuring and institutional development of distribution operations is crucial to the reforms planned for the power sector as a whole.

**Distribution reforms will contain the following elements:**

v New distribution licensees formed as successor entities of BSEB will begin operations afresh, and without the burden of past losses, unserviceable liabilities and unrecoverable arrears.

v New franchisees will function in urban areas, where better governance and improved technological and management interventions are likely to improve operational efficiency and services. Over the next six months, the State Government will set up a mechanism for appointing franchisees to manage power distribution wholly or partially in urban areas, with guidelines for periodic performance monitoring.

v The management of rural electricity supply through franchisees is mandated under the RGGVY. The State Government is formulating guidelines to promote the participation of local institutions in the management of rural power distribution. So far, 46 franchisees have already been formed and the remaining 1154 franchisees would be formed by December, 2007

The State Government will support all efforts to improve distribution performance through:

v Administrative support in implementing anti-theft provisions under the Act. An officer of the rank of Inspector General/Deputy Inspector General of Police will be designated to provide police support in implementing anti-theft measures in the state, with the abolition of the existing system which has dual responsibilities over vigilance and anti-theft.

v Institution of a centralised payment system for electricity dues of all government departments at the state and local government levels.

v A subsidy policy based on recovering at least 50 percent of cost from agricultural consumers and at least 80 percent of cost from domestic consumers. This policy shall, however, exclude lifeline and Below Poverty Line (BPL) consumers with a monthly consumption of up to 30 units, who will continue to receive subsidised power.

## POWER REFORMS

- | To augment generation and distribution by encouraging private investment
- | To bring down Average Transmission and Commercial losses (AT&C) by 5% p.a. in the next five years
- | To stop cross subsidy and recover costs
- | SEB is being re-organized into 8 companies. Power Finance Corporation appointed consultants for implementation. The process of re-organisation will be completed by March 2007 and the companies will become fully operational by Dec. 2007
- | State Regulatory Commission is in place and application has been filed for tariff revision
- | Appointment of franchisee in all 11 KV distribution lines to be completed for IMPROVING CUSTOMER SERVICES & BOOSTING revenue collection
- | Already 31 such lines have been handed over to private parties for maintenance, minor repairs, fuse calls, billing and revenue collection and revenue has increased substantially in most of them and in some nearly by 100%

## ENERGY: ACTION POINTS

### Generation

- | To achieve minimal levels of self sufficiency in generation capacity
- | To involve central Public Undertakings in Central PSU projects in the state
- | Create incentives to attract private interest in large generation projects

- | To acquire land for large projects and transfer it at cost to the project developer
- | To help developers obtain initial consents through the State Investment Promotion Board (SIPB).
- | To allow up to 50 percent of power to be sold outside the State
- | To expand generation capacity through captive power plants and renewable energy based generation
- | To provide a single window clearance system and banking and wheeling facilities for renewable energy projects.
- | To constitute three shell companies for putting up Power Generating Stations at Nabi Nagar, Katihar, Pirpainti in joint venture partnership.

#### **Transmission**

- | To provide active support for ensuring the financial viability of developing new transmission capacity in the State.
- | To provide counterpart funding and guarantees for getting lines of credits from financial institutions and funding agencies.

#### **Distribution**

- | To provide administrative support in implementing anti-theft provisions under the Act.
- | To institute a centralised payment system for electricity dues of all government departments at the State and local government levels.
- | Completion of total metering in all Urban areas and its extension to rural pockets.



### 3.3 Urban Development

Population growth and urban influx have placed unsustainable stress on urban infrastructure and services and led to deterioration in the quality of urban life. Although the 2001 Census has shown that urban centres are growing at a faster pace than rural areas, Bihar, with urbanisation at 10.5 per cent, is second from the bottom in a ranking of States and Union Territories. Urbanisation in India is already below that of several other countries such as China and Indonesia. These countries had relatively lower levels of urbanisation in 1950, which has risen to 32.1 per cent and 40.9 percent, respectively.

Using per capita water supply as a surrogate variable, Bihar (with 61 litres per day) is woefully below the national average (of 142 litres per day) in its civic amenities. Urban poverty in Bihar, at 32.91 percent, is much above the national average of 23.62 percent. Cities hold tremendous potential as engines of economic and social development, creating jobs and generating wealth. For this, productivity of the units located in the urban area needs to be augmented which could be achieved through provision of a supportive urban infrastructure. So far, the approach to the

process of urbanization has been largely “reactive”, as problems have been addressed in a knee-jerk manner. Urban planning needs to be anticipatory, based upon an integrated approach to the various dimensions of urban development.

#### 3.3.1 Vision under the Eleventh Plan

The Eleventh Plan visualises conversion of the towns and cities of Bihar into vibrant, aesthetic, and efficiently functioning urban areas which are sustainable physically, socially, economically and environmentally. These areas would act as catalysts for development of the entire state. The approach has to be a holistic one, which will give all urban residents access to a minimum level of basic urban services, at reasonable costs and at the same time ensure that local bodies function transparently, with greater accountability to the urban residents.

#### 3.3.2 Eleventh Plan Strategies

Augmenting civic amenities so that all inhabitants have access to some minimum level of basic provision will call for the large-scale creation of large scale infrastructure in water supply, sanitation, drainage, roads and housing.

### 3.3.3 Devolution of Power to Local Bodies

An important prerequisite to realising the Eleventh Plan vision would be empowering local bodies to function as an effective tier of government. For this, Urban Local Bodies will have to become functionally and financially autonomous, and their financial position should be augmented through the implementation of the State Finance Commission (SFC) awards. Though the 74th Amendment has been implemented in letter, much needs to be done to incorporate the real spirit enshrined in the Constitution. At the same time, local bodies have to become more efficient and function in a more transparent manner, through the introduction of e-governance and a double-entry system of budgeting.

The state legislature shall assign specific taxes, duties, tolls and levies and authorise Local Bodies to impose, collect and appropriate them. The government is working on a framework to institutionalise citizens' participation in local decision-making.

### 3.3.4 Planning and Mapping

The master plan for eight major

towns will initially be prepared by HUDCO. The same for Patna has been prepared by a competent consultant and objections are being invited from the public on the Master Plan.

The Patna agglomeration and BodhGaya will be developed under the Jawarharlal Nehru National Renewal Urban Mission (JNNURM). City Development Plans (CDPs) for both towns have been prepared, and the CDP for Patna has been submitted to the Central Government. The State Government has earmarked Rs. 500 crore in its annual budget for 2006-07 for the JNNURM, mainly to create and augment basic facilities in water supply, sewerage, storm water, drainage, solid waste management, roads, bridges, street lighting, tourism and heritage sites.

The CDP for Patna is based on an investment proposal of approximately Rs 3,580 crore over seven years. The DPRs are ready for the road projects worth Rs 129 crore and for underground cabling for water pumps worth Rs 40 crore. DPRs for other projects are expected to be ready in 2-3 months. The CDP for Bodh-Gaya envisages the holistic development of the heritage city at an investment of over Rs 400 crore.

Considering the scale of urbanization that is expected in the coming decades, the development of new townships and growth centres is also envisaged. The GIS mapping of towns like Ara, Darbhanga, Muzaffarpur, Patna, and Gaya is under process. The Master Plans of towns like Gaya, Muzaffarpur, Darbhanga, Ara, Biharsharif, Rajgir, and Chhapra have already been taken up. The ultimate imperative is to undertake the planet urbanization by augmenting and developing the growth centres along the main trunk roads. In the process, the requirement of Express Highways and rail networking will also be addressed.

### 3.3.5 Legislative measures

The State Government has recently undertaken several legal initiatives that will revitalise urban centres so that they become supportive engines of growth during the Eleventh Plan. Many of these initiatives have been taken this year, including the repeal of the Urban Land (Ceiling and Regulation) Act, which has been a bottleneck to large-scale investment in urban areas, especially in housing and commercial enterprises. Its repeal should attract large-scale private investment in the

sector. The Department is also framing amendments to the Rent Control/Municipal Law keeping in mind the interests of landlords and tenants. The Apartment Ownership Act which was restricting investment in the sector has recently been amended and can be used as a model.

Simplification of legal and procedural frameworks for conversion of agricultural land for non-agricultural purposes and cross subsidisation concept, earmarking of at least 20-25 percent of developed land in housing projects for economically weaker sections and low income groups are the two reforms that will be addressed towards the end of the Mission period.

The State Government recently revised several bye-laws related to building and construction to speed up the process of construction, allow the development of commercial spaces and incorporate environmental and safety concerns. It has revised building bye-laws and incorporated provisions for streamlining the approval process for construction and site development. It has also framed building bye-laws and amended existing cinema

rules to facilitate the development of multiplexes and malls. Byelaws have been amended to incorporate norms and measures for structural safety, rainwater harvesting, landscaping and water conservation, and to aid the movement of disabled persons.

### **3.3.6 Governance through IT Applications**

Efficiency and transparency will be improved using IT applications. GIS and MIS will be applied for various urban services, and the GIS mapping of major towns has begun. Arrangements are being made for its effective implementation so as to enhance collection efficiency. This has been introduced in a few wards in the Patna Municipal Corporation on an experimental basis. The State Government has computerised registration of land and property, and certification of property titles.

Modern and transparent budgeting, accounting and financial management systems are to be designed and adopted for all urban services and governance functions. Patna has already initiated these

commitments, and several ULBs have migrated to a computer-based system in tax administration.

### **3.3.7 Administrative and Fiscal Measures**

Administrative reforms, including reduction in establishment costs by introducing voluntary retirement schemes and surrender of posts after retirement. The state is committed to implement the administrative reform agenda in the stipulated time frame. The government has begun the process of reducing stamp duty to the prescribed 5 percent, by bringing it down from 18 percent to 10 percent.

### **3.3.8 Encouraging Public-Private Partnerships**

The Department is framing policy to encourage PPPs, and has identified some areas where such partnerships will be effective. Several ULBs have already formed PPPs especially in solid waste management, urban transport, street lighting, etc.

### Status of Reforms Agenda

Stress has been laid on the actual implementation of the reform agenda. Basic strategies of the Government of Bihar are briefly explained below.

1 Effective implementation of decentralization initiatives as envisaged in the 74th CAA. The State Government has initiated the constitutional commitments, by starting with the decentralization process. The real spirit of the 74 CAA was to convert the urban local bodies into vibrant self governing institutions. However, the mere incorporation of the provisions of the 12th schedule could not literally make a shift over. In order that the urban local bodies can perform the functions assigned to them, financial autonomy has to be imparted. The State legislature shall assign specific taxes, duties, tolls and levies and authorize the local bodies to impose, collect and appropriate the same.

1 Repeal of Urban Land (Ceiling and Regulation) Act.

The prevailing Urban Land Ceiling and Regulation Act was a stumbling block for large scale investment in the urban sector, especially in the housing and commercial enterprises sector. The state has taken a bold step to repeal the same, paving the way for attracting large scale private investment in the sector.

1 The aim of the reform of Rent Control Law is to balance the interest of the land lords and the tenants. The Department is involved in framing relevant amendments in the existing law. The Apartment Ownership Act which had severe shortcomings, restricting the investment in the sector, has been amended and the same can be used as a Model Act.

1 Rationalisation of stamp duty - Corrective steps have been taken to down scale the stamp duty towards the prescribed 5%. At present, it has been brought down from the existing 18% to 10%.

1 E-governance- A system of e-governance using IT application, GIS and MIS for

various urban services and reform of property tax with GIS, and arrangements for its effective implementation have been introduced to enhance collection efficiency. Steps have already been taken to address this reform agenda. In a few selected wards of Patna Municipal Corporation it has been initiated on an experimental basis.

- 1 Levy of reasonable user charges. Under the National Urban Renewal Mission, the Municipal Corporation of Patna and other Local Bodies falling under the Patna agglomeration area have committed a time frame to incorporate this provision.
- 1 Revision of bye-laws to streamline the approval process for construction of buildings and development of sites. The State Government has already revised the bye-laws and incorporated the provisions for streamlining the approval process for construction of buildings and development of sites.
- 1 In order to attract investment and facilitate the construction of multiplexes and malls in the urban sector, the Government has framed building bye-laws and amended the existing cinema rules.
- 1 Respective bye-laws have been amended to incorporate structural safety norms, rainwater harvesting and adoption of water conservation measures, provision for disabled persons and landscaping measures.
- 1 Computerised registration of land and property, and property title certification. This is one of the reform agenda which is already in place.
- 1 Administrative reforms including reduction in establishment cost by introducing voluntary retirement schemes and surrender of posts falling vacant due to retirement. The State is committed to implement the administrative reform agenda within the stipulated time frame.
- 1 Simplification of legal and procedural frameworks for conversion of agricultural land for non agricultural purposes and cross subsidisation concept - Earmarking at least 20-25% in developed land in housing projects for economically weaker

sections and low income groups. These two reforms will be addressed towards the end of the Mission period.

- | Encouraging public private partnership. The Department is involved in framing a policy towards this end and a few sectors have been identified for practicing the same. In several ULBs, Public Private Participation projects have been implemented especially in solid waste management, urban transport, street lighting etc. A broad agreement has been reached for infrastructure development in the PPP model along with IDFC, which is under consideration by the Government.
- | Modern and transparent budgeting, accounting and financial management systems designed and to be adopted for all urban services and governance functions. The Mission town Patna has already initiated the commitments. Several ULBs have moved on to a computer based system in tax administration.

### **URBAN DEVELOPMENT : ACTION POINTS**

- | Implement decentralisation initiatives envisaged in the 74th Constitutional Amendment
- | Reform the Rent Control Law by March 2007
- | Frame rules to enact the association of elected municipality with the city planning functions
- | Introduce IT applications for GIS and MIS; Computerise registration of land and property; develop Master Plans and initiate GIS mapping of major towns
- | Frame policy for levying of reasonable user charges by end of year 2007-08
- | Simplify legal and procedural frameworks for converting agricultural land to non-agricultural purposes

- | Create and augment basic infrastructure facilities in water supply, sewerage, storm drainage, solid waste management, roads and bridges
- | Implement the City Development Plans for Patna and Bodh Gaya under the National Urban Renewal Mission
- | Encourage private and public investment in multiplexes, malls, housing complexes, mass transit systems, tourism, communication facilities and basic infrastructure in the urban sector.



## Promoting Inclusive Growth

### 4.1 Employment - Unemployment Scenario

The objective of inclusive growth in the Eleventh Plan will require that sufficient number of jobs are created both in the rural and urban areas to absorb the number of new entrants in the work force. An analysis of the NSSO data on employment - unemployment would reveal that unemployment rate in Bihar had increased from 6.34 percent in 1993-94 to 7.32 percent in 1999-2000. The unemployment rate (by current daily status) is greater in case of urban areas compared to rural areas with a marked bias against urban women. The estimated number of unemployed persons (by current daily status) in Bihar in 1999-2000 was of the order of 23.97 lakh, of which 20.33 lakh persons belonged to rural areas, constituting 84.81 per cent of the total unemployment. The Planning Commission has estimated that 49.37 lakh

additional jobs are likely to be created in the Eleventh Plan period on the basis of elasticity of employment with respect to GSDP for the period 1993-94 to 2004-05. Assuming that the labour force participation rate remains constant at the 2004-05 level (although it is less likely in view of changing women's participation rate and likely increase in the proportion of persons studying beyond the age of 15), the additional jobs required to be created to clear the backlog and to absorb the new entrants, has been estimated at 57.78 lakhs. This means that with the above assumption and the growth prospects of the GSDP, the number of unemployed persons at the end of the Eleventh Plan period would be around 8.41 lakh.

The increase in the unemployment rate has been due to the fact that working age population grew faster than total population and labour force participation

rate increased particularly among women. Agricultural employment has increased at a slower rate than population and much slower than non-agricultural employment. This is a matter of concern, as the agricultural labour households representing the poorest groups are the victims of this. Further, unemployment among educated youth is to be reduced.

#### 4.1.1 Labour

In order to tackle the mounting problem of unemployment, outlined above, there is a need to improve the

competitiveness of the manufacturing sector. While improving infrastructure is central to private investment in the manufacturing sector, there is a need for flexibility in the application of labour regulations. Policies relating to labour and employment will focus on ensuring minimum wages, reduction of disguised unemployment, abolition of child labour, elimination of gender inequality and upgrading skills through periodic training, among other things. Social security and safety measures for labour will be given due emphasis.

#### LABOUR : ACTION POINTS

- Number of additional jobs likely to be created in the Eleventh Plan-49.37 lakh
- Simplify labour laws so as to bring in flexibility in their applications for improving competitiveness of the manufacturing sector
- Strengthen, upgrade and modernise institutions for youth training.
- Enforce the Child Labour Policy and policies relating to social security
- Design curricula and syllabi to include technology and related areas
- Encourage private sector participation in training and upgradation of training schemes

## 4.2 Welfare

### 4.2.1 Integrated Child Development

**Scheme (ICDS) :** The effectiveness of the ICDS programme has been hampered by a shortage of training centres for workers and the lack of buildings for running the anganwari centres. Each of the 60,000 centres has at least one sanctioned post for AWW and AWS, and better training and orientation of these workers will ensure that the programme functions more efficiently. Similarly, buildings need to be constructed for running anganwari centres in weaker communities. The procurement of food and its distribution have successfully been delegated to the Poshahar Vitaran Samiti (a committee of mothers) at the village level, but building the capacities of these committee members will enable them to better monitor the services and exercise better control over them. The ICDS has so far focused on nutrition and immunisation, and other services such as pre-primary education and healthcare need to be strengthened.

### 4.2.2 Other Social Welfare Schemes for

**Children :** There is a shortage of homes and schools for children who are in need of care or protection or for those who are physically challenged. The care of children

in need of protection or in conflict with the law is very important, for which JJ Homes play a major role, but the shortage of homes means that all the needy children cannot be cared for. There is a shortage of special schools for the physically and mentally challenged; schools that exist for visually challenged and hearing-impaired children need to be strengthened.

Construction work on schools, hostels and hospitals is incomplete because of a shortage of manpower and resources at the level of execution. Several vacancies at all levels are a major impediment to the completion of programmes. While PRIs have the power to implement major schemes, the capacities of their functionaries will need to be built up substantially before the delivery of services can improve. Vocational courses are very important and need to be linked to employment.

### 4.2.3 Vision

To mainstream communities belonging to the scheduled castes (SCs), scheduled tribes (STs) and other backward classes (OBCs) by universalisation of education amongst SC, ST and OBC students, and increasing the infrastructure

development schemes in SC and ST dominated villages

#### 4.2.3.1 Integrated Child Development

**Scheme (ICDS) :** The aim will be to universalise the coverage and services of ICDS to eradicate malnutrition. All children would be fully immunised and healthy, and would have access to pre-primary education.

#### 4.2.4 Objectives

Integrated Child Development Schemes (ICDS) have been universalised in the state and as such, its services would now be available to all children in 0-3 age group. However, in order to make it more effective, the Anganwari centre will be strengthened by providing other facilities such as TV, teaching-learning tools etc. Different health programmes and other activities related to children such as Bal Mela, availability of services of paediatricians, gynaecologists, etc., will be conducted at AWCs to make it more popular and to ensure that different services are properly extended to pregnant and lactating mothers and children in the age group of 0-3 years of age.

- As 54 percent of children are suffering from malnutrition, proper nutrition policy will be formulated.

- In Bihar, PRIs have been actively associated with the running and management of AWCs. Proper schemes will be drawn for capacity building of PRIs and also of members of Poshahar Vitaran Samities (Mother's committee) who have been assigned the task of preparation and management of nutritious food at AWCs.

- Dular strategy has been found to be extremely useful in effective monitoring of ICDS programme. At present it is being run in 14 districts in association with UNICEF. It is proposed that this strategy will be extended to all remaining districts.

- Routine immunization programme will be strengthened to achieve 100% immunization.

- Special nutritional supplement through candies, which has been found to be extremely successful, will be continued and further strengthened.

- Special programmes will be formulated for school girls to prevent Child marriage.

- A scheme will be drawn up for promoting mental health for school children.

- Generally, attempt will be made to provide a barrier free inclusive environment in normal schools for mainstreaming of visual impairment, locomotive and speech impairment. However, for meeting special needs of children with multiple disabilities and those of mentally challenged children, special schools will be opened with the help of NGOs.
- In each district, Observation Homes for girls and boys will be separately established for children who are in conflict with law. Further, one Children's Home for children in need of care and protection will be established in each division. Shelter Homes will be established for children and women with the help of NGOs.
- An exclusive Children's Home for mentally challenged children in need and protection will be established with the help of NGOs.
- An exclusive After Care Home will be established for women in distress.
- Programmes will be formulated for social, educational and economic rehabilitation of children and women in need and distress.
- The institutional structure for dealing with adoption cases is weak. It is proposed to recognise Non-Governmental Organisations and to strengthen their coordinating network at the state level.
- Residential facilities for working women will be created so as to facilitate their entry into the employment market in a big way.
- Schemes will be drawn up for social and economic rehabilitation of Old Age persons.
- Scheme will be drawn for prevention, protection and rehabilitation of victims/survivors of trafficking of children and women.

### WELFARE : ACTION POINTS

- Ensure universal coverage for scholarships
- Provide stipends for SC, ST students in ICSE/CBSE and other affiliated and recognised schools through the education fee card

- Set up institutes that focus on skill-building
- Set up at least one residential high school in each district for boys and girls belonging to the SC, ST and OBC communities
- Create a cell for the eradication of beggary
- Formulate scholarship and training programmes and schemes for people with disabilities
- Provide assistance for corrective surgery for polio patients and for those with spinal cord injuries.
- Provide free travel concessions for disabled persons in state-owned transport corporation buses.
- Provide identity cards for disabled persons
- Upgrade special school buildings for disadvantaged children and physically challenged people
- Establish a state resource centre for women and child development.
- Institute a scheme to provide residential facilities for widows
- Provide rehabilitation to sex workers
- Provide pre-primary education at anganwari centres
- Construct pucca buildings for AWCs and a godown-cum-office at the block level.
- Distribute fortified candies at AWCs.
- Computerise ICDS services and monitoring.

### 4.3 Education

Education in Bihar has been almost stagnant, except some activities in the area of primary education, owing largely to the centrally sponsored scheme of Sarva Siksha Abhiyan. There has been large-scale educational migration of youth from Bihar.

The 2001 census shows Bihar's literacy level (47%) as the lowest in India (65%). Educational indicators for Bihar have been abysmally low as compared to the national average. The Gross Enrolment Ratio (GER) for the year 2003-04 in the case of children in the age group of 6-14, who have a fundamental right to access free and compulsory education, was 56 as compared to the national average of 85, with a wide gender gap, the GER for boys being 62 and for girls 49, while it was 88 and 81 respectively for the country as a whole. The situation in respect of dropout rates is equally bad. Out of hundred children, 59 do not complete grade V and 78 fail to reach grade VIII, the national figure of the dropout at the two stages are 31 and 52 percent respectively.

The educational output at the basic level is a reflection of the poor input of educational services on the supply side. Bihar would be a unique case where the

number of schools as well as teachers required for elementary education strangely decreased while it was increasing at the national level in the 1990's. While the number of elementary schools increased in the country by 40% (from 7.12 lakh in 1990-91 to 9.84 lakh in 2003-04) and teachers by 37% (from 26.89 lakh in 1990-91 to 36.89 lakh in 2003-04), it effectively decreased in Bihar by 10% and 29% respectively. With no new schools opened and no new position of teachers created since the 1990's, the classrooms are crowded with around 90 children in one room. The teacher-pupil ratio of 1:62 is highly adverse to the national norms of 1:40. When the schools were nationalized in Bihar in the late 1970's, the number of 'taken over' schools was around 54,000 and the number has not changed much. The monies received under the SSA since 2002 have been used for engaging contract or para-teachers to run learning centres, thus creating low standard, inequitable and poor quality educational services for the poor children in rural areas.

The story of secondary and higher education has been rather worse as it did not have the advantage of central funding under the SSA. Bihar has only 5 secondary

schools for every one lakh population, much below the all India average of 13. The GER at 16 for the secondary stage (Grade IX-XII) is also much below the national average of 39. In the case of higher education for students in the age group of 18-23 years, the GER for the state is only 6% as compared to the national average of 10% and that includes students enrolled under the distance education mode. The small number of degree and technical colleges in the state explains the low rate of access for the students. While Andhra Pradesh has 1059 degree and 63 engineering/technical colleges and the figures for Uttar Pradesh are 635 and 24 respectively, the number of higher educational institutions in the state has been almost static at 591 degree and 5 engineering colleges.

The vision, plan and action for restructuring the entire education system in the state are driven by the aforementioned factors, and the Eleventh Plan has given an opportunity to fructify the vision and act upon the plan.

#### 4.3.1 Vision

Keeping in view the constitutional obligation and the need for optimum

opportunity to the children and youth in the state, the department has envisioned its task as under :

- Secure fundamental right to free and compulsory education of equitable quality to all children.
- Stress on increased opportunity for access and skill building at the secondary and senior secondary stage.
- Expand and bringing higher and technical education to the national level.

#### 4.3.2 Plan

Action has already begun in the entire education sector to realise the vision. Brief accounts of the recent policy initiatives are presented below before making projections for the 11th Plan.

#### 4.3.3 Elementary Education

The State has taken an unprecedented decision to appoint 2.36 lakh elementary and secondary school teachers to clear the entire backlog of vacancies and bring all out-of-school children into the elementary school. The salient features of this mega teacher recruitment process are as follows.



- The policy decision is specifically aimed at bringing teacher pupil ratio to the national norm of 1:40.
- Teacher's positions (60,000) have been created for schooling 24 lakh out-of-school children, largely employed as domestic servants, in dhabas, hotels, restaurants etc.
- The system of para-teachers or contract teachers has been abolished to secure equality and social justice in the school system.
- The recruitment has been decentralized and is being done by the Panchayati Raj Institutions (PRIs).
- Because of gradual shift to the PRIs and with a combination of liberal service conditions, the new recruits are being offered consolidated salaries to enable the state government for huge expansion in the teaching force.

In addition to teachers, 15000 new schools are being opened after abolishing around 14000 learning or EGS centres. The concept of building a 'school' and not adding classrooms as under the SSA has been introduced and the programme of "Mukhya Mantri Samagra Vidyalaya Vikas"

has been launched. For this programme, the state has provided funds from its budget for major repairs and improvements of school buildings, facilities for games and sports and construction of boundary walls. Provisions for toilets, drinking water, kitchen sheds, etc. are being converged under schemes of different departments. This is yet another scheme thought through for addressing the question of equality and social justice in the school system.

Dropout has been a major challenge at the national level, and Bihar is no exception to it. In Bihar, dropouts have been largely due to absence of adequate number of schools and teachers for over a decade or so. Wherever schools were available, teachers were engaged in several non-teaching activities, or were dragged into courts for service related matters. These factors are being addressed and will continue to be done during the Eleventh Plan. In addition, the government plans to launch a scheme of 'conditional cash transfer' to parents, which will be used for purchasing school uniforms for all children up to grade V, and for all girls up to grade VIII. This scheme should reduce dropouts particularly of girls at the upper primary level. While the state government will be able to mobilize resources this year, it will

need central assistance for sustaining it during the Eleventh Plan.

Early Childcare and Education (or ECCE) is an essential stepping-stone for preparing young children for 8 years of free and compulsory education mandated by the constitution under Article 21A. The state's Welfare Department has negotiated with the NABARD for funding the construction of 80,000 ECCE centres in and around primary schools. If the decision is taken at the central level to transfer ECCE part from ICDS to education and cover it under the SSA, it would be possible to make all the 80,000 centres operational during the Eleventh plan and appoint well trained nursery teachers at these centres during the Eleventh Plan. Since the nursery training facility is missing in the state, initiatives would require to be taken to establish such centres. The State Common School Commission is looking into the length of the ECCE or nursery teaching or what is commonly known in the state as *balvarg*, before children are inducted into formal schooling at age six. Creches would need to be arranged in schools near worksites, so that working parents might leave their children and girls are not detained in the house for taking care of young siblings. This would facilitate schooling of girl students.

The State Government has constituted a group to chalk out a plan for schooling and rehabilitation of children on streets and platforms. The group has already submitted its report. The report suggests that a strong common school system would be required for children with addresses, so that they access the neighbourhood schools without discrimination. However, for children who do not have parents/guardians/addresses, Children's Home would have to be strengthened substantially. For schooling of children in homes, two-pronged approach may be adopted. First, a large group of appropriate age children may be admitted to neighbourhood schools. However, those in the over age and adolescent category, some special schemes may have to be designed.

The State Government has chalked out a plan to streamline the mid-day meal (MDM) programme. The policy decisions include de-linking teachers from the scheme, and transferring the same to mothers' committees, self-help groups and NGOs in urban areas. Efforts have been initiated for launching a school health programme, whereby medical doctors from the local PHCs will visit schools periodically and/or children will be taken to the centre for a health checkup. It has already been

decided to print and give report cards to parents of each child that would record the gradual academic progress of children. It is proposed to incorporate elements of health check up in this card. Unfortunately, the central scheme of the SSA does not take into account these aspects of children's education. The SSA would need to fund such initiatives in the 11th Plan and suggest merging of education, nutrition (or MDM) and health as a holistic approach to children's educational development. The initiative would have positive impact on dropout also.

The state has taken initiative to revise its curriculum and syllabus on the pattern of the National Curriculum Framework (NCF) 2005. Teachers are being given training on syllabi to encourage them to go beyond textbooks and design innovative and contextual teaching practices.

In addition, 60 teacher-training institutions in the state are being revived and strengthened. It is expected that from the academic session 2007, the pre-service training would start at these centres. The central government so far has been funding DIETs, which is largely the in-service training institutions, one for each district. It would need to fund regular training

institutions in the state.

The state has a very large number of untrained teachers, and many are likely to be appointed during the current recruitment drive because of the shortage of trained teachers on one hand, and court orders on the other hand. As their long displacement from schools might further jeopardise children's education, an innovative in-service-training scheme has been conceptualized and designed with the help of IGNOU and NCTE.

Under the new recruitment rules, teachers would be appraised every three years with the help of resource persons at DIETs and BRCs. The data would be shared with the members of the VSS, and the PRI, who would decide on their salary hike, which has been in-built in the recruitment rules.

It is expected that all these initiatives of the state would be ultimately lead to improvement in overall quality of elementary education, reduction in gender disparity and reduction in dropouts.

#### **4.3.4 Secondary Education**

The state has 5 secondary schools for every one lakh population as against the national average of 13 schools per lakh

Item/Activity	Initiated/Contemplated	11th Plan projection and Approach
Eim School Teachers	Existing strength of 1.50 lakh before March 2007 to achieve national norms	To appoint 12,00 additional teachers every year to take into account the increasing number of children, leave and training reserves. Maintain the ratio and move towards the reduction to 1:30 by the end of 12th Plan
New School	15,000 new primary schools being opened by March 2007	10,000 additional schools to be opened in the first year of the 11th Plan
Building and classrooms	20,000 schools taken up under MSVVK before March 2007	20,000 schools to be covered each year for the first three years of the plan
MDM for children	Mid-day meal to continue for primary school children	MDM to be extended to upper primary school children
CCT to patents : for uniform and TLM	Programme being launched soon to provide uniform to all children up to age 11 and to girls up to age 14	The coverage to continue and expand

population. The reason is, there has been no sanction of additional teachers position or opening of new schools since the 1980s when schools were taken over by the government. A detailed strategy in the mode of public-private partnership for opening of Secondary schools is being worked out. The Saman School Pranali Ayog is also looking into a variety of school systems prevailing in the state.

The Government has taken initiative with regard to secondary schools; the entire backlog of over 12,000 teacher vacancies is

being filled in under the same process as designed for the elementary school teachers. In addition, funds are being provided in phases for additional classrooms, major repairs, games and sports facilities, computers etc. As in the case of elementary education, additional positions for 10,000 secondary teachers have been created for improving the access, and mechanism for increasing the infrastructure at the secondary level for deployment of these teachers is under consultation.

The state would need heavy

investment and support during the 11th plan for building up infrastructure and creating more of teachers' positions for expanding access to secondary education.

The state is taking following initiative in this regard:

- About 1000 upper primary schools are planned to be upgraded into secondary
- Around 200 senior secondary school with vocational facilities will be opened in every year of the Eleventh Plan.
- Around 250 'project schools for girls' initiated in the past are proposed to be strengthened under the NABARD scheme of RIDF 12. The local NABARD has agreed in principle, and the project is going to be posed soon.
- Around 400 intermediate colleges teaching only +2 level of education are going to be encouraged to teach grades 9 and 10, so as to expand the intake at the secondary level. The same would be done in the public-private partnership mode.
- Madarsa and Sanskrit Board schools are proposed to be brought in the mainstream and the Saman School Pranali Ayog is looking in to this.

- One model school of +2 standard is being upgraded in each district headquarter, which would have hostel facilities and would be accessible to all children in the district. The schools would serve as pace setters for other schools in the district under the common school system.

- A scheme to provide bicycles to girls in secondary schools is proposed to help them cover long distance. This would increase girls' participation in secondary education.

Bihar, on its part, is transferring the school teacher recruitment and management to the PRIs and local management committees. This would enhance school and teacher accountability. Furthermore, the Saman School Pranali Ayog is looking into a regulatory framework for private and government schools so that they work in a healthy competitive environment and all children, particularly those belonging to SC, ST, minority and backward classes, have equal choice and they are not discriminated.

As regards testing, Bihar is following the CBSE pattern of examination reforms, based on the NCF 2005 of the NCERT. Under the scheme, there is a system of

comprehensive and continuous evaluation, which would keep parents regularly informed of children's performance and give an opportunity to assess schools. The COBSE (Council of Boards of School Education in India) is working on grading schools.

So far as vocational education in schools is concerned, the state will follow the NCF 2005, where work and education is seen integral with each other. Vocational education in the traditional and stereotyped manner has failed world wide, and the

Indian experience is not different. Drawing upon the NCF 2005, and the recommendations of the NCERT Steering Group on the subject, the government is revising its strategy to integrate some of the generic skill development strategy in its curriculum, which would include communication skills, analytical skills and skills in information technology.

### 4.3.5 Higher Education

The major issues being addressed in the university and higher education system

Item/Activity	Initiated/Contemplated	11th Plan projection and Approach
Secondary School Teachers	10,000 teacher positions created for upgrading 1000 middle schools before March 07	1000 middle schools to be upgraded each year of the Plan period to bring the number to the current national average.
Other Facilities	400 schools being covered at present under 12th Finance Commission funding	Same to continue for each year of the Plan period to cover at least all the schools operational at present.
Computers	800 schools being covered under the CSS (ICT) before March 2007	The process to continue during the 5th Plan period
Senior secondary (+2)	100 schools upgraded into +2	At least 200 schools to be upgraded each year of Plan period to de-link Intermediate education from degree colleges and university.

is enhancing its autonomy and securing accountability. Adequate funds are being released on time so that teachers receive their salaries and arrears. A national level law university has been established and many more engineering and technical institutions under public private partnership including one university of international standard and excellence are planned at Nalanda to redeem the past glory of the ancient place of knowledge and learning.

A draft bill for a professional university is under consultation in the government. The bill provides space to private investors for opening and managing engineering, technical and management institutions with full autonomy. The university would offer a platform and ensure standards for conducting examinations and awarding degrees. It would be largely an affiliating university.

The state has the Nalanda Open University, which caters to the needs of working students and those who are not able to access regular university system for tertiary education. The university is modifying its courses, and has also introduced IT and Education related

courses.

The 11th plan may focus specially on distance and open education initiatives in the state and route its funding under the DEC (Distance Education Council) located in the IGNOU.

The private sector initiative in higher education is being planned by a special investment policy of the Industry Department. It is expected that the setting up of the professional university will further facilitate establishment of technical institutions under public-private partnership.

Similarly, the proposed University of Nalanda in the ancient Rajgir Nalanda belt may attract private initiatives in the long run.

### **4.3.6 Adult Literacy Programme**

The 11th plan must propose consistency and continuity towards the adult literacy programme. The 11th plan may continue with the funding pattern, as the state would need to focus on adult literacy, especially women, as a large number are being elected as representatives in the PRIs.

### **4.3.7 Sports and Youth Affairs**

## EDUCATION : ACTION POINTS

### Higher and Technical Education

- The government has released over 4000 vacancies of teachers in the university and colleges. Additional positions may be required for expanding the access.
- One national level institution (Law University) has been established. Around 25 (5 each year of the Plan period) engineering and technical colleges may be established so that migrating students need not go outside the state, and the process is reversed.
- One international level university/institution of excellence at Nalanda to attract foreign students and faculties in traditional as well as modern education.

### School Level

- Gradual transfer of school management to the PRIs various levels.
- Government to focus on funding and monitoring by establishing a network of computer centres at the Panchayat/Block levels.
- Teachers to be de-linked from programmes like MDM, school construction etc and focus mainly on teaching.
- Government to focus on building up and strengthening resources centres and training institutions at the cluster, block and district levels.
- Emphasis on skill building and vocational education, especially at the secondary and senior secondary stage.
- Implement the 1986/92 national policy of the common school system, bring private schools under the constitutional obligation of free and compulsory education under Article 21A.
- Encourage opening and running of secondary and senior secondary education under the PPP.
- Bring examination reforms by reconstituting the examining bodies.
- Provide growth path to teachers and educational managers by reorganizing training institutions and field level management structure.



## Higher Education/University Level

- Proposed amendments in the university laws would provide the legal framework for administering university on the pattern of central universities.
- Proposed restructuring of the higher education bodies would provide autonomy to the universities in selection of teachers, preparation of curriculum, taking up new courses and resources.
- The University Grants Commission (UGC) have been approached for opening a liaison office or a regional centre at Patna to facilitate the state universities access more of UGC plan fund for a variety of activities.

In order to provide enabling modern facilities to the sportspersons of the State, sports complexes are being constructed at Patna, Saharsa and Chhapra. These complexes will be able to host sports of National and International level. Stadiums are also proposed to be constructed in the Eleventh Five Year Plan at district and sub-divisional level.

### 4.3.8 Culture

There are 22 Museums in the State of Bihar whose upgradation and development is proposed in the Eleventh Plan. There is a proposal to upgrade Patna Museum to international standard. The

relics of Lord Budha are kept in the Patna Museum which is frequented by international tourists. In order to upgrade the museum of international standard, there is a proposal to construct an additional building with modern lighting and security facilities.

It is also proposed to strengthen Bihar Sangeet Natak Academy and Bihar Lalit Kala Academy so as to strengthen the cultural fabric of the State. Culture centres will also be made at the divisional level. Consultants of repute are being engaged for development for plans for preservation of cultural heritage.

#### 4.4. Health & Family Welfare

Health delivery in the state is not satisfactory. In 2003-04, full immunisation in the state was 11 percent against the national average of 54 percent; the maternal mortality rate (MMR) was 452 per lakh live births against the national average of 407 (National Family Welfare and Health Survey II); and health delivery was so poor that PHCs on average received only 39 patients a month (as on January 2006). Unofficial estimates are that almost half the patients treated at the All India Institute of medical Sciences (AIMS) in Delhi are from Bihar: Given that the Institute receives around 1.5 million out-patients and 80,000 in-patients, clearly the poor state of health delivery in Bihar has resulted in large-scale out-migration for health services.

Improvements in health services provision are a priority as poor health services impact most adversely on the poor.

##### 4.4.1 A Comprehensive Health Plan.

Multi-pronged approach to realize the health outcomes has to be envisioned as Bihar is lagging in most of the key indicators of Health

##### 4.4.2 Other Major Goals

- Kala-Azar Mortality Reduction Rate- 100% by 2010 and sustaining elimination until 2012.
- Leprosy Prevalence Rate to reduce to 1 per 10,000.
- TB-DOT- Maintain 85% cure rate and sustain planned case detection rate.

**Table 4.1 A comparison of Bihar and some other Empowered Action Group (EAG) states.**

	Bihar	U.P	M.P.	Chattisgarh	Jharkhand	Rajasthan
<b>Infant Mortality Rate</b>	61	72	79	60	49	57
<b>Birth attended by Skilled birth Attendant</b>	23.4	22.4	29.7	N.A.	N.A.	35.8
<b>Maternal Mortality</b>	48.6	70.0	47.4	47.4	48.6	56.1
<b>Sex- Ratio (0-6 year)</b>	942	916	932	975	965	909
<b>TFR</b>	4.3	4.4	3.8	N.A	N.A	3.9

#### 4.4.3 Infrastructure

According to the Comptroller and Auditor General (CAG) report for the year 2004, 49% of the health sub-centres, 41% of primary and auxiliary health centres and 5% of referral hospitals had no buildings. Against the national criterion of one sub-centre for 5000 people, Bihar has one sub-centre for 10,000 population. Moreover Bihar has one PHC for one lakh population whereas there should be one PHC for every 30,000 population. (Annexure 4A shows the shortfall)

Keeping this reality in mind, the State intends to gradually build up the health infrastructure to meet the national norms. It also intends to upgrade all Community Health Centres and Primary

Health Centres to Indian Public Health standards.

The State has already initiated works worth more than Rs 200 crores in health infrastructure and intends to spend around Rs 250 to 300 crores annually over the next five years.

#### 4.4.4 Manpower Planning and Capacity Building:

There is severe shortage of trained personnel which is quite evident from the Annexure 4B.

- The state plans to engage trained medical personnel against existing vacancies and newly constructed health facilities. To meet the staffing needs of the new health facilities being constructed during the

**Table 4.2 Health Sector : Goals**

	Current	By 2012
<b>IMR<sup>1</sup></b>	61	30
<b>MMR<sup>2</sup></b>	370	200
<b>TFR<sup>3</sup></b>	4.3	2.1
<b>Institutional Delivery%</b>	27	50
<b>Delivery by trained person</b>	23.4	90

Source : 1. SRS 2004

2. 2001-2003 Special Survey of deaths using RHIME, RGI, Gol

3. SRS 2002, NFHS 1998-99

Eleventh Plan, the government plans to recruit around 15,530 ANMs, 4571 doctors and 22,000 paramedics.

- Bihar has quite a large number of doctors in the Private Sector. A report from Medical Council of India shows 35477 allopathic doctors with recognized medical qualification registered with State Medical Council. If the needs of the system are not be met by regular/contractual appointments, the alternative of engaging doctors, especially specialists, from Private Sector on per session basis can also be explored.

- The state will enhance its capacity at the grass-root level by engaging approximately 75,000 Accredited Social Health Activist (ASHA) under National Rural Health Mission (NRHM).

- The state will also restart and strengthen all the existing 21 ANM/GNM training schools so that skilled personnel in nursing are readily available. An attempt shall be made to have at least one ANM training school in each district for which PPP initiatives can also be considered.

- The state will seek cooperation of PRIs in operationalizing Additional Primary Health Centres (APHCs). It is

hoped that their involvement will ensure availability of doctors and nurses at the health facilities. Steps have already been taken to engage NGOs in APHCs and so far 36 APHCs have been outsourced through NGOs

- Integration of Ayurved, Yoga and Naturopath, Unani, Siddha, Homeopath (AYUSH) with Allopathic system : The practitioners of Indigenous System of Medicine (ISM) will also be utilised to provide primary health care at block level.

- An attempt will be made to regulate private services which are highly variable in nature through introduction of Clinical Establishments Act.

- Comprehensive Training Policy will be drawn to govern all the capacity building initiatives in Health sector. An attempt shall be made to train more personnel and to operationalize more vocational institutes, (e.g.-Nursing School, Paramedics including Laboratory Technicians) using Public Private-Partnership (PPP) mechanism, if needed.

#### 4.4.5 Systemic Improvements

To share the administrative responsibility and workload at the district

and block level, managers and accountants shall be inducted. It is envisioned that this step would provide the much needed pace to the implementation of all the programmes.

As skilled technical people are in short supply, an effort will be made to reserve their services only for the specialized/technical services they are meant for. This would also mean the outsourcing of all the support services.

#### 4.4.6 Encouraging Public Private Partnership (PPP) :

Considerable improvement has been made by engaging private parties in following initiatives:

- Pathology : Private diagnostic companies have set up pathological units in all 38 district hospitals;
- Radiology : Private radio-diagnostic companies have begun setting up radiological units in district hospitals; so far 11 have been set;
- Maintenance of hospital premises has been outsourced to private agencies ;
- Ambulance services are being provided up to the PHC level; so far, 335 ambulances are functioning under the

operational control of Rogi Kalyan Samiti;

- Mobile Medical Units (MMU) : Four MMUs are already operational in districts
- APHCs : 32 APHCs have been outsourced to private partners.

The state intends to continue the PPP initiatives. However, a third party evaluation would be undertaken to improve them further.

- **Private investment** : Setting up of Medical colleges through PPP mechanism shall be encouraged and the government will facilitate in the provision of land, water, power and will also share the cost of preparation of the bidding document. The state will go by the single window approach to speed up the procedures. The state has so far received seven proposals and has given no-objection certificate to two of them.

Private investment will be given incentives to enter pharmaceutical manufacturing, given that the state manufactures a very small proportion of the drugs needed out of the total annual demands of Rs. 1,500 crore every year, only Rs. 50 crore worth of drugs are manufactured in the state.

The government will rely on PPP to set up super-speciality units in several hospitals and medical colleges.

- **Improving governance :** To improve governance in the health sector, a grievance cum complaint cell will be established. The website and complaint cell would increase the interaction with ordinary citizens and help in improving the delivery of health services.

- **Participation of PRIs :** The Panchayati Raj Institutions (PRIs) and local people will be made a part of management of hospitals. An initiative in the form of Rogi Kalyan Samities has already been taken in this direction.

- **Urban Health :** Along with rural health, urban health, particularly services for slum-dwellers, also will be taken up. As the government facilities may not be adequate, PPP may be the feasible alternative.

- **Janani Suraksha Yojana :** This is a programme under NRHM, which promotes institutional delivery. Private clinics and doctors will also be empanelled to provide services to the needy.

- **Routine Immunization:**

Considerable improvement in routine immunization has been achieved by engaging private couriers for alternate vaccine delivery system and also by contracting approximately 400 ANMs on per session basis. The full immunization percentage of 11% National Family Health Survey-2 (NFHS-2) has risen to 32.8% (NFHS-3). We further intend to intensify the Routine Immunization through observation of immunization weeks and implementing child tracking system.

- **HIV/AIDS :** To combat the growing menace of AIDS in the state, apart from the regular activities, ARV treatment will be made free for all children.

- **Decentralization of Planning :** The state recognizes the need for decentralized planning and will encourage district planning. An attempt shall also be made to disseminate and share schemes with the district/block before its implementation.

- **Waste management :** The state recognizes the need of proper biomedical waste management plans and seeks to operationalize at least one Common Bio Medical Waste (CBMW) facility in each of the districts

- **Inter Sectoral Collaboration :** The indicators of health depend as much on drinking water, female literacy, nutrition, early childhood development, sanitation, women's empowerment, etc., as they do on hospitals and functional health systems. Realizing this, an effective convergence between departments dealing with Health, ICDS, Education, Drinking water,

Sanitation has been planned. The village health committee will be a modified version of health and sanitation committees already existing in the villages. They will co-opt ANM and ASHA in their committee.

### 4.5 Rural Development

Bihar biggest challenge as India's third most populous state, is eliminating

#### HEALTH : ACTION POINTS.

- Build up infrastructures to meet the national norms. PHCs construct 9392 health sub-centres, 1664, APHCs, upgrade all 398 PHCs to CHCs.
- Recruitment of 15530 Auxiliary Nurse Midwives (ANMs), 4571 Doctors and 22,000 Para medicals.
- Selection of 75,000 Accredited Social Health Activists.
- Strengthening of 21 existing ANM training school.
- Measures to be taken to reduce Infant Mortality Rate to 30, Maternal Mortality Rate to 200 and Total Fertility Rate to 2.1
- Ensuring increase in Institutional Delivery percentage (from existing 27% to 50%)
- Increasing delivery by trained personnel from existing 23.5% to 90%.

poverty, especially in the rural areas. The vast majority (90 percent) of Bihar's population lives in villages, and 44.3 percent of the rural population lives below the poverty line (BPL). This corresponds to a current population of 3.6 crore, or 80-90 lakh families. A recent Household survey conducted by the State Government

indicates that this figure of rural population below the poverty line may be even larger. This indication requires redoubling our efforts to achieve much higher growth rates and reorienting our strategy to reduce the number of people living below the poverty line. Bihar's land area is 3 percent of India's; it supports 10 percent of India's rural

**Table 4.3 : Demographics and the Rural Economy**

	India	Bihar	Bihar's Share in the National %
Total 2001 population (crore)	102.86	8.30	8.1
Rural 2001 population (crore)	74.25	7.43	10.1
Rural population (%)	72.1	89.5	
Area ('000 sq. km.)	3287	94	2.9
Population density/sq. km.	313	881	
Population growth rate (%)	1.6	1.8	
BPL (% 1999-2000)	26.1	42.6	
Rural BPL (%)	27.1	44.3	
Rural BPL population (crore)	20.12	3.29	16.4
Projected rural BPL population (for 2006 in lakhs)	21.78	3.60	
No. of BPL families 2006 (lakh)	545	90	
Projected total population in 2015 (crore)	125.40	10.27	8.2
Projected rural population in 2015 (crore)	86.63	9.19	10.6
MDG target BPL families (lakh)	12.26	2.02	
Target no. of BPL families (lakh)	282	50.50	
Poverty growth elasticity	-0.73	-0.43	
Shelterless families (lakh)		42.1	



population and 16 percent of India's rural BPL families; 34.3 lakh families are still shelterless (Table 4.3). Bihar also has the highest net migration rates among all states - with -0.39 males and -0.17 females per 100 population.

Due to its straitened finances, Bihar has no significant rural development plan schemes of its own and depends heavily on centrally financed schemes which provide significant additions to its resources for anti-poverty programmes. The current National Rural Employment Guarantee Scheme (Sampoorna Grameen Rozgar Yojana, Swarnajayanti Gram Swarozgar Yojana, Indira Avas Yojana and Hariyali) address the basic requirements of wage employment, livelihoods, shelter and improving the productive capacity of land. Since the NREGS was notified to cover only 23 out of 38 districts, the Bihar government covered the remaining 15 districts under an identical scheme named the State REGS. However, the implementation of all rural development schemes needs substantial improvement to achieve the desired outcomes.

**4.5.1** Bihar's vision is to become a developed state by 2015, which requires a

rapid reduction in poverty. The first Millennium Development Goal is to halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day and the proportion of people who suffer from hunger. For Bihar, this means reducing the BPL population to 22 percent by 2015 or by about 1.5 percent per year. Achieving the poverty-related MDG would therefore depend heavily on rapid growth in non-farm activities because, till now, growth in agriculture with relatively low productivity has had a limited impact on poverty.

In addition, to increase the productive capacity of Bihar's vast young population, major efforts will be required in education, health and skills development, especially in the rural areas to equip future generations to engage in productive, gainful occupations. This will also serve to stem the out-migration from the state.

Education and skill development largely benefit those below 20 years of age, i.e., the next generation. The hunger and poverty of those above 20 would have to be tackled by direct measures to provide the basic minimum needs of *roti, kapda, makan, and bijli, sadak, and paani*, and even

broadband, with an emphasis on women's empowerment, as women are the best carriers of development in the family. This can be achieved by guaranteed wage employment, productive livelihood through self-employment, and providing houses for the rural poor. In addition, appropriate land and water development programmes can strengthen the rural economy and improve rural livelihoods.

#### 4.5.2 Eleventh Plan Strategy

Poverty can be reduced more effectively not only through programmes targeting the poor but through inclusive growth with a shift in employment to non-farm activities. This calls for an integrated strategy covering human resource development through improved access to education, health, drinking water, sanitation, welfare and labour, and economic development through increased opportunities in industry, agriculture, animal husbandry, irrigation, energy, transport and telecom, supplemented with targeted programmes for the poor, especially women. Increasingly, powers to deal with these subjects are devolving upon Panchayat Raj Institutions which will have a major role in improving governance. With 38 Zila Parishads, 534 Panchayat Samitis

and 8,463 Gram Panchayats, quick communication and transparency are essential for these Panchayat Institutions to be effective. Fortunately, in today's interconnected world, technology provides a solution through broadband Internet.

The basic minimum needs of Roti, Kapda, Makaan, can be met through wage employment, self-employment and rural housing. Therefore, the existing rural employment guarantee and watershed development schemes, Swarnajayanti Gram Swarozgar Yojana and Indira Avas Yojana would continue as thrust programmes for the elimination of hunger and deprivation.

#### 4.5.3 Increasing Farm and Non-Farm Productivity

The poverty-related MDG of halving the BPL percentage by 2015 corresponds to a target of reducing the rural BPL percentage from 44 percent in 2000 to 22 percent in 2015. This means that about 50 lakh rural families will need to be raised above the poverty line by 2015, i.e., about 16.7 lakh families during the Eleventh Plan, or 3.3 lakh rural families per year.

Assuming an elasticity of 0.4 between growth in GDP and fall in the BPL percentage, the target of 1.5 percent

reduction per year in rural BPL population requires a GDP growth of about 4 per cent per year. The growth rate of agriculture is well below this. Thus, efforts will necessarily have to aim at faster non-farm sector growth along with strategies to rapidly increase agricultural productivity by focusing on horticulture, applying most recent remunerative techniques such as vermiculture, non-chemical pest management and other productivity-boosting practices, many of which are labour intensive.

#### **4.5.4 Improved Programme Implementation**

One lesson that has been repeatedly emphasized but not applied in the implementation of these programmes is that rural development is essentially process-oriented and not a target-driven system. Programme guidelines need to be revised to emphasize an orientation towards processes and outcomes, rather than targets.

The efficacy of the Eleventh Plan strategy would depend critically on the implementation machinery. The delivery capability of field administration needs to be built up in different ways, including intensive capacity-building. Training should

focus on ways to secure and increase people's involvement, participatory rural appraisal, human resource management, accounts, information technology and project management, through exposure to other states and best practices.

Large numbers of technical and functional vacancies need to be filled and minimum tenures ensured both in secretariat and field postings. Recruitment, capacity building and empowerment will take time, and in the meanwhile, several functions can be outsourced on a PPP basis.

#### **4.5.5 Public Distribution System (PDS) Reforms**

Some initiatives have already been taken to ensure the timely distribution of good quality food grains:

- Wide publicity through newspapers about the quality and rates of essential items supplied through respective outlets.
- Food grains will only be lifted from FCI to SFC under close supervision of officer in charge.
- Food grains will be distributed through the PDS only in the presence of supervisors; if supervisors are not present

there will be no distribution.

- Distribution can take place only after the verification of stocks by supervisors in the presence of at least three members of the Panchayat Vigilance Committee, at which time it will be entered in the registers.
- The licences of PDS dealers who do not want to distribute food grains will be cancelled.
- Food grain will be distributed through cluster points in extremist affected areas.
- A re-survey has been carried out to verify the actual number of people living below the poverty line, and a test check of accuracy is being done by a voluntary organisation.

#### 4.5.6 Other Inputs

Public empowerment can be achieved through active panchayat institutions and civil society organizations, transparency, effectively implementing the Right to Information Act and IT-enabled systems.

Another critical input, which has so far been neglected, is appropriate rural technology which will help rural artisans advance rapidly, by adopting new low-risk products and occupations with greatly increased productivity.

#### **RURAL DEVELOPMENT: ACTION POINTS**

- Meet basic minimum needs through wage-employment, self-employment and rural housing
- Revise programme guidelines to emphasise women's empowerment, through a processes and outcomes-approach;
- Restore the delivery capability of field machinery through intensive capacity building;
- Encourage the formation of active Panchayati Raj Institutions and Civil Society Organizations to better empower people;
- Implement effectively the Right to Information Act and IT-enabled systems;
- Outsource IT functions through PPP; and
- Promote technology appropriate for rural conditions.

## Optimising Eco-Balance

### 5.1 Environment

Environmental sustainability is important for the well being of human beings. The neglect of environmental considerations such as wasteful use of water and deforestation etc. may lead to adverse environmental effects very quickly. Our environmental strategy should be sensitive to these concerns and we should ensure that these threats and tradeoffs should be appropriately evaluated and balanced. We must ensure rapid economic growth with environmental friendly policies.

#### 5.1.1. Environmental Issues

- **Increasing Environmental Awareness among School Children :** Currently National Green Corps is the major awareness creation programme among school children funded by Central Government. So far, 7200 upper primary and high school in 38 districts are included

in this programme. This programme needs to be strengthened. The State Government has started a programme named Chatra Vriksharopan for increasing awareness about tree plantation and protection among students of 8th, 9th and 10th class who will be paid an incentive of rupees 100 for three years. This programme will be continued during the Eleventh plan.

- **Improving Air Quality :** Presently, Bihar State Pollution Control Board has been monitoring the Ambient Air Quality at two monitoring stations at Patna only. It is proposed to start the Ambient Air Quality and automatic real time monitoring stations for Ambient Air Quality in the headquarters of all Divisions. An endeavour will be made to achieve WHO standards of air quality in these cities.

The existing 36 stations for monitoring of quality of surface water and

ground water are not adequate. Considering the need of safe drinking water and maintaining the wholesomeness and pristine quality of all water resources, the Board proposes to increase the water quality monitoring network from 36 to 60 sampling stations. Water quality monitoring network will also be extended to the areas where Arsenic, Fluoride, Nitrates and Iron contamination of ground water is assuming serious proportions.

Most of the rivers are highly polluted. Discharge of raw sewage is common. Treatment of sewage and industrial effluents will be linked to urban and industrial development planning.

- **Solid Waste Management (SWM)** : The Pollution Control Board will coordinate with Municipal Corporation, Nagar Parisad and Nagar Panchayats and the respective Departments of the State of Bihar to ensure that the facilities for treatment and disposal of Solid Waste are developed. Cities and towns will be encouraged to evolve systems to segregate waste at the point of origin with the participation of citizens.

Urban local bodies will be encouraged to develop Low Cost

Community based Sanitation facilities for the underprivileged that will contribute to more efficient management of waste.

Good progress has been made in safe disposal of medical waste in Patna with the installation of incinerators. This will be extended to other cities and towns.

- **Spatial Environmental Planning-** Bihar State Pollution Control Board, Patna will prepare Zoning Atlas for Siting of Industries (ZASI); District Environmental Atlas (DEA) and guidelines for Siting of Industries and preparing Environment Atlas in association with Central Pollution Control Board.

#### 5.1.2 Preservation of Wildlife and Biodiversity

With 50% of forest area under Protected Areas (PAs), management of these areas needs special emphasis and specialised approach. Presently there is no authentic database on bio-diversity and habitat status of terrestrial PAs. A major thrust will be on building of baseline database of vital information on bio-diversity and habitat status. It is proposed to complete preparation of management plan of all protected areas during the Eleventh Plan period.

PAs are sensitive on the law and order front. Protection mechanism of the PAs needs up-gradation through strengthening of infrastructure like communication, roads, surveillance etc. The firepower of staff engaged in protection needs enhancement through provision of arms and requisite training to use them effectively. Protection of wildlife and its habitat will be done with the active participation of people through eco-development committees.

Man-animal conflict issues need redressal. Relocation of habitations in Valmiki Tiger Project on lines of the recommendations of the Tiger Task Force is the first priority for protection of tiger. Where this is not possible, an effective co-existence plan will be put in place.

### **5.1.3 Mitigating Land Degradation through Green Cover**

For soil conservation and maintaining water regimes, creation of forest and bio-mass resources will be taken up in all the culturable vacant land including common property resources through social forestry. This work will be done through Panchayat Raj Institutions with technical guidance from Forest Department.

More area outside forests will be brought under tree cover. For this purpose, a strong thrust on agro-forestry is necessary. As a policy initiative, fast growing species like Poplar are being introduced for ensuring faster and higher returns to the farmers. Efforts will be made to setup a network of decentralised farmer nurseries.

Bamboo cultivation needs to be encouraged by providing incentives for setting up bamboo based industries.

Encouragement will also be given for building interface between industry and farmers through agro/farm forestry.

### **5.1.4 Increasing the Green Cover**

Tree cover in the State is approximately 10% of land area. Nearly 50% of the 6.87 % of forest land supports degraded forests. The state is one of most densely populated states with a strong agricultural base. It is therefore proposed to increase tree cover to 15% of geographical area during 11th plan.

The rehabilitation and enrichment of these forests will be done with the cooperation of the local people through Joint Forest Management. Timber and non-timber benefits will be optimised with

adequate investment for rehabilitation of degraded areas. The resources potential of National Rural Employment Guarantee Scheme will also be fully tapped for this purpose.

Integrated Forest Protection Scheme during the Tenth Plan has given a fillip to strengthening of infrastructure like communication, roads, fire control, surveillance, etc in the forests and will continue during the Eleventh Plan period.

Non-Timber Forest Produce (NTFP) will be managed for value addition. Marketing of NTFP will be organized for

better returns to the community.

### 5.1.5 Policy Initiatives

Forest regulations will be rationalised to allow industry to partner farmers in undertaking agro-forestry for augmenting the raw material base for forest based industries like paper & pulp and veneer & plywood. This is to be done by a policy initiative of excluding certain species like Popular, Eucalyptus, Semal, Kadambh, Gamhar, etc., from being raised in forests and allowing tree felling, transport and marketing of these species from private holdings.

#### OPTIMISING ECO-BALANCE : ACTION POINTS

- Increasing environmental awareness about tree plantation and protection among students of 8th, 9th and 10th Classes. They will be paid an incentive of rupees 100 for three years
- Treatment of sewage and industrial effluents will be linked to urban and industrial development planning
- Cities and towns will be encouraged to evolve systems to segregate waste at the point of origin with the participation of citizens
- Creation of forest and bio-mass resources will be taken up in all the culturable vacant land including common property resources through social forestry



### Monitorable Socio-Economic Target for the 11<sup>th</sup> Plan

Programme	Target for India	Target for Bihar
<b>Income &amp; Poverty</b>		
♦ Acceleration of the growth rate GDP	8% to 10%	8.5%
♦ Increasing agricultural GDP growth rate	4%	5%-7%
♦ Creation of new job opportunities	70 million	5 million
♦ Raising real wage rate of unskilled workers	by 20%	by 20%
♦ Reduction of head count ratio of consumption poverty	by 10 percentage points	by 13.1 percentage points (from 41.5 in 2004-05 to 28.4 in 2011-12)
<b>Education</b>		
♦ Reduction in drop out rate in elementary schools	from 52.2% in 2003-04 to 20% by 2011-12	from 78.03% in 2003-04 to 27.85% in 2011-12
♦ Increasing literacy rate for persons of age 7+	from 64.59% in 2001 to 85% in 2011-12	from 46.96% in 2001 to 64.04% in 2011-12
♦ Lowering gender gap in literacy	by 11.6 percentage point (from 21.6% in 2001 to 10% 2011-12)	by 9.2 percentage points (from 26.6% in 2001 to 17.4% in 2011-12)
<b>Health</b>		
♦ Reduction in IMR	from 58% at present to 28%	from 61% at present to 29%
♦ Reduction in MMR	from 301 per lakh at present to 100 per lakh for MMR	from 371 per lakh at present to 123 per lakh for MMR
♦ Reduction of Total Fertility Rate	from 3.0 at present to 2.1	from 4.3 at present to 3.0
♦ Reduction in malnutrition among children of age group 0-3	to half its present level (from 47.05 to 23.5)	to half its present level (from 54.4 to 27.2)
♦ Reduction in anaemia among women and girls	by 50% (from 51.8 to 25.9)	by 50% (from 63.4 to 31.7)
<b>Women and Children</b>		
♦ Raising the sex ratio for the age group 0-6	form 927 at present to 935 by 2011-12	from 942 at present to 950 by 2011-12
♦ Raising the percentage of women and children beneficiaries in all govt. schemes	to 33% of all direct and indirect beneficiaries	to 33% of all direct and indirect beneficiaries

<b>Programme</b>	<b>Target for India</b>	<b>Target for Bihar</b>
<b>Infrastructure</b>		
♦ Ensuring electricity connection to all villages and BPL families	by 2009	by 2012
♦ Round the clock power supply	by 2011-12	by 2017
♦ Ensuring all-weather road connection to habitation	by 2009 for all habitation with population 1000+	by 2012 for all habitation with population 500+
<b>Environment</b>		
♦ Increasing forest and tree cover	by 5 percentage points	by 5 percentage points (from 10% at present to 15% by 2011-12)
♦ Attainment of WHO standards of air quality in all major cities	by 2011-12	by 2011-12
♦ Treatment of all urban waste water to clean rivers	by 2011-12	by 2011-12

# Annexure

**Annexure 1**  
**Projections for the Eleventh Plan**

(Rs crore)

Item	Annual Plan 2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total (2007-12)
	1	2	3	4	5	6	7
<b>A. State's Own Resources (1 to 12)</b>	<b>5,581.05</b>	<b>6,628.28</b>	<b>5,008.37</b>	<b>6,958.97</b>	<b>8,541.39</b>	<b>10,478.57</b>	<b>37,615.58</b>
1. Balance from Current Revenues	986.07	3,238.26	4,430.69	5,921.56	7,600.91	95,89.76	<b>30,781.18</b>
of which ARM		200.00	250.00	300.00	350.00	400.00	<b>1,500.00</b>
2. Contribution of Public Enterprises	-613.00	-1,110.72	-733.08	-789.97	-761.80	-667.15	<b>-4,062.73</b>
a) State power utility	-613.00	-1110.72	-733.08	-789.97	-761.80	-667.15	<b>-4062.73</b>
of which ARM							
b) State transport utility							
of Which ARM							
c) Other							
of which ARM							
3. State Provident Fund (Net)	100.00	400.00	350.00	300.00	250.00	250.00	<b>1550.00</b>
(of which impounding of D.A.)							
4. Miscellaneous Capital Receipts (Net)	-692.37	-1196.51	-1350.23	-1183.62	-1697.72	-2294.04	<b>-7722.13</b>
5. Plan Grants under TFC (a+b)	111.00	111.00	111.00	111.00	125.00	125.00	<b>583.00</b>
a) Special Problems	111.00	111.00	111.00	111.00	125.00	125.00	<b>583.00</b>
b) Grants to local bodies							
6. Net Small Savings	2500.00	2500.00	2000.00	2400.00	2700.00	3000.00	<b>12600.00</b>
7(a) Net Market Borrowings (SLR Based)	765.66	765.66					<b>765.66</b>
7(b) Additional Market Borrowings	1833.65	1720.60					<b>1720.60</b>
8. Negotiated Loans (a to g)	590.04	200.00	200.00	200.00	325.00	475.00	<b>1400.00</b>
a) LIC							
b) GIC							
c) NABARD	590.04	200.00	200.00	200.00	325.00	475.00	<b>1400.00</b>
d) REC							
e) IDBI							
f) HUDCO							
g) Others (specify) (PFC, banks, etc.)							
9. Bonds/Debentures (Non-SLR Based)							
10. ARM							
11. Adjustment of Opening Balance							
12. Net Surplus of Local Bodies							
<b>B. Central Assistance (13 to 15)</b>	<b>2668.96</b>	<b>3069.30</b>	<b>5529.70</b>	<b>4059.15</b>	<b>4668.03</b>	<b>3368.23</b>	<b>20694.42</b>
13. Normal Central Assistance	687.92						
14. ACA for EAP							
15. Others	1981.04						
<b>C. Aggregate Plan Resources (A+B)</b>	<b>8250.01</b>	<b>9697.59</b>	<b>10538.07</b>	<b>11018.13</b>	<b>13209.42</b>	<b>13846.80</b>	<b>58310.00</b>
<b>D. STATE PLAN OUTLAY</b>	<b>8250.01</b>	<b>9697.59</b>	<b>10538.07</b>	<b>11018.13</b>	<b>13209.42</b>	<b>13846.80</b>	<b>58310.00</b>

**Annexure 2A**  
**Agriculture : Projected Area, Production and Productivity of**  
**Agricultural Crops**

(area in lakh hectares, production in lakh MT, productivity in q/ha)

Year	Crop	Area	Production	Productivity
2007 - 08	Rice	34.78	55.65	16.23
	Maize	6.85	17.40	25.41
	Pulses	7.70	7.01	9.14
	Wheat	21.53	46.29	21.45
	<b>Total</b>	<b>70.66</b>	<b>126.35</b>	<b>17.88</b>
	Oilseeds	1.59	1.39	8.76
2008 - 09	Rice	34.58	60.62	17.53
	Maize	7.05	20.02	28.36
	Pulses	7.90	7.74	9.84
	Wheat	21.36	46.67	21.85
	<b>Total</b>	<b>70.89</b>	<b>135.05</b>	<b>19.05</b>
	Oilseeds	1.63	1.48	9.01
2009 - 10	Rice	34.38	64.63	18.83
	Maize	7.25	22.69	31.31
	Pulses	8.10	8.51	10.54
	Wheat	21.19	47.15	22.25
	<b>Total</b>	<b>70.72</b>	<b>142.98</b>	<b>20.22</b>
	Oilseeds	1.68	1.56	9.26
2010 - 11	Rice	34.18	68.70	20.13
	Maize	7.45	25.63	34.46
	Pulses	8.30	9.30	11.24
	Wheat	21.02	47.61	22.65
	<b>Total</b>	<b>70.76</b>	<b>151.24</b>	<b>21.37</b>
	Oilseeds	1.72	1.63	9.51
2011 - 12	Rice	33.98	72.72	21.43
	Maize	7.65	28.61	37.41
	Pulses	8.50	10.12	11.94
	Wheat	20.85	48.06	23.05
	<b>Total</b>	<b>70.78</b>	<b>159.51</b>	<b>22.53</b>
	Oilseeds	1.77	1.73	9.76

**Annexure 2B**  
**Agriculture : Fruit : Projected Area, Production and**  
**Productivity of Eleventh Plan**

(area in lakh hectares, production in lakh MT, productivity in MT/ha)

Year	Fruit	Area	Production	Productivity
2007 - 08	Mango	1.440	14.36	9.97
	Litchi	0.290	2.98	10.31
	Banana	0.300	6.90	23.00
	Guava	0.255	3.42	13.41
	Makhana	0.130	0.56	4.29
2008 - 09	Mango	1.480	16.19	10.94
	Litchi	0.300	3.19	10.62
	Banana	0.320	8.32	26.00
	Guava	0.260	3.53	13.58
	Makhana	0.170	0.76	4.47
2009 - 10	Mango	1.520	18.10	11.91
	Litchi	0.310	3.39	10.93
	Banana	0.340	9.86	29.00
	Guava	0.265	3.64	13.75
	Makhana	0.210	0.98	4.65
2010 - 11	Mango	1.560	20.09	12.88
	Litchi	0.320	3.60	11.24
	Banana	0.360	11.52	32.00
	Guava	0.270	3.76	13.92
	Makhana	0.250	1.21	4.83
2011 - 12	Mango	1.600	22.16	13.85
	Litchi	0.330	3.81	11.55
	Banana	0.380	13.30	35.00
	Guava	0.275	3.87	14.09
	Makhana	0.290	1.45	5.01

**Annexure 2C**  
**Agriculture : Vegetables : Projected Area, Production and**  
**Productivity of Eleventh Plan**

(area in lakh hectares, production in lakh MT, productivity in MT/ha)

Year	Fruit	Area	Production	Productivity
2007 - 08	Cauliflower	0.61	10.00	16.40
	Brinjal	0.57	11.69	20.50
	Okra	0.58	8.82	15.20
	Potato	1.42	15.88	11.18
	Tomato	0.48	8.11	16.90
2008 - 09	Cauliflower	0.62	10.42	16.80
	Brinjal	0.58	12.18	21.00
	Okra	0.59	9.09	15.40
	Potato	1.43	17.39	12.16
	Tomato	0.49	8.72	17.80
2009 - 10	Cauliflower	0.63	10.84	17.20
	Brinjal	0.59	12.69	21.50
	Okra	0.60	9.36	15.60
	Potato	1.44	18.92	30.14
	Tomato	0.50	9.35	18.70
2010 - 11	Cauliflower	0.64	11.26	17.60
	Brinjal	0.60	13.20	22.00
	Okra	0.61	9.64	15.80
	Potato	1.45	12.47	14.12
	Tomato	0.51	10.00	19.60
2011 - 12	Cauliflower	0.65	11.70	18.00
	Brinjal	0.61	13.73	22.50
	Okra	0.62	9.92	16.00
	Potato	1.46	22.05	15.10
	Tomato	0.52	10.66	20.50

**Annexure 3A**  
**Roads : Projected Physical Targets for National Highways Development**  
**During the Eleventh Plan**

(Length in KM )

Year	NHDP-1(GQ)	NHDP-II (E-WC)	NHDP-III	Budhist Circuit	Newly Declared NHs	Total
2006-07	204	103	45	-	-	352
2007-08	-	205	300	12	180	697
2008-09	-	205	300	114	400	1019
2009-10	-	-	245	114	400	759
2010-11	-	-	-	-	400	400
2011-12	-	-	-	-	402	402
<b>Total</b>	<b>204</b>	<b>513</b>	<b>890</b>	<b>240</b>	<b>1782</b>	<b>3629</b>

**Annexure 3B**  
**Roads : Projected Physical Targets for State Highways**  
**Development During the Eleventh Plan**

(Length in KM)

Year	SH-RSVY	SH-New	Total
2006-07	203	100	303
2007-08	961	200	1161
2008-09	1020	200	1220
2009-10	-	200	200
2010-11	-	200	200
2011-12	-	154	154
<b>Total</b>	<b>2184</b>	<b>1054</b>	<b>3238</b>



**Annexure 3C**  
**Roads : Projected Physical Targets for MDR Development**  
**During the Eleventh Plan**

(Length in KM)

Year	State Plan	NABARD	CRF/BADP /eco.Imp & Inter- state Schemes	12th Finance Comm.	Total
2006-07	1000	394	190	133	1717
2007-08	1100	140	137	133	1510
2008-09	1100	-	68	120	1288
2009-10	1100	-	68	121	1289
2010-11	1100	-	62	-	1162
2011-12	686	-	62	-	748
<b>Total</b>	<b>6086</b>	<b>534</b>	<b>587</b>	<b>507</b>	<b>7714</b>

**Annexure 4A**  
**Health : Status of present Infrastructure**

Sr. No.	Centres	Norms	Required	Existing Functional	Short Fall
1.	Health Sub Centre	1/5000	16576	8,858	7718
2.	Primary Health Centre	1/3000	533 2764	398 (PHC) (Corresponds to Block 1,243 (Addl. PHC)	135 1521
3.	Referral Hospitals	1/12000	619	70	549
Centres			Norms	Existing	Short fall
Sub-Div. Hospitals			101	23	78
Dist Hospitals			38	24	14

**Annexure 4B**  
**Health : Status of Shortage of trained personnel**

Category	Required	Sanctioned	Working	Short fall
Medical Officers	8500	5124	3860	3376
Auxiliary Nurse Midwife (ANM)	34000	11294	10055	19945