



GOVT. OF SIKKIM

# ***Economic Survey***

## **2006-2007**

## Foreword

It is heartening to note that the Economic Survey of Sikkim for the year 2006-2007 is now before us for our perusal. This document makes a very detailed presentation of what the Government has done in the last decade or so and what it wants to do both in very near future and in the long run. More than this the Economic Survey provides the people of Sikkim and outside an objective assessment and analysis of the development process in Sikkim. It very frankly puts across the weaknesses of the system, gaps in delivery services and inadequacy in thinking, commitment and dedication. It clearly brings out the magnificent achievements the Government has been able to make in a diverse fields of public interest and welfare.

I am personally very delighted to have this document in place as it could give us fresh directions and newer strategies in achieving our larger development and societal goals. This is another feather in Sikkim's intellectual development process also. Last year we presented the first Economic Survey of Sikkim in the State Legislative Assembly. We would now like to make it a regular feature and will be placed before the Sikkim Legislative Assembly every year on the eve of the presentation of the Budget.

I heartily congratulate Prof Mahendra P Lama, Member, Sikkim State Planning Commission and the Chief Economic Adviser to the Chief Minister of Sikkim for writing this comprehensive Economic Survey of Sikkim. I am sure given the commitment of the Sikkim State Planning Commission this document will have far reaching policy implications. I extend my sincere thanks to Prof Muchkund Dubey, Vice Chairman and other distinguished members of the Sikkim State Planning Commission for this commendable work. I would also like express my gratitude to all the heads of the Departments and other officials for extending full support to the Sikkim State Planning Commission in producing this document.

Dr Pawan Chamling  
Minister of Finance and Chief Minister  
Government of Sikkim

February 24, 2007

## Preface

For last many years the Government of Sikkim has been trying to prepare an up-to-date annual document that can be referred by the users of all spectrums. However, it could not be done because of a number of constraints including the data gaps, absence of analytical capacities and most importantly a commitment to produce such document on a regular basis. The State Planning Commission was given the responsibility of preparing *Economic Survey* by Dr Pawan Chamling, Chairman of the Commission and Chief Minister of the State only a couple of months back. Therefore, the first Economic Survey 2005-2006 was presented in the Sikkim Legislative Assembly by the Chief Minister Dr Pawan Chamling in February 2006. This is the second Economic Survey covering the period 2006-07. A number of departments either did not respond or responded very late in terms of providing us their inputs. As a result there are still quite few gaps in the Survey.

The State Planning Commission looks forward to receiving the comments from all sections of the Sikkimese society and experts and users from outside on this document. This will help us in making the document more focused, objective and useful for all varieties of users. The State Planning Commission expresses its gratitude to the Dr Pawan Chamling, Chairman, Sikkim State Planning Commission, Prof Muchkund Dubey, Vice Chairman and all the members of the Commission for their support. The State Planning Commission also acknowledges the inputs provided by various Departments for the preparation of this document.

**18 February 2007**

**Prof Mahendra P Lama  
Member  
Sikkim State Planning Commission  
Gangtok**

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# Chapter 1

## Sikkim : A Macro Assessment

*“Our interest on the ecological front, our commitment to social justice, our strive for a high growth regime and our conviction to make Sikkim heaven on earth should all be reflected in both the national and State plans of the next five years. The higher the level of attainment we have, the higher will be the degree of happiness and tranquility in the State. Our Government is totally committed to this, dedicated to achieve this and will strive to come out with flying colours”.*

----- Pawan Chamling, Chief Minister of Sikkim

Sikkim is a strategically located tiny hill State with an area of 7096 sq km. One of the special category States in the country Sikkim is also the 8<sup>th</sup> Member of the North Eastern Council. The lofty mountains, perennial glaciers, lush green hills, valleys and the rich bio-diversity constitute the magnificent watershed for sustainable social and economic development and also for enriching the traditional and cultural heritage of the State. Sikkim is encircled by three different international boundaries. To its west lies Nepal and Bhutan, to its east Tibet Autonomous Region of People’s Republic of China and to its south Darjeeling Gorkha Hill Council of West Bengal. The State joined the democratic mainstream of the Indian Union only 32 years ago in 1975. Since then progress in democratic and planned development has generated ample social and economic security to the masses. Their choices are broadened and their hopes transformed into opportunities. The journey so far has been rewarding and the development efforts satisfactory. Sikkim’s basic indicators are given in Table 1.1.

However, no development programme and orientation can remain the same for ever. It has to undergo a whole range of transformation depending upon the changing aspirations of the people, broadening nature of development instruments and

Table 1.1

**Sikkim : Basic Indicators**

Area (sq. kms.)	7096
Population 2001	540851
Urban Population (%)	11.1
Rural Population (%)	88.9
Decennial growth rate 1991-2001	33.1
Population density (per sq. km)	76
Districts (no.)	4
Sub-divisions (no.) (2001)	9
Zilla Panchayat wards (no.)	100
Gram Panchayat units (no.)	166
Gram Panchayat wards (no.)	886
Revenue blocks/ villages (no.)	454
Towns (no.)	8
Households (no.) 2001	114223
Literacy rate 2001	68.8
Males	76
Females	60.4
Total main workers (%) 2001	39.4

agencies, new dimensions of social problems and economic ills, increasing resource crunch, sustainability imperatives of the State and the growing complexity in the functioning of both national and international systems. In other words, the development challenges in the 21st century for a State like Sikkim are formidable, enormous and complex. The devising of new strategies, approaches and instruments for meeting these challenges itself is a complicated and serious task. The State of Sikkim has been debating and deliberating on the entire spectrum of new challenges particularly in the context of globalisation during the last over one decade. Thus a very systematic thought has gone into the process of devising the new strategies, approaches and instruments that fit into the development needs and goals of the State. These are all duly reflected in the 10th Five Year Plan and forthcoming 11<sup>th</sup> Five Year Plan documents of the State.

## **I Economic Performance**

The gross domestic product (GDP) of the State increased from Rs.403 crores in 1993-94 to Rs. 1717 crores in 2005-2006. The growth rate has been relatively much higher than the national average. During the last four years of the 10<sup>th</sup> Plan (2002/03-2005/06) the State GDP has grown over 13 percent per annum at current prices. If this is maintained Sikkim would for the first time achieve a two digit growth rate.

As mentioned in the 10<sup>th</sup> Five Year Plan draft document of the Union Government, with a growth rate of 8.3 percent in the 9<sup>th</sup> Five Year Plan (1997-2001) Sikkim was second to only Pondicherry, Chandigarh and Delhi. The State was ahead of many other well performing states. The growth estimates in the last four years of the 10<sup>th</sup> Five Year Plan do indicate that Sikkim has not only maintained growth regime achieved in the Ninth Five Year Plan but also strived to enter into a higher and double digit growth rate in the 10<sup>th</sup> Plan. This would certainly help achieve the national goal of 8 percent growth rate for the 10<sup>th</sup> Plan period (2002-2007).

The per capita gross domestic product recorded over three fold increase from Rs.8457 in 1993-94 to Rs. 29808 in 2005-06. Among the 28 States and 7 union territories in the

country Sikkim has the 5<sup>th</sup> highest growth rate in per capita income and 14<sup>th</sup> highest per capita income. (Table 1.2)

Table 1.2

**Sikkim : Estimates of Gross Domestic Product and Per Capita Income at Current Prices**

Year	GSDP (Rs Crores)	% Change over Previous Year	Per capita GSDP (Rs)	% Change over Previous Year
<b>1993-94</b>	<b>403</b>		<b>8457</b>	
<b>1994-95</b>	<b>440</b>	<b>9.18</b>	<b>8714</b>	<b>3.03</b>
<b>1995-96</b>	<b>520</b>	<b>18.18</b>	<b>10056</b>	<b>35.40</b>
<b>1996-97</b>	<b>592</b>	<b>13.85</b>	<b>11141</b>	<b>10.78</b>
<b>1997-98</b>	<b>680</b>	<b>14.86</b>	<b>12644</b>	<b>13.49</b>
<b>1998-99</b>	<b>787</b>	<b>15.74</b>	<b>14652</b>	<b>15.88</b>
<b>1999-2000</b>	<b>844</b>	<b>7.24</b>	<b>16343</b>	<b>11.54</b>
<b>2000-2001</b>	<b>971</b>	<b>15.04</b>	<b>18261</b>	<b>11.73</b>
<b>2001-2002</b>	<b>1080</b>	<b>11.22</b>	<b>19568</b>	<b>7.16</b>
<b>2002-2003</b>	<b>1234</b>	<b>14.26</b>	<b>22239</b>	<b>13.65</b>
<b>2003-2004 (PE)</b>	<b>1386</b>	<b>12.31</b>	<b>24621</b>	<b>10.71</b>
<b>2004-2005 (QE)</b>	<b>1531</b>	<b>10.46</b>	<b>26851</b>	<b>9.05</b>
<b>2005-2006 (AE)</b>	<b>1717</b>	<b>12.15</b>	<b>29808</b>	<b>11.01</b>

Notes : PE – Provisional Estimate; QE – Quick Estimate ; AE - Advance Estimate

The sectoral distribution of the State income shows that the primary sector has either regressed or stagnated. The share of the secondary sector has gone up steadily. However, there has been a marked growth in the share of the tertiary sector. The primary sector's share declined from 39.41 per cent in 1995-96 to a quickly estimated 20.54 percent in 2004-05 whereas the share of the secondary sector increased from 18.80 in 1995-96 to 30.22 per cent in 2004-05. (Table 1.3)



Table 1.3

**Sikkimese Economy : Structural Change in the Gross Domestic Product  
(Percentage share)**

<b>Sectors</b>	<b>1980-81</b>	<b>1985-86</b>	<b>1990-91</b>	<b>1995-96</b>	<b>1999-2000</b>	<b>2004-2005 (QE)</b>
Primary	51.59	50.96	46.49	39.41	25.52	20.54
Secondary	18.11	16.46	12.97	18.80	19.73	30.22
Tertiary	30.30	32.58	40.54	41.79	54.75	49.24

QE : Quick Estimate

There has been a steady increase in the share of the tertiary sector also, which recorded an increase from 41.79 per cent to 49.24 per cent during the same period. Within the tertiary sector also, sub-sectors like transport, banking, insurance, communications and public administration are accounting for a much larger share of the State's GDP. Public administration alone contributes to the extent of 30 per cent.

Plan allocations in different plans have recorded very significant jumps. The allocations to different sectors have also been as per the priority discussed and declared by the Government and also the needs and aspirations of the Sikkimese people at large. (Table 1.4)

Table 1.4  
**Sectoral Allocations of Actual Expenditures in the 7<sup>th</sup>, 8<sup>th</sup>  
and 9<sup>th</sup> Plans and the proposed allocations of outlays in the 10<sup>th</sup> Plan (per cent)**

<b>Sectors</b>	<b>7th Plan (1985-90)</b>	<b>8th Plan (1992-97)</b>	<b>9th Plan (1997-2002)</b>	<b>10th Plan (2002-2007)</b>
Agriculture and Forests	18.29	16.72	9.6	12.37
Rural Development	1.81	3.34	4.05	3.3
Irrigation	3.55	1.85	2.1	1.23
Power	9.64	13.4	12.0	21.71
Village Industries	1.34	1.48	1.32	1.24
Other Industries	2.04	2.0	1.16	0.56
Roads and Bridges	16.68	11.74	12.5	8.66

Road Transport	3.13	1.3	0.68	0.48
Science and Technology	0.08	0.30	0.31	0.4
Ecology and Environment	0.15	0.22	0.12	0.12
Tourism	0.75	0.97	1.27	1.2
Civil Supplies	0.18	0.38	0.18	0.23
General Education	13.17	10.82	17.2	13
Sports and Youth Affairs	0.51	0.33	0.6	1.46
Art and Culture	0.93	0.51	1.0	1.7
Medical and Public health	1.93	9.2	5.6	4.84
Water Supply and Sanitation	6.41	8.16	2.8	6.45
Housing	1.43	5.11	9.3	4.0
Urban Development	0.88	1.33	1.8	6.0
Information and Publicity	0.40	0.37	0.5	0.45
Nutrition, Women and Child Welfare	0.78	1.13	1.75	2.52
Public Works	2.14	2.87	2.0	2.0
Others	13.78	6.47	12.16	6.08
<b>Grand Total (Rs Crores)</b>	<b>216.67</b>	<b>770.36</b>	<b>1091.32</b>	<b>1655.74</b>

The thrust of the 9th Plan was to accelerate the pace of development by strengthening the core sectors of the economy. This was mainly aimed at tackling the problem of poverty and deprivation and improving the quality of life of the people. A great deal of emphasis was laid on human resources development and the empowerment of the people through access to basic education, health facilities and skill development. Some impressive results were achieved during the 9<sup>th</sup> Plan in realising these goals.

The State and the country have now completed the final year of the 10th Plan (2002-2007) and is preparing to start with the 11<sup>th</sup> Five Year Plan (2007-2012).. The 10<sup>th</sup> Five

Year Plan started with a long term objective of accelerating eco-friendly sustainable development with equity and social justice. The target rate of growth has been aimed at 10 % per annum. The overall emphasis has been on a steady improvement of all the human development indices. (Table 1.5) The State has shown very significant progress in all fronts. The final comprehensive data of the achievement of the 10<sup>th</sup> Plan are now awaited.

Table 1.5

**Key Targets in the 10<sup>th</sup> Plan**

<b>Items</b>	<b>2001</b>	<b>10th Plan (2002-2007)</b>
Growth in GSDP	7%	10%
Growth in per capita income	3.5%	6.5%
People below the poverty line	40%	15%
Food grain production	1 lakh ton	1.15 lakh ton
Level of literacy	69.80%	85%
Infant mortality rate	49 per thousand	20 per thousand
Rural Electrification	90 %	100 %
Rural water supply	85 %	100 %
Immunization		100 %

Within this broad framework a determined effort has been made to substantially alleviate poverty and reduce unemployment by pursuing the most up-to-date approach and strategy developed at the national and international level. Measures for bridging the gap in income and other inequalities have been continued and intensified. Effective measures have been taken for the removal of gender bias in education and access to health services. Though the sex ratio in the State is highly favourable in the 0-6 age group, it is noticed that the ratio becomes unfavourable to females as the age group increases. Besides correcting the ills that adversely affect the sex ratio in the State, protection of the interest of women and children and measures for the empowerment of

women and marginalised sections of the community have been a principal focus of attention.

Continued attention has been paid to the better utilisation of existing assets, improvement in the efficiency of use of resources and reduction in the incremental capital-output ratio. Attentions have been given on development of human resources and the more efficient utilisation of both human and capital resources. Much greater emphasis has been placed on the application of science and technology across the sectors of the economy, particularly in agriculture, horticulture, forestry, transport, power and tourism.

Steps have been taken for facilitating increasing participation of the private sector in different sectors of the economy and fostering partnership between the private and public sectors. There has been renewed emphasis on major investments in infrastructure - both physical and social as it constitutes the main constraint to development in other sectors. The State has been able to make a big dent in the private investment front. It held investor's forum meetings in major cities like Delhi and Calcutta and has operationalised the North East Industrial Policy. As result a range of investors have shown their interest in initiating ventures in Sikkim. The State in the last few years have private ventures including that of Labot Glass Bottles Factory, Mount Distilleries, Ayurvedic units of BK Crests and Chaudhary Group of Nepal.

Interactions of the Sikkimese delegates with a range of investors, and tourism agencies during their visits to South East Asian and European countries in the beginning of 2006 have led to a number of MOUs. This includes MOUs with a Dutch consortium led by the famous Van Rijn Trading Group in Holland, with AMCOT, a branch of GASSER HOLDING of Switzerland and with Building and Construction Authority of Singapore. All of them have visited Sikkim and have started working on joint ventures in areas like watch making, horticulture and floriculture, urban development and tourism.

Special attention has been paid to providing effective governance with emphasis on decentralisation, empowerment of the people at the grass root level and the involvement of the civil society in the development process. The State's vision of empowering the people economically, socially and politically by democratic decentralisation and by forging strong partnership with all agents of development like PRI, CBOs and NGOs has been implemented.

As against lakhs of crimes in many other states, with only 552 cases registered under the IPC during whole of 2005, Sikkim remains the most peaceful, harmonious and stable border state in the country. Peace, tranquility and stability that prevail in Sikkim have been quoted as a major example in various national and international forums. Many states are now trying to study and replicate the roots and genesis of these great Sikkimese values.

The State's policy of diversifying the development partners with a view to bring better technology, effective governance and management and qualitative funding has paid it handsomely. A large number of development and donor agencies including World Bank, UNDP, AUSAID and Asian Development Bank have their projects in the State. Swiss Agency for Development Cooperation (SDC) has renewed development participation for another five years now.

As a result,

- State now has over 75 percent literacy rate (69.80 in 2001) against the all-India average of about 65 %.
- The infant mortality rate has come down to 33 per thousand as against the national figure of 60.
- The birth and death rates have come down to 21.9 and 5 per 1000 population as against 24.8 and 8 respectively of all India figures.

- Over 90 per cent of the villages have been electrified
- Over 85 per cent of the identified habitations have been provided with drinking water supply.
- The human development index recorded a marked improvement from of 0.504 in 1991 to 0.532 in 1998
- In keeping with the policy of private sector participation, a range of educational – professional institutions and industrial units are being set up with its support.
- Adequate actions have now been taken for implementing and realizing the decentralisation goals as elucidated in the provisions of the 73<sup>rd</sup> and 74<sup>th</sup> amendments of the Constitution.
- Total fertility rate has gone down to 2.0
- Percentage covered by institutional deliveries have gone up from 32 in 1998 to 49 in 2005
- Antenatal care has gone up from 72 % in 1998 to 90 % in 2005
- Contraceptive use coverage has gone up from 54 % in 1998 to 58 % in 2005
- Vaccination coverage has gone up from 47 % in 1998 to 70 % in 2005
- Trends in HIV/AIDS knowledge (ever married 15-49 women heard of AIDS) has gone up from 54 % in 1998 to 75 % in 2005

The traditional trade route to Tibet Autonomous Region of China through Nathu la pass has now been reopened with the unstinted support of the Union Government. This historic route remained one of the most robust trade routes to Tibet Autonomous Region and other parts of China and Central Asia till 1962. The State plans to gradually convert this shortest and easiest overland access to China as one of the resilient means of economic and services exchanges over the next few years. Sikkim has again emerged to be the bridge between two oldest civilizations. After the reopening of this traditional trade route, the State was able to convince the entire country about how in the globalised world order, border stands more as versatile opportunities rather than mere symbols of

national security. This is partly indicated by a host of activities recently initiated in improving connectivity and other physical and social infrastructures in the borders by the Union Government.

Sikkim's consistent efforts in making natural resources as the basis of its development have started paying dividends. The State is now able to attract a range of independent power producers and public sector units in the State to harness the huge hydel power potentials. The State is commissioning the 510 MW Teesta V project in the second half of 2007.

The State has signed agreements with Independent Power Producers (IPPs) for generation of 3364 MW of hydel power. The related DPRs are ready as well and developers are ready for signing more agreements for generating additional 1395 MW of power. Most of these projects are expected to be commissioned by 2012. This is a major indication of the conscious policy shift the state is making in handing over major infrastructural projects to the private sector.

Sikkim was given the best State Award in education and investment climate in the small state category by the *India Today* Group of publications in 2005. It declared as the Best State among the Eastern and North Eastern states in the country in a survey done by the *India Today* magazine in 2006. State was also declared the Third Best State in the country in the implementation of Panchayati Raj programme by the Ministry of Panchayati Raj.

Civil society organisations are being increasingly involved in the process of development. They are invited to play their role mainly in the joint management with the State, of forest and watershed, rural development activities and in taking up pilot projects for integrated development of education and health.

The agriculture sector provides a special challenge in the 11<sup>th</sup> Five Year Plan. Whereas on the one hand, productivity in this sector is declining, its growth and development is still critical for providing employment, removing poverty and in preventing an exodus of the rural population to the urban areas. In this sector, the main emphasis will now be on the induction of research and development, expansion of extension services on a very large scale and to marketing. An Agriculture Export Zone (AEZ) is being established which is likely to give a solid boost to the marketing of agricultural and horticultural commodities of the State.

In order to make real dents into the floriculture, horticulture, tourism and energy sectors, the State government is reexamining both the country and international perspectives. The State Chief Minister led a delegation to South East Asian and European countries to explore the possibility of establishing marketing linkages and promoting private investors participation in other ventures in the State. Though not many institutions and people were aware of Sikkim's strong natural resource base, what came out very clearly was the fact that Sikkim has distinct advantages in most of its floriculture and horticulture related produces and tourism activities. The State's farm gate prices are almost 1/5<sup>th</sup> of the prices they fetch in Singapore or Bangkok. At the same time the Sikkimese farmers can reach both these destinations within 5-10 hours. This is where the State Government is doubly re-emphasising in giving a concrete shape to the Country's Look East Policy.

The percentage of population below poverty line has gone down steadily after recording sharp jump in 1993-94. It is expected to go down steadily towards the end of 10<sup>th</sup> Plan in 2006-07 for which data are awaited. As per the preliminary findings of the State's Socio-Economic Census 2005, the percentage of households below poverty line has gone down drastically to 19.2 percent .

Keeping the tradition of intimate conservation of its natural resources and environment the State set up Green Missions spread throughout the State. People have overwhelmingly responded to these missions. The Chief Minister personally led a strong delegation from Sikkim to World Heritage Centre at UNESCO headquarters in Paris to



plead for enlisting Dubdi Monastery built in 1643 and Kechopaldri Lake in the World Heritage List. The delegates also went to Kew Botanical Garden and British Library in London to request for the restoration of heritage items of Sikkim including plant varieties, documents and artifacts. Sikkim is the first State in the country to have effectively banned the use of non-biodegradable products like plastic bags and grazing in the reserve forest areas. The State's forest cover has increased from 42.3 % in 1991 to 45.97 % in 2005-06.

## **II Fiscal Situation**

Fiscal situation has again started showing a negative trend. Though this is mainly attributed to the award of the 12<sup>th</sup> Finance Commission, there are areas where the Government has not been able to prudently manage its financial resources. Though, the debt burden of the State is still very high with the commensurate obligation for the repayment of the principal and interest, the State's Own Resources (SORs) have started increasing in the recent years. There is a considerable scope for widening the tax base by covering commercial crops, urban utilities, services including professional activities. As the road conditions improve, there will be scope for levying road tolls. A far more important source of revenue is going to be earnings from the additional mini and mega hydel projects being set up in the power sector and from the large schemes to be taken up in the tourism sector. The losses incurred in public sector enterprises will have to be minimized by either making disinvestment or by closing down some of these units. The State will also redouble its effort to mobilise more resources by undertaking additional projects to be financed from Central resources and under Externally Aided Programmes (EAPs).

However, the State Government feels that the present phase of deficit is both temporary and transitional. It would not take long to overcome this phase. Three major newer sources of revenue which are likely to change the entire composition of revenue collection in the state are the reopening of Nathu la trade route, commissioning of a number of small and mega hydel projects and state's major foray into floriculture, horticulture and tourism activities.

i) Majority of the planned hydel projects will be completed in the course of next 5-8 years which are likely to provide an unprecedented quantum of revenue generation. The hydel power projects are projected to yield a total revenue of Rs 149 crore on 2010 and Rs 1140 crore in 2020.

ii) The reopening of Nathu la trade route would bring a fresh dynamism to the State's resource mobilisation effort.

iii) Most of the projects in horticulture, floriculture and agri-business will be in place within next 4-6 years thereby leading to a diverse chain of revenue sources.

iii) The investment the State is making on tourism sector will start yielding fruits within next couple of years and if tourism is finally integrated with the trade route through Nathu la then the revenue position could be drastically improved.

iv) A significant portion of the government personnel will be retiring by 2007-2008. The State plans to do away with all the vacated posts so that the size of the government and the expenditure therein would remain tremendously reduced.

### **III Revenue Mobilisation**

Sikkim has started to generate handsome amount of revenue on its own that will ultimately lead the State to a self-sustainable situation. This has given a lot of confidence to the investors and donors. Sikkim is likely to attract a lot of resources - both physical and financial - from outside the State also. The State will also have flexibility in using these resources. The composition of revenue generated and mobilized by the State Government do indicate that the State is moving on to a direction where the State will have efficient collection and allocation of resources to provide a better standard of services to the people. (Table 1.6)

Table 1.6  
**State's Revenue**

<b>Tax Revenue</b>	<b>Rs Crore</b>
1997-98	36.50
2000-01	65.39
2005-06	147.20
<b>Non-tax Revenue</b>	<b>Rs Crore</b>
1997-98	10.22
2000-01	65.63
2005-06	113.94

The State Government has undertaken fiscal reforms. On the expenditure side, additional austerity measures for containing expenditure are being adopted. There has been a realization that the expenditure in terms of providing subsidies in very many social sectors has been both high and unsustainable. The subsidies are now being focused only on the most deserving target groups. To right size the Government and to provide opportunity to employees intending to retire from service voluntarily before their date of superannuation, the State Government introduced the Voluntary Retirement Scheme (VRS) in the State. It received an overwhelming response with a total of 1300 applications being received within the one month notice period. However, as the total budgetary support for the VRS was only Rs. 7.00 Crores, only 150 cases could be accepted.

#### **IV 12<sup>th</sup> Finance Commission Award**

The State has been raising the issue of the injustice done to Sikkim in the award by the 12<sup>th</sup> Finance Commission. The award of Rs 188.67 crores as against the projection for

post-devolution non-plan revenue deficit grant of Rs 2681.50 crores for 2005-2010 and the abrupt withdrawal of subsidies in the power and transport sector have made it extremely difficult to both carry forward the reform process and achieve a higher growth regime of 10 percent. This has naturally tended to jeopardize the implementation of the plan and other development programmes. Unlike all the other North Eastern States which have received more than what they received under the 11<sup>th</sup> Finance Commission award, Sikkim was awarded a strikingly lower amount of Rs 188.67 crore as against the awards of Rs 841 crores by the 11<sup>th</sup> Finance Commission.

On top of this, there was a sudden withdrawal of external technical assistance in areas of agriculture, water and sanitation from smaller donors. All these have made the State's debt situation and fiscal situation difficult. It is politically unsustainable, socially impossible and economically imprudent to throw upon the people all the burden of cost of living, low productivity, high labour and transport cost, high educational and health costs that the state located in the hilly region faces.

This has possibly happened because of the following reasons:

i) The Twelfth Finance Commission had taken into account the large net lottery revenue of Rs.84 crore from the online lottery in 2002-3 for working out the three year average for 2000-03 which was held constant in the forecast period. The actual receipt came down to a little over Rs.17 crore in 2003-04. The Finance Department of the State Government projected a receipt of Rs.17 crores, for the entire five-year period, but the Finance Commission did not accept it and projected the average of the first three years of the receipts for the entire period. This is by far the most important reason for the discrepancy.

ii) The projections of the tax revenues of the State for 2005-10 period by the 12<sup>th</sup> Finance Commission (TFC) are too optimistic. This is mainly because of the high tax revenue growth of the past used for determining the base year figure for 2004-05. A

principal reason for the high growth of the past is the tax revenue from lottery which will not continue.

iii) The 12<sup>th</sup> Finance Commission's decision to exclude receipt and expenditure under power, transport and dairy in calculating the overall non-plan deficit or surplus has also adversely affected the State Government. These departments have an over-all non-plan deficit, which the 12<sup>th</sup> Finance Commission has regarded as implicit subsidies.

As a Special Category State, the Commission possibly presumed that Sikkim is also availing of the facility of diverting 20 percent of plan assistance for meeting the Non-Plan Revenue deficit. In the case of Sikkim it is not so. The State has consciously avoided this slippery path both in view of its possible adverse impact on development performance and also to thwart entry into a regular practice of such diversion.

Despite State's honest and well studied proposals placed before the 12<sup>th</sup> Finance Commission, its recommendations have been very unfavorable to the State. In a relative sense, the state finds it to be discriminatory.

The Chief Minister wrote to the Prime Minister and other concerned Ministries emphasizing on the urgent need to restore the non-plan grants of the State of Sikkim to at least the level provided by the 11<sup>th</sup> Finance Commission. On its part, the State has assured the Union Government that it would enact the Fiscal Reforms and Budget Management (FRBM) Act immediately and strictly abide by all the provisions therein and also steadily disinvest the sick public sector units

## **V Decentralisation and Devolution**

Besides the timely elections to the Panchayats, the State Government has given increased financial and other powers to the rural leaders. These Panchayats are now increasingly delegated with the financial power to utilize for the development of their respective Panchayats. To minimize the overhead burden faced by the grass root level elected representatives, the State Government is paying a fixed monthly honorarium to all Zilla and Gram Panchayat members.

The State Government has now given the administrative control of all government institutions like primary schools, primary health sub-centres, vlc centres, libraries, community information centres, rural tourism, minor irrigation works, community centres, grounds for sports etc. falling under a Gram Panchayat Unit (GPU) to the President of the particular Gram Panchayat. The President will be assisted by Government functionaries like Headmaster/Headmistress of Primary Schools, Medical Officer in-charge of PHSC or PHC, V.L.O., V.L.W., Stockman center etc. who will act as the Members of their respective GPU Committee and manage these institutions under the President. The State has established District Planning Committees, District Technical Support Committees and Gram level Planning Forums for this purpose.

The State Government has taken this decision as per the commitment it has made at the time of Panchayat Elections. GPUs will now have the power to prepare, sanction, supervise and implement various schemes in their own areas. To enable them to exercise these powers each GPU in the State is being provided with an amount of Rs. 10 lakhs and four Zilla Panchayats are being allotted with an amount of Rs. 50 lakhs each. This will benefit all 166 GPUs and four Zilla Panchayats in the State.

Over 102 GPUs have self-contained Panchayat Bhavans and many more such Bhavans are being constructed. Apart from this, GPUs also have bank accounts in district headquarter operated by DDO. Each GPU has about Rs. 60,000/- in bank accounts in their names.

## **VI Threshold of the 11<sup>th</sup> Plan**

In spite of these very impressive achievements, the State still confronts a number of problems on the threshold of the 11<sup>th</sup> Five Year Plan (2007-2011). The State is seriously approaching the entire 11<sup>th</sup> Five Year Plan from a new perspective for which it has laid firm grounds in the last few years. Most of the development projects in the 11<sup>th</sup> Plan will be primarily based on the proposals of the people in both rural and urban villages. The State Planning Commission and the concerned departments consulted the people for a

comprehensive approach plan. The draft 11<sup>th</sup> Plan document is ready now. This is the best way to ensure ownership of development project at the most local level.

- ➔ Despite the very impressive rate of increase in State domestic product and per capita income, the percentage of people living below the poverty line is still relatively higher. The skewness in the distribution of income continues to be a major challenge.
- ➔ Again, in spite of the high rate of growth of the SGDP, employment opportunities have not commensurately increased. Though this is mainly because of the concentration of employment opportunities in the Government Sector, the incomes generated in the State are being spent on goods and services produced in other parts of the country, thereby leading to outflow of productive resources. By now at least 42 percent of the 1991 population who were then in the age group between 10-14 to 25-29 would have entered into the job market. This would imply that a significant number of able-bodied people are in the job market today.
- ➔ The agricultural production has been stagnating for some time for lack of modern practices and inadequate inputs like seeds, irrigation, fertilizers and marketing infrastructures. The horticulture and floriculture sectors are now emerging as a sector of promise.
- ➔ Though the level of literacy can be regarded as satisfactory as compared to the levels prevailing in other States, school drop out rates are found to be rather high and the quality of education still needs to be steadily improved.
- ➔ People continue to consider the Government as the only development agency. The need for diversifying the development partners by inducting non-governmental organizations and the private sector agencies particularly in the delivery of basic services, remains a major policy challenge.

- ➔ Another major task is the consolidation of the economic reforms introduced in the later half of the 9th Five Year Plan and during the 10<sup>th</sup> Plan. This process must not be reversed. Therefore the institutional gaps and weaknesses are to be constantly examined and corrected.
- ➔ The management of the fragile ecology of the State of Sikkim particularly when it largely supports the entire ecology of the major portion of the eastern Himalayas and the plains of the eastern India and neighbouring countries, has been a very daunting task. Making a success of community management has been a Herculean effort because of the inadequacies of resources, technological inputs and capacity of the rural households.

## **VII Socio-Economic Census**

The State is also now presenting this second comprehensive *Economic Survey*. The State Government for the first time conducted a comprehensive socio-economic census in the entire State in 2005. It provides blockwise, wardwise and householdwise impact assessment of development investment of last three decades. This has been done to assess the depth and spread of the various interventions the State has made. The Government will soon publish the same for wider dissemination and discussion. However, some preliminary findings are now available. Many of these findings are very revealing and could go a long way in both substantiating the serious developmental efforts put up by the Government and also pointing out the distortions and gaps in the development policies. Some of these findings are stated below.

- i) The literacy rate has now reached almost 75 percent. (74.3 %)
- ii) Out of the total 101607 houses, 29 percent live in pucca houses, 45 percent live in semi-pucca houses and over 26 percent live in kutcha houses.



iii) Out of the total 101607 households, the East district has the maximum percentage share of households i.e. 46 percent and the North district has the lowest share i.e. 6.19 percent.

iv) In the community wise distribution of households Rais with 14 percent share has the highest number of households and Dewans with 0.04 share has the lowest share. Bhutias have 8.67 percent, Lepchas 7.59 percent, Chettris 12.22 percent, Limboos 9.86 percent, Tamangs 4.61 percent and Kamis 4.12 percent.

v) Though the sex ratio at the State level is 942 females per 1000 males, the best sex ratio of 998 females per 1000 males is found in the 0-4 age group. This is a very strong indicator of respect for girl children in the state. It confirms that the people in the State do not practice ills like female foeticide. This ratio for most of the Indian states will be rather much lower.

vi) The religionwise distribution of population in the State shows that out of the total population of 521574, almost 60 percent are Hindus, almost 30 percent are Buddhists and almost 8 percent are Christians.

vii) Out of the total population of 521574, 12.23 percent hold Sikkim subject, 59.7 percent hold COI, 2.04 percent hold land parcha and 3.79 percent hold residential certificates. 22.18 percent come under non-local category.

viii) 3.43 percent of the people are physically challenged within which 31 percent had speech related problems, 21.3 percent had hearing related problem and 13.8 has sight related problem.

ix) There are 16254 unemployed people. North district had the least number of 635, followed by South 2633 and West 5473. The East district had the highest number of unemployed people 7513.

x) The percentage of households below poverty line has gone down drastically to 19.2 percent.

## **Role of the State**

*If we all want to go along with the national mainstream and if we want to play a leadership role in the national decision making process, we will have to make the development agents as diverse as possible. Unlike the traditional interventions where it was only the State and the Government, which solely played the role of development agent, now we have to recognize, identify and accept the role of private sector and the non-governmental organisations. These agents are not new to the Sikkimese soil. What we want now is to encourage them to play a more direct and active role rather than a marginal one.*

----- Pawan Chamling, Chief Minister of Sikkim

# Chapter 2

## Agriculture, Horticulture & Floriculture

Agriculture continues to be the backbone of the Sikkimese economy. More than 64 per cent of the population depend upon agriculture and related activities for their livelihood. Prior to 1975, the uncertainties about land tenure rights, negligible public investment and over dependence on traditional technologies had made the cost of cultivation very high in Sikkim. Sikkim's agriculture thus remained highly subsistence-oriented. The economy was further plagued by low productivity, negligible marketable surplus and other institutional backwardness. There was the custom of shifting cultivation in some important geographical pockets and ineffective structure of agricultural administration. However, in the post merger period in spite of limited area of cultivated land, smaller land holdings, difficult hilly terrain, diverse agro-climatic condition prevailing at short distances, low farm income and lack of adequate supportive infrastructures for agriculture development, the State has achieved to indigenously sustain a larger portion of its food requirement.

The land use classification of Sikkim is provided in Table 2.1

Table 2.1

### Land Use Classification

<b>Total geographical area</b>	<b>7,09,600 ha</b>	
Cultivable area (14.91%)	1,09,068	ha
Permanent pastures	73,947	ha

(10.14%)		
Land put to non agricultural use	85,362	ha
(11.70%)		
Barren land (glaciers)	1,80,230	ha
(24.70%)		
Land under miscellaneous trees & groves	5,450 ha	
( 0.75%)		
Forests	2,76,553	ha
(37.90%)		

The Fifth Plan (1976-77 to 1980-81) document of Sikkim mentioned, "agricultural stagnation is the main constraint on the rate of growth of the economy and by restricting the peoples' purchasing power such stagnation also limits the scope for industrialisation."

In the post merger period, therefore, the land related issues were given a high priority. The State designed a well strategised package of services aimed at consolidating the peasant-economy. This covered land reforms, agricultural credit and marketing, provision of inputs like seeds and fertilisers and minor irrigation, and encouragement to horticulture and cash-cropping.

Agricultural holdings are well spread over from an elevation of 300 to 3000 meters. Most of the cultivable lands are terraced and farmers have settled on these holdings with established regular cropping system. Marginal holdings and small holdings clubbed together comprise about 50% of all operational holdings and occupy 41% of the total area.

Inspite of limited cultivated land in Sikkim, agricultural development could make considerable progress in the last three decades. Introduction of new crops including wheat, *rajmash*, rape and mustard; extension of more areas under high yielding and improved varieties; increased use of fertilizers and pesticides and expansion of area under double or multiple cropping have been the landmarks in converting agriculture into a viable venture from a mere subsistence farming.

The availability of basic infrastructure has aided in enhancing the production and productivity of crops in the State. In the recent years, the priority has been laid on the development of horticulture and cash/commercial crops.

The total food production in the State steadily increased from over 61.8 thousand tonnes in 1980-81 to 1.03 lakh tonnes in 1997-98 and 1.07 lakh tones in 2005-06. (Table 2.2) For a State which has hardly 64000 hectares of net sown area, this range of output is rather very high. In other words, it has recorded an annual growth rate of 4.2 percent.

Table 2.2

**Sikkim : Food Production**

	<b>PARTICULARS</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
Cereals Paddy	Area (000 Ha)	15.21	14.90	14.79	14.74	14.74	14.74
	Production (000)	21.35	21.37	21.22	21.19	21.61	22.69
	Productivity ( Kg /	1403.00	1434.00	1434.75	1437.58	1466.07	1539.35
Wheat	Area ( 000 Ha)	7.21	6.70	6.33	5.74	5.74	5.74
	Production (000)	10.10	9.93	8.86	8.09	8.25	9.20
	Productivity ( Kg /	1400.00	1482.00	1399.68	1409.41	1437.28	1602.79
Maize	Area ( 000 Ha )	39.90	40.11	36.72	36.70	36.70	36.70
	Production (000)	59.61	51.01	53.72	57.05	58.19	61.10
	Productivity ( Kg /	1494.00	1421.00	1499.07	1554.50	1585.56	1664.85
Buck wheat	Area ( 000 Ha)	1.99	2.01	2.00	2.01	2.01	2.01
	Production (000)	1.53	1.45	1.54	1.55	1.56	1.64
	Productivity ( Kg /	769.00	723.00	770.00	771.14	776.12	815.92
Barley	Area ( 000 Ha)	1.14	1.18	1.23	1.23	1.23	1.23
	Production (000)	1.21	1.45	1.50	1.51	1.52	1.59
	Productivity ( Kg /	1061.00	1230.00	1219.51	1227.64	1235.77	1292.68
Finger millet	Area ( 000 Ha )	4.56	4.93	4.34	4.15	4.15	4.15
	Production (000)	4.23	4.46	3.74	3.57	3.60	3.78
	Productivity ( Kg /	928.00	905.00	861.75	860.24	867.47	910.84
Total Cereals	Area ( 000 Ha )	70.02	69.83	65.42	64.57	64.57	64.57
	Production (000)	98.04	89.67	90.58	92.96	94.73	100.00
	Productivity ( Kg /	1400.00	1284.11	1384.59	1439.67	1467.00	1548.71
Pulses Urd	Area ( 000 Ha)	3.78	3.78	3.78	3.78	3.78	3.87
	Production (000)	2.74	2.71	2.71	2.81	2.84	2.98
	Productivity ( Kg /	727.00	717.00	738.10	743.39	751.32	770.03
Other Pulses	Area (000 Ha)	2.25	2.86	2.90	2.93	2.93	2.93
	Production (000)	2.41	3.21	3.47	3.57	3.60	3.78
	Productivity ( Kg /	1074.00	1121.00	1196.55	1218.43	1228.67	1290.10
Total Pulses	Area ( 000 Ha)	6.03	6.64	6.68	6.71	6.71	6.80
	Production (000)	5.16	5.91	6.18	6.38	6.44	6.76
	Productivity (Kg / Ha)	857.00	890.06	925.14	950.81	959.76	994.12

Oilseeds	Area ( 000 Ha)	4.15	4.15	3.88	3.89	3.89	3.89
Soyabean	Production (000	3.41	3.31	3.14	3.21	3.25	3.40
	Productivity ( Kg /	822.00	799.00	809.28	825.19	835.47	874.04
Rapeseed &Mustar	Area (000 Ha)	5.76	5.80	5.88	6.00	6.00	6.00
	Production (000	3.93	4.08	3.95	4.23	4.28	4.50
	Productivity ( Kg /	684.00	690.00	671.77	700.00	713.33	750.00
Other Oilseeds	Area ( 000 Ha )	0.08	0.08	0.08	0.06	0.06	0.06
	Production (000	0.03	0.04	0.04	0.03	0.03	0.05
	Productivity ( Kg /	425.00	500.00	500.00	500.00	500.00	833.33
Total Oilseeds	Area (000 Ha)	9.99	10.03	9.84	9.95	9.95	9.95
	Production (000	7.38	7.43	7.13	7.47	7.56	7.95
	Productivity ( Kg /	739.00	740.77	724.59	750.75	759.79	798.99

Though maize is never a part of the staple food item in Sikkim, its production still contributes over 50 percent of the total food grains production in the State. On the other hand, share of rice the main food item, in the total food production has been hardly 20 percent. The per capita availability of rice in the state is 158 gms/ day which is far below the National average of 417 gm during 2001-02. This shows that the State is deficit in rice production which is the staple food of the State therefore the State is dependant on import of rice from outside the State. The wheat production both in its share and absolute terms has gone down.

Districtwise analysis of food production shows that unlike its share in cash crops including vegetables, the contribution of North in the total food basket is much less than 10 percent whereas the West contributes over 35 percent closely followed by the East with over 30 percent and South over 25 percent. Similarly rice is predominantly produced in East (over 40 percent) and West (over 30 percent) and maize in all three districts of South, East and West. The increase in production is attributed to concurrent rise in crop area due to double cropping /mixed cropping and the cumulative effect of increased application of improved agricultural inputs. The HYV coverage has been as high as 98 percent in wheat, 41 percent in rice and 40 percent in maize.

A significant increase in the production of oilseeds has been achieved. As pulses constitute a main source of meal in Sikkim, some vigorous efforts have been made to improve the acreage of pulses through the National Pulses Development Project.

The agriculture allied sector contribute the maximum share to the gross SDP. It used to be as high as 80 percent in 1975-76 which gradually came down to less than 21 percent. Though the proportion of people dependent on agriculture has not gone down as steadily as its contribution to the NSDP, the labour force participation in the agriculture sector has also recorded a downward trend.

In fact, the investment in agriculture sector has not been commensurate to the importance it commands in the Sikkimese society and economy. It is partly because of this, the growth rate in the agriculture sector has tended to decline sharply over the years. The real agricultural growth rate has declined from 8.37 per cent between 1980-81 and 1992-93 to negative 0.2 per cent between 1993-94 and 1999-2000. This is certainly not a good trend for an essentially agrarian state.

However, the State has made a considerable progress in the distribution of improved agricultural inputs including chemical fertilizers, pesticides and agricultural information. Fertilizer consumption went up from 720 tonnes of 1979-80 (in terms of nutrients) to over 3,000 tonnes by 2001. The per hectare consumption of fertilizer has been steadily going down. In fact, Sikkim with a per hectare consumption of 5.8 kg is the least fertiliser using State in the whole of North East except Arunachal Pradesh and Nagaland . The yields of almost every crop have shown increasing trend.

The area covered under plant protection increased significantly over 60 thousand hectares. Farmers training programme along with 26 government farms are used in multiplication of seeds and planting materials, conducting various adaptive research and demonstration of improved farm technologies.

Apex co-operative banks have been established in Sikkim which have made the flow of credit to the agriculture sector much larger. Cooperative Banks along with the network of commercial banks and refinancing by NABARD are the main sources of agriculture credit.

Sikkim continues to remain a highly food deficit State. The deficits are seen more remarkably in oilseeds and pulses production.

Sikkim's climatic conditions are ideal and conducive for proliferation of diseases and pests in endemic or epidemic form and the loss of crops caused by this in the fields and under storage have been quite high ranging from 5 to 30 per cent. This affected both traditional and cash/commercial crops like large cardamom, ginger, orange, apple, potato and off-seasons vegetables. The systematic intervention made in the State in this field has contributed positively in tackling this traditional menace. The consumption of Pesticides/Fungicides and other plant protection materials have significantly increased. The State has switched over to Integrated Pest Management (IPM) concept of Plant Protection which includes, pest monitoring, rapid roving survey, field scouting and agro-eco-system analysis. The State bio-control laboratory has also become functional and is now in a position to produce various bio-agents for release in the field.

## **I Irrigation and Flood Control**

Sikkim falls within high rainfall zone and especially in monsoon, the State receives a high precipitation and its annual rainfall exceeds 4000mm. During the month of June to September, plenty of rainfall gives boost to harness the agriculture produce but in winter season, there is dearth of adequate water for irrigation purpose especially in southern belt of the State. However, the rainfall is not scattered evenly all over the State and also time of occurring of the precipitation and the time of water requirements of the crops do not coincide for a number crops. Some crops like vegetables, floriculture etc. need frequent irrigation and for these crops regular supply of irrigation water from assured source is essential. Hence, the need to have assured irrigation system for the cultivation of number of crops like, vegetables, floriculture etc. which are more profitable and viable for our



State is important. Besides, the soil condition and steep terrains do not permit retention of the rain water for longer period. Therefore, to intensify or to enhance the agriculture produce, it is important to properly harness or augment water resources available in the rivers and rivulets to boost the agriculture in the State. The major portion of the State is covered by forest and snow. The culturable command area, suitable for practicing agriculture, is approximately 1,09,000.00 Ha. Rainfed agriculture is a predominant feature and only about 15% area is under irrigation.

The State Government has paid specific focus to irrigation only from 1976 with the objective of constructing irrigation schemes. Fund received under Accelerated Irrigation Benefit Programme (AIBP) has supplemented to create assured irrigation by taking up sufficient number of schemes. Irrigation thus has not only stabilized crop fields in kharif but also extended in *rabi* and other seasons. Besides assured irrigation, the environmental conservation works such as *jhora* training, anti-erosion, protection and catch water drains are also activated under Flood Control & River Training. Such kind of multi dimensional works are also undertaken from external funding such as North East Council, Non-lapsable Central Pool of Resources (NLCPR), NABARD etc.

In the 9th Plan, the focus on constructing as many new channels to supplement the potential creation. This was done to improve socio-economic condition of rural masses. In the 10th Five Year Plan, the thrust area is to improve the existing channels, up-gradation of few channels and construction of new channels to cover large cultivable command area. The target has been set for covering 5000 hectares of culturable command area.

Sikkim, being mountainous State with steep hills, narrow valleys and rocky terrains, all rivers flow along these steep slopes and major township such as Chungthang, Dikchu, Ranipool, Singtam, Sirwani, Rangpo, Rorathang, Rongli, Legship, Reshi, Melli, Jorethang and Mazitar suffer flash floods every monsoon.

Due to excessive rainfall, soil gets saturated causing landslides in the lower regions; where there is no support to arrest such slides. This is also a major reason that causes flood. Discharge in the river is aggravated by the debris flow due to landslide and toe protection is highly essential to curb landslides in hilly regions like Sikkim. The State faces disasters due to floods and massive landslides in different parts. Massive river protection works are required to safeguard these towns every year. Due to fragile nature of hills, maximum erosion takes place during monsoon and soil deposition on the river beds create havoc and flooding takes place. The flooding effect is also contributed in low lying areas of plains beyond Sikkim border. Maximum thrust is given to protect the hills and river banks to avert damages of life and properties.

In Sikkim only minor irrigation is feasible as the agriculture lands are available in small patches in between the rugged terrains and at the foothills. This further constrained by the facts that the main source of irrigation waters are very small streams and rivulets and the discharges of such sources are limited. Further because of steep slopes, agriculture is practiced on terraced lands and it receives high rainfall due to which the medium irrigation is not feasible due to land slides hazards.

Therefore, most of the schemes have culturable command area less than 30 Ha. in Sikkim. Considering the geographical and geological aspects, the Ministry of Water Resources, Government of India, has agreed to consider the schemes having more than 20 Ha. for our State. In fact the cost per unit area is small and cost of the projects meets the condition of viability of the schemes from the economic point of view. The availability natural streams nearby makes it further viable.

In addition to river training works, more focus is laid down to tame all *jhoras* and channelise the storm water to proper outlets. So far an irrigation potential of hardly 15 percent of the total cultivable land has been created. By 2003-04, 1138 minor irrigation channels were constructed covering culturable command area of over 23800 hectares. The plan targets are hardly made. Though these are mainly attributed to lack of funding, there are definitely a degree of inefficient use of funds, time and manpower. (Table 2.3)

Table 2.3

**Minor Irrigation Channel Constructed till 2003-04**

<b>District</b>	<b>No of Channel</b>	<b>Culturable command area (Ha)</b>
East	460	9467.99
North	87	2097.90
South	290	6173.54
West	301	6124.62
<b>Total</b>	<b>1138</b>	<b>23864.05</b>

Accelerated Irrigation Benefits Programme has come as a great opportunity to provide irrigation facilities in Sikkim. It has not only supplemented the existing irrigation facilities but has also created assured irrigation by taking up sufficient number of schemes and it has stabilized crop fields in Kharif as well as Rabi and other seasons. It has also helped in generating employment to the villagers, thus helping to improve economic condition by way of providing employment and better agriculture output.

However, there has been no evaluation and monitoring of the existing irrigational facilities. A study done by the Bureau of Economics and Statistics in the early 1990s (*Evaluation Study on Minor Irrigation Schemes*) showed a dismal picture of the utility of the services created. The issue of traditional vs modern technology in the irrigation sector is gradually figuring in Sikkim also. By and large there is no scope of any major irrigation project in the hills of Sikkim. Efforts are being made to popularize drip irrigation, sprinkler irrigation and tank irrigation as these methods of irrigation require 30 to 40 per cent less water for irrigation. However, its efficacy, usefulness and impact on crop production in the hills is yet to be assessed.

## **II Land Management**

The Land Revenue & Disaster Management Department is primarily concerned with Revenue Administration in the State which encompasses settlement operations, maintenance and up-gradation of land records and enforcement of land laws of the state. The administration is carried out from the Secretariat and the Directorate of Survey & Settlement in the Head Quarters and the District Collectors and Sub Divisional Officer at the District and Sub District Levels. In computerisation of land records the South district is completely online. In other districts, the works are in progress. The target is to make State completely online by 2006-07.

Though the cadastral survey of Namchi sub division is currently going on under the centrally sponsored scheme of Strengthening of Revenue Administration and Updating of Land Records, the progress in the project has been rather dismal. The National Informatics Centre attributes this to frequent change in the schedule of the aerial photography since the weather conditions have not been suitable for taking quality aerial photography. Further the aerial photographs/diapositives had to be sent to the security agencies and the National Remote Sensing Agency, Hyderabad for clearance. However, the NIC has loaded the entire digital map of 110 sq.km compiled till now on the system including 30 sq.km land parcels superimposed on the digital map. A pilot project on the computerisation of cadastral survey has been entrusted to a private firm M/S Hyderabad Mapsets, New Delhi.

The GOI has approved and sanctioned Rs.96.60 lakhs for construction of 29 VLO centers. So far 23 centers have already been constructed in 4 districts and augmentation of 7 old centers have been completed.

### **III Food Production Estimate**

There is a wide spread apprehension that the food production in Sikkim as reflected in both State and national level data is grossly over estimated. This is substantiated by the fact, that despite such a level of food production, the State has been importing a massive

quantity of food grains under the Public Distribution System (PDS). In fact, there are instances that whenever there is a very temporary halt in the import of PDS food grains usually because of the landslide in the National Highway, there is a loud public outcry as the price of the food grains go up substantially. Though this can be partially explained by the mismanagement of the supply-demand structure of food grains by the concerned departments, it is mostly because of the high dependence of Sikkim on the PDS food grains. This is found to be true across the State regardless of the districts that contribute significantly to the food production basket of the State.

On top of this, there is also a significant level of import/sale of food grains by the private merchants in the open market. Putting together all these three sources, the per capita availability /consumption in the State will be 1045 gms per day per person. This is considered to be very high by any national standard where the net availability has hovered between 460-500 gms per day per person.

This over estimation can be attributed to a number of factors. The very method of estimating the food production on the basis of yield pattern in the villages is characterised by some methodological problems mainly arising out of the topographical variation in the State. It is said that the same method is used in both the hills and the plains for the said purpose. The yield is derived from crop cutting experiments and on the basis per hectare production. It means a full hectare in case of the plains. Whereas in the hills, even if it is a full hectare, the effective area of cultivation in a particular locality could be much lesser because of terraces, trees, boulders and other environmental considerations. Further, though agriculture is carried out in small terraced fields, the cadastral survey is used to measure production. The cadastral surveys do not measure each terrace but the whole hill side which again include the field risers and other uncultivated areas thereby highly inflating the actual cultivable area.

So the crucial question is that of assessing the magnitude of overestimation and the reasons that can be attributed to this. If it is really over estimated, what could be the

possible ways to bring it to a more realistic level and what are the possible implications in doing so ?

A major implication of the more realistic assessment of food production may lead to a downward revision of the present level of food production. Since the agriculture sector's weight in State GDP is still quite significant in Sikkim, this may naturally lead to its downward revision. This may also further lead to the revision of the per capita net domestic product of the State.

With the increase in population, the pressure on land has also increased substantially. The land management will therefore, have to concentrate on improving the productivity and yield patterns which are best suited to the agro-climatic condition of the State. On the other hand, much more attention is needed towards cash and commercial crops viz. cardamom, ginger, turmeric, variety of fruits, vegetables, flowers and exotic crops such as avocado, strawberry, mushrooms etc. These crops have not only a ready market within the State but are also in demand elsewhere in the country.

#### **IV Extension Services**

Though there is no specific electricity subsidy in agriculture sector there are varieties of subsidies including in HYV seeds and irrigation. There are instances where timely and appropriate extension services have made significant differences in both production and productivity. At the same time, there are many geographical locations where the extension services do not reach. The reasons attributed to are inadequate institutional support and lack of wherewithal of services. It is also noted that given the farmers aspirations and preferences and the changing demand and supply structure in the market, the very nature of extension services has to be reoriented. To cater to the need of research and development in the State, Govt. of India has established the Indian Council for Agriculture Research (ICAR) and Spices Board. The research centre has a Krishi Vigyan Kendra which acts as its technology transfer wing. However, the usefulness of these

research units have always been questioned by the user groups as they have not been able to make any major contributions both in the arena of developing technologies for enhancing the sustainability of different farming situations and in improving the productivity. Similarly the Spices Board has also not been able to address to the crucial questions of sharp decline in yield in cardamom, plant diseases and need for steady replantation.

## V Horticulture

Sikkim is traditionally a land of fruits, vegetables and flowers. The State has made steady progress in horticultural production. (Table 2.4) Though the State has tremendous potentials for the development of horticulture sector, the efforts and approach have been piecemeal.

Table 2.4

### Horticulture Production 1975-76 to 2001-02

(tonnes)

Crops	1975-76	1980-81	1985-86	1990-91	2002-03	2005-06
Fruits	4700	6350	8200	10500	6530	13465
Vegetables	2000	3400	13900	15000	26000	44969
Potato	5000	6646	16400	18000	23715	33140*
Large Cardamom	2300	3500	3900	2600	4200	3520*
Ginger	2000	3200	10900	16000	23000	36000@

\* For the year 2003-04; NA : Not available; @ Quick Estimated

The State has already prepared the Horticulture Master Plan. The Horticulture related activities in the State are :

- Fruit development – production of planting materials of various fruits; demonstration for technology transfer; new plantation; rejuvenation of old orchards;

- Vegetable development: Minikit distribution; seed production and community nursery schemes for seasonal and of-season vegetables;
- Floriculture development: cymbidium, gladioli, anthurium, lillium etc seeds and planting material production and demonstration for technology transfer.
- Development of seed potato: Production of nucleus seed, breeder seed and foundation seed in government farms and production of certified seeds in farmers field and making available of potato seed for Rabi potato production.
- Development of spice crops:
  - i) Large cardamom : Planting material production and demonstration with the newly identified clones/varieties; demonstration of improved TERI designed curing systems, plant protection etc.
  - ii) Ginger : Production of pest and disease free seed rhizomes through Ginger Disease Task Force and demonstration;

A Centrally sponsored scheme namely Technology Mission for Integrated Development of Horticulture in North Eastern states including Sikkim has been launched since 2001. Out of the four Mini Missions under this programme, the Horticulture and Cash Crops Development Department of the state has been implementing Mini Mission – II which aims at increasing the quantum of production and productivity of the horticulture produce in the state. The major activities in this mission are increasing production through area expansion under various horticultural crops having linkages with other missions.



### **i) Cardamom**

About 16,949 farmers cultivate large cardamom in Sikkim of which 15,209 house holds are small and marginal farmers. With 59.9 per cent of the global market for large cardamom, India is the largest producer in the world, followed by Nepal with 33 per cent of the market and Bhutan with 13 per cent. Of the Indian output, almost 88 per cent comes from Sikkim, which can safely be presumed to be the largest producer of large cardamom in the world. Most of Sikkim's large cardamom output is sold outside the state: of the 4,700 MT produced in 2000-01, 4,550 MTs (97 per cent) was sent out of the state, mostly to the markets of Delhi (52 per cent), Amritsar and Mumbai, to be exported to other countries, mainly Pakistan and middle east countries.

There has been no replantation in the age-old cardamom growing areas of Sikkim. Cardamom yield has steadily gone down over the years. This used to be 250 per hectare in 1975-76 which came down to as low as 153 kg per hectare in 1996-97. This is mainly attributed to very old age of cardamom bushes. Since, many people in the rural areas, has been dependent on cardamom as the main cash crop providing them with a significant part of their livelihood, the impact of steadily falling yield is likely to be disastrous. Over 80 % of bushes require immediate replantation. The absence of gap-filling of plants destroyed by *chirkey/foorkey* and other diseases and pests annually is equally damaging.

### **ii) Fruits**

With topography and climate in its favour, Sikkim was eminently suited to extension of acreage under oranges. The fruit-processing factory in Singtam was one of the most vital outlets for the orange growers till this factory went sick for many years. The superlative quality of the orange produced in Sikkim - a small, tight-skinned mandarin both fleshy and sweet- and the orange products, whether bottled as a squash, canned as juice, concentrate, marmalade or fruit segments used to be the fastest selling items on the production range.

However, the fledgling state of orange crops in otherwise a traditionally orange growing State has become a major concern for the State. The basic reason attributed to this has been the old age of orange orchards and poor replantation rate. The 20-25 years old orchards are on their peak age of production in Sikkim. However, nearly 80 percent of them have crossed their most productive age. (Table 2.5)

Table 2.5  
**Sikkim :Agewise distribution of  
 Orange Orchards**

0-21 years old	20%
21-40 years old	30%
41-60 years old	40%
61-80 years old	5%
81 and above	5%

Source : Department of Horticulture,  
 Government of Sikkim

### iii) **Marketing Constraints**

Horticultural produce from Sikkim is usually ‘exported’ in its raw state and, in many cases, processed in other parts of the country. Recently a few private initiatives, such as processing *dalle khorsani* into chili paste and pickle, fruit processing into jams and squashes, and marketing of Sikkim *Gouda* cheese, have been started, but these are small in scale, and mainly marketed locally or in neighbouring areas. In the process the state loses out on employment-generating opportunities, income and revenue, both directly from agro-processing as well as from allied activities such as packaging, labeling, and so on.

The marketable surplus of other products is mostly sold through rural markets, and typically involve the trading of small quantities of produce. There are 17 rural markets in Sikkim (6 each in the South and West districts, 4 in the East and only one in the North district). They are largely unorganised and not well frequented, given the low purchasing power of the rural populace.

Marketing hurdles where middlemen have played a major role in exploiting the farmers needs to be demolished. The middlemen in fact make the payment for the crops to the farmer much before the actual production takes place. This makes a farmer tied to the whims and fancies of the middlemen as far as the final disposal of the produce is concerned. This is more so in case of the perishable commodities. An effective and aggressive intervention is required to give both price protection and prevent distress sale by the farmers. Giving farmers a competitive price would be a major intervention towards this and arrangement like buy back will be an extra incentive. In this respect, the slow progress made by the Agriculture Export Zone which was initiated as a panacea for marketing needs to be examined and revamped drastically.

Except in last few years, there has been no governmental or any other organised agency intervention in the marketing of agricultural items in Sikkim. There is no consistent effort in building market infrastructure in the state. Most vital horticulture items like cardamom, orange and ginger are almost cent percent dependent on private traders, merchants and middle men for marketing. Therefore, the farmers are deprived both ways, as producers and as consumers.

The role of the Horticulture Department is only supportive and promotional. Though SIMFED and DAC are the apex marketing organizations and have the mandate of marketing agriculture-horticulture products, they are only involved in marketing off-season vegetables from Lachung, North Sikkim. The arising loss on business is compensated to these organizations by the Department. Despite all these formal arrangements, most of the agriculture-horticulture products continue to be marketed by the middlemen. However, of late commercial crops are marketed under Indo-Swiss

Project Sikkim (ISPS). This project records inflow and outflow of horticulture crops at Melli and Rangpo check posts.

The actual price received by the farmers can still be improved if the State agencies participate in the marketing process more seriously. This can be done by bringing market nearer to the producers. Trade margins in vegetables are very high mainly because they are perishable items. This needs to be harnessed in Sikkim as there is a huge market in Calcutta, Guwahati and Siliguri for these vegetables. A whole range of ground work on market related activities has already been done, on the basis of which a sound marketing strategy and project can be launched.

Sikkim is now a member of the North Eastern Council (NEC). Therefore, the services of North Eastern Regional Agricultural Marketing Corporation Limited (NERAMAC) must be fully used. The State also requires serious and major interventions from the national programmes like Horticulture Mission.

## **VI Floriculture**

The vast agro-climatic sweep across three major zones allows the production of more than 4,000 varieties of plants and shrubs, and 450 species of orchids. The State produced 16 lakh cut flowers and 15 lakh bulb/plants in the years 2005-06. However, in the floriculture sector very little has been done as compared to the potentiality the State possesses. The flowers are perishables and need special arrangements for transport and marketing as the consumer centres are located in far off places. Most of the floriculture related activities are done on a small cottage type style. This proves to be rather uneconomical. Development efforts are being made to increase quality production of cut flowers and bulb/plants in recent years. Earlier the floriculture was being looked after by the Forest Department. A model floriculture garden has been set up at Namli and an Orchid centre is coming up at Pakyong.

Tissue culture laboratories both in public and private sectors have not picked up to the extent desired. The State has no sufficient quality planting materials as to cater to the increasing demands. Multiplication through conventional method is very slow. Further, the traditional varieties have very limited market. Introduction and multiplication is being tried with limited resources. There is no check on outflow of planting materials. It is widely believed that whatever quality materials are produced in the State they find their ways into West Bengal and North Eastern states. There is therefore, a need to enact legislation to check outflow of quality planting materials from the state.

The cut flowers, which are considered to be a new and upcoming item in the commodity basket of Sikkim are now being disposed off in the metropolitan cities. However the transport linkages are cumbersome and the provisions in the outlets are sub-standard. Insurance cover and other protective measures do not exist for these products of Sikkimese farmers. There has been no organised marketing. As a result the cost is quite high. It is expected that after the new Greenfield airport at Pakyong is built, all these products could be directly airlifted to cities like Calcutta, Delhi and Guwahati and further to the east including Singapore and Thailand.

Besides good budgetary support in the form of public investment, this sub-sector requires a steady induction of modern technologies including introduction of large scale tissue culture materials from abroad and infrastructure facilities for marketing, transport, packaging and handling.

There are strong possibilities of major private sector interventions including that from the Dutch consortium with which the Government of Sikkim has signed a Memorandum of Understanding in March 2006

## **VII Animal Husbandry**

Animal husbandry is an integral part of the rural household economy of the state. Livestock or poultry-rearing is the main occupation or major supplementary activity of an estimated 89 percent of the population. Depending upon the agro-climatic and topographical variations there are broadly two forms of animal husbandry practice in the

state. For people living in higher altitudes (in the north, west, and east districts), such as the Lachungpas, Lachenpas, Gurungs and Sherpas, livestock rearing is the main occupation, and has been so for decades. They rear yaks, sheep, upland cattle and equines, which are mainly fed by grazing. The second and more dominant form of animal husbandry practice is as part of a mixed farming system of the lower and mid-altitudes. The main occupation is the cultivation of field and horticultural crops, and animals are reared mainly to sustain these activities by acting as a source of farm manure and bullock power (especially as mechanisation is infeasible given the small size of tracts).

Animal Resources Sector provides milk, meat and egg to meet the Protein requirement of large human population. For this, Animal Husbandry, Livestock, & Fisheries Department is engaged in supporting the production of milk, meat & egg by provision of requisite infrastructure in the State for improving the productivity of livestock and birds, preservation and protection of animals through preventive and curative health care facilities and for developing the skill of farmers in modern and scientific animal husbandry practices through adequate training. The Government is engaged in upgrading the poor yielding stock of all species of farm animals by way of introduction of better germplasm into the indigenous genetic pool. These are mainly done through artificial insemination and other breeding practices. Protection of livestock & birds is being made through an intensive network of Veterinary Hospitals, Veterinary Dispensaries, Artificial Insemination Centres, Sub-Centres, Disease Investigation Laboratories etc. for their prevention and control of diseases. However, increases in the output of livestock products have not kept pace with demand.

During the Xth Plan period it is envisaged to establish 4 veterinary hospitals. The establishment of this in West District is completed. There are number of veterinary dispensaries at the village levels and there is tremendous pressure from the public to have permanent hospitals. Most of the stockman centre in the State are functioning in a rented premises. A separate Disease Investigation Cell has been constituted within the department.

There have been efforts to increase the productivity of the local animals through programme of upgrading the local stock with the use of better quality semen from proven sires. The conversion of Karfectar farm into the State Bull Rearing Farm would eventually serve as a nucleus farm for launching the Indo-Swiss Project on Cattle Development and fodder cultivation in Sikkim. A separate Breeding Cell has also been constituted within the department. However, figures of existing livestock do show that both crossbred numbers and poor quality indigenous varieties are in fact increasing. (Table 2.6)

Table 2.6

**Trends in Livestock Population: Crossbred and Indigenous (*number*)**

		1997 #	2002*	% change
Cattle		51,542	81,629	(+) 58.37
	Crossbred			
Sheep	Indigenous	90,961	1,10,560	(+) 21.55
		730	216	(-) 70.41
Pigs	Crossbred			
	Indigenous	4,293	5,530	(+) 28.81
	Crossbred	12,000	19,118	(+) 59.31
	Indigenous	14,975	21,820	(+) 45.70

*Source:* Department of Animal Husbandry and Veterinary Science, Government of Sikkim.

*Note:* # 16<sup>th</sup> Livestock Census; \*Provisional data, 17<sup>th</sup> Livestock Census

Poultry farming is commercially viable and employment oriented activity aimed at perceptible improvement in the economic condition of the rural poor. The government has created infrastructure for a Hatchery-cum-Breeding farm of 5,000 layer and 10,000 broiler parent stock in Bermiok, South Sikkim in collaboration with M/S Venkateshwara

Hatcheries Limited, Pune. Another Poultry Farm at Kamling, West Sikkim is being established.

Sheep rearing is a traditional activity amongst people inhabiting the alpine areas of the State whose subsidiary is the carpet and blanket weaving industry. Moreover, there is a growing demand for both mutton and wool in the State, thrust is being given to strengthen the existing infrastructure and continue the ongoing scheme.

Pig husbandry is a very popular and lucrative occupation amongst the local Sikkimese. The Department is in the process of introducing fast growing breed of pigs. Besides, the pig breeding units are proposed to be established at various places. This is proposed to be taken up during 11<sup>th</sup> five year plan period. The Department has already established Pig Breeding Unit at Timbong, & Dzongu, North Sikkim.

A yak farm was established at Chopta in North Sikkim and in order to prevent in-breeding amongst the local yak population 14 male yaks has been imported from Bhutan. The department has also established an Angora Rabbit Farm at Rabum in North Sikkim.

At the initial stage of 10<sup>th</sup> Five Year Plan, Govt. of India approved and sanctioned a centrally sponsored scheme III phase for North district of Sikkim entitled “ Integrated Dairy Development Programme for Hilly, Backward and Non Operation Flood Area”. Scheme is being implemented by Department through Sikkim Milk Union/Dairy Development in North district.

Quality control plays a vital role in checking adulteration. Besides protecting consumers interest it also helps in assessing the accurate quantum of milk production. Milk testing is being carried out for analyzing the quantum fat and solid non fat (SNF) in milk. Sikkim Milk Union, North Dairy Project and Dentam Cheese Plant conduct regular milk testing only to assess the content of Fat and SNF in milk. Detection of adulterants, preservatives



other tests etc. are not done in an unorganised manner and such activities cover only a small segment of the State. There is a very strong need to coordinate the activities with the Health Department in strictly implementing the PFA act in the State.

### **VIII Organic State**

The Government has declared to make Sikkim a fully organic State by 2015. This declaration of the State Government is triggered by four fundamental facts. Firstly, the State otherwise has been using relatively insignificant quantity of fertilizer and pesticides and it can do away with this in course of few years time. In other words, the State as a whole has always been on the organic production mode. Secondly, whenever people think about Sikkim they have nothing but 'nature and natural' in mind. This thinking could be used as a major comparative advantage in pushing its organic products in the market. Thirdly, there has been emerging a niche for organic products both in the domestic and international market. Consumers are willing to pay a higher price for an organic product both on grounds of health and changing style of living. And finally, Sikkim has the products varying from food to fruits, flowers to cheese and medicinal herbs to drinking water that could cater to the growing organic market. Various governmental agencies have already started working towards this.

In a move towards reaching the goal of 'Organic State', the subsidy on fertilizer is being tapered and brought to zero. The Department is propagating and advocating farmers to adopt new and modern technology of organic farming system to sustain the production and certification process for certain identified crops. However, the State has started facing serious constraints in its drive to become an organic state. The transition time is very painful as farmers need to keep their lands fallow for at least three to five years. Certification is the key to marketing and promotion of the organic farming based products. Besides the high certification cost the process itself is very cumbersome and long. In India, the certification related institutions themselves are ill equipped to handle cases expeditiously and scientifically. Under such circumstances these products may not get easy access to international market.

More than this the State itself is not prepared and does not have the institutional capability to undertake state-wide organic farming. The state government needs to formulate a comprehensive policy on organic farming. A proper scientific base to the process would require comprehensive research into appropriate organic farming methods for Sikkim. This is where the role of central research institutions including Indian Agriculture Research Institute located in Sikkim emerge to be very vital. In fact, the agro-biodiversity of the state has yet to be catalogued and classified. There needs to be research and trial of organic substitutes and modern technologies related to organic farming. The extension staff needs to be trained to deal with these new methods. Manpower will have to be trained in different stages of the organic farming supply chain, from sensitisation and conversion of farmers, facilitating adoption, providing continued support, to processing and marketing the output. At present, there is no infrastructure to produce organic seeds, fertilisers, manure, and bio-fertilisers, and biological pesticides, which could perhaps be promoted as a private enterprise.

An important benefit of organic farming is the higher prices commanded by these products in organic supermarkets or other specialist outlets worldwide. A market for organic food produce will have to be developed, which in fact is one feature of the proposed AEZ for large cardamom and ginger.

## Chapter 3

# Rural Upliftment, Decentralisation and Devolution

Since the majority of Sikkim's population lives in the rural areas, rural development is the top priority of the Sikkim Government. (Table 3.1) The policy decision taken by the State Government to spend 70 per cent of the total plan budget for the development of rural areas is being implemented both in letter and spirit. As a result, perceptible improvements are visible in the living standards of the rural inhabitants. They have become more friendly with the modern development interventions and instruments and are taking full advantage of the Governmental initiatives.

Table 3.1

### Sikkim : Administrative Divisions

State/District	Sub-division	No. of villages
Sikkim	Total	454
North	Chungthang	8
	Mangan	46
West	Total	54
	Gyalshing	71
	Soreng	51
South	Total	122
	Namchi	98
	Ravong	47
East	Total	145
	Gangtok	83
	Pakyong	28
	Rongli	20
	<b>Total</b>	<b>131+2*=133</b>

\* there are 2 uninhabited villages

*Source:* Census of India, 2001

As per 2001 census, 18.86 percent of the rural households in Sikkim have thatched roof, 11.57 percent have asbestos roof and 67.83 percent have concrete houses. It is found that the proportion of thatched houses has fallen; asbestos houses have risen; and concrete houses have risen drastically in the rural areas in all the districts.

Many of the rural development projects are given to the youth of the same areas. This policy has ensured equitable distribution of public works. Quality of work has also improved as the persons carrying out the works are the residents of the area and so have a special interest and responsibility in improving their areas. Further this has imbibed a system of social check on the development projects. To promote the use of electricity in the rural areas, a 50 per cent rebate is granted to rural households.

The State has been implementing a range of rural upliftment projects including Swarna Jayanti Gram Swarozgar Yozana, Indira Awaas Yojana , Sampoorna Grameen Rojgar Yozana (SGRY), Integrated Rural Energy Programme, Rural Housing Scheme, Community Development and Panchayat, Rural Roads & Bridges and Rural Water supply & Sanitation.

Swarna Jayanti Gram Swarozgar Yojana is a centrally sponsored programme for self employment of rural poor. It is a holistic programme covering aspects of credit-cum subsidy, training, revolving fund, infrastructure, marketing and technology support.

The main emphasis of this programme is to help the rural poor by organizing them into self-help Groups with membership from 5 to 20 persons. SGSY is not a target oriented programme. Efforts are more on building capacity of the self-help groups and its members, social awareness, behavioral changes and evolving them into vehicle of social change. The State has fixed target on its own for proper monitoring and evaluation as indicated below (Table 3.2)

Table 3.2

**Review : Swarna Jayanti Gram Swarozgar Yojana**

(In Nos/Groups)

<b>Type of Schemes/ Swarojgaris</b>	<b>Physical Achieve- ment 2002-03</b>	<b>Physical Achieve- ment 2003-04</b>	<b>Physical Achieve- ment 2004-05</b>	<b>Physical Target 2005-06</b>	<b>Physical Target 2006-07</b>
<b>Subsidy (Individual)</b>	1359	1692	591	1100	1100
<b>Revolving Fund (SHG)</b>	79	72	103	125	125
<b>Subsidy (SHG)</b>	03	22	94	100	100
<b>Training</b>	1287	2443	2009	1500	1500

Indira Awaas Yojana (IAY) is a Centrally Sponsored Scheme to provide house to the rural poor families from the rural areas belonging to scheduled caste/tribes, freed bonded labours, physically and mentally challenged persons and other non SC/ST families by providing financial assistance of Rs. 27,500 for construction of new house per beneficiary and Rs. 12,500 for upgradation of unserviceable kutcha house per beneficiary under IAY. (Table 3.3)

Up to the end of financial year 2001-02, two different centrally sponsored (75:25 Centre : State) rural employment programmes namely the Jawahar Gram Samridhi Yojana (JGSY) and Employment Assistance Scheme (EAS) were being implemented throughout the Country. The scheme will be on cost sharing basis between Central and State for the ratio of 75:25. The target group of the scheme will be the rural poor both APL and BPL who are in need of wage employment and are willing to take up manual or unskilled work in and around his or her villages and habitation with greater preference to poorest among the poor, SC/ST, parent of child labour withdrawn from hazardous occupation. From April 2004 the SJRY Stream I & II have been unified as one scheme as Sampurna Grameen Rozgar Yojana (SGRY). Under this Programme 5 kg of foodgrains is provided

as part of wage component to the wage earner for completing a day's work and the balances paid in cash. (Table 3.4)

Table 3.3

**Review : Indira Awaas Yojana**

(In Nos)

<b>Type of Schemes</b>	<b>Physical Achievement 2002-03</b>	<b>Physical Achievement 2003-04</b>	<b>Physical Achievement 2004-05</b>	<b>Physical Target 2005-06</b>	<b>Physical Target 2006-07</b>
<b>New Construction</b>	771	1448	981	966	1063
<b>Upgradation</b>	378	593	603	531	584

Table 3.4

**Review : Sampoorna Grameen Rozgar Yojana**

(In lakh mandays)

<b>Type of Schemes</b>	<b>Physical Achievement 2002-03</b>	<b>Physical Achievement 2003-04</b>	<b>Physical Achievement 2004-05</b>	<b>Physical Target 2005-06</b>	<b>Physical Target 2006-07</b>
<b>Stream I</b>	<b>5.29</b>	<b>5.89</b>	<b>6.23</b>	<b>6.79</b>	<b>7.88</b>
<b>Stream II</b>	<b>5.34</b>	<b>6.72</b>	<b>(combined as SGRY wef 1/4/04)</b>		

**I Renewable Energy Development Agency**

The Sikkim Renewable Energy Development Agency (SREDA) was constituted by the State Government in 1999. This autonomous agency was mandated with the task of promoting and popularizing renewable energy. It implemented non conventional & renewable sources of Energy (NRSE) and Integrated Rural Energy Programme (IREP). Under the National Biogas and Manure Management Programme (NBMMP) family size

plants of 2 cubic meters are constructed. The cost of constructing one biogas unit is Rs.15,000/- out of which Rs.11,700/- is met from Central Financial Assistance (CFA) from the NBMMP programmes, Rs.1,300/- from State Plan provisions, and the balance amount is borne by the beneficiary. Beneficiaries for this programme are selected through the recommendations of the Panchayats and after verification of criterion as envisaged in the NBMMP programme guidelines. The programme has found wide acceptability amongst rural farmers as an affordable means of cooking and lighting alternative source of energy.

The objective of Solar Photovoltaic Programme (SPV) is to promote solar energy for lighting and heating purposes. Solar is not only a clean source of energy but finds great use in remote rural areas which are not grid connected. However, prices of SPV devices are prohibitive and therefore solar lanterns, home lighting systems and street lights are promoted under a subsidized scheme through this programme. The subsidized components come as Central Financial Assistance (CFA) and is passed on to the beneficiary.

In order to promote awareness on the advantage of renewable sources, Energy Education parks have been set up in all the four districts of the State. Within the next five years more such energy parks are to be set up along with a State Level Energy Park in the capital. Energy Parks are funded on a 90: 10 basis between the Centre and State.

Under Village Electrification Programme villages and hamlets that have been by passed or poorly served by the grid are to be electrified. Over 30 such villages have been identified for electrification . There is funding of 90 % as Central Financial Assistance (CFA) for this programme. (Table 3.5)

## **II Rural Housing**

The scheme of Rural Housing was initiated in the State in 1988-89 with a view to provide housing assistance to the economically weaker sections of the society. In 1995-96, this

scheme was radically modified on seeing the acute difficulty of the rural people. From then onwards, each beneficiary is provided with 30 pieces of GCI sheets and Rs.20,000/- cash assistance which is disbursed in 2 equal installments.

Table 3.5

**Review : Non Conventional & Renewable Sources of Energy**  
(In Nos)

Type of Schemes	Physical Achievement 2002-03	Physical Achievement 2003-04	Physical Achievement 2004-05	Physical Target 2005-06	Physical Target 2006-07
NBMMP	302	249	200	250	250
<u>SPV</u>	200	25	0	1000	1000
(a) Home Light					
(b) Solar street Light	10	13	0	0	0
Solar Wind Nybrid	0	0	2	3	5
Village elec.	0	0	1	5	10
Energy Education Park	0	0	1	1	1
LPG Connection	0	6000	6500	2500	5000

The Department has developed a standard plan and estimate for rural houses. The plinth area is 319 Sq. ft and the cost using mainly locally available materials is Rs.34,600/-. Any expenditure over and above the quantum of Government assistance has to be borne by the beneficiary.



This scheme has now fallen under the category of PMGY but the implementation remains unchanged. The selection of beneficiaries is done through the District Level Committee comprising of the District Collector and District Development Officer. The committee will ensure that the list of beneficiaries is authenticated by the area MLA and Gram Panchayats. The criterion for selection of beneficiaries are i) persons living below poverty line; ii) landless (*Sukumbasis*) agricultural labourers and iii) weaker section of the people in the society. The target for the financial year 2006-07 is to provide house upgradation of Rs.10,000 to the 6300 beneficiaries . A provision has also been kept for providing GCI sheets to the beneficiaries under the scheme. (Table 3.6)

Table 3.6

**Review : Rural Housing Scheme**

(In Nos)

<b>Type of Schemes</b>	<b>Physical Achieve-ment 2002-03</b>	<b>Physical Achieve-ment 2003-04</b>	<b>Physical Achieve-ment 2004-05</b>	<b>Physical Target 2005-06</b>	<b>Physical Target 2006-07</b>
New Construction	6000	6000	0	0	0
Upgradation	0	0	8550	6300	6300
GCI Sheets	6000	6000	6000	6000	6000

Construction of model village is a new scheme, which has come into implementation since year 2001-02. The implementation of the scheme has been continued during the 10<sup>th</sup> Plan period. Under this construction of 25 numbers of model houses each in 31 constituencies is being done.

**III Rural Connectivity -Rural Roads & Bridges**

Under these programmes, two different activities viz., construction of pedestrian bridges / tracks and construction of village road / Rural Connectivity under PMGSY are taken up. Remote villages nestled in the far-flung areas of the State and still remain unconnected to

the proper transport communication network are provided with pedestrian bridges and bridle tracks under this programme. Besides inter-village linkage, these bridge / tracks link the remote village to the motorable roads and the facilities centers. The various types of bridges that are constructed for rural connectivity are Log Bridge, Steel Bridge, SFB, RCC bridges. Quite a large number of such bridges have been constructed in the past but many villages in the remote pocket are still to be provided with such communication linkage. (Table 3.6)

Table 3.6

**Bridge Constructions**

<b>Particulars</b>	<b>Target 10th Plan</b>	<b>Achievement 2002-03</b>	<b>Achievement 2003-04</b>	<b>Achievement 2004-05</b>	<b>Achievement 2005-06</b>	<b>Proposed Target 2006-07</b>
RCC Bridges	60 Nos			10	12	12
Steel Bridges	60 Nos			5	12	12
Suspension Bridges	12 Nos			4	4	4
Log Bridges	8 Nos			2	2	2
Strengthening of Bridges	20 Nos			12	12	12

Almost 50% of the habitations in the state are to be provided with good all weather roads. Launched in the year 2000-01, the program is popularly called Pradhan Mantri Gramodaya Sadak Yojana (PMGSY), a 100% CSS. In the current financial year, an amount of Rs.3781 lakh has been approved for construction of 44.05 Kms long new rural

roads and up-gradation of 176.33Kms of existing roads. As PMGSY is a time bound programme and this goes on till 2007 only, the cost schedule in respect of central component for attaining 100% coverage has been spread over a period of three years, i.e. from 2004 to 2007. (Table 3.7)

#### **IV Rural Water Supply and Sanitation**

The objective of the Government is to provide clean and safe drinking water to all by 2009 . The Govt. has also taken steps for institutionalising community participation in the rural water supply programmes. Adoption of demand driven approach based on empowerment of

Table 3.7

<b>Unconnected eligible habitation</b>			<b>Length of road for connectivity to eligible habitation</b>		
<b>TOTAL nos</b>	<b>Coverage by the approved/on-going projects nos</b>	<b>% Coverage by the approved/on-going projects</b>	<b>TOTAL Kms</b>	<b>Length of road in the approved/on-going projects. Kms</b>	<b>% Coverage by the approved/On-going projects</b>
410	54	13%	1295	150	11.5%

villagers to ensure their full participation in the project through a decision making role in the choice of scheme ,design and management arrangement and focus on village level capacity building. During 10<sup>th</sup> Plan, a wide spectrum of activities of the Rural Drinking Water supply program that bear upon infra-structural development and sustainability of the system have remained as special focus. These activities are :-

- ★ To liquidate all the remaining PC (Partially Covered habitations)
- ★ To setup Water Quality Testing Laboratory in remaining Three Districts

- \* Reassessment of actual ground position of NC (Not Covered) PC (Partially Covered), and FC (Fully Covered) habitations.
- \* Reassessment of water availability, i.e. survey of all the available water sources.
- \* Preparation of water map for the State
- \* Greater emphasis on traditional water conservation measures and other appropriate measures for sustainability of water sources.
- \* Monitoring and surveillance of water quality and intensification of water testing facilities e.g. establishment of water testing facilities in the Districts and Sub-Divisional Level.
- \* Total Coverage of PC habitations.
- \* Addressing coverage of the newly emerged habitations / reverse coverage habitations.
- \* Intensification of the program on system sustainability i.e. generation of awareness and capacity building amongst PRIs and user groups based on Sector Reforms.
- \* Appropriate alternate technology, viz., roof top collection, rain water harvesting etc. for dry pockets.
- \* Study on the prospect of enhancing rate of drinking water supply from 40 lpcd to 50 lpcd or more.
- \* Integration of rural water supply program with other rural development activities and redefining appropriate unit for coverage area.
- \* Initiation of action on tariff reforms for the completed and ongoing schemes.
- \* Action on total involvement and strengthening of Panchayati Raj Institution (PRI).

Table 3.8

Total habitations to be covered as on 1/4/05	: 2540 Nos
Fully covered	: 1580 Nos
Partially covered	
i) Slipped back PC habitations	: 872 Nos
ii) Remaining habitations as per action plan 1999	: <u>88 Nos</u>
	960 Nos

Given the significance of the rural sanitation the focus of the 10<sup>th</sup> Plan has been on :

- ★ Survey for base-line data for implementation of Total Sanitation Campaign (TSC)
  - ★ Full Scale Implementation of Environmental Sanitation Programme
- Total coverage of Rural Institutions inclusive of Schools / AnganwadiS/

ICDS

- ★ Providing location specific waste disposal system
- ★ Village Sanitation Programme
- ★ Sanitary Complex for women and handicapped
- ★ Separate Institutional Latrine for girls
- ★ Awareness Camps on personal Hygiene
- ★ Community Bathing Cubicles.
- ★ To revise TSC project for South and West Districts
- ★ Intensive IEC and HRD Programme
- ★ Impact assessment, Monitoring and evaluation
- ★ Total involvement of PRIs (Panchayat Raj Institutions), NGOs (Non-Governmental Organization and credible voluntary organizations)

The physical targets are given below (Table 3.9):

Table 3.9

House-hold Sanitary Units	: 60000 Units
Institutional Sanitary Unit	: 2000 Units
Bathing Cubicle	: 200 Units
Waste Disposal System	: 300 Units
Sanitary Complex for Women & Handicapped	: 100 Units
Village Sanitation	: 300 Units

## **V Decentralisation and Devolution**

In a landlocked State like Sikkim, the most serious obstacle has been the market and related infrastructure. Traditional rural institutions remain neglected. To enhance the level of rural infrastructure is a very daunting task. This has other serious implications that includes rural to urban migration, general waning of interests among the rural folk to remain engaged in rural activities. On the one hand, this possibly shows urban mobilization; on the other hand, this process would really eat away the sinews of 'mainstream India'. This could bring a newer variety of instability mainly based on rural areas.

Therefore, the rural Sikkim should be reemphasized. The State is trying to refocus and reallocate the resources it has. The rural Sikkim should be as attractive as the urban Sikkim in terms of infrastructures and other social amenities. This has been the hall mark of all the developed countries. Their so called country side is as developed as any urban location. This is exactly what Dr APJ Abdul Kalam, the President of India, has been consistently raising in various national and regional forum in the form of providing Urban Amenities in Rural Area (PURA). Besides the rural infrastructure, large doses of public investment in agriculture and rural empowerment through decentralised governance, the science and technology should be taken upfront to the villages and rural

areas. Sikkimese rural communities with their rich traditional wisdom, experiences and practices are in fact the custodians of all the intellectual properties. Unfortunately, in the absence of any serious move to institutionalize these heritage, the State has tended to lose in all fronts. More injection of scientific temper and new scientific and technological inputs in simple manner would help in bringing out the best from the village communities.

There are 4 *zilla panchayats* with 100 elected members; for 453 villages there are 166 *gram panchayats*, at the ratio of roughly one *panchayat* for every three villages (the ratio for all Indian states taken together is 1:2). These 166 *gram panchayats* are divided into 905 wards (roughly 5 wards in each *panchayat*) with one elected member in each ward. In order to have a good representation in both the tiers of the *panchayats*, with SC, ST, OBC candidates and women candidates there are reservation schemes in the state. There are 40 community information centres.(Table 3.10)s

Table 3.10

**District wise Zilla and Gram Panchayats and Related Infrastructure (number)**

Districts	Zila Panchayat Members	Gram Panchayats	Panchayat wards/ Panchayat Members	Panchayat Ghar	Village Libraries	CICs in Panchayat	Total no of CICs
North	20	20	103	15	20	2	8
East	31	50	273	25	50	4	12
South	24	45	255	37	45	6	9
West	25	51	274	25	51	8	11
Total	100	166	905	102	166	20	40

The decentralization and devolution initiatives include :

- ▶ 70% of the State budget goes towards the development of rural areas. The transfer of 29 subjects as per 11<sup>th</sup> Schedule of the Constitution being implemented.
- ▶ Women have been given 33 % reservation. This also holds for the elections of the Adhakshya and Up-Adhakshya.

- ▶ Gram Panchayat Units & Zilla Panchayats now have the power to prepare, sanction, supervise and implement the schemes upto Rs. 3. lakhs and 10 lakhs respectively in their own area, depending upon the nature of the work.
  
- ▶ To enable the Panchayats to exercise these powers the Government has provided an amount of Rs. 10.00 lakhs each to all 166 Gram Panchayat Units in the State and Rs. 50 lakhs each to the four Zilla Panchayats during the financial year, 2003-2004. Besides, some Departments have also provided fund to Gram Panchayat Units and Zilla Panchayats separately for developmental purposes.
  
- ▶ Transparency and accountability are the salient features of this democratic decentralization. All plans and schemes are to be passed in the Gram Sabha and District Planning Committee meetings. People are given equal opportunity in the decision-making process in all the developmental activities of the village.
  
- ▶ The Panchayat Raj Act 1965, 1982, and 1993 are the major enactments.
  
- ▶ Regular elections have been held in the year - 1982, 1993, 1997 and 2002
  
- ▶ Observance of Mandatory Provisions: *Gram Sabha*, Fixed term, Reservation of SC/ST , Reservation of Women- 33% & OBC
  
- ▶ Constitution of First and Second State Finance Commissions- The recommendations of the First report is being implemented. The report of the Second Finance Commission is to be placed in the Legislative Assembly.
  
- ▶ District level planning bodies have been set up. And for the first time individual Panchayat units submitted their projects through these district planning offices for consideration in the 11<sup>th</sup> Plan period.



*All these achievements were aptly recognized when Sikkim was declared the Third Best State in the country in the implementation of Panchayati Raj programme by the Ministry of Panchayati Raj.*

For the effective devolution of the functions, all these needs to be devolved through a transparent form of Activity Mapping so that the two tiers of Panchayati Raj Systems know which activity relating to which function, has been devolved to that particular tier. Neither the Panchayat level planning nor the distribution of the finances between different tiers of the systems is scientifically possible unless the devolution of finances is based on transparent Activity Mapping between the two tiers. It is also being ensured that the devolution should be based on the principle of subsidiary, which means that whatever can be accomplished at a lower level should be entrusted to that level only. Only that which cannot be effectively implemented at a lower level might be taken to a higher level.

The audit of accounts of elected local bodies is generally being tardy and haphazard. To over come this, it is being proposed that proper financial rules should be formulated for utilization of funds at the Gram Panchayat level and Zilla Panchayat level. A bill is being placed in the Assembly authorizing the Accountant General to audit the accounts of the Gram Panchayats and Zilla Panchayats.

**i) Gram Prasashan Kendra**

With the devolution of functions and functionaries on 1<sup>st</sup> August 2003, it was presumed that the functionaries of the line departments will be operating from the Gram Panchayat level. This was done because the real charm of democratic decentralization and devolution of financial powers to the PRIs would have been when the villagers need not run from pillar to post in big offices of the District Head Quarters and in the State capital to get their work done. However, since the number of staff from the line department was less than the number of Gram Panchayat Units, these devolved functionaries neither worked for interest of the department nor in the interest of the public. To over come this,

the concept of Gram Prashasan Kendra has been introduced, whereby it was agreed that specific Gram Panchayat Units, which were centrally located, would be identified as Gram Prashasan Kendras. This was found necessary as it was seen that there was a shortage of staff who could be deputed to the field by the line departments. It was agreed that all the field functionaries devolved to the Gram Prashasan Kendras will be stationed in their respective Gram Prashasan Kendras from 10 AM to 4 Pm on all working days.

The State Government has proposed to construct Rural Marketing Centers at identified locations to promote market for the village products. The Department has already taken action for standard estimate and plan for construction of the Rural Marketing centers at a per unit cost of Rs. 7.50 lakhs.

To promote the social-economic and cultural activities in the village level the State has decided to propose construct Rural Community Center (facilitation center) at village level. In addition, the government is also committed to develop and make available not only a block level functionary who could act not only as a link between villagers and all the government departments and play a role of their friend, philosopher and guide but also to make the delivery mechanism more effective. The Office of the BDO will be the nodal agency for implementation of various programmes at the grass-root level.

The government has on its anvil the agenda for constitutions of Block Development Committees consisting are MLA as chairman and area *zilla panchayat* member, President GPU, educated youth and ex-Serviceman as members.

## **ii) District Planning**

Article 243-G of the Constitution defines the nodal role of the Panchayats at all levels in regard to local area planning, which is the indispensable pre-condition for PRIs to function as institutions of self government and not merely as implementing agencies for plans and programmes, they have had no hand in formulating. As per the directives of the Article 243-ZD, the District Planning Committees have to consolidate plans prepared

within the districts by Panchayats at all levels. In Sikkim, the District Planning Committees for all the four districts have been constituted and they are now preparing to play an effective role in preparation of the plans. This is however, not possible without awareness generation and capacity building of the DPC members and Village Planning Committee members. It is proposed that during the next few years, the Panchayats will be empowered through necessary capacity building and training so as to enable them to prepare, integrate and formulate their own plans in consultation with *Gram Sabhas* and Ward Sabhas.

The Government of Sikkim is of the opinion that the key to participatory planning lies in mobilizing the local communities to articulate their priorities in an informed and intelligent manner. This could ensure the movement of grass root planning, from preparation of a wish list mode into a feasible and responsible plan mode. Therefore, it is very necessary that the Gram Sabhas and the Ward Sabhas are adequately mobilized so as to make the planning process meaningful.

This would be reflected largely in the draft of the 11<sup>th</sup> Five Year Plan to be prepared in the course of next one year. The new planning process is roughly envisaged to compose the following phases:

- **Stage I** : Holding Ward/Gram Sabha assemblies to identify the local problems
- **Stage II** : Holding of development seminars to reach a consensus on the list of problems and the project ideas.
- **Stage III**: The constitution of sub-committees on areas identified to distil the various project concepts into concrete proposals.
- Finalising the Panchayat Plans.
- The integration of local plans into wider district level plans.
- Merging of the District plans into state plan.
- Appropriate manpower has been placed at Zilla/district Level, and relevant Rules framed to give effect to the provisions of law.

Accordingly the office of the *Zilla Adhakshya* has been strengthened by setting up of Planning Cell in each district- District Planning Officers of the level of Deputy Secretaries and for the management of Finances the Joint Directors from the State Finance and Accounts Service have already been posted. They will be assisted by the officials of the Statistical Cell. At the Gram Panchayat nine Sub divisional Development Officers have been posted.

## **VI Challenges Ahead**

The State is facing four critical challenges which call for both constant introspection and determined will to make best out of these challenges.

Firstly, the increasing urge and trend to migrate from the rural to urban areas particularly among the youths. This has serious implications ranging from slowing down of the economic activities in the rural areas to undue pressure on the urban infrastructures. A natural rural-urban migration is acceptable. However, if there is an abnormal spurt in such phenomenon then we shall have to examine the reasons and assess the implications. The State has to put forward sustainable solutions.

Secondly, the State has realized that the attractions in the urban areas are primarily the better facilities and infrastructures and most importantly wider job opportunities. Therefore the State has to strive hard to meet the changing aspirations and needs of the rural communities and also to re-juvenate the rural economies. The endeavour to increasingly provide all the urban facilities in the rural area (PURA) to make each rural segment self-contained must be consistently taken forward. These include better infrastructure like roads, electricity, communications, drinking water and shelter and social and community amenities like hospitals, schools, bank, post office, shopping center. The State has established Agriculture Export Zone for better marketing facilities to the farmers . The rural communities are willing to pay the user charges. They want qualitative, timely and durable services.

Therefore, in the difficult rural terrain like that of Sikkim the provision of institutional credits and finance should be more based on community rather than individual. It should be more in the areas non-traditional areas like micro and mini hydel projects and community forestry. The State is now envisaging setting up a range of mini and small hydel projects that will be run by the local communities and panchayats. This will cater to another crucial area of rural energy which has never been the development priority in the past.

Thirdly, a fast emerging challenge is how to consolidate and sustain the empowerment and devolution the State has made to the Panchayats and other village communities. This includes the building of capacities among the village communities to handle the administrative and financial powers and to plan the development programmes. This also involves monitoring and evaluation of the projects and of course ensuring the equitable distribution of benefits. Skill development remains the key issue in rural employment programmes.

The final challenge is that of growing pressure on natural resources including land and water located in the villages and rural areas. Its more likely to increase as the globalization process and related liberal market structures. The question of environmental security is both pertinent and critical. For a State like Sikkim, where more than 83% area is under forestry land use, forestry can never be practiced in isolation from the general rural development. It's the rural communities who have remained custodians of forests and hence forest should be made a sustainable source of income and employment.

The State will have to therefore undertake multiple approach to face these multi-faceted challenges. The development strategies and policy instruments which the State used in the past five decades may not be effective any longer as the rural Sikkim for that matter whole of rural India are undergoing massive transformation.

The State is of the view that at the Union Government level also there are very essential interventions required exclusively for hill and mountain states which are enumerated below:

- ▶ Devise an exclusive programme for the development of rural areas located in the hill and mountain regions.
- ▶ Create a national fund for rural reconstruction primarily aimed at building rural infrastructures.
- ▶ Make substantive long term programme on rural environment to be exclusively handled by the Panchayats and other rural communities
- ▶ Encourage parallel institutions outside the government to improve the delivery systems. Make a very clear policy with regard to the involvement of NGOs in the delivery of services.
- ▶ Set up a number of regional and state organizations primarily aimed at imparting skill development training and building the capacity of the Panchayat members in the management and governance techniques in their new roles as development managers.
- ▶ Float a community credit to create new generation of income and employment generating assets like community run hydel projects and forestry. Tree and bamboo insurance schemes for farmers to encourage the agro-forestry on the pattern of crop insurance scheme may be considered positively.
- ▶ Constitute a Technology Mission to examine and promote the idea of rural bio-diversity management in the context of implementation of WTO provisions.
- ▶ Promote village tourism in a selective manner in areas having distinct comparative advantages in tourism sector.

# Chapter 4

## Infrastructure

Being a landlocked state infrastructure has been most crucial aspect of development in Sikkim. This is further made critical by the fact that Sikkim has most of its areas located in the hill and mountain regions. In every aspect of Sikkimese development process connectivity has been a major bottleneck. Limited market access, underdeveloped communications system, restrictions on free movement of people, goods and services and most importantly the recurrent natural calamities have all very adversely affected the development process. Almost every sector - agriculture/animal husbandry, industry, rural development, health, education, social welfare, etc. – has been handicapped by the lack of good roads. This has perpetuated the dependence on middlemen for marketing agricultural and horticultural surpluses. For others though the cost of production has been lower the high transport costs discourage the entrepreneurs and investors from making dent into any major industrial activities.

Over the years however, there has been significant progress in all fronts of infrastructural developments in Sikkim. This has had definite positive impact on the overall development process. More importantly, the State is now increasingly getting exposed to modern means of communications and hence the process of social mobilisation has been steady. The expansion of the fixed line telephone network across the state, the successful proliferation of mobile phones in the Gangtok area, and the spread of internet connectivity to even remote parts of the state have increased connectivity substantially among people once living in isolation.

### **I The Road Network**

When the planning process began in Sikkim in the mid-1950s, apart from a very narrow road linking Gangtok to Rangpo, and a few kilometres of road around Gangtok there was no road network. Since then it has come a long way. At the end of 9<sup>th</sup> Plan the total road

length under the administrative control of the department was 1889 km. During the 10<sup>th</sup> Plan, 89 kms have been added. Further works are ongoing on 75 kms. The total length of roads that have been resurfaced / upgraded during the 10<sup>th</sup> Plan period is 269 km, and works on 80 km is under progress. 13 numbers of bridges (*including major culverts*) have been constructed and 6 no are under construction. (Table 4.1)

Table 4.1

**Road Statistics**

(in km)

Category	Black top length	Unsurfaced Length	Total Length
<b>A. State PWD</b>			
State Highways	184	-	184
Major District Roads	520	202	722
Other District Roads	439	545	984
New ODR	-	89	89
<b>Sub Total A</b>	<b>1143</b>	<b>836</b>	<b>1979</b>
<b>B. BRO</b>			
National Highway	40	-	40
North Sikkim Highway	67	-	67
Other Border Roads	787	-	804
<b>Sub Total B</b>	<b>894</b>		<b>894</b>
<b>Grand Total (A+B)</b>	<b>2037</b>	<b>836</b>	<b>2873</b>

Today the total road network works out to be over 2873 kms in which 1,979 km is maintained by the state government and 894 km by the Border Roads Organisation. The rapid increases in technology and improvements in overall development has meant a tremendous growth in the number of passenger vehicles, and a need for higher-load carrying goods vehicles, to transport goods in and out of different parts of the state.

During the previous plans most of the earthen roads were upgraded to water-bound macadam (WBM). There has been a steady increase in black-topped roads. Proper and efficient drainage systems have been introduced. Since 2001-02, rural roads are being



upgraded and repaired under the Pradhan Mantri Gramodaya Sadak Yojana. However, the pace of work has been slow, and will need to be accelerated if development is to spread to the rural economy in general. (Table 4.2)

Table 4.2

**Expansion in the Sikkim State Road Network**  
(March 31, 2004) (*km*)

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>BT</b>	849	837	849	930	972	1,005
<b>WBM</b>	592	574	566	517	475	453
<b>Earthen</b>	306	321	333	382	409	420
<b>Bridle</b>	28	28	28	28	28	28
<b>Total</b>	1,775	1,760	1,776	1,857	1,884	1,906

State government roads are categorised by quality into state highways, major district roads, other district roads, and rural roads. Expansion of road length has been slow, and much of the Plan funds have been used to upgrade the road and bridges network. Road density (length of road per 1,000 sq. km.) has been increasing in Sikkim since 1981-82, but the state still ranks low.

**i) National Highway**

Sikkim's only road link with the rest of the country is the National Highway 31A. The highway is 92.6 km. long, of which 51.3 km. is in West Bengal and the remaining 41.3 km. is in Sikkim, connecting Rangpo to Gangtok. Maintenance is carried out by Project Swastik of the Border Roads Organisation (BRO), which also looks after the North Sikkim Highway (NSH), the 96-km. road connecting Gangtok to Chungthang in the north district. Heavy rainfall for several months of the year, and frequent landslides mean that the state's road-link is often disrupted, despite continuous maintenance work by the BRO. The proposal to widen NH 31A to a two-lane highway has been now been accepted by the BRO. The construction activity is being started. A second option, the construction of an alternate highway linking Sikkim with the rest of the country, is also under serious consideration.

The most crucial 143 kms road link between Siliguri- Nathu la road via Gangtok town require very drastic upgradation. All the major segments are found to have deficiencies in areas of operation, safety and road conditions. These include congestion and delays through built up areas, deficient road surface conditions, deficient geometric features, no pavement edge markings and uncontrolled roadside developments and encroachments. Bridges and culverts require rehabilitation, reconstruction and widening. The highway is also expected to act as a vital link to the old trade route between India and Tibet/China through the Nathu-La pass. Efforts to improve the highway and link it with the pass are being looked after by Sikkim Industrial Development and Investment Corporation Limited (SIDICO). Infrastructure Leasing and Financial Services Limited (IL&FS) has carried out a detailed feasibility study on this. Future plans for the highway include linking it with the east-west corridor and with the golden quadrilateral, so that the State becomes better integrated with other parts of the country.

For operational and phased development purposes the entire existing 143 Km length highway has been divided into three segments. (Table 4.3)

Table 4.3

Segment A- Sevoke to Rangpo-	52Km
Segment B- Rangpo to Gangtok-	40 Km
Segment C- Gangtok to Nathu la-	51 Km
<b>Total -</b>	<b>143 Km</b>
In addition, new construction for 2 bypasses has also to be undertaken:	
Segment D	: Melli to Singtam (approx. 53 Km)
Segment E	: Ranipul to Kyangnosla ( approx.45.5 Km)

The *Final Feasibility Report for Segment C* by Archtech Consultants Pvt. Ltd of India and Halcrow Group Ltd of UK on behalf of Sikkim Industrial Development &

Investment Corp. Ltd. (SIDICO), February 2004, have made extensive recommendations for making this highway sustainably useful for conducting both trade and tourism related activities.

Widening has been proposed in general on the hillside for this stretch of intermediate lane of carriageway giving it a 2-lane carriageway configuration. There are geometric deficiencies which have to be corrected to improve the widened road alignment at least to minimum standard specified for hill road. Important junctions at Sevoke, Rambibazar, Tistabazar, Chitra and Melli will have to be improved at grade keeping in view of the traffic data. Many of the bridges do not have the loading capacity conforming to NH Standards. A large number of existing culverts have to be dismantled, reconstructed and many of them need to be widened. There are many landslide prone areas in the entire that need proper remedial measures including removal of boulders and other loose materials from failure area and installation of proper drainage.

The estimated cost of the project (for Segment A ) alone works out to be Rs 319.91 crore with paved shoulder and Rs 298.57 crore without paved shoulder. These include land acquisition, resettlement and rehabilitation, relocation of utilities, all items relating to construction of road proper including protective works, drainage facilities, bridges and culverts, improvement of junctions, toll plaza, road side amenities including landscaping, truck lay by, bus bays, bus shelters, signage, road marking and road furniture, environment mitigation and maintenance of roads during the period of construction. The construction is likely to take 36-42 months. For segment B the estimated cost of the project works out to be Rs 216.17 crore with paved shoulder and Rs 204.98 crore without paved shoulder. The construction of this 2 lane road is likely to take 36-42 months. The estimated cost of the project (for Segment C) works out to be Rs 429.97 crore with paved shoulder and Rs 405.78 crore without paved shoulder.

## ii) **Alternative Roads to Nathu la**

Given a higher level of expectation, the nature and composition of trade through Nathu la and the topographical constraints on the existing Jawaharlal Nehru Road from Gangtok to Nathu la, the search for alternative roads to reach this pass is already on. The multiple routing to reach Nathu la should be explored both to avoid congestion and minimize the uncertainties brought about by weather/climatic conditions in the region. This would also reduce environmental degradations caused by single road dependence.

The Sikkim government submitted a memorandum to the Ministry of Surface Transport, demanding a national highway from Nathu la to Gangtok and the upgradation of the state highways. It mentioned that “trade will come to a standstill if the infrastructure is not upgraded and dependence on the present highway not ended. Highway 31A, which extends from Siliguri to Gangtok, is only around 5 metres wide when the specifications are for 7 metres. The road that extends from Gangtok to Nathu-la is even worse, in the width of only 4 metres. The highway was often ‘affected by landslides’. It called for conversion of the route to a four-lane highway between Melli and Rangpo.” The Union Government has been looking into the demand to provide an alternative national highway between Melli and Rangpo in Sikkim, which is on the other side of the Teesta.

The most feasible alternative route to Nathu la has been the existing border road from Damdim to Nathu la which follows the direction from Damdim via Lava → Pedong → Kupup → Nathu la Pass. Another study conducted by Sur Technical Services along with their collaborators Geo Consult ZT GmbH of Salzburg - the world leaders in Tunneling technology- has recommended a new tolled 4-lane Expressway to be built linking Sevoke (other side of Jubilee Bridge) to Gangtok by tunneling and bridges, whereby the distance could be reduced from 93 Kms. at present to only 47 kms. This Expressway will be all weather unlike the present existing NH 31A which has a number of faults, resulting in landslides during the monsoons. This Expressway will be designed for an optimum speed of 80 Kms/hour as per IRC guidelines and shall be of international standards. The consultants have proposed a pre-feasibility study and have made a rough estimate of the

cost and time taken to complete the project. They have found out that the cost will not be very much higher than the construction the 4-lane NH 31A along its present alignment of 93 kms. The total cost of the project can be recovered in 7 ½ years time, keeping in mind the additional traffic likely to be generated by opening international trade with China through Nathu la. This project will be ideal as a Built Operate and Transfer (BOT). The time taken for coming from Gangtok to Siliguri will be reduced to 60-75 minutes only, for a toll payment of Rs. 50 only. This Expressway offers a distinct possibility of having a rail connection between Nathu la and Sevoke.

Both construction and maintenance costs are very high in Sikkim mainly because of the mountainous terrain and the accompanying fragility. Sikkim has to have a long-term perspective in its expansion of road network. As the document entitled *Sikkim : The People's Vision 2001*, "The importance of roads to the state's development means that they cannot be built based on short-term goals, such as employment generation or saving funds. Such an approach could prove more expensive in the long run as poorly built roads get washed away and have to be entirely replaced. It would be far more cost effective in the long run if the roads are built with the best available material and with all the appropriate supporting structures - retaining walls, drains and parapets - to allow them to withstand landslides, heavy monsoon rain - and even earthquakes." Well-built roads also have lower maintenance expenses.

The State Government is now seriously taking up following two infrastructure projects for their early approval by the Union government.

- The extension of the East-West Corridor to Sikkim to link it with the Golden Quadrilateral under the National Highway Development Project. This means effectively linking Kanyakumari with Gangtok. This will fulfill both strategic and development goals and the long cherished aspirations of the Sikkimese people.
- Building an alternative highway to the present 31-A National Highway.

## **II Road Transport**

Sikkim Nationalised Transport (SNT) has been in continuous service since 1946 when it was started as a trucking service. It has made significant contributions to the process of development in Sikkim. It has integrated various difficult areas, provided goods and services to the people in remote areas and also worked as a constant supportive agency to the transport network. In 2003-04, it had a fleet of 106 buses and 106 tankers/trucks, with services on 43 passenger and goods routes. It has a monopoly on transport services in the state. The SNT carries about 60% of the total freight while the remaining 40% is carried by private operators.

The existing freight carrying capacity of SNT does not cater to the growing demand of freight in Sikkim. This has led to outsourcing of freight by SNT to the local private operators. SNT is paid a royalty for every truck load that it outsources to the local private operators. Sikkim has a reciprocal agreement with West Bengal under which number of their registered trucks allowed into each others areas should be equal. The SNT has distinct strengths:

- Infrastructure in terms of offices, buildings
- Warehouse at Siliguri (now abandoned)
- Personnel both technical and administrative
- State support

However a vast majority of SNT's fleet (69 per cent of its buses and 63 per cent of its trucks) are past productive age and need to be replaced, as they add to environmental degradation, and also violate national policy on pollution. SNT's net losses have been increasing. The situation is going to be more difficult as the 12<sup>th</sup> Finance Commission has recommended the total withdrawal of subsidies given to the transport units of the State. Of the 43 routes allotted to the enterprise, only 17 are profit-earning, and of the remaining, only 14 cover their variable costs. While SNT has managed to reduce its staff strength from 553 in 2000-01 to an estimated 462 in 2004-05, staff productivity measured in km per worker per day has fallen in the same period from 22.3 to an estimated 18.04.

Bus services even between two busy urban centres such as Gangtok and Namchi are infrequent, and this adds to transaction time and costs. Some of the more economic routes are serviced by shared private jeeps, however, this is a relatively expensive form of transport. Given SNT's increasing operating losses, despite reduced staff strength, a strong case can be made to invite well-regulated private bus companies to operate some routes. The shifting dynamics of urbanisation and rapid growth of some rural marketing centres (see chapter on urban development), calls for a re-assessment of the bus transport network and frequency in the state. A high-capacity public transport system needs to replace the army of taxis operating in Gangtok, which will also help decongest the major arterial roads.

### **III Air Transport**

At present the only air services in the state are a four-seater helicopter service from Gangtok to Bagdogra, but this caters to an almost insignificant proportion of transport activity. The closest air-link with the state is through Bagdogra airport, which is around four hours by car from Gangtok. Helicopter links exist between Bagdogra and Gangtok, but the fare is prohibitive, and the number of seats limited. From the long-term development perspective, to establish better links with the rest of the country, a good airport and efficient air services have become imperative for the state.

The central government has sanctioned an airport for Sikkim, and the state government signed a memorandum of understanding with the Airport Authority of India (AAI) for construction at Pakyong. Despite its approval over three years back the proposed Greenfield airport has still not taken off. The 12<sup>th</sup> Finance Commission had given the State a sum of Rs.100 to this effect. However, the fund requirement has been assessed by Airport Authority of India (AAI) at about Rs.340 crores. Land has been acquired for construction of the airport and the Forest Department has begun the Environment Impact Assessment. The DPR has already been prepared. The Planning Commission has assured that the funding for the balance amount of Rs.240 crores would soon be finalized in

consultation with Ministry of Civil Aviation. This is likely to be on the basis of 50 % by AAI and 50 % from Gross budgetary support. Given the critical importance of airfield and the rising construction cost an expeditious decision has to be and funding will have to be made outside the framework of plan resources.

This airport project is likely to bring substantive changes in the tourism arrival both from within and outside the country. The demand for full-fledged cargo and freight handling centre in the region is going to be more conspicuous in the very first few years of Nathu la trade route reopening. These facilities could be either developed in Bagdogra airport or somewhere in the vicinity so that users can easily access the same. There are some thinking going on in this direction.

#### **IV Railway**

An announcement has been made by the Union Government that a rail link will be made between Rangpoo and Siliguri during the 11<sup>th</sup> Five Year Plan period. Besides this , a feasibility report on linking New Jalpaiguri in West Bengal with Jorethang in the East District of Sikkim by a 75-km. broad-gauge Trans-Himalayan railway line is under active consideration by the central and state governments. The trade route through Nathu la may also necessitate the construction of railway line as much near to the trading point at Sherathang. The Chinese side is reported to be envisaging of extending their railway line from Lhasa to the trading point at Renqinggang very near to Nathu la

#### **V Telecommunications**

Sikkim is stated to have the highest density of telephone network among the Indian states. The telecommunications network in the state was very limited prior to the setting up of the Sikkim Telecom Department under the West Bengal Circle of Bharat Sanchar Nigam Limited (BSNL) in 2000. The expansion in the number of exchanges has increased the number of landlines from 3,000 in 1999 to 49,350 in 2004.

Many of these have been supplied under the PCO-booth scheme to unemployed people, to increase self-employment opportunities in the state. The Department has set up village



public telephones (VPTs) in 374 of the 427 revenue villages. The remaining villages are too remote for cable or wireless in local loop (WLL ) systems. However, the Department plans to link them through satellite.

Mobile telephone services have also grown rapidly from their introduction to over 25000 lines in 2005. This was 14700 lines in 2004. Originally a monopoly of Reliance, mobile services have now been practically taken over by BSNL, which has 98 per cent of the market. At present mobile services are only available as far as Mangan in the North District, but a long-range switch is planned to extend services beyond this. (Table 4.4)

Table 4.4

**Telephone Connections, 2004**

<b>Connections</b>	<b>North</b>	<b>East</b>	<b>West</b>	<b>South</b>	<b>Total</b>
<b>Landline</b>	1,792	33,340	7,408	6,800	49,340
<b>Mobile</b>	1,000*	9,700	2,000*	2,000*	14,700*
<b>Total</b>		43,040			
<i>Note: * is approximate figures</i>					

To match with the reopening of Nathu la trade route there has been a good attempt by the Bharat Sanchar Nigam Limited (BSNL) to introduce cutting-edge telecom technology. This includes latest telecom facilities such as GPRS and VPN and also several turnkey projects which will ensure the connectivity of the state to in the wake of natural disasters such as a landslide or an earthquake. The installation of communication networks like IMARSAT terminals for security forces and other important state and Central agency wings are also in the anvil. GPRS will enable users to undertake high-rate data transfers from his mobile phone or laptop, it will also enable the service provider to monitor the movement of the user through the GPRS network. The virtual private network (VPN) will allow users to cut down on costs, by enabling them to availing an EPABX-like arrangement though mobile services.

Good telecommunications can help the state overcome some of the handicaps imposed by the mountainous terrain by increasing access, especially for those living in remote areas, to information, goods, and social and economic services. If managed effectively, it could deal with one of the major problems of the state – increasing urban migration, by improving self-employment prospects and giving industries some incentive to locate away from urban areas. The proliferation of community information centres (CICs), enabled by the expansion of the telecommunications network, could give a boost to other sectors such as tourism, horticulture and agriculture. At the macro-level, improved telecommunications helps the state integrate more closely with the rest of the country.

## **VI Information Technology**

Information technology is high on the government's agenda, and the Department of IT was created in August 2000. Its mandate is to expand the electronic networks and to incorporate IT in the daily functioning of the government. The Department has been training officials on software use, maintaining official documents on the Internet and establishing CICs across the state.

The Development of IT has hosted the official website [www.sikkim.gov.in](http://www.sikkim.gov.in) of the Government of Sikkim. This website is rich repository of information. Citizens have been extensively using this website to obtain information pertaining to Government schemes, agricultural prices etc. Applications Forms for various opportunities, tender notices, public-private partners that have been hosted on the website are also being downloaded. *Sikkim Herald*, employment news, tenders, auction notices, Government Gazettes are updated daily in the website.

Sikkim Dak is a Multi-Lingual Message Server that has been developed for Department of Information Technology and other user Departments, Government of Sikkim. It is developed for exchanging electronic messages in Sikkimese local languages, viz.: Nepali, Bhutia, Lepcha, Hindi and English. In addition, a message can be composed that have letters of any of the four languages and English in the same text simultaneously. The

computerization of check posts for commercial tax transaction is taken place. V-Sats have been installed in Rangpo and Melli check posts. These are very important entry points for monitoring movements of goods, livestock, passengers and tourists into Sikkim. The software for this purpose is being developed.

The establishment of 40 community information centres (CICs) across the state, even in areas as remote as Dzong, have exposed a large section of the population to the use of computers in daily life. This has greatly increased the government's interface with the public and enhanced the quality of some state services. For example, with the help of CIC operators, users can download forms such as old-age pension applications (which at one time involved a physical trip to Gangtok), and access records, and farmers can check prices of products, such as large cardamom, updated weekly by the Spices Board. The success of this depends on the supply of accurate, timely data from each Department to the Department of IT, which has not always been forthcoming. The nomination of a nodal official in each department who can interface with the IT Department will ensure a more smooth and timely transfer of information. Alternately, maintaining government websites, may be contracted out to private software companies.

CIC will ultimately evolve into a single window delivery facility where citizens can pay their taxes, electricity bills, water bills and even get births and deaths registered online. To strengthen the Panchayat Raj System, the day to day running of the CICs has been handed over to local committees consisting of Panchayat President as Chairman, Panchayat Secretary as member and one CIC Operator as member. Panchayat Committees have been formed in all the CICs all over Sikkim.

Software Technology Park is established at Sikkim Jewels Complex at Tadong. It will essentially provide the basic infrastructure like bandwidth access; stable power supply and space on hire to inventors who would like to invest and operate from Sikkim.

A Community Information Centre is being established at the Nathu la Border. This would be catering to the needs of hundreds of tourists, military personnel and various agencies like taxation, excise, police, transport, trade etc who would be able to send reports etc by e-mail. To bring substantial change and succour to the lives of the physically challenged people, a computer centre for the blind has been started. State Wide Area Network (SWAN ) Project funded by the Government of India is being started in the State.

A computer literacy campaign has been launched by the Department with a view to making people computer literate. These training programs are being conducted in the 40 CICs in Sikkim. The break up on the number of people trained by the Department till 2005 is as follows (Table 4.5)

Table 4.5

**Computer Training Programmes**

<b>Type of Training</b>	<b>Persons trained</b>	<b>Placement</b>
Call Centre Training (career oriented)	84	65
Multimedia training (career oriented)	60	11
Computer training to Government employees	669	
Computer training through SSI	496	
Computer Literacy Program (IGNOU)	146	
Training of Unemployed Youth	100	
Computer training provided by CICs	2740	
Training of software developed in house	40	
Total Computer Literacy Campaign	358	
Free Computer Course for Unemployed Youth	190	

Even though computers have been made available to a large number of government officials, and several have received training in their use the E-governance has been rather very slow to take off. Official communication is still carried on in the traditional fashion, through hard copy, and meetings are conducted in person. Much of the delay in sending and receiving information can be cut down. A huge saving of time and resources could be made in the process of decision making within government if more effective use is made

of the computer network. This is critical to a mountainous state like Sikkim. Ultimately e-governance can be used to make the functioning of government more transparent, and reduce corruption. The Monitoring and Evaluation module provided by the Council for Social Development, New Delhi to the Government of Sikkim has in it a strong element of virtual assessment of all the development projects both undertaken and likely to be undertaken. This module needs to be widely disseminated and made accessible to every individual in the State. Besides injecting transparency this will help minimise the misuse of funds.

The State plans to provide each citizen with a smart card in which all details regarding an individual will be available. With the introduction of bandwidth households, government offices and community groups will have very easy and free interactions. All natural (viz forest, rivers etc ) and manmade ( viz. roads, PHC, Power Transmission Lines, sewerage pipes etc) resources will be mapped through GIS. All old heritage records in monasteries, libraries, state archives, gazettes and notifications will be digitized.

## **VII Infrastructure Development Package**

Given the extent of infrastructure required and the likely gains in the long run it would be prudent to put in place a one time Infrastructure Development Package. This would greatly facilitate the development of Nathu la trade route both within Sikkim and its periphery areas in Darjeeling district. The Nathu la Trade Study Group has recommended that a sum of Rs 1650-1700 crore may be allocated for this purpose to be used in a phased manner by 2012. This pool of fund could be contributed by the Union Government, North Eastern Council or could be mobilized within and outside the country from sources like World Bank, Asian Development Bank, UNDP and other donor/funding/ credit agencies.

The Union government has also notified Sikkim for investment subsidy in infrastructural projects under the Central sector scheme known as “strengthening / development of agricultural marketing infrastructure grading and standardization”. Under this,

infrastructure projects will now be eligible for investment subsidy of 25 percent of the capital cost up to Rs 5 million on each project. In the north east state, hilly and tribal areas the rate of subsidy shall be 33.33 percent of the capital cost up to Rs 6 million. There is no upper ceiling on subsidy in respect of infrastructure projects of state agencies.

## VIII Power

Prior to 1975, the power requirements of Gangtok and a few townships along the National Highway were met from the Jali Power House commissioned in 1964. There were only 8 declared towns in Sikkim which availed electricity till the end of 1975. The rest of the areas throughout Sikkim were spelled with black mask. By the end of 1978, the state had a generation capacity of 3 MW from three of its small hydel stations, i.e., Jali Power House, Rimbi Micro Hydel and Rothak Micro Hydel. The state decided to undertake the extension of electrification to the small townships and villages at a faster pace. Since then several projects have been commissioned (table 4.6).

Table 4.6

### Power: Installed Capacities

Power House	Installed Capacity at Year-end (kW)
Lower Lagyap (H)	12,000
Jali Power House (H)	2,100
Rimbi- I (H)	600
Rongnichu-II (H)	2,500
Chaten (Lachen) (H)	100
Rimbi-II (H)	1,000
Lachung (H)	200
Mayongchu (H)	4,000
Upper Rongnichu (H)	8,000
Kalez K.H.E.P (H)	2,000
Rothak (H)	200
Rabomchu (H)	3,000
Diesel (D)	500
<i>Note: H: hydel; D: diesel</i>	

The Rabomchu HEP was commissioned during 23<sup>rd</sup> May 2003. The other smaller which are soon being completed are:

- a) 2 MW Manglay Hydel project
- b) 6 MW Rellichu Hydel project
- c) 5 MW Rongli Hydel project
- d) 3 MW Lachung II Hydel project

Besides this the State has a central share of power to the extent of 74 MW. However, the experience with these drawals has been rather disappointing as they are marred by frequent interruptions due to tripping etc. Even otherwise, the existing transmission system of West Bengal is weak and dependence on such a network for drawal of the state's share of central sector power would always be subject to disruption. Though it is overwhelmingly the domestic consumers (almost 85 per cent) that are users of electricity in Sikkim, the share of domestic consumption is 32 per cent lower than that of the commercial consumption (34 per cent)

Though the power sector has consistently received relatively much higher share in the plan outlay [9.2 per cent in the First Plan (1954-61), 10 per cent in the Fifth Plan (1974-79), 19.4 per cent in the Ninth Plan, and approximately over 18 per cent in the Tenth Plan], the rate of increase in the power output has not kept pace with the rapidly increasing demand which at present is of the order of 15-20 per cent per annum. The estimated peak shortfall has increased almost three-fold from 5.7 MW in 1988-89 to 14.03 MW in 1997-98 to over 40 MW in 2005-06. The annual growth rate of this shortfall (12.32 per cent) has been almost double (6.85 per cent) than that of the installed capacity. An outlay of Rs.500 crores has been proposed in the 11<sup>th</sup> Plan for the power sector.

However, the installed and firm capacity of the operational units in the last 32 years since 1975 works out to about 1.4 MW installed capacity (0.8 MW firm) per year. The state needs to add at least 4-5 MW firm capacity every year to cater to the increasing load demand. Had it not been the ongoing Teesta V project, this gap is going to be glaring within a few years as a number of power intensive industries are coming up in the state. The requirement, both household and institutional, in the urban and rural areas is also growing rapidly. In fact, the unreliable and inadequate power supply has been attributed as a major reason for the state's inability to attract private investors in industrial activities.

Without any major industrial activity also, the peak load demand of the state by 2011 is expected to reach 80 MW.

### **The Increasing Demand for Power**

The demand for power will increase drastically in the next couple of years because of:

- Burgeoning domestic demand triggered by changing consumption pattern of the consumers;
- Intensification of rural electrification projects;
- Power-driven industrialisation arising out of the liberalised investment scenario in the state;
- Likely expansion of tertiary sector activities including tourism, education, health and communications;
- Infrastructure required to conduct cross-border trade with the Tibet Autonomous Region of China via Nathu la; and
- Attractiveness of power trading both within and outside the country.

#### **i) Rural Electrification**

Rural electrification has been the most daunting task in Sikkim both because of the extreme and unfriendly topographical conditions and the huge technological and financial resources involved. Unlike the villages in the plains which comprise clusters of habitations, the configuration in the hills of Sikkim is highly scattered sometimes making any community project pretty much uneconomic. They are all scattered and the distribution becomes very difficult. The state has declared that it has achieved 100 per cent rural electrification. However, this definition has now been changed by Ministry of Power according to which minimum 10 % of the households in a village has to be electrified and school buildings, public health centre and community centre in the village should be electrified before declaring the village electrified.

With this new definition, it can safely be said that about 91 % of the villages in Sikkim have been electrified. However, due to radial system of distribution catering to the far flung villages, reliability of power supply is very poor. At present, 11 KV networks are drawn radially on mostly 9 m long latticed structures. This makes the remotest points in the line, the most susceptible to break downs. Though 66 KV lines are being drawn to



set-up 66 / 11 KV substations, their numbers at present are few and far in between. This work needs to be accelerated. At present, there are 12 numbers of 66 / 11 KV substations catering to 447 Revenue Blocks. It is estimated that each district should have about twenty-five 66 / 11 KV substations therefore about 100 such stations will be required in all. That means we have to add another 88 numbers of 66 KV stations. These stations will be connected in Ring Main System so that each 66 / 11 KV substations have alternative supply. From these 66 KV substations, 11 KV distribution line shall emanate and in turn form Ring Main System in 11 KV systems also. Such a system should make the power supply to even the most remote household very reliable. For this, the distribution and the transmission systems have to be augmented massively. The following is the broad programme strengthening the distribution system (Table 4.7)

Table 4.7

***Planned Transmission and Distribution Arrangements***

<b>Particulars</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
66 KV Line	391 Km	591 Km	650 Km	700 km
66 KV Substation	12	50	75	100
11 KV line	2568 Km	3568 Km	4000 Km	4200 Km
440	5628 Km	8000 Km	10000 Km	11000 Km
DTs	1370	2000	2200	2300

The above program is a long term one and requires substantial investment. In the meanwhile, schemes under Rajiv Gandhi Grameen Vidyutikaran Yojna (RGGVY) are being formulated and is expected to be implemented within next few years. In these schemes, besides aiming to cater to cent percent of the rural households, backbone of the distribution network shall be strengthened by setting up 11/11 KV switching networks in strategic points in the rural areas. These systems will ensure that the faulty segment will not result into power disruption of the entire area.

The availability of power in rural areas will lead to economic development and its attendant spin-off benefits like food security, better health and literacy etc. However, the use of electricity in villages for productive and subsistence needs is still very limited. The

actual benefits of the investments made in the rural electrification programme can only be realised if the people are in a position to use electricity for their day-to-day activities as well as for industrial and commercial activities. Therefore, both 100 per cent rural electrification programs and widespread use of electricity by the rural people would mean a major upward shift in the demand for electricity.

## **ii) Hydel Potentials**

In Sikkim, its hydel-power potential of 8,000 MW remain highly unharnessed. As a result, in the total hydel-power installed capacity in the country, Sikkim hardly contributes 0.2 per cent. In order to commercialise the hydel potential of the state, the government has constituted Sikkim Power Development Corporation Ltd. (SPDC) to implement both hydel-power projects and to lay the associated transmission lines. A number of hydel-power projects are under construction which include 510 MW Teesta – V. This project is estimated to cost Rs 3,000 crore and is being built by National Hydro-Electric Power Corporation. Teesta Stage V is going to be commissioned by the end of 2007. Considering that the project generates 2,172 million units annually, the sale rate of energy has been worked out to 295 paise per unit after considering 12 per cent free power to Sikkim.

Equally potential area has been the micro-hydel projects which could be developed on the Chinese pattern of feeding to a common grid all over the small tributaries of the rivers which may add a lot million kW. There are quite a few projects which have been identified in this category on the recommendations of Geological Survey of India. For all these, an exclusive technical and highly professional apex institution needs to be created.

## **iii) Restructuring the State Monopoly**

Like in other states the power generation and its supply continues to remain a state monopoly in Sikkim also. The government owns, operates and regulates the power entities. This resulted in overlapping and to a large extent undemarcated responsibilities

with lack of accountability in terms of sector entities, operational performance and service standards and codes. The performance of these utilities therefore, remained far from satisfactory. More significantly, most of the power generating units remained highly dependent on the subsidies inputs provided by the state and remained thoroughly unexposed to any competitive and efficient atmosphere. Consequently they started becoming sick.

The power distributing units lacked commercial independence, suffered from unclear definition of the corporate structure and responsibilities. On top of the low tariff rate in relation to the financial requirements of the operating entities, high system loss and low collection from the consumers ultimately made these entities both defaulters and sick. This was heightened by the falling level of domestic public investment as well as the development partners.

The revenue-expenditure gap in the state is a staggering amount of Rs 141.36 crore for the 24-year period of 1979-2003. The gross operating deficit (i.e., revenue receipt minus revenue expenditure) for 2002-03 alone was Rs 30 crore. This can be improved only if there is a drastic upward revision in the tariff and effective utilisation of plant through improvement in plant load factor (PLF) particularly in non-peak hours. The level of PLF is a dismal 30-40 per cent in the state.

The total energy sold during 2002-03 was 73.27 million units and the revenue realised was Rs 13.31 crore. The average revenue per unit (kWh) sold is Rs 1.82/kWh and the average cost of energy delivered works out to Rs 3.34/kWh. The average cost of supply is almost twice than average realisation. This is due to high T and D losses, high operational costs (mainly due to unproductive and excess manpower) and low revenue realisation (mainly due to unmetered supply and inefficient manpower for its reading and collection). On the other hand the low realisation is due to poor metering, billing and poor revenue collection.

As against this, the average tariff in the State has sharply increased to 290 paisa per unit from an average of 70 paisa per unit in 2000. Surprisingly the commercial tariff is not much higher (hardly 16 % ) than the domestic tariff. This could be because of the conscious policy of the Government to make the investment opportunities more attractive in the State. Revenue collection and revenue expenditure gap is ever expanding. In a major policy change, the government exempted the defaulter rural consumers of all their electricity rent payments up to February 1999. This costs the exchequer almost Rs 2 crore. This has benefited 55,000 to 60,000 households.

The Power Department has become bulky, unwieldy and are not at all commensurate to what they are contributing. The per-unit cost of generation, transmission and distribution is also increasing steadily.

The state has undertaken a series of reform initiatives which included appointment of the Cabinet Sub-committee on Power Sector. It has set up State Electricity Regulatory Commission with a view to restructuring of power sector and also to making it a development driver by revenue generation. The state is now working on restructuring.

The absence of a clear-cut, comprehensive state-level hydel power policy aimed at attracting the private sector had been a major stumbling block in any efforts to invite the private developers in power sector. This was also attributed to the underdeveloped state of manpower and the management capacities, limited knowledge of the technicalities involved in both inviting the IPPs and also working with them. These issues have now been widely discussed in the state. As a result, the following projects have been allotted to different private developers under joint venture and projects have been awarded to the developers. Work on 99 MW, Chujachen Hydel Project by M/s. GATI has commenced in Jan 2007. (Table 4.8)

Table 4.8  
**Sikkim : Private Participation in the Power Projects**

Project	Builders	Capacity (MW)
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Lachen	NHPC	210
Rangyong	GVK Industries Ltd., Hyderabad	141
Panam	Nagarjuna Holdings Pvt. Ltd., Hyderabad	200
Lingza	Punj Lloyd Ltd. New Delhi	120
Rongnichu Storage	Chhattisgarh Elect. Company	95
Talem	Shyam Energy Ltd. Kolkata	75

LoIs have already been issued to all the developers. In case of Teesta-III, Agreement has already been drawn with M/s Teesta Urja Ltd. Cases of other developers for signing firm agreement are under process. Besides above, the following projects have been awarded to NHPC which will be developing the projects as per the guidelines of the Government of India. (Table 4.9)

Table 4.9

<b>Projects</b>	<b>Name of Developers</b>	<b>Capacity (Mw)</b>
Teesta IV	NHPC	495
Lachen	NHPC	210

There is a tremendous scope for Sikkim to undertake power trading both inside and outside the country. Given the power demand growth pattern in the state, Sikkim would hardly be able to effectively use even one-fourth of what it is likely to generate from Teesta V project alone. For instance, the pace of development that is catching up in the western regions of China under its “develop-the-west” campaign launched in 2000 would require hefty and constant doses of energy supplies. The supplies from the mainland China may not be feasible on the long term basis. The possible feasible options are importing electricity from the neighbouring countries including from India and Bhutan. Sikkim with its very easy physical proximity figures eminently in this schematic.

#### **iv) Revenue Prospect**

By 2020, all the generating schemes are likely to be completed. Therefore revenue from power houses under the State Sector, CPSU and undertaking in Joint Sectors will be steadily flowing. Estimated revenue flow in future is as under (Table 4.10). The hydel power projects are projected to yield a total revenue of Rs 149 crore on 2010 and Rs 1140 crore in 2020.

Table 4.10

**Projected Revenue Generation from Power Sales**

<b>Particulars</b>	<b>2005 Rs. in lakhs</b>	<b>2010 Rs. in lakhs</b>	<b>2015 Rs. in lakhs</b>	<b>2020 Rs. in lakhs</b>
CPSU in the state	Included in the State Sector Revenue	5800	21500	21500
Joint Sectors	Nil	6156	77222	88722
State Sector	2200	2980	3814	3814
<b>Total</b>	<b>2200</b>	<b>14936</b>	<b>102536</b>	<b>114036</b>

In the calculation of the revenue till 2010, the cost per unit energy is taken as Rs. 2 / unit while for 2015 & 2020 it has been taken as Rs. 3 / unit. A return on the 26 % equity in the Joint Sector is also included in the figures under Joint Sector.

**v) Transmission**

132 KV Sagbari – Melli line has been completed and the line and substation at Melli have been commissioned in December 2004. To evacuate an estimated generation of around 5000 MW of power, the State does not have the required transmission infrastructure. Urgent requirement has cropped up for preparing the Master Plan and implementing the same for following reasons:

- Ultimate evacuation of the generated power;
- All the developers who are partners in the Joint Ventures have started enquiring about the ultimate evacuation system. Without the firm assurance about our exact transmission system that we intend to set up, they are finding it difficult to bring about financial closure of their projects.

Power Grid Corporation of India Limited which is the sole transmission utility under Central Sector has been entrusted the job of preparing the Master Plan for the evacuation System. This Master Plan will have two parts; one part will be for the transmission facility meant for projects which are ready for immediate take off under M/s Amalgamated TransPower India Limited and M/s Gati Infrastructures to whom the Government of Sikkim is committed to providing evacuating system. The second part shall take into consideration all other available power that is to be evacuated. The cost of the transmission system is estimated to be about Rs. 1500 to 2000 crore. It is difficult for the State to have this heavy investment on its own. Therefore the following options have to be explored :

go for borrowing from financial institutions securitizing the project itself;

entrust the job to PGCIL which will set up the evacuation system and recover the cost from the wheeling charge;

engage any licensee to take up the job which will recover the cost from the wheeling charge;

form a co-operative body of the IPPs and lay down the infrastructures.

if the state government under Joint Venture can lay down the infrastructure for transmission, it will be a major revenue source in future for the state. For this equity participation, possibility of tapping NEC or DONER could be explored.

These infrastructures have to be laid down with their completion time matching with those of the generating stations. By 2008-09 the evacuation system should be in place lest the power generated will remain bottled up.

## **IX Challenges Ahead**

The environmental impact assessment studies for the power projects should be carried out in a more transparent, open and all encompassing manner, particularly in terms of involving the local stakeholders. All these studies should be easily accessible to the public. A statewide public hearing forum should be set up to discuss the EIA report of any project before it is implemented.

The inefficient and imprudent use of energy sources has been a major concern in the State. In the commercial energy front energy prices have often been too low, revenue collection unsatisfactory and the system losses enormous, particularly in both transmission and distribution. The inadequate revenue flows therefore, could not cover even a reasonable share of investment costs. All these adversely affected investments in new capacity additions. These are doubly enhanced by inefficient and technically unsound distribution network, poor management, weak administration, overstaffing with untrained and undisciplined employees and corruption both at utility and consumers levels. A high proportion of losses at T & D level include non-technical losses like theft and pilferage.

The restructuring of power sector in a time-bound manner is therefore essential. In this regard, the road map provided by the ASCI report of 2004 needs to be thoroughly discussed with all the stakeholders and implemented by mid-2005.

How would the poor people be affected by the power sector reforms? Can they afford to get electricity? Overwhelming majority of them is still dependent on locally produced biomass fuels. These fuels are increasingly becoming over stressed and unsustainable. A viable alternative is to provide them with electricity both for subsistence and production requirements (agriculture, industries and social actions). Therefore, power generation should also aim at directly benefiting the rural masses and provide them with new opportunities for their livelihood.



If this happens their dependence on fuel wood and agriculture residues would go down and a halt to deforestation would reduce the problems of landslides, flash-flooding, soil erosion and siltation in many areas. Electricity can increase the efficiency of the people both on and off fields in the rural and urban areas. It is a well established fact that wherever electricity is available, the agricultural productivity tends to be considerably high.

# Chapter 5

## Industry, Trade and Commerce

The existence of craftsmanship based traditional Sikkimese cottage industries dates back to several Centuries. The dexterity and skill by the Lepchas showed in bamboo-craft, wood-work, spinning of loom and weaving traditional textures have been well recorded with handsome tribute in the contemporary history. On the other hand, the Bhutias excelled in ancient Tibetan practice of carpet and rug weaving with muted shades and brilliant colours of pure vegetable dyes. The Nepalese have retained celebrated craftsmanship of their **metal-work, silverware and wood work.**

### I Natural Resources

The State of Sikkim is endowed with rich geological resources. These resources have not been properly assessed and tapped. The Department of Mines and Geology has been responsible for exploration of mineral resources for commercial exploitation. The past investigations have shown some promise in minerals like dolomite, coal, quartzite, graphite, limestone, silliminite, talc, mineral water, thermal springs, building stone and materials for porcelain. Extensive deposits of good grade dolomite have been found in the Rangit River valley in South and West Sikkim. They could be utilised in the steel plants. The investigations and studies have revealed coal deposits in some places.

**Distillation of wines and liquors was one of the first modern industries set up by a private entrepreneur in Singtam in 1955. The other undertaking which for years brought exclusive names to Sikkim was the Government Fruit Preservation Factory set up at Singtam in 1956. This was set up mainly to make use of the ample orange crop in the State, to cut down both wastage in transit and godown of fruits to the markets outside**

the State and to eliminate the deeply entrenched **middlemen in the entire business.**

Immediately after the merger, all the four districts were declared as industrially backward. The setting up of the Directorate of Industries in 1976 brought about a significant change in the industrial activities in Sikkim. The Registration of Companies Act, Sikkim 1961 ( Amendment Act No.3 of 1989) makes provisions for the registration of companies to aid the industrialization in the State.

There is not a single Central Public Sector Undertaking in Sikkim. There are over 1500 units which have been granted provisional registration from 1976 onwards. Over 70 percent of these units are located in the East district thereby showing disproportionately high concentration of industrial units in certain geographical location. The composition of the larger units is as follows :

## **I Public Sector undertakings**

- i) Sikkim Time Corporation Ltd.,
- ii) Sikkim Jewels Ltd (employs 200 persons)
- iii) Sikkim Flour Mills Ltd. (engages about 70-75 persons)
- iv) Temi Tea Estate (Departmental unit employing 300 persons)
- v) Fruit Preservation Factory (Departmental unit)

## **II Joint Sector Units**

- i) Sikkim Vanaspati Ltd (51 % government holding through SIDICO)
- ii) Yuksom Breweries Ltd (26 % government holding through SIDICO)

### III Private Sector Units

- i) Sikkim Distilleries
- ii) Labot Glass Bottles Factory
- iii) Chaudhary Group of Nepal
  
- iv) Mount Distilleries at Majhitar for the bottling of liquor (employs about 50-60 people)**
  
- v) Ayurvedic : 2-3 units by BK Crests

Industrial sector has never been a priority for the State government. It is clearly reflected in the outlays made on this sector throughout the planning period in Sikkim. The contributions made by the industrial sector to the State's Gross Domestic Product has mostly tended to decline. However, the situation is changing.

The State Government has taken several initiatives to boost the level and diversify the nature of industrial activities in the State. The District Industries Centres (DICs) located at Jorethang for South and West Districts and at Gangtok for the East and North Districts provide the required services, support and assistance to entrepreneurs and artisans of small scale units under one umbrella. The DICs also extend technical input, marketing and credit facilities, assistance in procurement of raw materials and trading.

A Mini Industrial Estate (Jorethang) has been set up with an objective to provide readymade accommodation to the industrial units at highly subsidised rents.

Many Entrepreneurship Motivation & Development Programmes have been conducted. Some of these programmes are conducted in collaboration with National Entrepreneurs Development Institute, Hyderabad, NABARD, Sikkim Centre for Management Education (SCME), Industrial Training Institute (ITI) at Rangpo and Directorate of Handicrafts and Handloom. These trainings have been in varied fields including

draftsman, civil, motor mechanics, wireman, fitter, plumber, cutting and tailoring, bamboo craft, *thangka* painting, carpet weaving, handloom weaving and *pungden* weaving.

A number of self employment ventures have been initiated both under the central schemes like the PMRY and the state schemes like Chief Minister's Self Employment Programme. Under a large number of young entrepreneurs have been provided assistance through Commercial Banks for setting up Self Employment ventures. There is however, no record to show the writing off of loans granted for self employment ventures. In the absence of a comprehensive study / survey of how these self employment ventures are actually functioning, the exact impact of these schemes are yet to be assessed.

Sikkim Industrial Development and Investment Corporation Ltd. (SIDICO) was set up in 1977 as a State level principal financial institution engaged in promotion and financing of development sector. It provides soft loan/seed capital to its selective venture projects and also procures and distributes raw materials for selective industries/activities. However, over 70 percent of the disbursements have been made to the units located in the East district. This brings larger issues of concentration of industrial activities in the already congested East district and its environmental and social fall out. Notwithstanding, the fact that there are severe physical constraints in extending loans to other geographical areas, the continuation of this pattern of loan distribution may lead to i) increasing regional disparity in the industrial and other economic fronts and ii) relatively poorer level of infrastructure that in turn detracts and prohibits the investors in other districts.

There are other critical issues including that of concentration of these disbursed loans on a very limited cluster of activities. In the absence of any serious and scientific project appraisal and monitoring, the more the financial assistance is concentrated in fewer activities the higher the risk of both default in repayment and closure of the units.

## ***II Central Incentives***

Besides the budgetary incentives the Centre has time and again encouraged the industrial activity by both extending other amenities and setting up the branches of Central financial and industrial units. The two central units are : i) National Small Industries Corporation Limited which provides plant and machineries to entrepreneurs on hire purchase and also help the units in marketing of their products and ii) Small Industries Development Bank of India (SIDBI a subsidiary of IDBI) which is engaged in providing financial assistance exclusively to small scale and tiny industries in the State. The other central units like SISI (under the Ministry of Industry), provides technical inputs and assistance like preparation of project report, consultancy, references, training facilities; NABARD finances agriculture and other allied activities and All India Handicraft Board promotes cottage industries.

There have been provisions for strong Central investment subsidy applicable to the industrial units/hotels from time to time. After the 1980 to 1989 phase of such subsidy is over, North East Industrial Policy was operationalised after Sikkim became the 8<sup>th</sup> member of the North Eastern Council in 2002. However the local entrepreneurs have reacted to such incentive scheme very slowly the local entrepreneurs in Sikkim react to any. It could be partly attributed to both the lack of entrepreneurial skills, aptitude and proper dissemination of such schemes among the entrepreneurs.

To attract investment in industries, more liberalised incentives were enunciated in 1991. The latest such scheme was initiated 2001 for the entire North East region of India. This includes excise and income tax exemption to all new industries as well as expansion of existing unit for a period of ten years from the date of commencement of commercial production. In addition to this, the policy also entails granting of financial concessions to 12 identified thrust areas in industries irrespective of where they are located in the state. The thrust areas identified for the promotion in the state include eco-tourism, handicraft and handloom, floriculture, mineral based industry, agro-based industry and pharma-products. However, cigarette, manufactured tobacco and its substitute, and brewing of

alcoholic drinks and manufacture of branded soft drink and its concentrate have been excluded from these concessions.

*There are at the same time some interesting examples of entrepreneurial activities in the State, which have come up without much support from the Government. Though a majority of them are run on a small scale, they are very popular. For instance, Tripti Bakeries, a unit engaged in bakery products has become a household name. Similarly, Ladakhi Hume Pipes run by a Sikkimese entrepreneur for manufacture of hume pipes has been doing very well. Units like Sikkim Time Corporation (SITCO), one of the first industrial units in Sikkim established in 1977 in technical collaboration with Hindustan Machine Tools (HMT) for the assembly of watches has made significant contribution in the industrial development process. The recorded average watches assembled per worker per day is 25 watches which is one of the highest in the industry. The crown project was established in 1982 for the manufacture of stainless steel crowns. They are also supplied to major watch manufacturers all over the country. The semi-conductor unit of SITCO was set up in 1988 in collaboration with M/s Bharat Electronics Ltd (BEL), Bangalore, for the manufacture of transistors. SITCO has modern facilities and latest instruments and equipments.*

Taking advantage of unpolluted and dust free atmosphere Sikkim Jewels Ltd was set up in 1972. For many years this remained a high potential industry as there was huge demand for watch jewels from HMT Ltd which till then imported most of its jewel requirements. In the last few years there has been a severe drop in the demand for jewels

by its major clients like HMT , Titan and Allwyn Watches mainly because of the overall worldwide recession and emerging substitution of jewels by quartz watches. The steep competition has always kept the price line very low. There are conscious efforts by the State Government to make this unit more competitive. The State Government signed a memorandum of understanding with AMCOT, a branch of GASSER HOLDING of Switzerland in 2006 for rejuvenation of certain segments of this unit. The foreign partner is now working on this.

Despite the sluggish industrial behaviour, it is interesting to note that the alcohol related industries has done fairly well in the State. The traditional goodwill created by the Sikkimese alcoholic brands among the captive buyers like military and other public sector units in India has naturally made investment in this sector very attractive. Some new units are mostly bottling plants. For instance, Mount Distillery is the bottling plant for Mohan Meakins.

The Sikkim Distilleries is one of the first modern industries in Sikkim to be set up in 1954. Despite difficulties associated with procurement of raw materials, logistics for requirements of export permits from requisite authorities of various States, interruption for almost three to four months in the Rangpo-Siliguri roads during monsoon the Unit has been able to make a steady progress .

### **III Dismal Performance**

Even after thirty two years of Sikkim's merger with India, the industrial activities are still at a nascent stage in Sikkim. The local entrepreneurial urge has been very low. Investment has been shy mainly because of poor market access and serious infrastructural bottlenecks. The planners' have had skewed priorities and looked at the industrial activities as the forte of the government. The potential investors are still ignorant about the opportunities. The fledgling political will and the wrong prescription of incentives adversely affected any compulsion to industrialise. In fact, for many years after the



merger with India the job opportunities created in the government sector and the incessant flow of money for development activities completely diverted the attention of the governments to softer options like investment in social sector. There was no political, economic and social compulsion for the political parties and the governments.

## **i) The Sickness Syndrome**

Like in other States, in Sikkim also the number of industries going sick has been simply alarming. Many of them have defaulted in loan repayments. Though this is not a new phenomenon in the country, this has definitely left ominous portents for the industrial development. The State Government had to even bring out a White paper on these entire issues of Status of Sick Industrial Units in Sikkim. Most of the units were started by first generation entrepreneurs lacking in management and technical know how. Many observers also believe that the considerable extent of political influence in extending the loan to various units have in fact, invariably overshadowed the techno-economic viability consideration of the project.

Many of the units under Sikkim Khadi & Village Industries Board are not able to carry on commercially due to non-availability of raw materials at competitive prices, lack of market, technical know-how and proper management.

The often attributed basic handicaps and constraints relate to inadequate infrastructure facilities like power, roads and communication, lack of knowledge of the entrepreneur regarding manufacturing activities, lack of raw material, absence of proper manpower Poor marketing network, inadequate land availability, lack of enabling laws for private investment by both foreign and domestic participants and serious technology, credit and financial constraints.

A high level committee has been set up to examine the issues of disinvestment and privatization of these sick units.

*ii) Past Distortions*

*One of the strong reasons as to why private sector investment has not picked up is the fact that the pre-1983 experience which witnessed a large number of private sector participation and their subsequent abrupt withdrawal has left a bitter taste in the Sikkimese psyche. The policy makers have been treading a very cautious path as they would not like to fall into the same trap of “sudden withdrawal” syndrome. After Sikkim became a constituent State of India many of the central acts were not and haven't been extended to Sikkim. For example, the Central Excise and Salt Act, 1944 (1 of 1944) , Medical Toilet preparation (Excise Duties) Act, 1955 (16 of 1955) and Industries (development and Regulation ) Act, 1951 (65 of 1951) were not extended to Sikkim prior to 1983. As a result, a large number of industrial units popularly known as “bonanza companies”, especially for manufacture of items like cigarettes, cosmetics and pharmaceuticals which otherwise attracted a very high rate of excise duty (200 to 300 percent in tobacco and cosmetic products) mushroomed in the State.*

Many of these “industrialists” who jumped in to gold rush of industrialisation in Sikkim in the early 1980s had only a trading and merchant background. These industries vanished as soon as the Central Excise Act was made applicable to Sikkim on January 31, 1983.

*Though no systematic studies have been carried out to assess the cost of all these ventures to the State exchequer, there are strong evidences that these units fleeced the State government on many counts including the usurping of loans from the State level institutions and excise duty avoidance of Rs 150- 300 crore.*

Even the privatization experience has not been good in the state in industrial sector. Government Fruit Preservation Factory at Singtam established as a Departmental Unit in 1956 has been engaged in the manufacture of various fruit juices, jams, jellies, marmalades, tinned fruits, squashes etc. and the factory supplied its products to Air India, Indian Airlines, defense services, five star hotels and major pharmaceutical companies like Glaxo, Hamdard, Dabur etc. In 1985 this unit was given to a private party at an annual lease of Rs.8 lakh as it had started accumulating losses. The party surrendered within eighth year in 1994. Once again the factory was leased out to a Joint Venture Company with a Swiss National company M/s Red Orchid Food Processing Industries Ltd. The top management soon absconded.

### ***iii) Investors' Perceptions***

Sikkim is a politically stable state with virtually no law and order problem as people are peace loving. The state does not suffer from any labour related problem either. Sikkim probably is the only state in the north-eastern areas, which is free from any insurgency related problems. As against lakhs of crimes in many other states, with only 552 cases registered under the IPC during whole of 2005, Sikkim remains the most peaceful, harmonious and stable border state in the country. Peace, tranquility and stability that prevail in Sikkim have been quoted as a major example in various national and international fora. Many states are now trying to study and replicate the roots and genesis of these great Sikkimese values.

Despite all these and the fact that Sikkim was declared the best state in the small state category for investment climate by the *India Today group* of publications in 2005 there has not been any significant investment in the State. *Business Today* (Dec 22, 1999-Jan 6, 2000) stated that out of the total investment of Rs 4376 crore in the State almost 95 percent has been the government. It also mentioned i) poor connectivity with large markets; suitable only for tourism, ii) precarious financial condition of the State exchequer and iii) lowest market potential value in the country and low degree of purchasing power as the three major investment weaknesses in the State. There are strong perceptions regarding harsh local land laws, state bureaucracy being “stiff minded and unimaginative” and the laid back and bottlenecking attitude of the regulating agencies.

They also mentioned that the local people (Sikkim subject holders and members of the local business community) mostly insist in the practice of local tie up (50 percent) based industrial ventures. This has been apparently done to safeguard the interests of the people in the State. However, most of the outside investors particularly those who do not want working capital, subsidies and loans from the State would not like to have a tie up. They would like to locate their units in Sikkim for some strategic reasons in terms of labour, market and raw materials. For example, a ginger paste maker would like to set up a factory in Sikkim mainly on account of the raw material available in Sikkim. They do not want to open up the same in Siliguri because of the politicisation of the labour force in West Bengal.

Despite the enormous efforts placed on attracting investment in the State by the government in recent years, the perception of Sikkim not being an investor friendly state continues. Perceptions play a big role in dictating investment inflows, but impressionistic ideas, shaped by piecemeal experiences, can make general assessments very negative. That is why the State government has organized Sikkim Investment Forum meeting in a number of cities in India including New Delhi and Calcutta. The Chief Minister also led a high level state delegation to various South East Asian and European countries in 2006 mainly for attracting investment.

#### **iv) New Initiatives**

The *Business Today* survey also identifies three distinct investment strengths and competitive edge of Sikkim viz., highest surplus in power in the country at lower power tariffs, least trouble State in the North East, ideal for investment in tourism and high rate of literacy and wide coverage of public health care system. The inclusion of Sikkim in the North Eastern Council is likely to trigger off a major breakthrough in the industrial activity in the State. This is because Sikkim can now make use of the expertise of various agencies and instruments attached to NEC in the industrial front. It can also access both financial and others technical institutions including North East Financial Development Corporation and Industrial and Technical Consultancy Organisation. It can further take advantage of some of the policies of the Centre which are exclusively meant for the North East States.

Most of the industrial units which have been set up in the last couple of years are in the private sector. Of late the number of companies registered has shown a remarkable growth. The State is now stressing on the quality of companies rather than their numbers. It wants a leader or a path breaker in each sector of industrial activities so that the industrial activities can consolidate its role in the development process.

#### **v) Potential Areas**

As a land-locked mountainous state Sikkim has to focus on developing high value and low-volume products. Today, Sikkim is fast moving towards an 'investor-friendly state'. To attract investment from both within and outside the Sikkim Government has made a number of far reaching policy changes that include liberal investment climate and diverse fiscal incentives. The State Government has now set up the Board of Investment under the Chairmanship of the Chief Minister to implement a Single Window Policy. This is an apex body that examines investment proposals and gives clearance at the highest level. The objective is to provide efficient services to the prospective investors in terms of

provision of speedy project approvals, grant of facilities and coordination among Government agencies. This will considerably facilitate the investment proposals through a friendly and straightforward system.

The State Government has also declared some areas of the State as Industrial Belt. Given the large share of agriculture and allied activities in state income, proven potential in producing commercial crops and untapped potential in flora and fauna, potential of agro-based industries is enormous. The primary advantage of agro-based industries is the availability of necessary raw materials in the state.

Floriculture has a high potential as demand in India and abroad would continue to grow. The state produces varieties of orchids, gladioli, anthuriums and rhododendrons. Commercial cultivation is rapidly picking up. However, storage and marketing remain crucial for successful ventures. Given the paucity of land, the possibility of cooperative type cultivation of orchids needs to be explored.

The food processing industry is competitive in the presence of large and established producers. The state may specialise in mandarin oranges, ginger, tea, and cardamom. However, traditional methods of cultivation and poor quality inputs have resulted in low yields. In terms of prospect, medicinal and aromatic herbs will face an ever-expanding market both nationally and internationally. The varieties of medicinal plants available in the state need to be taken stock of. So far, there has not been any attempt to exploit this potential commercially. Similarly the potential of producing honey can be explored at the individual level. Processing can be at a medium or large scale but the collection has to be from the local farmers who will also be the beneficiaries of the industrialisation. Wool and silk reeling, weaving and processing, and rabbit farming, all these activities may be carried out at the farm level and they may be treated as the primary or secondary sources of livelihood. The objective would be to provide people with multiple sources of income. The marketing constraint seems to have deterred the development of these industries.

The following areas are the most vital priorities of the State today in terms of investment opportunities.

Educational institutions;  
Professional-technical institutions like medical, IIT, engineering, information technology;  
and management Institutions;

Banking-financial institutions;  
Hydel power;  
Medicinal plants and herbal medicines;  
Organic farming;  
Trading activities within the country and across the border;  
Transport and communication;  
Science and technology including biotechnology;  
Health;  
Manpower development;  
Horticulture;  
Floriculture;  
Mountaineering and trekking;  
Agriculture and allied activities;  
Industries including small and medium enterprises (SMEs)  
Tourism.  
Animal husbandry and dairy products  
Minor forest based products  
Handloom, handicrafts and village industries  
Precision oriented, high value low volume products  
Electronic and software

One of the areas Sikkim is keenly looking forward is to set up a range of small and marginal enterprises (SMEs) mainly triggered by the huge multinational and multi-product companies. These SMEs have transformed the economies like that of Korea, Malaysia and even China into robust centres of economic growth. Sikkim has all the potentiality in very specific areas to have such SMEs.

#### **IV Trade and Commerce**

Sikkim being a landlocked state has faced severe problems with regard to trading. It has been mostly the import of goods and services from outside. The exports have been

relatively much smaller. This locational disadvantage topped by inadequate structure has always constrained the full growth of Sikkim despite a very high potential in certain sectors including horticulture and floriculture.

State Trading Corporation (STC) is a Government undertaking, fully subscribed by the Government. The mandate given to STC reads that “the Corporation may carry on and transact any kind of business concerning the purchase, holding, stocking, sale, clearing and forwarding, export and import and transportation of any kind of materials inside Sikkim and to do all other things as are incidental or may be through conducive to the attainment of the above objectives or any one of them.”

It supplies materials like iron and steel, cement, vehicles of all types, office furniture, office equipments, and electrical goods for Government Departments. STC’s total volume of trade is around Rs 50 crores per annum. It also for a while involved itself in the cardamom trade. The STC also sometimes helps the State Government in export and import formalities and obtaining clearance of certain goods. It has an office in Siliguri, which usually supervises the dispatches of materials from Siliguri into Sikkim. Its Jorethang office serves as a distribution point for LPG and other items that may be required in the South -West Sikkim.

The reopening of the Nathu la trade route to the Tibet Autonomous region of China is going to be a very trendsetting event both in the context of economic integration with the neighbouring countries and also in the strengthening of India’s political ties with China. Unlike the other border trade agreements signed by the Government of India with its neighbouring countries including Myanmar and Bangladesh, this agreement with China is likely to have a much larger scope both in terms of the coverage of geographical regions and nature of goods and services. This is because of a relatively easier accessibility to the pass leading to markets and more developed physical and institutional infrastructures in and around the trading points. Further, this trade route was a very active means of economic exchanges for Tibet vis-à-vis India and to other countries mainly through Calcutta port before it was closed in the early 1960s. Institutions like banking, post



offices and custom points were set up and remained functional for many years. Since accessibility to Tibet from the mainland China remained very difficult, the Nathu la and Jelep la trade routes were of crucial importance for its exports and imports.

Besides the direct gains to India, the reopening of this trade route could generate a whole range of benefits to the otherwise landlocked state of Sikkim and the neighbouring States including the North East region and West Bengal. On the one hand, Indian traders, investors and service sector operators could access both Tibet Autonomous Region (TAR) and the mainland China more easily and extensively. On the other hand, their counter parts in China could have access to both India and the entire South Asia Growth Quadrangle (SAGQ) markets. The Confederation of Indian Industries (CII) calls it a likely “economic re-emergence of Eastern India”. The trade exchanges will have both forward and backward linkages thereby triggering a new set of income and employment generating activities in the region. On the Chinese side this reopening of trade route could provide a major boost to the economic activities in and around Tibet Autonomous Region. In the long run its impact on the poverty ridden western China could easily be foreseen.

Old traders who participated in the Nathu la and Jelep la trade before 1962 are upbeat about the reopening of this trade route. A leading businessman in Gangtok, Motilal Lakhotia had spent seven years in Tibet (1954-1961) tending family trade in Lhasa and never changed the name of one of his firms "Sikkim-Tibet Trading Company".

A detailed report has been submitted to the Sikkim government by a high level Nathu la Trade Study Group. Besides highlighting economic gains and making very substantive policy suggestions including that of integrating trade and tourism, this Report also mentions as how elaborately the Chinese are preparing themselves for harnessing the benefits from this trade route. Sikkim does not like to be a laggard in harnessing these benefits. Given the war footing principle of building infrastructures in China, India should in fact try to overmatch their infrastructures so that it reopens this trade route with a distinct advantage.

The Study Group has presented two scenarios for trade volume projections. Scenario I of higher projection shows that trade flow through Nathu la will be Rs 206 crore by 2007, Rs 2266 crore by 2010 and Rs 12203 crore by 2015. Under the Scenario II of lower side projection, trade volume passing through Nathu la route will be Rs 353 crore in 2010, Rs 450 crore in 2015 and Rs 574 crore in 2020.

The opportunities for investment in the western region of China are huge. Sikkim can even export electricity and other energy sources to the energy hungry western region of China. This trade route used to be a major and the shortest land route to China for India and neighbouring countries before it was closed down in 1962.

The key elements while preparing for the trade through Nathu la are infrastructures, institutional capacities and regulatory framework that adequately safeguard and promote both national and local interest. The state of infrastructure at the moment is utterly inadequate and fragile. This Report has recommended an Infrastructure Development Package of Rs 1650-1700 crore for roads, airport, banking, communications, trade mart, customs, warehousing and rest and recreations to be used in a phased manner by 2012. Since this is going to be a very vital project for the entire East - North East regions and the country as a whole some of these infrastructure projects could be very attractive for both private sector and also for agencies like World Bank and Asian Development Bank. The State is very keen to discuss and invite them to the State. The State has appealed to the Union Government that the following provisions on roads may be incorporated in the remaining year of the Tenth Plan and also in the Eleventh Plan.

i) The extension of the East-West Corridors to Sikkim and its linking with the Golden Quadrilateral under the National Highway Development Project. This means effectively linking Kanyakumari with Nathu la in Sikkim.

ii) The widening and double laning of 31-A National Highway

iii) An alternative highway to ensure the free and regular traffic

## **V Post Nathu la Route Reopening: Investment Opportunities**

The historic Nathu la trade route was reopened on 6 July 2006. The State Government plans to gradually convert this shortest and easiest overland access to China as one of the resilient means of economic and services exchanges over the next few years. Sikkim has again emerged to be the bridge between two oldest civilizations. After this traditional trade route was reopened, the Sikkimese are able to convince the entire country about how in the globalised world order, border stands more as versatile opportunities rather than mere symbols of national security. This is partly indicated by a host of activities recently initiated in improving connectivity and other physical and social infrastructures in the borders by the Union Government.

The people of India and particularly of Sikkim and the neighbouring States would like to really make use of this trade route as a major avenue for both economic growth and multi-faceted development. This route could be used for trade in services including in collaboration in areas like bio-technology, investment, energy trading, tourism and information technology. Sikkim and Tibet Autonomous region together constitute an unparalleled bio-diversity. The starting of the railway line linking Lhasa with other major eastern cities and proposed railway link to Nathu la on the Chinese side adds an altogether a new dimension to the market access and investment opportunities.

Therefore, there is a strong need to steadily transform the present nascent level of trade related infrastructures to a robust and modern system that could handle a major portion of bilateral trade between India and China. The Union Government has already decided to lay a two lane highway upto Nathu la and a railway line upto Rangpoo. There is also a very strong need to regularly review the list of exportable and importable commodities and products. The present list is only symbolic and does not carry any trading weight and potentials. The ideal situation would be to have this trade under the most favored nation (MFN) arrangement.

It would be particularly naïve to expect traditional items like yak tail and goat skins to dominate the trade exchange through the Nathu la route. Even Tibet is no more a market for religious/cultural items alone. It is a growing market that absorb cement to latest cars and from *yerchagon bu* to tulips. The composition of products could in fact be much varied than that exists at the bilateral national level as this route could cater to very specific needs and demands in a much quicker and cheaper manner than other national routes.

It will be a mere historical negation and impractical assumption to think this trade as a limited interactions among the communities that inhabit the borders. This was the assumption in the border trade between Nepal and Tibet at Khasa and India and Myanmar at Moreh (Manipur). However, the actual volume, composition and direction of trade in these routes have far surpassed the local communities and local products. They do not at all reflect the border trade phenomenon. Restrictions have only encouraged the illegal and surreptitious aspects of trade. However, given the level of infrastructure on the Indian side and the wretched condition of the road particularly the 50.6 Km stretch between Gangtok and Nathu la, it would be highly unrealistic to expect a brisk trading instantly.

The reopening of Nathu la trade route also augurs well for the entire North East region of India to realize the larger goals of India's Look East policy. This will help in fostering sub-regional groupings like South Asia Growth Quadrangle (SAGQ) and Bay of Bengal Initiative for Multi-Sectoral Techno-Economic Cooperation (BIMSTEC).

After seeing what is happening in China and other South East Asian countries, Sikkim has realized that there is a huge scope for opening Small and Medium Enterprises (SMEs) in Sikkim for which the State need to have special enabling laws and facilities. Given the geography, liberal investment environment, rich human resources and special natural resource endowments there are foreign and national investors who would like to invest in Sikkim.

There are marked potentials of investment activities on both sides of the border in Sikkim and Tibet Autonomous region of China and in the whole of western China in the aftermath of the reopening of Nathu la trade route. Despite so many concessions under a liberal investment policies extended by the Government of Sikkim, very few investors have participated in the State in the past. One of the main reasons attributed to the shyness of investment in the State is very limited market options. Tibet and mainland China are now additional marketing outlets for Sikkim and its neighbouring states. This is bound to encourage and trigger investment activities in Sikkim and surrounding areas.

Even if Sikkim is not able to produce things that cater to these new markets across the border in the initial stage, it could encourage the location of (within the State) last segment of value chain including assembling, packaging and branding and distribution of any manufactured or any semi-manufactured products meant for exports through Nathu la. This itself will generate a substantial income and a major employment opportunities in the State. Over the years, a consistent effort should be made to make Sikkim and the surrounding north east States as the centre for small and medium enterprises (SMEs) that would cater to the multinational companies. This is where the importance of a Special Economic Zone comes up. Therefore, the State has also proposed to set up a Special Economic Zone of its own variety in Sikkim to give a new direction to its industrial and trading base.

The Confederation of Indian Industry (CII) is setting up a pan-Indian task force with leading industrialists from other regions to draw a roadmap for investment activities in North Bengal against the backdrop of reopening of Nathu la trade. This will try to project the likely volume of trade so as to estimate the matching investment particularly in infrastructure. The CII envisaging the strengthening of infrastructure in Siliguri to make it a transshipment hub for all trade through Nathu la. It has also urged the government to speed up work on the 600 km north-south corridor connecting Haldia and Siliguri. The CII has also set up its Shanghai office for larger business activities.

The Nathu la trade related investment could be on diverse areas including construction materials, food processing units and forest products.

Two way investment links between India and China are deepening. Since 2000, the annual investments by Indian companies in China have been above US\$ 10 million, reaching as high as US\$ 31 million in 2002. More interestingly, the Tibet Autonomous Region is also attracting foreign investment with 100 foreign investment companies already located there. For instance, the Pando Trading Company in Lhasa, a local handicraft producing enterprise has a German collaborator. There are ample opportunities for investment in Tibet Autonomous Region in areas of agriculture, forestry, animal husbandry & aqua-culture; chemical industry, mining, building material and printing industry; chemical industry, mining, building material and printing industry; food & medicines industry; tourism, trade and service industries; infrastructure and culture.

Therefore the following measures must be undertaken on an urgent basis.

- i) Making this trade based on most favoured nation treatment (MFN) principle rather than the existing restrictive border trading practice.
- ii) Drastic revision in the list of exports and imports so as to match the market realities on both sides of the border.
- iii) Putting in place the most modern trade facilitating measures including customs, banking, warehousing, insurance etc.
- iv) Steady increase in the vehicular permits to and from Sherathang for trading purpose
- v) Reorganisation of trading season from present June to September to a period that covers May to October
- vi) Removal of values of trading limit of the existing Rs 25000 per trader per day.
- vii) A strong regulatory framework to oversee the entire trading and tourism operations

- viii) A constant monitoring of the likely impact of trading activities on smuggling, environment, social interactions and other security parameters.
- ix) Regular visits to TAR and western region of China by the Sikkimese businessmen and entrepreneurs to study market and investment opportunities
- x) ***Institutional linkages in all fronts including in tourism and other services sector with the TAR of China.***
- xi) ***Preparation on the part of Sikkim for the sale/export of huge surplus power likely to be generated in the next few years.***

# Chapter 6

## Social Actions

### I Food Security

Food security has been of immense significance to the people of State both because of geographical inaccessibility and economic affordability. The State government has always been consciously addressing the issue with great sense of involvement and responsibility. In order to make food and other provisions easily accessible, the State Government has over the years developed a range of infrastructural facilities. These include 25 designated food grain godowns (17 owned by government and 8 on rented houses). Land for construction of Food Corporation of India (FCI) Depot for South & West Districts is being identified preferably around Jorethang so that the State can have sufficient storage of food grains. There are only 9 PDCS in the State. The Food Security Department not only procures food but also looks after its storage and distribution.

Under the Targeted Public Distribution System (TPDS) people living below poverty line are given subsidized food grains. Over 33450 families are under BPL category who have been availing rice @ Rs.4/- per Kg in the scale of 35 Kgs per family per month.

Under a special programme initiated by the State government popularly known as *Mukhya Mantri Antyodaya Anna Yojana*, over 10,000 beneficiaries are getting rice free of cost @ 35 Kgs per family per month. This has tremendously helped in providing succour to the poverty stricken people in rural and urban areas. The idea has been to provide basic necessity free of cost to the identified families.

Under another scheme known as *Annapurna Scheme* rice is provided to over 2700 indigent senior citizens free of cost @ 10 Kgs per beneficiary per month. Similarly under *Mukhya Mantri Khadya Suraksha Yojana* over 26,000 economically backward and



marginalised family beneficiaries are provided with rice at a subsidized rate of Rs. 4/- per Kg with the limit of 35 Kgs per family per month.

## **II Poverty Situation**

Sikkim's overarching concern however, continues to be poverty and inequality. Though the nature of poverty in Sikkim is overwhelmingly characterized by similar symptoms of socio-economic deprivation, politico-cultural alienation, inaccessibility to State resources and technology and particular type spatial distribution, its identification has always been a complicated and administratively problematic exercise. Over the years, the very profile of poverty has become multidimensional requiring a comprehensive non-traditional and well devised measures to combat it.

The controversies on the estimate of poverty at the national level have affected even a smaller State like Sikkim. There are a number of estimates available on the State of poverty in Sikkim. These estimates are based on different methodologies including income, consumption expenditure and calories intake. In many cases the estimates are arrived at using the common ratio of Assam which is highly objectionable and unacceptable.

In fact, Sikkim is a comparatively very small State with a total households numbering over 106,000. Though there are a number of surveys like Agriculture Census which are done on a regular basis, the statistical data available are both not comprehensive and not comparable with that gathered from other sources. The multiplicity of sources with varying estimates for a small State like Sikkim also makes it rather very difficult to do any meaningful analysis.

The percentage of population below poverty line has gone down steadily after recording a sharp jump in 1993-94. (Table 6.1) As per the preliminary findings of the State's Socio-Economic Census 2005, the percentage of households below poverty line has gone down

drastically to 19.2 percent . The Planning Commission has projected a target of lowering the poverty ratio to 11.8 % by the end of the 11<sup>th</sup> Five Year Plan i.e. 2012.

Poverty in Sikkim is enmeshed in protracted feudal practices in the past, topographical ruggedness, inadequate delivery services, prolonged socio-economic deprivations and poor quality of political governance.

Table 6.1  
**Percentage Population Below Poverty Line in Sikkim**

Year	Percentage
1973-74	50.86
1977-78	55.89
1983	39.71
1987-88	36.06
1993-94	41.43
1993-94*	41.43
1999-2000*	36.55
2004-05**	19.2

Notes : \* Planning Commission, *Draft Tenth Five Year Plan (2002-2007)*, Vol III, 2003, New Delhi p 40; \*\* *State's Socio-Economic Census 2005*, conducted by the Department of Development Planning, Economic Reforms & North Eastern Council Affairs, Government of Sikkim.

There are however, varying estimates of poverty ratio in Sikkim including the above which is based on poverty ratio of Assam. The State government at the same time remains intrigued by this high figure of poverty which does not go very well with other major social indicators including literacy rate, access to drinking water and housing and economic indicators like per capita income. These indicators have been relatively much better than many other states.

Therefore, the State Government is now attempting to first scientifically determine, prudently assess and seriously analyse the nature, extent and spatial distribution of

poverty and inequality in Sikkim. In other words, through the ongoing socio-economic census a one time baseline study is being undertaken.

### **III Employment for the Youths**

For the first time in the State, the Government has launched the Chief Minister's Self Employment Scheme (CMSE). This scheme enables the educated unemployed youth of Sikkim to start their own ventures. Under this educated unemployed women are provided with a three-year interest free loan. Women with educational qualification up to Class XII are provided with a loan of Rs.50,000 while graduate women are provided up to Rs 1 lakh in loans. Educated unemployed men are provided a two-year interest free loan with similar conditions. The quantum of soft term loan disbursement recorded in the initial launch of the CMSE Programme was of the order of Rs 5 Crore benefiting as many as 800 unemployed youths of which more than 30 % comprise female beneficiaries.

State development agencies such as Sikkim Industrial Development and Investment Corporation Ltd (SIDICO) and Sikkim Scheduled Castes, Scheduled Tribes and Backward Classes Development Corporation Ltd. (SABCCO) also provide loans to educated unemployed youth to set up their own ventures on priority basis.

The State Government has also floated *Kaushal Vikas Kosh* (Skill Development Fund) to train and equip youths with modern and professional skills. This Fund has been set up to sponsor graduate and under-graduate youths to various regional and national institutions for acquiring professional degrees and skills in areas like tourism, fashion technology, industrial entrepreneurship, information technology, rural management, small scale enterprises, science and technology, media management, software, communications and advertisements. This has already benefited a large number of youths in the State.

However in both these schemes the impact evaluations are yet to be carried out.

#### **IV Land Bank Scheme**

The Land Bank Scheme, a welfare scheme introduced in 1996 by the State Government, is considered to be an innovative measure to consolidate the land reform measures in the State. It is a purely voluntary action on the part of the landowners to dispose off their land. Under this scheme, land is distributed to the landless who are termed as *Sukumbasis* who have already been identified by the Department concerned on the basis of a detailed survey. A landless household is now entitled for a land @ 1/2 acre which is allotted to each landless family with settlement deed (carrying both husband and wife's name) handed over to the beneficiary.

An interesting feature of this Scheme is that onus of looking for suitable cultivable land is with the beneficiary. The beneficiary in fact selects the land of his choice. In other words, this Scheme reinforces the fact that the programme of land reforms implemented so far did not lead to any significant redistribution of land in Sikkim. This adversely affected both social cohesiveness and agricultural productivity. *Sukumbasis* are given cultivable land at the rate of 1000-2000 sq.m of their own choice at a cost not exceeding Rs 52,500/- per beneficiary which is inclusive of registration fees and stamp duty. To assist the national objective of women empowerment the land allotted under the Land Bank Scheme is recorded in the name of the beneficiary and his wife. In 2004-05 & 2005-06 alone land has been provided to a total of 114 beneficiaries.

#### **V Literacy Rate**

The State Government has the target of making Sikkim a totally literate State by 2015. The progress made in the arena of literacy has encouraged and strengthened the conviction of the Government towards achieving this goal of zero illiteracy. The literacy rate, which was hardly 17.7 percent in 1971, has now increased to over 74 percent. (Table 6.3)

Table 6.3  
**Sikkim : Literacy Rate (%)**

1971	17.7
1981	34.1
1991	56.9
2001	69.8
2005	74.3

By 2001 the urban areas had an effective literacy rate of over 80 per cent, for males (88.6 per cent) and females (80.2 per cent). However, females are still lagging appreciably behind their male counter parts in the race of educational advancement in the state in both rural and urban areas. The gender gap in this regard is particularly high (16 per cent) in the rural Sikkim.

## **VI Education**

In Sikkim the scattered settlements across the uneven geography of the region, climatic constraints and limited amount of horizontal interaction historically hindered the penetration of formal education system. Further, the earlier Sikkimese rulers could hardly think of the importance of the formal and scientific education system. Education in Sikkim for most of the nineteenth century was of the monastic type. Buddhist literature was read both at home and in the monastic schools. They imparted religious education for the preparation of young monks to priesthood.

By the late nineteenth century, there was the gradual advent of the Christian missionary triggered education in Sikkim. The first government school to be established in Sikkim was the Bhutia Boarding School (1906). The number of schools continued to increase over the years and by 1961, i.e. by the end of the First Plan period the number of schools in Sikkim had risen to 182.

Following the merger of Sikkim in the Indian Union in 1975 the state got tremendous momentum in its educational status in terms of the total number of schools, number of

teachers and quality of education. As on March 2005 total number of government schools in the state including lower primary, primary, junior high school, secondary and senior secondary school was 782. The latest data show that there are 783 including 41 Primary Schools under SSA. Hence, taking private schools (312) into account, total number of schools in the state is 1094. (Table 6.4)

The government of Sikkim has given utmost importance to the education sector during various plan periods. Investment on education during the plan periods in the last 50 years has from 7.4 per cent of the total plan outlay during the first plan to 13.2 per cent in the ongoing Tenth Plan.

Table 6.4

District-wise Govt. Schools : Various Categories 2005

Categories	East	West	North	South	Total
LPS	35	62	21	48	166
PS	110	95	39	92	336
JHS	48	36	16	47	147
SS	30	23	11	28	92
SSS	19	10	3	9	41
Total	242	226	90	224	782

Note : LPS: Lower Primary School; PS: Primary School; JHS: Junior High School; SS: Secondary School and SSS: Senior Secondary School.

Interestingly, Sikkim has also successfully promoted over 60 traditional educational institutes like Sanskrit *pathsalas*, monastic schools and *madrasas* spread across the state. With the massive expansion of facilities at the lower levels, the numbers of those qualifying in the higher secondary examination are rising steadily. Though there has been considerable popular enthusiasm and growing need for expanding the higher educational institutions, the State has not been able to do much on this. The quota of seats that are available to the Sikkimese in various institutions in some parts of the country has to a large extent covered these gaps. These quotas have been very effective. An overwhelming majority of the medical doctors, engineers, lawyers in Sikkim have studied against the quota seats.

Plans after plans, the state government announced its interest in the vocational education yet there are hardly few vocational /technical institutions in the whole of Sikkim. However, with the credit line extended by the World Bank under the Third Technician Project (TTP) (September 2001 to December 2005), two polytechnics have been established at Bardang in East and at Chisopani in South district. Of late a number of independent IT institutes including NIIT, Aptech, and TULEC have set up their centres in urban areas of East and South Districts. Since 2003 further, vocational stream has been started in 40 Government Senior Secondary Schools. This streams funded by central assistance include horticulture, dairying, automobile repair technology, IT application, tourism and travel management, hotel management & catering technology and secretarial courses. Recently there are some private sector ventures in the education sector including H.M. College of Education at Tadong, Loyola College of Education at Namchi and Carmel Teacher Training Institute at Pakyong.

The east district shares lowest number of schools per thousand population with 1.52 schools handling thousand population followed by south (2.19 schools/1,000 population), west (2.26 schools/1,000 population), and north (2.53 schools/1,000 population). Similar situation prevails across various categories of education institutes including elementary, secondary and higher secondary. On an average one school in east district handles 121 students followed by south (with 85 students per school), west (with 80 students per school) and north district (with 79 students per school). (Table 6.5)

Table 6.5

**Population Density of Schools, 2002-03**  
(No .of schools '000 people)

Category of Schools	East	West	North	South	Sikkim
Pre-Primary & Primary	5.10	7.85	8.74	7.49	6.60
Upper Primary	0.52	0.67	0.57	0.71	0.61
Secondary	0.28	0.37	0.62	0.41	0.36

Sr. Secondary	0.18	0.15	0.17	0.14	0.16
Average	1.52	2.26	2.53	2.19	1.93

This also implies that the east district has the highest pressure on its educational institutes.

The state has one of the lowest teacher pupil ratios in the country. At the same time it should be highlighted that the distribution of the teachers in the government schools at all levels in general and primary level in particular has not been balanced across the districts and the corresponding villages. Schools in the East district, particularly in and around Gangtok are observed to have more teachers than required. The situation is reverse in case of the schools situated in the interior villages of the state particularly in North and West District.

#### **i) Accessibility**

In 1978 a total of 50.5 per cent (42.35 within the habitation and 8.29 per cent upto 0.5 km) of the rural Sikkimese had accessibility to primary schools (Classes I-V) between 0-0.5 km. This was much lower than the national average of 85.13 per cent (78.53 per cent within their habitation and 6.60 per cent up to 0.5 km) of the rural population that prevailed then. The latest data based on 7<sup>th</sup> All India School Education Survey 2002 show that 87.28 per cent of the rural Sikkimese had access to primary school within 1 km of walking distance and 83.63 per cent to upper primary school within 3 km of walking distance. Another document issued by the state government in 2005 stated that 80.45 % of the rural habitation had access to secondary school within 5 km of walking distance and 66.95 % of them had access to senior secondary school within 8 km.

The *Sarva Shiksha Abhiyan* (SSA) a time bound initiative of the central government, in partnership with the states, the local governments and the community aims at providing elementary education to all children in the age group 6-14 years by 2010. The SSA



Project has been implemented in all the four districts. The NGOs including Multanchi Lom Aal Schizom. (North District); Himalayan Education Society (South District); Vidhya Bharati (East District); Teesta Tendong (South District) and Milan Sewa Samaj (South District) have been entrusted the work of establishing and running alternative schools in the school-less habitations as per the norms prescribed by the MHRD, Government of India. In concrete terms following achievements have been made under SSA till mid 2005:

- ▶ Construction of 21 (Twenty –One) new buildings for Primary Schools have been completed.
- ▶ 104 additional rooms have been constructed.
- ▶ 433 toilets for Schools have been constructed.
- ▶ Drinking water facilities in 274 Schools have been made available.
- ▶ Construction of one Block Resource Centre has been completed.
- ▶ 6 Cluster Resource Centres have been constructed
- ▶ 90 Schools have been provided with electricity facility.
- ▶ Boundary walls to 27 schools have been provided.
- ▶ 40 new Primary Schools have been opened in habitations where there is no School.
- ▶ 37 Primary School have been upgraded to Upper Primary Schools on need basis.
- ▶ 22 Alternative Schools are functioning in the Schoolless habitation where establishment of Primary schools does not meet the norms.

Since it is a very new programme its impact is yet to be assessed. However, there are reports that not much of dissemination and awareness about the mission of this programme has been made. As a result it is also considered as any regular development intervention by both the implementing agencies and the beneficiaries. The monitoring and evaluation mechanisms are yet to be put in place and hence the chances of efficacy of programme distribution being highly imbalanced both in terms of geographical and demographic reach are quite high.

## **ii) Enrolment and Dropout Rates**

The age-specific enrolment ratio in Sikkim, according to the figures provided by census reports, increased from 51.7 per cent in 1981 to 58.2 per cent in 1991 for the age group 6-10 years as against the national average of 47.2 and 51.2 per cent respectively. Similarly, for the age group 11-14 years the figure was 61.0 per cent in 1981 and 74.9 per cent in 1991: an increase of more than 13 per cent in a decade. The same figure for the nation was 50 per cent and 62.1 per cent in 1981 and 1991 respectively.

A survey conducted by NFHS-2 during 1998-99 revealed that in case of Sikkim the total age specific enrolment rate for the age group 6-10 years was over 91 per cent and there was less than 1 per cent rural-urban difference. For the age group 11-14 years the enrolment ratio was about 86 per cent. And interestingly, the rural areas have registered higher enrolment rate of 86.4 per cent as against the 79.7 per cent in the urban areas. Across the sexes, there is hardly any gender gap observed. The enrolment ratio is over 90 per cent for both boys and girls in the age group 6-10 years. Surprisingly, for the age group 11-14 years the enrolment ratio of girls is higher with 88 per cent than boys with 85 per cent..

The total enrolment during 1975 was 20, 259 which increased to 1,13,003 in 1994, 1,37,806 in 2002-2003 and 1,32, 414 in 2005-06. It is worthwhile to note that the Boys-Girls student ratio has improved over the years. It steadily increased from 52 Girls per 100 boys in 1975, to 102 Girls per 100 boys during 2002 and 105 during 2005. This higher ratio of girls at the aggregate level is very heartening news. At the I-V and XI-XII levels the enrolment of girls have been marginally lower than that of boys, at the VI-VIII and IX-X levels it is much higher.

Sikkim witnessed a notable decline in the drop out rates of the children from the schools over the years. 63.6 per cent of the children in Classes I-V dropped out in 1981-82. This figure declined to 48 per cent in 1992-93 and 41.3 per cent 1997-98 as against the national averages of 53.5 per cent, 45.01 per cent and 39.58 per cent respectively. For the boys the dropout rate declined from 61.5 per cent in 1981-82 to 45 per cent in 1997-98 and for girls from 66.5 per cent to 45.22 per cent during the same time period. The girls have done relatively better.

In the category of Classes I-VIII the dropout rate was 99.1 per cent (highest in the country) in 1981-82. This means over 99 per cent of the school going children dropped out without going beyond class VIII. The same figure declined to 80.3 per cent in 1992-93 and 67.4 per cent in 1998-99. These figures are much higher than the national average for the same period, which stand at 72.1 per cent, 61.1 per cent and 56.8 per cent respectively. Among boys and girls the dropout rates were 99 per cent for both the sexes in 1981-82; by 1998-99 it declined to 70.8 per cent for boys and 63.3 per cent for girls.

The latest data provided by the Department of Human Resource Development in the State show a very drastic improvement in the drop out rates (Table 6.6)

Table 6.6  
**Stage wise Drop Out Rates**

Stage/Classes	Boys	Girls	Total	Remarks
I to V	15.37	15.06	15.22	Primary Stage
VI to VIII	14.44	11.19	12.64	Upper Primary Stage
I to VIII	23.02	21.70	22.39	Up to Elementary Stage
IX to X	12.00	16.66	11.35	Secondary Stage
I to X	27.13	25.39	26.29	Up to Secondary Stage

### **Quality**

Sikkim has been awarded the best performing state status in the field of education among smaller States for the last two consecutive years 2004 and 2005 by *India Today*

magazine. However, the quality of education particularly in the government system has been a major issue in the state. This has been debated in many fora in the state including the State Planning Commission primarily focusing on i) relatively lower pass percentage in the high and secondary final examinations, ii) increasing diversion between overall orientations of the education system and the changing needs of the economy and society and iii) overall orientation and capability of the students. The state has tried to grapple with it by making the education system more accessible through subsidies and other facilities, by encouraging the private sector to participate in the development of educational institutions and by introducing a number of professional institutions in the State.

The main problems however, continue to defy any solutions. For instance, the quality of teachers has been a very serious issue. Because of the very nature of political history the entire recruitment process of the teachers at all levels had to be carried out in specific and unusual situations. The time demanded a quick recruitment to match the needs and requirements. There were not many qualified people within Sikkim for such recruitment both because of poor level of educational development in the pre-1975 period and also the availability of other attractive avenues across the state.

There are ample examples of under-qualified teachers doing the crucial job of teaching, teachers remaining absent for weeks and months together without any alternative arrangements, teachers remaining untrained for years together, teachers getting transferred as per the whims and fancies of politicians and crucial vacancies remaining unfilled for years together. All these happen amidst the fact that the state has one of the most attractive salary and promotion package and other incentives in the country. The state has a huge Education Department (renamed since 2004 as Department of Human Resource Development) to manage, regulate and evaluate the performance of various schools.

As a result of the enlivened debate on the quality of education, the state has started showing strong commitment to quality education.

Efforts are being made for improving the quality of teachers through various teachers training programmes. District Institute of Education and Training (DIET), Gangtok is being revamped to make it more effective and dynamic in the training programme for all categories of teachers of both government and private schools. DIET is also conducting 2 years pre – service training since 2003 to meet the demand for trained teachers in the State. There has been a substantial increase in the percentage of trained teachers during the 10<sup>th</sup> Five Year Plan. If the percentage of trained teachers was 27% during 1975, it increased to 41% during 1994 and 61% during 2006.

Further, the Department in collaboration with IGNOU launched B.Ed Programme from 2003 for teachers in Government schools. Certificate in Primary education (CPE) of six months duration for undergraduate teachers also has been taken up for under graduate teachers. 10 academic counseling centres have been established with one Programme in-charge and six Academic Counselors. Counseling sessions are normally held in these counseling centres on Sundays and government holidays. The number of teachers registered for the courses are as under:-

1. Certificate in Primary Education (CPE)		
a) January 2003 session	:	1000
b) July 2003 session	:	438
c) July 2004 session	:	151
Total	:	1589
2. B.Ed. Course		
a) January 2003 session	:	298
a) January 2004 session	:	283
a) January 2005 session	:	226
Total	:	807

The Department deputed 19 Science Graduates to undergo M.Sc. courses at the Sikkim Manipal Institute of Technology, Majitar, to produce local human resource to man our Sr.

Secondary Schools having science streams. The breakup of the 19 teachers who have completed the post graduate courses in May 2006 is as below:-

a) Physics	:	8
b) Chemistry	:	5
c) Mathematics	:	6
Total	:	19

To update the standard/knowledge of teachers and to bring about changes in school curriculum it is very essential to train a large number of teachers. The financial implication for training the following number of teachers in all three categories of Primary Teachers/Graduate Teachers/Post Graduate Teachers/Languages Teachers comes to the tune of Rs.19,88,410/-

- i) Teachers of pre-primary and Primary school = 500
- ii) Graduate Teacher- Maths/Arts/Science/languages = 1800
- ii) Post Graduate Teacher -Maths/Arts/Science=100

#### **iv) School Facilities**

A large number of school buildings are found to be in bad physical shape. They need instant repairs and maintenance. Many of the schools have either no toilets or are in very dilapidated conditions. The available latest data show that the percentage of School with Kutcha Building at the primary level is found to be 22.33 %; at the upper primary level is 10.08 % and at the secondary level 6.38 %

There are many schools in the State which were constructed long ago and have become unworthy for occupation. Many schools still lack basic scientific equipments required by the students. All these have rather very adversely affected the functioning of these schools. Looking into the condition of these schools at least 75 schools need to be repaired every year. This would involve at least Rs 50-150 lakhs per annum for next at least 15 years. Along with this new buildings, playgrounds and libraries are to be

constructed which require a major and constant funding for at least next 15-20 years.  
(Table 6.7)

Table 6.7

**Repair and Maintenance of School**

<b>Year</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Lower Primary School	20	20	40	40	10	40	40
Primary School	20	20	20	40	10	40	20
Junior High School	20	20	10	05	10	10	10
Secondary School	10	10	05	05	10	10	-
Senior Secondary School	05	05	05	05	-	-	-
<b>Total</b>	<b>75</b>	<b>75</b>	<b>80</b>	<b>95</b>	<b>40</b>	<b>100</b>	<b>70</b>

<b>Year</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Lower Primary School	20	40	10	06	20	06	20	10
Primary School	10	10	10	08	10	04	20	10
Junior High School	10	05	05	05	04	10	10	10
Secondary School	05	05	10	05	04	04	10	05
Senior Secondary School	-	-	05	04	04	04	10	05
<b>Total</b>	<b>40</b>	<b>60</b>	<b>40</b>	<b>27</b>	<b>48</b>	<b>28</b>	<b>70</b>	<b>40</b>

Due to globalization in the system of education also students need latest and correct information to update themselves. The text books supplied to them are not sufficient for the growth of their knowledge. To keep them in touch with other parts of the world apart from their school curriculum computer education from pre-primary stage seems to be very essential. Therefore, supply of computer to all the pre-primary and primary level seems unavoidable. Many children do not have access to watching television at their home. School being a society in miniature, supply of television sets in all the pre-primary and primary schools seems urgent. The programmes relayed through various television channels might help the children from very poor family to acquaint with the modern

changes and development. Looking into the needs and the demand of the day the proposal for the supply of television and computer is worked out to be a one time investment of Rs 3.67 crore.

v) **Subsidies and Privatisation**

Subsidy in education sector has been there since long. The State Government provides the following :

- Free textbooks, exercise books, uniforms. (free textbooks and tuition started in the 1980s; free exercise books after 1994);
- Free textbooks from pre-primary/I to Class XII;
- Free exercise books from pre-primary/I to Class XII;
- Free uniforms from pre-primary to V;
- No tuition fees from pre-primary to XII;
- Mid day meal in the form of rice from pre- primary to Class V;
- Though central government norms do not have provisions for pre-primary schools, in Sikkim it is distributed from pre-primary to Class V.

The perceived advantage of the entire subsidised education was to bring maximum people under the ambit of educated lot so that the state attains a higher status in one of the critical areas of the human development. However, these subsidies without any target groups and achievement records have started becoming counter productive. All the people regardless of their socio-economic backgrounds are given these subsidies. The absence of monitoring and evaluation of the impact of subsidies has in fact made the entire process directionless, as no one knows where and when they should call it a stop.

Despite certain positive indicators including the improvement in pass percentage of Class XII student from 57 % in 1996 to 70 % in the last few years and increased competitions for scholarships, a general impression is that the standard of education has gone down. This is mainly because education has become a free public good. Students have become



docile and disinclined as there is no competitive atmosphere. There is no cost involved in their bad performance in the school. Interestingly, despite these provisioning of subsidies a large number of private schools have come up in the last decade or so. Out of the total 1099 schools in the state in 2005, the government runs over 71 percent and the remaining are under the control of private agencies and the central government

#### **vi) Higher /Professional Education**

Sikkim did not have its own University as of now. However, The Union Government has just passed a bill in the parliament providing a Central University to Sikkim. Even after 32 years of merger with India there are no facilities for any post-graduate studies in the state. The colleges of Sikkim are affiliated to the North Bengal University (NBU) located in the district of Darjeeling, West Bengal.

- The establishment of such an institution will also impart a certain ‘completeness’ to the state’s educational system. This will also give a new thrust on the state of research and academic activities in the state which has been at a low ebb.
- The establishment of Sikkim Manipal University in 1998 in the state with two technical colleges under it, viz., Sikkim Manipal Institute of Technology (SMIT) and Sikkim Manipal Institute of Medical Sciences (SMIMS) have given a new dynamism to the state’s education system.

The state plans to make the newly sanctioned University a unique institution in terms of physical structures, curriculum, research orientations, faculty recruitments and admission policy. The state also envisages to set up a range of both publicly and privately funded research institutes on major areas like bio-diversity management, medicinal plants and herbs, eco-tourism, mountain ecology, intellectual property resources, and cultural anthropology. Sikkim requires an array of technical and professional institutions. Institutions related to IT, tea, tourism, health, horticulture-floriculture, bio-technology,

engineering, mountain ecology, mass media, management and fashion technology are very vital.

Despite the various incentives provided by the state government the Industrial Training Institute (ITI) has not been able to attract young Sikkimese. This is both because of easy availability of other non-technical, unskilled, better paid and secure jobs provided by various departments in the state so far and also an altogether a different orientation of the state.

### **vii) Investment in Education and Employment Prospects**

The education sector remains one of the most potential tertiary areas for the purpose of investment and employment generation in Sikkim. The State has a distinct comparative advantage with regard to its climatic set up, geographical location and overall environmental quality. The State can open good many residential schools – private and semi-private with strong emphasis on the quality of education, new courses and modern innovative teaching, particularly in South Sikkim.

Education as an enterprise will be very vital in Sikkim. This state can be a major destination for the educational and professional institutions as it can attract students from all the neighbouring states, countries and NRIs abroad. There also remains a great scope for the private institutes imparting education on technical - traditional and modern – areas to work in Sikkim.

In fact educational institutions triggered by private initiatives can reduce a tremendous outflow of Sikkimese resources that go on to educate the Sikkimese children outside Sikkim. On the other hand, these institutions can attract a whole lot of students from the neighbouring countries also, thereby internalising a whole range of benefits including tourism.

The State Government is now looking into the rationalisation of the functional composition of education department, changing the policy of recruitment and also making the investment norms and facilities more liberal in the education sector.

The *Sikkim Development Report 2007* (unpublished) prepared by the National Planning Commission makes the following recommendations in the education sector.

- Rationalisation of the functional composition of Human Resources Development Department must be carried out, as there exists excessive centralisation in administration, curriculum formulation, teacher's amenities, school planning and other mundane matters in the department located in Gangtok. This should involve increasing devolution in all these areas to districts, subdivisions, and *panchayats*.
- The Human Resources Development Department located in Gangtok is over staffed. There is no linkage between the huge staff members in the department and the performance of the education system in the state. Human resources are under utilised at the Gangtok level, whereas there is a serious dearth of human resources at the districts and *panchayat* levels. The redeployment of these human resources should be urgently taken up by deputing at least 60 percent of them located in Gangtok to districts and the *panchayats*.
- The state must rethink on and drastically change its policy of recruitment based on only emotive criteria like Sikkimese subject. This has adversely affected the quality and efficiency of the education sector in the state. Unless the state government makes its recruitment based on merit, qualifications, and skill and makes it attractive for the talents outside the state, the investment and progress claims it has been making will all go in vain. The short term political gain should not be at the cost of compromising quality, competitiveness and opportunities of the entire upcoming and future generation of Sikkimese.
- Government should immediately stop aiding private schools.
- The mushrooming of private schools need to be monitored in terms of intake policy, teacher recruitment, locational issues, infrastructure, fee structure and quality.
- Although, in Sikkim the level of literacy both of male and female is higher than the national average, there is a notable gap of over 15 percent between male and female literacy rates in the

state. A major task ahead therefore, is to reduce this gap and make it balanced in the next 10 years. Over 40 percent of the women in Sikkim are still illiterate.

- Planning, monitoring, and evaluation should be a key element in the education system particularly in areas like school performance, school building maintenance, teaching quality, curriculum review, and teacher training.
- A State level a semi-government Education Regulatory Committee consisting of officials, private sector, civil society members, professionals and experts may be set up to monitor the quality of education, supervise the maintenance of all the education related institutions in the State and oversee the broad orientation of higher education policy and system in the State.
- Massive institutional revamping is required which should include the setting up of Board of Secondary Education, University Management Board, and Private Institutions Regulatory Board.
- Teachers training should be made compulsory after every five year cycle, at all levels in both government and private schools. Exposure to other schools and institutions of all the teachers within and outside the state must be encouraged and tagged with scale upgradation.
- Teachers' training facilities must be expanded drastically by identifying the outsourcing points both private and existing facilities in other states and also steadily developing its own capacity.
- Capacity building of *panchayat* members for effective management of primary schools should be steadily carried out.
- Primary schools with thin enrolment should be closed down. Students could be brought to nearby boarding schools. Teachers released should be redeployed.
- School maintenance rather than expansion in numbers and upgradation should be a major thrust. At least 25 percent of the education outlay should be devoted to maintenance of schools for at least the next 8-10 years.
- The state should have a very clear higher education policy. The Union Government's decision to set up a Central University should be implemented urgently. A high level team drawn from both public and private sector educational services may be set up to provide a blueprint of the

University in terms of physical structures, curriculum, recruitment teaching faculty, research components and other aspects so that the University can harness some of its comparative advantages and also could have some unique features.

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- The State Board of Investment should declare education as one of the key opportunities for private investment and also make enabling laws particularly in terms of land acquisition and other physical infrastructure for setting up of private ventures in the education sector. The idea should be to make Sikkim the most sought-after educational destination in the next one decade for the entire eastern Himalayan region and also the neighbouring countries. The North East Industrial Policy should be amended so as to include the educational services in its coverage. Make the subsidies highly merit-based and target-oriented and divert the funds thus released to the maintenance of schools across the state.

Database and information network on the education system is still at a nascent stage. Many of the critical data are still not available at all or on a regular and reliable basis. This must be corrected urgently.

## **VII Health**

Impressive milestones have been established in health sector. The endeavour of the state government has been to reach the basic health needs at the doorsteps of the rural mass. Health care as a means of social upliftment has acquired rapid momentum. The emphasis has been on prevention rather than cure. Health clinics are available in every village. Increased health facilities have resulted in better health for the people. From a mere 2 in 1975, the number of Primary Health Centres and Sub-Centres have increased dramatically to 24 and 147 respectively. Primary Health Centres and Sub-Centres are functioning today in all the major villages in Sikkim (Table 6.8 & 6.9)

The share of health sector in the total plan expenditure has witnessed a fluctuating trend across the plan periods. As against 7 per cent of the total plan outlay allocated to the health sector in the First Plan period (1951-56), the allocation in the Tenth Plan was hardly 5 percent.

Table 6.8

**Health Infrastructures in Sikkim in 2006**

<b>Health Institution</b>	<b>East</b>	<b>West</b>	<b>North</b>	<b>South</b>	<b>State</b>
State Referral Hospital/STNM Hospital	1	-	-	-	1
Community Health Centre	1	1	1	1	4
Primary Health Centre	8	7	3	6	24
Primary Health Sub-Centre	48	41	19	39	147
Temporary Hospitalisation Ward For Leprosy Patients,(Sazong,East Sikkim)	1	-	-	-	1
District Tuberculosis Centre (Namchi South Sikkim)	-	-	-	1	1

Table 6.9

**Macro- Health Indicators Sikkim and India**

<b>Indicators</b>	<b>Sikkim</b>	<b>India</b>
Sex Ratio (2001)	875	933
Crude Birth Rate SRS-2003	21.9	24.8
Crude Death Rate SRS 2003	5.0	8.0
Natural Growth Rate SRS 2003	16.9	16.8
Maternal Mortality Rate (2000) per 10,000	-	407
Life Expectancy at Birth (2001-2006)		
Male	N.A.	64.1
Female	N.A.	65.8
Neo-natal mortality Rate (1998-99)	26.3	43.4
Post-neonatal mortality Rate (1998-99)	17.6	24.2
Infant Mortality rate SRS 2003	33	60
Under-five mortality rate (1998-99)	71.0	94.9
Child Mortality (1998-99)	28.4	29.3
Total fertility Rate (1998-99)	2.75	2.85

### **i) Sex Ratio**

The issue of sex ratio has been quite intriguing in Sikkim. Numerically, Sikkim is decidedly a male dominated society i.e. 875 female for 1000 male in 2001. This means a shortfall of 125 females to reach the equilibrium point. The sex ratio is seen to be generally low in the town areas with as low as 581 in Mangan in the North and 620 in Namchi in the South. Whereas in the rural areas it is found to be generally high as indicated by the highest ratio of 928:1000 in Soreng in the West. Unlike many other Indian states particularly the northern India the sex ratio in the age group of 0-6 is relatively very high in Sikkim. Even in the age group belonging to 0-29 years for the State as a whole, the female population remains relatively higher thereby leading to a much higher sex ratio of over 90 percent. At the same time, it is actually in the age group of 30 to 59 years which has the lower sex ratio. Besides in-migration led influence on sex ratio, one possible reason for such a behaviour of sex ratio vis-a-vis the different age groups could be that the mortality rate among the females in the age group of 30-59 is relatively much higher than in the age group of 0-29 and 60 years onwards. This higher death rate could be because of the early marriage practice among the people in the hills. The steady improvement of sex ratio after 60 years of age shows that females having good health have a much higher longevity.

Sikkim has not been able to escape from the vicious cycle of poverty and malnutrition. Sikkim, with one of the highest per capita income in the country, also has a higher below poverty ratio population. This indicates highly uneven distribution of development benefits. This is despite a range of interventions by the state including more effective reach of food distribution under PDS and other food related schemes aimed at the lower echelons of the society.

Though the study done by the state Health Department mentions less than one per cent of the malnourished people in rural Sikkim, data provided by the National Family Health Survey, 1998-99 (NFHS) indicates that there are still a large number of children that are

both chronically and acutely under-nourished. A majority of the women's health problems are in one way or other related to their reproductive health and is broadly affected by two factors – biological (natural including unsafe abortion, pregnancy related complications and reproductive tract infections) and socio-cultural (man made including discriminatory childcare, sexual abuse, environmental and occupational health problems), apart from the availability of health and nutritional facilities. The following table 6.10 indicates the extent of coverage on nutritional health for the period 2004-05.

Table 6.10

**Coverage of Nutritional Health Provisions**

Prophylaxis against nutritional anaemia among pregnant women and nursing mother	27850 (in figures)
Prophylaxis against nutritional anaemia among children	32092 (in figures)
Prophylaxis against Vit- A Deficiency among children	17380 (in figures)
Total Ante- Natal Cases registered	11453 (in figures)
Ante-Natal cases with three contacts	61.7
Deliveries by trained attendants /trained Dais	5.4
Deliveries by untrained attendants/Dais	10.0
Deliveries by ANMs/LHVs (at home)	24.7
Deliveries in institutions /PHCs	59.9
Sterilization (Vasectomy/Tubectomy)	1173(in figures) (NSV 167& Laplignations 1006)

The State has achieved some significant results in the family welfare programme as indicated by the following table 6.11.



Table 6.11

**Achievement under Family Welfare Programmes**

Year	Achievements (Nos)			
	Sterilisation	IUD Insertions	C C Users	OP Users
1998-99	1104 (92.0)	994 (58.5)	962 (240.5)	2805 (233.7)
1999-00	1348 (112.3)	1175 (69.1)	1521 (380.2)	2349 (195.7)
2000-01	965 (80.4)	1091 (64.2)	736 (184.0)	2542 (211.8)
2001-02	830 (69.2)	1098 (64.6)	1377 (344.2)	3407 (283.9)
2002-03	569 (47.4)	893 (52.5)	660 (165.0)	4778 (398.2)
2003-04	1355 (69.1)	835 (61.8)	1321 (224.6)	5393 (120.4)

**ii) Immunisation**

The vaccination of children against six serious but preventable diseases namely tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis and measles has been an important task for the child health care system in Sikkim. Hardly 30 per cent of infants were immunised against the six killer diseases, tuberculosis, diphtheria, tetanus, polio, whooping cough and measles in 1976-77. This steadily increased to over 90 per cent by 2002. There have been cases when the achievements of the immunisation performance were higher than the target. This has, particularly, been the case with respect to the BCG among the children. The immunization coverage is given below in Tables 6.12 and 6.13

Table 6.12

**Immunisation**

Year	Achievement (Nos)				
	DPT	Polio	BCG	Measles	TT (Pw)
1998-99	11633 (100.30)	11576 (99.8)	11646 (100.4)	10335 (89.1)	7576 (60.1)
1999-00	11093	11039	11884	10180	8736

	(95.6)	(95.2)	(102.4)	(87.7)	(69.3)
2000-01	10853 (86.1)	10880 (86.3)	12801 (101.6)	10312 (81.8)	9218 (67.3)
2001-02	11460 (90.9)	11590 (92.0)	11658 (92.5)	10692 (84.8)	9779 (71.4)
2002-03	11047 (87.7)	10941 (86.8)	11511 (91.4)	10202 (81.0)	10283 (75.1)
2003-04	10393 (86.5)	10249 (85.3)	11816 (98.4)	10529 (87.7)	9703 (78.2)

Table 6.13

### Hepatitis 'B' Vaccination (2001-2006)

Year	0 – 1 Years		
	1 <sup>ST</sup> DOSE	2 <sup>ND</sup> DOSE	3 <sup>RD</sup> DOSE
Sept'01 To March '03	19803	15615	13587
2003-04	7610	9587	9242
2004-05	8586	7204	3871
2005-06	13477	13144	11653

#### iii) Environmental Sanitation

Available data reveal that only about 27 per cent of the houses are *pucca* in rural Sikkim with highest share of 32.7 per cent in North Sikkim. The figure comes to over 61 per cent in case of urban Sikkim. Sikkim has only 11 per cent of the total population living in urban settlements. Thus, there should be a major concern among the development planner that about 90 per cent of the Sikkimese live in rural Sikkim out of which over 53 per cent live in kutcha houses prone to various forms of health hazards both natural and man made . However, we expect the situation to have improved very steadily after this survey was conducted in 1998. This is because over the last almost ten years the government has

extensively distributed housing grants of Rs. 20,000 each and free CGI sheets for needy families for house construction. Rural areas across the districts of Sikkim mainly depend on biomass like firewood (including fodder remains), cattle dung, coal etc. followed by kerosene for cooking. Even in the urban areas except for the East District the main fuel for cooking is wood.

In both the rural and urban areas of Sikkim, the main source of drinking water is tap water with over 77 per cent in rural areas and 84 per cent depending exclusively on the tap water. Remaining 17 and 12 per cents in the rural and urban areas use natural springs, respectively. Nonetheless, all the tap waters have their source in natural springs and small *jhoras*. They have been connected to the households both at individual and community levels either through rubber pipelines or the traditional bamboo poles.

Traditionally the waters of the mountains were so clean that there was no need for any purification. Even today the status of water quality in the mountains remains better than that available in the urban areas. Over 70 per cent of the households purify water for drinking by boiling it, while about 8 per cent use water filter for the same.

A study conducted in the state found out that open field defecation although declining, has still been the major method of excreta disposal in the rural Sikkim with 46.42 per cent. Another study found that only 55 per cent of the households have a flush toilet (using either piped water or bucket water for flushing) while 18 per cent had a pit toilet or latrine and 27 per cent had no sanitation facility at all in Sikkim.

In Sikkim, public sector continues to dominate the health utilization pattern. Over 75 per cent of the health delivery in 1997 was shared by the public sector both in rural and urban areas and the trend is increasing in nature. Although the private sector is gradually creating their niche in urban areas, they are yet to make any dent into the existing health management system. Such pattern highlights two important points. Firstly, the public health sector is doing well in Sikkim in that the quality, efficiency and effectiveness has

been maintained. And secondly, majority of the people cannot afford to use the private health facilities.

#### **iv) Traditional Medicines**

Sikkim is the land of faith healers. For every disease there is a medicine indigenously developed and totally dependent on its own natural resources and strong spirituality. There are *dami*, *jhankri*, *phendongba* and *bonbo* in Nepali community, *pow* and *nejum* in Bhutia community and *bumthing* in Lepcha community. For these powerful faith healers, "*jhar phuk*" is the key word and the first step in an interestingly interspersed and inexpensive treatment. There has been a long felt need to record traditional systems of medicine (TSM) –related knowledge and to know whether natural bio-diversity components are being used effectively for health care. There are attempts by Sikkim Voluntary Health Association (SVHA) to the documentation of this knowledge. It is very important for the local people to help and cooperate with this Association's effort so that a dependable database on TSM health care system could be documented. Local peoples' knowledge on traditional system of health care, its scientific analysis and correct interpretation of the mystic beliefs are some of the areas, which need documentation. This will help in identifying death caused by various diseases prevalent in remote villages.

The faith healers are vital pillars of Sikkimese folk traditions. One never knows whether some of their practices and knowledge have already been taken by the educated practitioners and the laboratories owned by the multi-nationals only to convert the traditional faith healing practice into a full fledged commercial venture. No one has done anything in this regard in the entire eastern Himalayas as only a microscopic minority has heard about the discourse on intellectual property rights regime at the global level. In the absence of any systematic study of the faith healers and their impact on the Sikkimese society, it is very difficult to assess their vanishing traits and population.

There are no cross-purposes in the existence of faith healers and the modern day medical

practices. They are never at loggerheads even if they are treating the same patient moreover, with different interpretation. They coexist and complement each other to a large extent as the former stresses on psychotherapy and the later, on medical therapy.

#### iv) Morbidity Cases

*Tuberculosis* has been one of the major health problems in the state of Sikkim. The *Gangtok Times* (24 January, 2000) reported the detection of 170 tuberculosis cases every month in Sikkim which is over 2,000 per annum. Against a national average of just over 40 TB cases per lakh people, the figure for Sikkim stands at 87 cases. Mortality resulting from this disease is fairly high. Steady growth of drug resistant strains due to irregular medication, discontinuation of treatment and reluctance to go for treatment often exasperate the situation. Under the Revised National Tuberculosis Control Programme (RNTCP) there is a 60-bed district tuberculosis centre (DTC), in Namchi and 10-bed mini DTC in the other three districts; five tuberculosis units (TU); 18 microscopic centres (MC) and 561 directly observed treatment (DOT) centres. The main objectives of RNTCP are to achieve a cure rate of 85 per cent and detection rate of 70 per cent cases. Case detection is primarily done by Sputum Microscopy and treatment of cases by DOT. The progress made under National Tuberculosis Control Programme is given in Table 6.14

Table 6.14

#### National Tuberculosis Control Programme (2001 - 2006)

Year	Sputum Exam		Sputum Positive		Total New Cases	
	Target	Ach	Target	Ach	Target	Ach
2001	2800	6764	280	471	757	1811
2002	2750	6883	275	511	740	1568
2003	2700	6371	270	406	730	1662

2004	2700	6239	270	443	730	1749
2005	3240	6980	324	550	1085	1782
2006	3540	7380	445	536	1200	1630

Since last few years focus has been made on information, education and communication (IEC) activities for creating better awareness among the patients and the public on curability of disease and also on the danger of not getting timely treatment. As a consequence, 77 per cent cure rate was achieved in 2002-03.

The state of Sikkim had been identified as the hyper endemic region of iodine deficiency disorders (IDD) by the central government, Indian Council of Medical Research (ICMR) and by the state government itself on the basis of the sample survey conducted at various points of time. Various combating measures were devised by the state. A recent follow up survey undertaken in 1998 by the state government has shown a decline in the goiter prevalence to 16.8 per cent and cretinism to 1.8 per cent.

## **VII Other Initiatives**

Sikkim became one of the strategic partner states for AUSAid in 1998. The Gangtok Urban Water Supply and Environmental Sanitation Project funded by AUSAid added a new dimension to the entire question of total health management in the state. This project mainly focuses on improvement in urban water supply; sanitation extension and improvement, integrated drainage system; overhaul of solid water management and institutional reform and restructuring. This is one of the first projects that brings in a strong element of peoples participation in the functioning of public utilities in terms of meeting of health and sanitation needs, management, revenue collection and sustainability. This project is looked forward to by the people as an alternative to pure government project wherein there is lack of maintenance, accountability and efficiency.

Depending upon the success of this project, a range of such interventions could inject a new tenor and system of more efficient and sustainable health management in the state.

Sikkim Manipal Institute of Technology is a University College of “Sikkim Manipal University of Health Medical and Technological Sciences ” which has been set up by an Act of Sikkim Legislature. It primarily proposed to set up medical and engineering degree colleges under the auspices of the Sikkim-Manipal University and to augment medical facilities with the establishment of a Central Referral Hospital. In the medical college 20 per cent of the total seats are reserved for the locals. The permanent campus at Majhitar is ready. The 500-bed referral hospital, a vital part of this Institute, treats patients referred to the hospital by the Sikkim government and from outside the state. Patients referred by STNM Hospital are treated free. The Institute offers a number of courses. This first-ever joint sector initiative in the health sector is likely to generate a lot of employment opportunities.

### **Insurance**

Sikkim incurs a large-scale expenditure on sending people out of Sikkim for health treatment. The state government literally bears the treatment cost of a large section of the patients who could not be treated in the state and are referred to outside. This takes place both in official and unofficial manner. This is besides the fact that the state provides free medicines and free diets in most of its hospitals This has led to a huge drain in the state exchequer. The most serious question is that of sustainability. The issues are now being addressed include creating and dispersing the facilities in the rural areas by bringing all the basic equipment, diagnosis and testing facilities in the rural areas, linking the major hospitals in other cities through Tele-medicines and other swift techniques, providing health insurance for the people and raising resources through health related services.

The *Sikkim Development Report 2007* (unpublished) prepared by the National Planning Commission makes the following recommendations in the health sector.

- The major concerns in the health sector today are related to both the changing nature of health requirements and the pressure on the existing health amenities. Health problems related to environmental pollution, improper sanitation and potable water supply continue to remain alive in the rural areas of Sikkim, whereas the gradual emergence of diseases like coronary, AIDS, diabetes in the urban areas and re-emergence of once dreaded disease like tuberculosis are a major challenge.
- The emphasis naturally should be more on preventive aspects for which the most vital instrument will be the health awareness related activities. Therefore, extra efforts need to be made to organise health-related education activities, camps, orientation programmes, through mass media like films, literature, exhibitions, etc. These efforts should be comprehensive both in terms of target groups and agencies who carry out these tasks. There should be strong components of NGOs and other social welfare private agencies in these initiatives.
- All the medical officers posted at rural areas are given a minimum of six months orientation training at the district hospitals regarding medical problems in the villages. However, the villagers find many of them naive about the basic health issues, as they were never exposed to village situation. This needs to be urgently looked into as this has implications on future research and newer interventions as well. At the same time reorientation of medical education is required because the realities in *bustees* and villages are different. A compulsory posting policy of all government doctors in the sub-divisional and lower level hospitals with strong rural *bias* for at least a period 5 years needs to be implemented.
- Primary health care is increasingly neglected as indicated by the poor state of some of the sub-primary and primary health centres. Whereas the situation demands a solid emphasis on primary. These primary health centres need to be rejuvenated by inducting better provisions including medicines, basic health care instruments, technical manpower and management. The management of at least 70 percent of these centres directly by the qualified villagers, Panchayats, NGOs and even welfare oriented private agencies and trusts should be encouraged. This should also include organisations like Sikkim Voluntary Health Association of India, Red Cross Society,



Association of Social Health in India and Sikkim Women's Welfare Organisation. Some of these NGOs are already involved in providing health education awareness in hygiene and other communicable diseases.

The immediate targets should be to comprehensive immunisations 100 % of the rural children, at least 90 % coverage of mothers during delivery by doctors and ANM/nurse/LHV assistance, 50 % outsourcing of services particularly medical/lab tests both in the rural and urban areas, 15 % of the health budget to be used by primary health centres for educating people about preventive health care. Provision of a computer and refrigerator is essential in all the PHCs and sub-centers

- Nutrition is increasingly becoming a serious issue. The real challenge is to make food easily affordable and accessible. This should include 20 % of the health budget to be allocated for the strengthening and wider role of Anganwadi centres and ICDS particularly on nutrition reach and management. A coordinated approach by Health-Rural Development-Social Welfare and Food Security Departments to reach the rural and urban population with a view to eliminate malnourishment by 2012.
- There are concerns regarding the non-availability of specialist and trained technicians particularly even in the district level hospitals. This has led to outflow of even general patients to plain areas including Siliguri, Calcutta, Delhi and Madras. This is likely, to be more acute in the days ahead as hospitals are getting increasingly choked with increase in population. This could be to a large extent minimised if a well thought out manpower planning in this sector can be done.

There should be adequate provisions for tele-medicines with interconnection for exchange of opinions with major health institutes both within and outside the country. An array of services including lab test, x rays and scanning could be outsourced by inviting reputed health service providers in the State.

The state has to undertake a first-hand survey of manpower available in the health sector in the state in both technical and non-technical categories. This data bank will go a long way in consolidating the effort made by the state in creating health amenities. Upgradation and updating of the existing knowledge of the professionals

and health workers through periodic training facilities on the new technological advancement must be made compulsory.

- Another critical concern has been the poor coordination among the health-related departments like Rural Development mainly for water, salt, and education for health awareness. Health being a relatively low priority area, not much importance is given by other departments for inter-departmental coordination. As a result, they are sometimes found to be working at cross-purposes leading to both wastage of resources and erosion in peoples' confidence in the delivery mechanism of the governmental agencies. To improve inter-departmental coordination besides regular meeting of the officials, the involvement of village *panchayats* and the target groups are very vital. This can be done by garnering support of the elected individuals and bodies at all levels.
- The Health Department located in Gangtok is over staffed. Human resources are under utilised at the Gangtok level, whereas there is a serious dearth of health related human resources at the districts and *panchayat* levels. The redeployment of these human resources should be urgently taken up by deputing at least 60 percent of them located in Gangtok to districts and the *panchayats*.

The location and distribution of health centres and health staff need to be carried out not only in terms of population but also on the basis of the climatic conditions, micro-topography and geomorphic complexities.

- A rather neglected area has been the management and maintenance of the massive infrastructures created. The question of resource crunch and the subsequent issues of manpower deployment may in fact be a major stumbling block in the management of health sector. This will be heightened by the increase in the incidence of diseases arising out of both poverty and stress factors. A State level a semi-government Education Regulatory Committee consisting of officials, private sector, civil society members, professionals and experts may be set up to monitor the quality of health, supervise the maintenance of all health related institutions in the State and over see the broad orientation of health policy and system in the State.

- Though the data and information base on health sector is relatively more developed in the state, there is no information to verify many of the health standards like life expectancy at birth, net reproduction rate, and family size. The state needs to upgrade and rationalise the health information system and database urgently. All these data at various levels should be easily accessible to all.
- The health insurance, as a second-generation reform measure must be encouraged both to make the health amenities more sustainable, and efficient use of health and financial resources.
- There are no institutionalised monitoring and evaluation mechanisms on any of the health related projects. This has made the system slow, tardy, insensitive, and inefficient. Each project will have to have a very strong content of monitoring and evaluation both in house and independently from outside.
- Health sector as a potential investment avenue, if promoted could bring about a large and diverse revenue and employment generation opportunities. A large number of people from the neighbouring states and even the countries including Nepal, Bhutan, China, and Bangladesh could use these facilities. This would also cater to the increasing needs of the state of hospitals with modern facilities. The North East Industrial Policy should be amended so as to include the health services in its coverage. The state's private investment policies should directly promote health sector as investment options in the following areas:
  - setting up modern health facilities
  - commercial use of medicinal plants and herbs;
  - intellectual property rights in the practices of folk medicines; and
  - development of exclusive health resorts
  - building tourism related health facilities

## **VIII Social Harmony**

The religious, cultural and intellectual dimensions of the Sikkimese society have been seriously promoted . In fact, the Government has reemphasised on secularism as the core

traditional value of Sikkimese society and polity. It has strengthened the tenets of secularism by supporting the setting up of increased number of places of worship belonging to all religions and communities. Sikkim's glorious culture has found expression in its literature, folklore, music, dance and drama reaching new standards of excellence. Sikkim literature has been enhanced with the publication of new works. A range of national honours have been bestowed on eminent Sikkimese.

## **IX Affirmative Actions**

After the persistent demand made by the present Government the Limboo and Tamang communities of Sikkim have been included in the List of Scheduled Tribes. Concerted effort is being made to include all those left out communities of Sikkim in the list of OBCs and provide admissible facilities. Decision has also been taken to grant quota of seats for students belonging to communities other than OBCs for higher education.

The Government has also been making persistent demand to the Centre to grant constitutional recognition to Bhutia, Lepcha and Limbu languages.

### **i) Development of SC, ST, and OBC Communities**

An Act to prevent the commission of offences of atrocities against the members of the scheduled castes and the scheduled tribes, to provide for special courts for the trial of such offences and for the relief and rehabilitation of the victims of such offences and for connected matters.

Provision of the scheduled castes and scheduled tribes (POA) Act has been translated into the regional languages and widely circulated among *panchayats*, collectorate offices, NGOs, and members of SC and ST families. In order to improve awareness about this act some publicity material has been displayed through hoardings at important public places like courts, police stations, district headquarters describing the different situations where the Act is applicable and the expected remedial action from the government including relief, and compensation.

The following scheme for reservation of posts under the Govt. of Sikkim and Public Sector Enterprises are applicable in the State:

SC-6 percent  
ST-23 percent  
OBC-21 percent

Scheme for relaxation of the upper age limit is as follows :

SC – 5 years  
ST – 5 years  
OBC - 3 years

The plan allocations for the Social Welfare department for the period 1997-98-2003-04 and a compendium of achievements of Social Welfare department (Welfare Division), Government of Sikkim give a fair idea about the financial aspects of the schemes and programs undertaken for SC, ST, OBC development in the state.

- Allocation on scholarship schemes was 39 lakh in the year 1997-98 which declined in the two subsequent years to 30, and 26.9 lakh, recorded an increase in 2001-02 to 58 lakh, then again declined to 50.5 and 33.5 in the next two years. The allocation under this head in 2003-04 is even less than that in 1997-98;
- Among the other categories of education, allocation on vocational training has increased steadily from 8 lakh in 1997-98 to 30 lakh in 2002-03 and then declined to 21 lakh in 2003-04;
- Allocation on SC, ST, OBC hostel buildings, residential and ashram schools has increased from 50 lakh in 2000-01 to 130 lakh in 2002-03, an amount of 50 lakh have been allocated in 2003-04 for construction hostels for OBC boys and girls, the allocation on construction of residential schools for OBCs shows a drastic increase from 33 lakh in 2002-03 to 150 lakh in 2003-04;
- Allocation on pre-examination coaching centres is almost stable over the years after showing a sharp increase in 1999-2000;

- The share of special central assistance to tribal sub-plans shows a mixed trend over the years, from 99.5 lakh in 1997-98 it first declined to 50.25 lakh in 1999-2000 and then increased to 162 lakh in 2001-02 and then again declined to 108 lakh in 2003-04;
- The grant under Article 275 (1) remains stable at around 33 lakh in 2003-04 from 33.46 lakh in 2001-02;
- Allocation on research and monitoring remains the same (1 lakh) as it was in 1997-98, after increasing to 10 lakh in 2001-02 and then declining to 2.5 lakh in 2002-03.

The Departments, apart from the Welfare department, instrumental in channelising the funds under special central assistance or grants under Article 275(1) to special component plans or tribal sub-plans are education, agriculture, floriculture, animal husbandry, STCS and SIMFED.

Apart from the two categories of schemes mentioned above, there are centrally sponsored schemes, some of which are totally funded by the centre, others are sponsored partly by the centre and the state at agreed proportions.

## **ii) Scholarship and Vocational Trainings**

Since education plays the most vital role in improving the socio-economic condition / status of a particular community/state, the main thrust of SJE & Welfare Department has been to improve the literacy level among SC & ST population of the State. The SJE & Welfare Department has, therefore, been granting scholarship to the Scheduled Caste & Scheduled Tribe students according to the guidelines of Govt. of India to encourage them to improve their literacy level and to help them higher academic and technical qualification.

The year-wise pre-matric and post-matric scholarship awarded to SC & ST students since 1994-95 is given in Table 6.15.

Table 6.15  
**Pre-matric & Post-matric Scholarship  
to SC & ST Students**

Year	Pre-matric Scholarship	Post-matric scholarship
1994-95	2288	30
1995-96	2841	99
1996-97	2929	77
1997-98	2758	113
1998-99	598	72
1999-2000	1645	96
2000-01	1614	98
2001-02	1974	101
2002-03	2012	162
2003-04	851	158
2004-05	1587	165
2005-06	1702	Nil

Special Central Assistance to Tribal Sub-Plan has been extended by the Government of India to State Government since 1977-78, as an additive to their State Plan efforts of Tribal Development and thus constitutes part of the overall strategy of the TSP. The objective and scope of SCA to TSP which was originally meant for filling up of the critical gaps in the family-based income-generation activities of the TSP, will now be expanded to cover the employment-cum-income generation activities and the infrastructure incidental thereto not only family-based, but also run by the Self-Help Groups (SHGs)/Community. The ultimate objective of extending SCA to TSP is to boost the demand based income-generation programmes and thus raise the economic and social status of tribals. (Table 6.16)

Table 6.16

**Special Central Assistance to Tribal-Sub Plan 2005-06**

Sl. No.	Name of Schemes	Physical Achievement	Financial Achievement (Rs Lakh)
1	Distribution of Tarpoline at Chakung, Soreng Constituency.	200 families	4.70
2	Distribution of Agriculture tools at Tenchitam, Rauthey.	200	4.78
3	Distribution of Agriculture tools at Rakdong Tentak.	185	4.42
4	Distribution of Water storage tank with pipe at Jorethang & Melli.	150	8.90
5	Distribution of sewing machine at East District.	85	8.93
6	Distribution of sewing & knitting machine at Gyalzing & Yuksam.	85	8.94
7	Distribution of Woolen yarn & cotton yarn at North District.	85	8.95
8	Distribution of Agriculture tools at Rakdong Tentak.	100	2.39
9	Distribution of Milch cow at Tong Naga.	25	4.30
10	Distribution of Life stock feeds at Chungthang, North.	250	3.47
11	Distribution of sewing machine at Song Martam.	121	5.20
12	Establishment of 2+1 Piggery breeding unit at Rinchenpong Constituency.	20	7.50
13	Distribution of Agriculture tools at Jorethang Constituency.	200	4.77
14	Distribution of Potato seeds at Lachung.	200	2.73
15	Distribution of Yaks at Lachung, North.	50	7.35
16	Distribution of Piglets at Mangshila.	150	3.30
17	Distribution of Poly tank with pipe at Gyalzing.	130	6.77
18	Distribution of Piglets at Wok.	150	3.50
19	Distribution of Poly pipe & tanks at Dentam.	80	5.28
20	Distribution of Poly tanks with pipe at Damthang.	120	7.93
21	Distribution of Agriculture tools at Rhenock.	160	3.82
22	Distribution of Carpentry tools at East District.	100	7.22
23	Distribution of Water storage tank with	100	5.21



	pipe at Lachen.		
24	Distribution of Piglets at Jorethang.	250	6.60
25	Distribution of Water storage tank with pipe at Bikmat, Rateypani.	70	3.64
26	Distribution of Agriculture tools at Ringim, Nampatam.	220	4.87
27	Distribution of Poly tank with pipe at Singhik.	60	3.12
28	Distribution of Piglets at Rhenock.	118	2.65
29	Distribution of Piglets at Song Martam.	280	7.38
30	Distribution of Cattle feeds at Lachung.	200	4.23
31	Distribution of Piglets at Simik Lingzey.	150	3.50
32	Distribution of Cattle feeds at Lachen Valley.	225	4.41
33	Distribution of Piglets at Labi Phensong.	150	3.35
34	Distribution of Piglets at Upper Dzongu.	200	4.65
35	Distribution of Piglets at Chungthang.	100	4.38
36	Distribution of Potato seeds at CHungthamng.	570	5.92
37	Distribution of Potato seeds at Lachung.	106	1.37
38	Distribution of Piglets at Khamdong.	112	2.25
39	Distribution of Piglets at Central Pandam.	78	1.76
40	Fund transferred to Additional C.E., Tourism for construction of 5 Nos. of Ropway in different places of Sikkim.		25.00
41	Distribution of Cattle feeds at Singhik.	150	3.03

The Welfare Division of SJE & Welfare Department has been conducting Vocational Training to the educated unemployed SC/ST/OBC candidates to update their skill for self employment. The trainings are imparted on self employment oriented schemes like application of Hardware & Software Computer training, Hotel Management, Repairing of Electronic appliances, Interior designing, Carpet weaving, Motor driving, Cutting & Tailoring, Embroidery, Stuff toys etc. The Vocational training imparted by the SJE & Welfare Department has been playing a vital role in the economic upliftment of SC, ST, MBC & OBC youths of the State. (Table 6.17)

Table 6.17  
**Vocational Training On Different Trades Implemented  
 During 2005-06 (State Plan).**

Sl. No.	Name of Schemes	No. of trainees					Expenditure Rs Lakh
		ST	SC	OBC	MBC	Total	
1	Six months Fashion designing & Embroidery training at Tadong.	8	8	8	8	32	3.75
2	Six months Computer Hardware training course at Deorali – Daedal.	5	5	5	5	20	3.31
3	Six months Professional Tourist Guide training at CETI, Nam-nang.	5	5	5	5	20	6.60
4	Six months Professional course for Tourism, Travel, Airlines & Hotel management at Trade Wing Institute (Nam-nang).	8	8	8	8	32	2.00
5	Three months Motor driving training at 4 districts.	16	16	16	16	64	2.88
6	Three months Paper re-cycled product training at Dev. Area.	8	8	8	8	32	2.57
7	Three months Stuff toys making training course at Namchi.	8	8	8	8	32	2.96
8	Six months Computer Software training course at SSI, Tadong.	7	7	7	7	28	2.10
9	Three months Motor mechanic training at SMTEI at Upper Sichey.	4	4	4	4	16	4.22
10	Three months vocational training on cutting & tailoring conducted at 1) Toong Naga 2) Tathangchen 3) Tinik-Chisopani 4) Sichey – Ranka 5) Rhenock 6) Melli 7) Adampool	48	48	48	48	336	9.94 Purchase of sewing machine  9.48 Purchase of sewing machine  9.87 Purchase of raw materials, Salary, Furniture, Transportation etc.

	8) Hee-Bermiok 9) Central Pandam 10) Mangshila 11) Zoom 12) Nimtar 13) Men-Rongong 14) Damthang – Namchi						
11	Three months vocational training on knitting trade at Rayong, Sichey and Niz-Rayong.	15	15	15	15	60	Rs 6.50 Purchase of knitting machine, raw materials, Salary, Furniture & transportation etc.

Sikkim Scheduled Castes, Scheduled Tribes and Other backward Classes Development Corporation (SABCCO) was established under the Companies Act Sikkim 1961 in 1996. The corporation is a fully government undertaking under Welfare department with a share capital of Rs. 10 crore. It avails financial assistance by way of loans from apex corporations viz. National Scheduled Tribes Finance and Development Corporation, National Scheduled Castes Finance and Development Corporation, National Backward Classes Finance and Development Corporation for financing income-generating schemes for the target group. These corporations identify beneficiaries and the viable schemes as per needs of the beneficiaries, disburse loans, monitors the utilisation of loans, and are responsible for the timely recovery of the loans. Statistics are not however, available on the loan recovery experience of the corporation.

The schemes for assistance can be in any of the following areas:

- agriculture and allied;
- artisan and traditional occupation;
- technical trades;
- hotel/guest-house/lodge/restaurant;
- small business; and
- transport services.

SABCCO in a Nutshell

1. Authorised share capital : Rs. 20 crore.

2. Paid-up share capital: (Rs. in lakh as on 31.03.05)

SJ, E&W	Min.SJ&E	Min.TA	Total
GOS	GOI	GOI	
624.87	132.18	19.12	776.17

3. Loan sanctioned:  
(a) Physical  
(b) Financial

(Rs. in lakh as on 31.03.05)

SC	ST	OBC	Total
419	1055	1156	2630
394.63	1221.98	1010.29	2626.90

4. Recovery from beneficiaries:

(Rs. in lakh as on 31.03.05)

SC	ST	OBC	Total
141.12	459.91	411.49	1012.52

(Rs. in lakh as on 31.03.05)

5. Term loan from apex corps :

NSFDC	NSTFDC	NBCFDC	Total
(SC)	(ST)	(OBC)	
281.83	883.84	769.67	1935.34

6. Repayment to apex corps:

(Rs. in lakh as on 31.03.05)

NSFDC	NSTFDC	NBCFDC	Total
(SC)	(ST)	(OBC)	
266.15	524.16	578.3	1368.61

7. Rate of interest on loans

- (a) Scheduled castes and scheduled tribes: 7% per annum  
(b) Other backward classes:  
(i) loans below Rs. 1 lakh 7% per annum  
(ii) loans above Rs. 1 lakh 10% per annum

8. Recovery percentage:

- (a) from beneficiaries : 51%  
(b) repayment to apex corps: 85-90%

The corporations offer/term loans for a wide range of incomes but do not finance infrastructure development schemes unless such schemes directly generate income. It also extends assistance to NGOs to promote micro-credit schemes at the grass-root levels. Loans sanctioned are disbursed only after execution of requisite security related

documents, A processing fee @Re 1 percent on the sanctioned loan amount is to be deposited with the corporation. The SABCCO beneficiaries are given in Table 6.18.

Table 6.18  
**SABCCO Coverage**

Year	No. of beneficiaries			
	SC	ST	OBC	Total
1998-99	42	105	213	360
1999-00	120	338	542	1000
2000-01	202	153	497	852
2001-02	29	86	100	215
2002-03	45	139	132	316
2003-04	76	90	155	321

*Source:* Compendium of Achievements, Social Welfare Department, Sikkim

### iii) Gender Equality

Sikkim traditionally has a sound track record of maintaining gender equality. The Government has consciously worked to consolidate this tradition of not discriminating on the basis of gender and giving due respect to both genders. Women have been appointed to senior Government positions including Speaker of the State Assembly, Cabinet Minister, Secretaries in the State Administration, *Zilla Adhakshyas*, *Upa-adhakshyas* and Chairperson of Sikkim Public Service Commission. Women are further honoured by enforcement of law that makes it mandatory to mention mother's name also in all official papers and documents. Gender Related Development Index (GDI) in the State has steadily improved over the last few years as shown very clearly in the Sikkim Human Development Report 2001. (Table 6.19)

Table 6.19

**Sikkim : Gender Development Index**

<b>Year</b>	<b>GDI Index</b>
1991	0.445
1995	0.499
1998	0.528

To enable the women to play a greater role in the Panchayats as well as in the Government administration, 33 per cent seats have been reserved in Panchayats and 30 per cent seats in Government jobs for women.

Scores of schemes for the welfare and development of women and children, SC/ST/OBC, handicapped and aged people have been launched and have been in operation including :

- Indira Mahila Yojana
- Balika Samridhi Yojana
- Small Family Scheme to delay marriage by offering attractive incentives
- Widow Remarriage Scheme
- Pension to widows of Ex-servicemen, training etc.

Apart from the existing State languages viz. Nepali, Lepcha, Bhutia and Limboo, the Government has also accorded official recognition of "State language" to Tamang, Gurung, Rai, Sherpa, Mangar, Newar and Sunwar (Mukhia) languages and has taken steps for their further development by teaching them in schools. Official publication SIKKIM HERALD is also brought out in all the State languages. Besides an Old Age Pension of Rs.200 per month is given to beneficiaries above the age of 65 years who are below the poverty line. Physically Challenged Employees of Government and Public Sector Undertakings are being paid monthly conveyance allowance of Rs.100 per head.

The State Government issues ten kilos of rice free of cost per month to senior citizens above the age of 65 under the Annapurna Scheme. The State Government has also prepared "Sikkim State Plan of Action for Children". This plan of Action takes care of the children in the areas like :

# Rights for Survival - deals with health, reproductive and child health, maternity, nutrition, child environment, sanitation, hygiene and water supply,

# Rights for development.

# Rights for protection for the children specially in difficult circumstances.

# Children's rights for participation.

## Chapter 7

### ENVIRONMENTAL SECURITY

Sikkim is ecologically a fragile region. The State Government is very conscious of the need to protect the fragile nature of Sikkim's environment and eco-systems. Sikkim has been able to traditionally and scientifically conserve its rich biological diversity including that of more than 5,000 species of angiosperm (one third of the total national angiosperms). The altitude of State varies from about 300 m to over 8000 m. It houses flora and fauna of all the three main regions i.e. tropical, temperate and alpine zones. The State has geographical area of 7096 sq.km. out of which over 81% is under the administrative managerial control of Forest, Environment and Wildlife Management Department. Over 45% of the total geographical area of the State is under tree cover and nearly 34% of the geographical area is set aside as Protected Area Network in the form of National Park and Wildlife Sanctuary. (Table 7.1)

Table 7.1

#### Flora and Fauna : Basic Statistics

Mammals	144 species
Birds	550 species
Butterflies and Moths	650 species
Reptiles	33 species
Frogs	16 species
Orchids	550 species, 95 Genera
Rhododendrons	36 species, 45 varieties
Flowering plants	over 4000 species.
Ferns and Allies	300 species
Conifers	9 species
Medicinal plants	not enumerated.

As a sensitive border state, Sikkim has been the most significant geographical entity in providing comprehensive security to the Indian nation state. Sikkim provides i) military security , ii) environmental security and iii) human security.

Firstly, it has been one of the very geo-strategically significant border posts of India and has a huge concentration of security and military forces. The State provides the best of services in protecting national security interests. In our last 32 years as a constituent state



of India, the State has not had a single case of laxity and compromise on this critical issue. However, besides other issues related to carrying capacity, the physical burden of these forces as a pressure on land and other natural resources are quite gigantic. All these incur a huge development and environmental cost to the State which many other States in India do not have to incur. This also means that a significant portion of our development resources are devoted to maintaining this supreme national interest.

Secondly, the onus of protecting and conserving the significant portion of the fragile Eastern Himalayas including the mountain range and its environment has been with the people and Government of Sikkim. The protection of bio-diversity and the forward and backward linkages emanating from it to the entire Himalayan community and the plains land have never been quantified. However, many quarters are not able to appreciate the work Sikkim and Sikkimese are doing for the sustainability of the region. This makes Sikkim's development options and maneuverings very limited

The very topography, landlockedness and agro-climatic variations have forbidden Sikkim to go for an array of interventions making economic development process very limited. At times, it has been a Hobson's choice for the State to opt for a major development intervention as the long run cost particularly in terms of environmental security may be much higher than the short run benefit. In other words, unlike other States, Sikkim has a very constricted development choices.

This limited choice and the related constraints on development interventions as compared to the wide range of choice and techniques available with other States, need to be considered as the opportunity cost Sikkim have been / will have to forego. The benefits which would have otherwise accrued to the State need to be objectively assessed and accordingly make provisions for compensating the opportunities foregone.

And finally, the state has given its best to provide maximum degree of human security to each person in Sikkim. The State will have to take care of every individual in the State as an idle and unemployed mind with a degree of frustration become easy prey of anti-social and anti-national activities. This is more so as the State is one of the most sensitive border states surrounded by rather adverse situations in the neighbouring countries and some of the neighboring states.

In fact, the theme of the Chief Minister Pawan Chamling's budget speech 2006-07 itself was human security. While elaborating on it he stated in his budget speech that

“In policy terms, human security is an integrated, sustainable, comprehensive security from fear, conflict, ignorance, poverty, social and cultural deprivations, and hunger. We can achieve human security when and where individuals and

communities have the options necessary to end, mitigate or adapt to threats to their human, environmental and social rights and have the capacity and freedom to exercise these options.

Its human security which involves the qualitative aspects like human dignity that entail full participation in the community and national life, control over decisions and 'democracy at all levels' as much as quantitative parameters like 'fulfillment of basic material goods'.

In Sikkim we want people to be absolutely secure. We are convinced as a logical corollary this would ensure national security. In Sikkim, we want people to be largely contented with their rights, freedom and development aspirations. This is the way to protect and ensure our national security interests.”

## **I Recent Initiatives**

Recent measures taken by the State Government to conserve the environment include:

- u Adoption and enforcement of the Forest, Environment and Wildlife Policy in 1999. This has been a very significant step taken to protect its environment and conserve forests and wildlife. Sikkim is perhaps the first State in the country to adopt this all encompassing policy.
- u Introduction of the “Smriti Van” or Memorial Forest concept by the Chief Minister, Pawan Chamling that has been a grand success. “Smriti Vans” are located at various places of social, religious and other important areas as a part of Green Sikkim effort by involving all segments of the society. People from all walks of life responded to his call with great enthusiasm. Under this programme, social, religious, educational institutions, defence, police, tourism, NGOs and Government agencies are voluntarily coming forward and undertaking massive plantations in different parts of the State in memory (*smriti*) of their near and dear ones.
- u Ban on grazing by all domestic and semi-domestic animals in reserve forest areas in the State to protect the plantations the State. This was done under a tremendous political risk as it meant discontinuing a major past practice.
- u Ban on the use of non-biodegradable products like plastic bags to protect the environment. Sikkim also holds the distinction of becoming the first State in the country to effectively implement this ban.

- u Landscape and other beautification of numerous parks, gardens and other aspects of urban areas including those of tourist importance have been carried out throughout the State for the purpose of aesthetic and recreation as well as for education and awareness.
- u The State Government safeguarded the religious-cultural interest of the people by scrapping the proposed Rathong-chu Hydel Power Project
- u Protection of cultural ecology of the Mount Kanchenjunga by banning climbing expeditions to this revered mountain.
- u Closing down of shooting range in the fragile region of North district
- u Launching of the Green Mission which invite and encourage people to plant trees on the roads, vacant lands, nearby gardens etc to plant trees and other foliages. These missions are spread throughout the State. People have overwhelmingly responded to these missions. This also covers urban areas of all four districts where in planting of ornamental trees and bushes is being undertaken with a view to both enhance scenic beauty and check soil erosion and landslides.

State's forest cover has increased from 42.3 % in 1991 to 45.97 % in 2005-06. This is a major achievement. In order to deal with the issues related to the intellectual property rights, the Intellectual Patent Committee and State Intellectual Law Committee under the chairmanship of the Chief Minister has been set up. The district wise forest coverage in 2001 was as follows (Table 7.2)

A Task Force on Environment headed by Director of the prestigious Centre for Science and Environment has been appointed. This Task Force will not only critically evaluate the actions taken by our Government on the environmental front but would also provide a road map for the sustainable development project in the State.

The government has now declared that it will start working to make Sikkim as the "Total Organic State". A sub-committee of the Sikkim State Planning Commission is now preparing a road map to achieve this goal.

Table 7.2

<b>District Wise Forest Cover (Sq Km): 2001</b>			
<b>District</b>	<b>Geographical Area</b>	<b>Forest cover</b>	<b>% of total</b>
<b>geographical area</b>			
East	954	670	70.23
West	1160	712	61.06
North	4226	1301	30.79
South	750	510	68.00
<b>Total</b>	<b>7090</b>	<b>3193</b>	<b>45.04</b>

The Chief Minister Pawan Chamling personally led a strong delegation of Sikkim to World Heritage Centre at UNESCO headquarters in Paris to plead for enlisting Dubdi Monastery built in 1643 and Kechopaldri Lake in the World Heritage List. The process has already started. The delegates also went to Kew Botanical Garden and India House Library in London to request for the restoration of heritage items of Sikkim including plant varieties, documents and artifacts.

In recognition to the Chief Minister, Pawan Chamling's outstanding contributions towards preserving forests and plants and safeguarding the environment, he was voted as the "Greenest Chief Minister of India" in a rigorous national opinion poll conducted by the internationally acclaimed institution viz., New Delhi's Centre for Science and Environment in 1999. Shri Digvijay Singh, Chief Minister of Madhya Pradesh and Shri Chandra Babu Naidu, Chief Minister of Andhra Pradesh were voted second and third respectively.

However, despite such a critical importance of the forest and environment in the State, the overall plan allocation has been very inadequate. It was hardly over 2% in the 10<sup>th</sup>. Five Year Plan. The state is making conscious effort to increase the area under tree cover further and also improve the density of the tree cover. A massive need based and time bound 'Programme of Afforestation and Tree Planting' is being thought of with a greater emphasis in production of fuel wood and fodder in degraded and denuded lands, both forest and non-forest.

The Department of Forest, Environment and Wildlife Management has the Herculean task of reaching the goal of increasing the forest cover to 60% by 2012 as earmarked by the Ministry of Environment and Forests, Government of India for the hill states. Therefore there is a strong need to generate awareness among the common mass to plant trees in each of the fallow lands either agricultural or non-agricultural. To increase the tree cover to 60% needs involvement of the Panchayats, NGOs, Joint Forest Management Committees, Eco Development Committees, Eco Clubs, Green Corps, Educational

Institutions, and the common people. Massive awareness drive needs to be taken up in this regard. The plan allocation for Forestry sector needs to be sufficiently enhanced so that necessary steps could be taken for achieving the goal.

## II Recent Development Activities

Sikkim has made a significant progress in all fronts of environmental management. There are large number of parks, environmental amenities like gardens, trekking facilities and wildlife sanctuaries. There have been very many important projects the State has undertaken in the last few years.

For promotion of Eco-Tourism in the State the following works are being completed during the 10<sup>th</sup> Plan period

- a) Rock Garden at Changaon, Namchi, South Sikkim,
- b) Eco-tourism Park at Rapdentse, Gyalshing, West Sikkim,
- c) Creation of Jureli Dara Park, Sombaria, West Sikkim
- d) Kumrek Picnic Spot, Rangpo, East Sikkim
- e) Forest House at Sombaria, West Sikkim
- f) Inspection hut at Phurchachu, Reshi, West Sikkim
- g) Himalayan Zoological Park

The type and number of animals in Himalayan Zoological Park are given below ( Table 7.3)

Table 7.3

### Animals in Himalayan Zoological Park

Species	Nos
Snow Leopard	2
Common Leopard	3
Tibetan Wolf	8
Leopard Cat	7
Himalayan Black Bear	2
Red Panda	6
Himalayan Palm Civet	3
Goral	2
Barking Deer	7
Flying Squirrel	1
Rhesus Monkey	2
Kalej Pheasant	1
Large Indian Civet	1
Yak	2
<b>Total:</b>	<b>47</b>

Sericulture Development has been implemented in coordination with the Central Silk Board. Training & subsidy packages to 300 farmers were provided in the 9<sup>th</sup> Five Year Plan. During the 10<sup>th</sup> Five Year Plan, 500 farmers have been proposed to be taken as beneficiaries for Sericulture and 200 hectares of wasteland has been earmarked for mulberry cultivation & silkworm rearing.

The State Government has already accorded approval to maintain the following nurseries under State Green Mission.

Table 7.4

<b>Nurseries under Green Mission</b>			
<b>Division</b>	<b>Name of nursery</b>	<b>L.A.</b>	<b>H/A</b>
East	Bagey Khola	1.6 Ha.	
	Balwa Khani	0.5 Ha.	
	Gurdun	1.0 Ha.	
	Burtuk	1.0 Ha.	
		4.1 Ha.	
West	Tikjuk	1.0 Ha.	
	Gyalshing	1.0 Ha.	
	Begha	1.5 Ha.	
	Yoksum	1.0 Ha.	
	Tikpur	1.5 Ha.	
	Okherey		1.5 Ha.
	Ridge Park, Soreng	2 Ha	
	Buriakhop	1.2 Ha	
		9.2 Ha	
North	Kabi Namsing	1.0 Ha.	
	Rafom	.5 Ha.	
	Mensithang	2.5 Ha.	
	Singring		0.5 Ha.
	Lachen		0.5 Ha.
			4.0 Ha.
South	Namchi, Dorong Pani	1.8 Ha.	
	Melli	2.0 Ha.	
	Baguwa	2.0 Ha.	
	Rayong	1.0 Ha.	
	Ralong	1.4 Ha.	
	Due	0.4 Ha.	
			8.6 Ha.
	<b>Total</b>	<b>22.7Ha.</b>	<b>2.5</b>

**i) Forest Development Agencies**

To achieve active and whole hearted support of the people for protection and management of Forest and Environment in the State the institution of Joint Forest Management was introduced in the State in the year 1998. Seven Forest Development Agencies (FDAs) (Federations of Joint Forest Management Committees (JFMCs) for protection and management of Degraded Forest Areas and Eco-Development Committees (EDCs) for protection & management of the protected areas like National Parks & Wildlife Sanctuaries have been established. These FDAs are 100% funded by the Ministry of Environment & Forests, Government of India. To implement the projects under FDAs, 155 JFMC in 4 FDAs under territorial circle and 39 FDAs under wildlife circle have been registered. The allocation (100%CSS) under the FDAs, release of fund by Government of India and utilization status by FDAs is given below (Table 7.5).

Table 7.5

**Allocation, Release and Utilization Status by FDAs**

<b>Name of FDA.</b>	<b>Total Project</b>	<b>Total Physical</b>	<b>Physical</b>
<b>Achievement.</b>			<b>cost. (Rs Lakhs)</b>
<b>Target.</b>	<b>(in hectares)</b>		
North (T) FDA	650.32	2700	918
East (T) FDA	813.98	2900	1015
South (T) FDA	616.73	2655	1142
West (T) FDA	628.78	2680	911
N/E Wildlife FDA	349.59	2000	1320
S/W Wildlife FDA	309.69	1632	702
KNP FDA	235.00	1000	102

**ii) Integrated Forest Protection Scheme (IFPS)**

Based on the directions of the Supreme Court of India for the protection & management of forests, this scheme has been provided by Ministry of Environment & Forests, Government of India for strengthening of Infrastructure for Protection and Management of Forests in the state . This includes construction of residential quarters for the frontline forest staff. In the beginning of the 10<sup>th</sup> Five Yea Plan, the scheme was funded as 75:25 CSS and in the year 2004-05 the scheme was converted to 90:10 CSS. Survey & Demarcation of forest boundaries is another thrust area under this scheme. During the 1<sup>st</sup> three years of the 10<sup>th</sup> Five Year Plan, 176 Km.of forest boundaries have been surveyed and 1697 forest boundary pillars have been erected. The Working Plan for South District has been completed. Resources survey of the remaining three districts is being carried out of which the field works for West district are about to be completed. Data analysis is also

being carried out in the GIS laboratory setup in the Working Plan Wing of the Department.

**iii) Social Forestry**

Social Forestry Circle implemented the following schemes during the year 2001 to 2006 in four districts:

- a) Catchment Area Treatment Plan of Teesta Stage-V was executed by Social Forestry Circle covering 2403 hac plantation works under different components:
- b) Plantation works in the reserve forests, fodder and fuelwood plantation, horticulture development in private land, silvipasture development in private as well as forest land, broom grass plantation in private land, bamboo plantation in erosion prone area and landside zone and stone wall fending in the valuable point of the plantation site.
- c) Area oriented fuel wood and fodder project (50:50) CSS schemes was implemented in four district covering an area in 1130 hac. This scheme has been implemented in forest land. the component was taken as maintenance of existing nurseries wages of watch and ward, creation of new plantation, silvipasture development, management intervention, low altitude, entry point activities, micro planning, monitoring and evaluation, soil and moisture conservation etc.
- d) Regeneration of degraded forest by scheduled tribes and rural poor, schemes was implemented in north & east division covering area in 223 hectare The schemes has been implemented centrally to association of scheduled tribe and rural poor in regeneration of degraded forest on usufruct sheering basis. The component was taken as maintenance and creation of nursery, afforestation, aided natural regeneration, soil moisture conservation and entry point activities etc.

Table 7.6

**Social Forestry Coverage since 2002**

Nurseries	21
Area covered (hectare)	24
Laboratories (nos).	105

**iv) Development of National Parks & Wildlife Sanctuaries**

For protection of flora and fauna of the state and the habitat of the endangered fauna like Snow Leopard, Blue Sheep, Red Panda, Takin, Tibetan Wild Ass, Shapi and other Himalayan Wildlife, about 34 % of the total geographical area of the State is managed as



Protected Area Network in the form of National Park and Wildlife Sanctuaries the details of which are as under. (Table 7.7)

Table 7.7  
**Protected Area Network**

Name of Protected Areas Area in Sq.Km.	Location/District Notification	Month & Year of
Khangchendzonga National Park 1784.00	North East.	August 1977
Shingba Rhododendron Sanctuary. 43.00	North	August 1984
Kyongnosla Alpine Sanctuary 31.00	East	August 1984
Fambonglho Wildlife Sanctuary 51.76	East	April 1984
Pangolakha Wildlife Sanctuary 128.00	East	November 2000
Mainam Wildlife Sanctuary 34.35	South	March 1987
Barsey Rhododendron Sanctuary 104.00	West	July 1996
<b>Total</b> <b>2176.11</b>		

**v) Management of Khangchendzonga Biosphere Reserve**

Khangchendzonga Biosphere Reserve having an area of around 2600 Sq.Km. is located in North and West District of the State. The Ministry of Environment & Forests, Government of India has provided funds as 100% CSS for management of the Biosphere Reserve.

**vi) Schemes Sponsored by North-East Council (NEC)**

The North East Council provided funds for development of bamboo plantation in Sikkim in the year 2004-05. One bamboo nursery in each district has been created to cater the requirement of seedlings for creation of plantations of bamboo in degraded forest land as well as in private lands not suitable for agriculture. Sikkim harbours quite a good number of bamboos ranging from bamboo with over 8" diameter stem locally known as *Bhalubans* to a very thin stem bamboo of about 1 centimeter diameter called *Deoningalibani*. These bamboos grow in between the altitude of 500 meters to 3000 meters above MSL and are widely used by the local people for construction, handicrafts

for local use, roofing etc. The villagers are to be encouraged to cultivate these bamboos in their fallow farm lands with which they can earn good income. A bamboo arboretum with all the species of bamboo available in the state needs to be created for education and research and for tourist attraction.

This scheme is being implemented in eight selected villages' two villages in each District through the JFMCs. The scheme has 90% grant and 10% loan component.

**vii) Integrated Wastelands Development Projects (IWDP)**

The Department of Land Resources in the Ministry of Rural Development, Government of India has sanctioned 8 IWDP Schemes i.e. 5 in East, 1 in North, 1 in South and 1 in West District till the year 2004-05. These projects are funded at the ratio of 91.67:8.33 CSS. These projects are being implemented through the Zilla Panchayats with 100% people's participation under the technical and supervisory guidance of Forest Environment and Wildlife Management Department.

**viii) Medicinal Plants Board**

State Medicinal Plants Board has been established in the Year 2002 with a view to promote cultivation of medicinal plants and marketing of produce. The farmers from all the districts are being involved in the projects. The Board has established 13 herbal gardens of medicinal plants which are being maintained for preparation and supply of planting material to the farmer who have adopted medicinal plantations in their farm lands. There are 387 farmers who have taken up medicinal plantation works. 151 collectors have been registered for collection of the produce from the farmers and 175 traders have adopted the medicinal plants trade. The Gram Panchayats have also created 166 herbal gardens in villages at a cost of Rs. 1.00 lakh in each Gram Panchayat out the grants in aid provided to the Gram Panchayats. 31 species of medicinal plants which include 19 species from prioritized list of National Medicinal Plants Board are earmarked for cultivation. The State Government has created a fund known as "Jari Buti Kosh" in the year 2004-05 with an initial grant of Rs. 50.00 lakhs. "Jari Buti Chetna Kendra" has been established in Kyongnosla (Alpine), Biodiversity Park at Damthang (Temperate) and at Kitam (Tropical) for raising awareness among the stake holders.

**ix) Teesta V Project : Catchment Area Treatment**

The Catchment Area Treatment Plan of Teesta Stage-V Project is being implemented in the North & East District from the year 2001. The Project will continue till 2008-09 at a total cost of Rs.24.24 crore. In the Catchment Area Treatment Plan Teesta Stage – V Project 8700 hectares of forest land and 1500 hectares of private land was to be treated through afforestation & allied activities. By 2005, 6595 hectares of degraded forest land and 875 hectares of private lands have been planted. Similarly 19500 cubic meters of

engineering works in forest land and 35875 cum. in private lands was targeted during the project period. The physical target of engineering works projected for the entire project period has been achieved by March 2005. The entire project has been proposed to be completed by March 2007.

There are a number of projects that are envisaged. These include greening of 40 kms of National Highway NH31A that runs from Rangpo (town bordering West Bengal) to Gangtok (the capital town of Sikkim) and other over 500 Kilometers roads connecting the District headquarters and the Capital in all the four districts. Sikkim has immense potential for Eco-Tourism. The state has been blessed with profound natural beauty and rich cultural heritage. Heritage Parks are to be created at potential locations. Green belts of patch plantations in the vacant lands of the town are to be created by planting trees which are of the aesthetic importance. A cable car ropeway has been proposed to be constructed joining the Zoological Park and Ganeshtok to facilitate the tourists to avail the opportunity of visiting the Zoological park as well as the temple of Lord Ganesha on the hill top through the ropeway.

#### **x) Disaster Management**

Under a project funded by the NEC a techno- legal regime for earthquake and landslide mitigation is being developed. This primarily aims at awareness campaign, sensitization of public representatives, training of task force team, NGO's and voluntary organizations, educating the general public on the need for construction of earthquake resistant building and on retro fittings to make the building earthquake resistant and building a Disaster Management Institution in the state.

### **III Major Issues**

#### **i) Forest Revenue**

Forest has never been a major source of revenue for the government both because of the strict conservation techniques and the regulated price of forest and allied produce. The total expenditure for the conservation and development of forest is much more than the total revenue received from the forest resource. Although there has been a gradual increase in the total revenue realized from various sources of forestry sector in the state in the last one decade, revenue from the major sectors including timber, charcoal, and firewood has been fluctuating and in fact declining in real terms.

The Forest Department fixes the rate of royalty of different forest produce depending on the importance of the produce, the extent of their availability in the forest and their market value. The forest produce like sand and stone, medicinal herbs etc are not sold by Department. Only royalty per unit value/number is fixed by the Department for

collection of the same from forest. Royalty is also realised for timber in the form of trees/logs from the villagers who require timber for their bona fide use.

Though the Department's pricing of forest produce has been based on the cost of extraction and transport, royalty and storage and handling charges put together, the sale price has been many times lower than the market price. More importantly, the sale price once fixed is not revised regularly. The forest revenue has not been taking into consideration many tangible and intangible benefits that are particularly difficult to quantify. Except the logging and sale of other forest resources like stone, sand etc that too in a highly subsidised manner, the revenue which could have been generated through the sale of fodder, timber, etc are never calculated as the income generated by the forest in the state. On top of this, the illegal and unaccounted extraction of fuel wood, fodder, timber - which has been considered to be much more than the legally processed- do not figure in the official records of revenue receipts. Many of these produce is literally taken *free and freely* by the people which amounts to a revenue loss amounting to many crore rupees every year.

## **ii) Deforestation Hazard**

For a fragile eco-system like that of Sikkim, deforestation has been the most critical environmental danger. Unlike in the plain lands, in primarily hill and mountainous state like Sikkim, the reasons for deforestation have been much more diverse and are sometimes deeply related to traditional consumptive habits, practices and patterns. This is more so because of the very limited availability of cultivable land. As the population increased there has been a considerable clearance of land for cultivation at least upto the altitude of 2,000 metres. The depletion of forest resources have a wide ranging impact on ecological balance leading to extinction of rare *flora* and *fauna*, soil erosion, changes in the climatic conditions, desertification, landslides and flood. Organised gangs have also been operating in some parts of Sikkim particularly in the bordering districts (with West Bengal). However, the main reasons behind steady deforestation in the past could be attributed to energy needs, land diversion for development activities, commercial deforestation, forest fires, grazing and natural calamities.

## **iii) Vanishing Species**

One of the most debilitating impacts of deforestation and human encroachments has been the steady depletion of some of the very well known plant and animal species in Sikkim. There are several efforts to identify and protect these vanishing species both at the state and the Union governments level. However, despite these efforts one does not find a very well thought out strategy to carry out this gigantic yet critical task. The near absence of non-governmental organisation in these activities have made it more like a governmental concern rather than the peoples' popular concern.

Studies have revealed that many plant species could not be collected after its first collection and have dwindled considerably perhaps due to over collection for ornamental value and medicinal uses. Therefore a well coordinated, concerted and urgent effort must be made to inventorise the rare, threatened and endemic plants of the state with their phenological data, associates, soil texture and causal factors of rarity, so that adequate steps could be taken to conserve them.

So far no systematic efforts have been made in this direction. More crucial is the protection, conservation and regeneration aspects of it. For this people have to be made aware of the implications of further destroying the already endangered. People in the state do not know about the endangered species as the scientific knowledge and the conservation have remained exclusively with the scientists and the forest officials. There are cases of bio-piracy increasingly occurring in the State.

### ***Nathu la Trade Route Concerns***

The Nathu la Trade Study Group has highlighted some of the major concerns related while reopening this trade route for cross border trading activities. There has been a steady increase of tourists visiting Sikkim for trekking and mountaineering. As the Nepalese experience shows that though these expeditions generate a lot of local income and employment, its adverse impact on the fragile mountain environment has been enormous. In Sikkim also, for instance, the opening up of Changu lake has suddenly exposed the pristine resort to human influx. The shops, vehicles, garbage and animals around the lake certainly do not go well with the carrying capacity of the lake site. Given the way the concerned Government agencies have maintained this area, it will soon become another dirty and dilapidated resort. Therefore, the protection is very vital. The area should continue to be opened to the tourists yet should remain least disturbed and highly regulated .

Over 70 percent of the medicinal plants are located in the alpine areas where regeneration is very difficult. It is a long process. The recovery cost is very high. The plantations cost is exorbitantly high. So the main emphasis in the alpine areas should be protection of the already existing vegetation. It is in the sustainability of high altitude areas that the environmental security of Sikkim lies embedded and the long term viability of Nathu la trade route depends upon.

The carrying capacity in certain places and stretches like Gangtok, Singtam and Changu are already under tremendous pressure both because of the population growth, tourist arrivals, buildings and hotels and vehicular movements. The biggest challenge to the State today comes from the destruction of vegetation in the high altitude areas. This along with the impact of global warming could emerge as a major threat to the

mountain ecology thereby entailing a serious problem on the hydrological and other resources. There has been increasing instances of bio-piracy in Sikkim. The movement of people for the Nathu la trade exchange could also lead to more exposures of these bio resources thereby leading to their unregulated exploitations.

Some sections of the Sikkimese society also raise the issues related to infrastructure projects led dislocation of village areas, landslides in fragile areas, air pollution disturbance to major and minor tributaries at different chainages. These infrastructures if not planned in a long term manner could damage reserved forests and plantations, wild life, religious places, utility lines like telephone and electric poles, and transformers existing in semi urban / urban areas. The present highway from Sevoke to Gangtok and the JN Road from Gangtok to Nathu la mostly pass through the forest and rural areas. It is also stated that the national highway from Rangpo to Gangtok fall under Zone-IV of the Seismic Zonation map with high earthquake damage risk.

The reopening of Nathu la trade route should be planned in a very systematic manner particularly in terms of regulations related to infrastructure building and trade exchange operationalisation. The Chinese side is already preparing in a planned and broader way the entire conduct of trade. In order to conserve the traditional sanctity and also the rich natural heritage of Sikkim, the entire trading and tourism operations should be conducted in a highly regulated manner.

- **Mahendra P Lama, *Sikkim-Tibet Trade via Nathu la : A Policy Study on Prospects, Opportunities and Requisite Preparedness***, prepared by Nathu la Trade Study Group for the Government of Sikkim, August , 2005

#### **iv) Natural Calamities**

Sikkim, which lies in the lower Himalayas, is characterised by deep valleys and steep mountain ranges. There is no published data on the geo-environmental studies of Sikkim. However, this region is characterised by instability of the ground resulting in earthquakes and frequent landslides. Earthquakes are of small and medium scale. This zone is also highly mobile in the Himalayan sector. Heavy rains are a bane of life in the hills of Sikkim. Practically every year torrential rains lash the state leaving behind a trail of deaths and destruction. The enormity of natural hazards, such as landslides and floods, is gaining alarming proportions. Excessive monsoon rains is just one of the causes triggering these calamities. The more important cause is anthropogenic or human-induced changes in the ecosystem.

Contrary to popular belief that forests conservation has a positive correlation with the non-occurrence of landslides, there are instances in Sikkim to show that even very dense forests have faced one of the worst landslides in the past.

In October 1968, rainfall between 600 mm to 1200 mm lashed the Darjeeling-Sikkim Himalayas for three days continuously when the ground was already saturated after a long monsoon. It is estimated that some 2,000 landslides took place. The severity of the flood was unprecedented in the recent history of Sikkim. The damages done to the economy, particularly in the field of road and bridges were extensive.

**v) Folk Medicinal Practices and IPRs Regime**

Sikkim is famous for all kinds of practices related to traditional medicines both because of the strong socio-religious fervour and the availability of a rich variety of plants and animals. However, very little attention has been given to the importance of protecting the intellectual property rights of indigenous peoples, whose traditional knowledge has often been the source of products introduced into the international market. The 'bio-partnerships' for sustainable development is therefore, very critical in this Himalayan state.

An emerging facet of biodiversity conservation is the medicinal and therapeutic value of plant and animal extracts. Most of the rural folk and a significant proportion of educated people living in urban areas have persistent faith on herbal charms that are indigenous to Sikkim. Local plant-based drugs can easily be seen in most of the rural-houses and rural markets.

More pertinently, in all these practices the rural folks with well founded traditional technolog-ical experiments and bases are engaged. For many of them it is the single important source of livelihood. These traditional practices have in fact been the source of many unknown medical practices today across the world. In the absence of any monitoring of the flow of knowledge from these remote areas to the pharmaceutical laboratories in the cities, one really does not know what innovations were introduced to make these practices commercial and popular. This brings in larger question of at what stage the intellectual property rights of a Sikkimese faith healer was infringed upon.

No sooner the Trade Related Intellectual Property Rights (TRIPS) became effective under the new World Trade Organisation, a predomi-nantly bio-diversity rich state like Sikkim has started confronting very serious issues varying from patenting to livelihood. This has squarely challenged its rights over such resources, which they thought so far were its exclusive domain.

A widely debated issue has been as to what extent the patenting of genetic resources would be detrimental for Himalayan states like Sikkim. It is primarily an agricultural economy and therefore, heavily dependent on genetic resources for upgrading and

maintaining agricultural stocks. Privatisation of genes under the new regimes of TRIPS, leading to license fees for their use would not only result in the absurd spectacle such as to pay for the use of their own property, but would also increase the already strained research and conservation budget in the state. Scientific research would suffer, leading to diminishing technological capacity, thereby both exacerbating the technology gap and increasing dependence. This is an area where the state of the art technology and knowledge regarding the true value of biological resources is limited. The Science and Technology Department in the state has to take up these issues upfront.

The State Government has now appointed a committee to examine all these issues and in the next few years plans to set up an institution to work on the issues of bio-diversity research and conservation for the entire Eastern Himalayas and the North East. The State plans to pool together knowledge, expertise and resources in the region. This would create a sophisticated source of biotechnological knowledge and bank of genetic resources and a genetic pool. It could make use of the technical manpower that the region produces. Each segment of this region could then have access to the knowledge and technology banks to make the best, sustainable use of its biological resources or to protect them where they are threatened with extinction.

There is no bio-diversity data bank at the moment and no status report of the plant species. Scientific monitoring of bio-diversity should be initiated largely based on participatory process at the grassroot level. Specific places may be identified like a botanical garden at Rumtek mainly to serve both as gene sanctuary and a recreational resort.

#### **vi) Climate Change**

The entire eastern Himalayan zone has had an unbelievably warm and pleasant winter segments for last few years now. Many people have noticed erosion in the usual winter conditions like fog, chill, frost and snow. Environmentalists have largely attributed this unique climatic behaviour to the global warming and the resultant changing global climate. Winter is usually the time when forest cover is under cold spell and gets some regenerative space. However, this long spell of dryness leads to forest fire, affect young seedling, drying up of water sources and grazing areas get high and dry. In other words, the entire natural cycle is disturbed. This has visible adverse effect on the economy of Sikkim including drinking water, rabi crops and cash crops like cardamom, ginger and orange cultivation. According to the Agriculture Department, the total rainfall between October 1998 to March 31, 1999 was 93.34 per cent less than the rainfall in the last 25 years in the state.



There are much larger development led concerns mainly related to the threats to glaciers. This is particularly so when Sikkim is dotted with glaciers. Most glaciers in Sikkim originate from the Kanchendzonga, or their “five big treasures of ice” and in turn give birth to streamlets. Sikkim’s largest glacier, Zemu, has also retreated by 3-4 km. If the glaciers continue to recede, it could spell disaster for Sikkim’s fragile economy and may even lead to devastating floods and ultimate dryness in river Teesta. This could be rather disastrous for the array of hydel power plants that are being built and planned in the Teesta basin. It could also change the entire hydrological map of the Eastern Himalayan regions including that of north east India , West Bengal and neighbouring countries like Nepal, Bhutan and Bangladesh.

It is in this context the Chief Minister in his statement to the National Development Council meeting held in December 2006 to discuss the Approach Paper of the 11<sup>th</sup> Plan stated that “we shall have to deal with the situation upfront during the 11<sup>th</sup> Plan period. Our Approach Paper must have strategies to tackle the adverse impact of global warming.”

#### **vii) Role of NGOs**

Sikkim is one state in the Eastern Himalayas where the concept of development-related NGOs and community-based organisations (CBOs) crept in very late and rather slowly. It is largely a phenomenon of the 1990s. This in a way shows the increasing consciousness among the Sikkimese about the development-related problems brought about by a massive induction of public funds in the last 32 years. The state and the government as the sole custodians of development certainly brought about a massive change in the state both in terms of development and in improving the living standard of people. On the other hand, this process also brought about a lot of imbalances and distortions in the socio-economic fabric of the state. This could certainly cause environmental dislocations also. By now, there are quite a few NGOs working in Sikkim. Besides the Gangtok based *Green Circle* and *Concern Citizens*, there are Kanchenjunga Conservation Committee, *Sadbhavana Samiti* in Singtam, and *SOYA* in Samdung, *Paryawaran Sangrakshan Sangh*, *Sikkim Youth Welfare Association* in Gyaltsching which are quite well known in their respective fields of operation.

## Chapter 8

# TOURISM

Sikkim's comparative advantage lies in tourism sector. If comprehensively developed tourism could be the key source of both income and employment in Sikkim. Tourism not only creates jobs in the tertiary sector, it also encourages growth in the primary and secondary sectors of the economy. It could also bring major shift in the social mobilisation process and inject a substantive change in the entire development outlook and orientation of the State.

Located on the lap of mount Kanchanjunga (world's third highest mountain), the unparalleled beauty of the State and very friendly and hospitable people are its competitive and comparative advantages. Sikkim is famous for its lush green vegetation, verdant forests, scenic valleys and majestic mountains and a range of rich and magnificent cultural heritage all of which provide a safe haven for tourists for long. It also draws thousands of pilgrims to its holy shrines and monasteries.

Magnificent natural resources and scenic beauty have transformed Sikkim into a nature lover's paradise. Most of the 7096 sq km of Sikkim consists of mountainous terrain, interspersed with ravines and green valleys. The two main rivers are Teesta and Rangit both of which originate in the serene glaciers of the Himalayas.

For many decades however, because of poor planning, unscientific management, lack of imaginative promotional activities and access restrictions tourism could never pick up despite unparalleled advantages bestowed by natural beauty and other endowments. Even as late as the Seventh Plan period the planners allocated as meagre as one percent of the total plan outlay to this sector which could act the single most industrial venture in Sikkim. One of the reasons for this negligence of tourism sector was the inner line permit system required by the foreigners. Equally distressing aspect has been the disinterest shown by the domestic tourists.

However, it was in mid 1990s when the tourism sector really started picking up in the State both because of a conscious tourism development plan of the State Government and also the politically disturbing situations in other hills including Darjeeling and Jammu and Kashmir. A schematic representation of the State Government's policies on tourism development in the last decade or so could be programmed as follows:

- Objectives** : *Increase in earning from tourism.*
- Strategy* : First priority to scenic beauty tourism including mountain tourism.  
Second priority to cultural tourism including transit.
- Policies* : (i) Development of infrastructures.  
(ii) Subsidies for mountain and higher resorts.  
(iii) Tourist promotion.  
(iv) Provide strong regulatory framework both on social and environmental management aspects of tourism
- Policy Instruments* : (i) Tax holiday.  
(ii) Cash subsidy  
(iii) Transit and boarding subsidy and package deal.  
(iv) Others like government investment, recreational provisions, research materials, safety etc.

Besides emphasizing on Pro-Poor Tourism (PPT), the State government has been consistently trying to create a spirit of Private-Public Partnership while developing and promoting tourism in the State. Its mission has been to take create friendly atmosphere for tourists, develop human resources, and create synergy among all players of tourism like government, local administration, local people, media, private developers and operators of facilities, tourists and NGOs. The abiding principle is to regulate tourism so that the negative social, economic and environmental impacts are minimized

The Government's role is now increasingly concentrated in providing much wider infrastructures and amenities including roads, communications and recreation facilities in crucial locations. Most of the aspects like accommodations, transports and movement of tourists are carried out by the private sector. The government is consciously moving towards its role as a facilitator, promoter and regulator for the sector. Interestingly a number of non-government agencies are already making major dent into the tourism activities in the State. Many of them, such as the Eco-tourism and Conservation Society of Sikkim (ECOSS), Kanchenjunga Conservation Committee (KCC) and Voluntary Health Association of Sikkim (VHAS) actively work in mountain communities, and are ideally placed to interact closely with travellers to more remote areas, and to providers of services there.

Sikkim has taken up aggressive marketing strategy in India and abroad to promote Sikkim as a brand name and the 'Ultimate Tourist Destination'. This has been done through participation in fairs, such as TTF in Kolkata, Mumbai and Ahmedabad, SATTE

at Delhi and India Expo at Delhi. Delegations were also sent to ITB Berlin and WTM in London. The Department also hosted a number of important workshops in Gangtok along with Malayasian Tour Operators, delegation from Vietnam, the chief consultant for village tourism sent by WTO .

A number of studies have been conducted to provide dynamism to the tourism sector in the state. The Tata Economic Consultancy Services also prepared a *Tourism Master Plan* for Sikkim in 1998 which has made a projection of 3,71,743 tourists by 2011. On the other hand, the tourist arrivals have already recorded an annual growth rate of almost over 20 percent in the last couple of years. The total number of tourists arrivals have increased from a mere 21854 in 1981 and 67547 in 1991 to 2.68 lakhs in 2005. (Table 8.1) Most of these increases have been recorded in the last decade or so. The number of foreign tourists has also increased sharply. This increase will be further accelerated when some major ongoing tourism sector projects and facilities are completed. Enchanted by its natural beauty and ancient heritage and the new modern amenities, the composition of tourist arrivals is itself likely to undergo changes as the State targets more higher value tourist arrivals from within the country and abroad.

Table 8.1

**Sikkim : Tourist Arrival**

	<b>Domestic</b>	<b>Foreign</b>	<b>Total (nos.)</b>
1981	19115	2739	21854
1991	61360	6187	67547
1994	92435	6888	99323
1997	116500	8068	124568
2001	146923	7757	154680
2004	233285	12912	246197
2005	251744	16523	268267

The entire tourism sector policy of the Government is now driven by the *mantra* of making Sikkim the “Number 1 Eco-tourism Destination in India”. With this avowed objective in mind, the State Government has made special efforts to develop tourist villages, trekking routes, adventure activities, bio-diversity parks, hotels and cultural centres.

While foreigners still require Restricted Area Permit (RAP) to travel in Sikkim. The rules for acquiring these permits have been eased. Foreigners can get RAP from any Indian Mission abroad, any tourism office in the four metropolitan cities and at the border checkpoint at Rangpo. These permits can also be extended up to 45 days, at intervals of 15 days, by superintendents of police in any of the four districts of the state. The stipulated number of foreigners in a group applying for adventure tourism permits has also been reduced from four to two.

Further, various initiatives have been taken by the Government to ease the Inner Line Permit (ILP) by way of extending the stay in Sikkim to foreign tourist for a total period of 45 days in three spells of 15 days. Apart from issuing permits (ILP) from respective Indian Embassies, Tourism offices at New Delhi, Kolkata, Siliguri, Bagdogra and Rangpo Government have also initiated simplification of procedures by permitting the Superintendent of Police of each district to extend the Inner Line Permit by 15 days.

Besides, North Sikkim permit, Tsomgo permit for foreigners and Nathu la permit for domestic tourists are also issued. Under notification no. 9 /Home/2001 dt. 05/02/2001, a Single Window clearance was also adopted for the convenience of tourists visiting popular destinations like Tsomgo and Nathu la. The number of vehicles that have been permitted to Nathula have been increased from 30 to 40 nos. per day w.e.f. April 2004 in the weekdays such as Wednesday, Thursday, Saturday and Sunday. Same will be increased to 50 per day as per assurance given by the GOC of 17 Mountain Division to CCS, Tourism

Sikkim Tourism has been bagging the national award for the best performing State in the North Eastern for last many years now. This regular showering of national recognition by the centre is a distinct mark of respect earned by the State Government. The tourism has fetched total revenue of Rs 3,72 crore during the 10<sup>th</sup> Plan period from various assets of the Department like wayside amenities, trekkers hut, Hotel Norkhill and environmental fees collected from the tourist visiting Nathu la. These are generated mainly from sources like wayside amenities, trekkers hut and trekking charges, hotels and restaurants and environmental fees collected from the tourists visiting Nathu la.

The Chief Minister Pawan Chamling led two delegations to the South East Asian and European countries in the beginning of 2006 mainly to promote tourism industry of Sikkim and to invite investors in this sector. There have been quite a few responses to these visits including from Singapore, Thailand, France and Switzerland.

## **I Tourism Features**

Tourist hotels are a priority for Sikkim's tourism sector. Today, Sikkim can boast of more than a couple of three- star hotels. For the high-income visitor, a five-star hotel is

coming up at Pangthan in East Sikkim for which a memorandum of understanding has already been signed. The numbers of tourist hotels and available beds have increased many fold in the last eight years.

Sikkim Industrial Development Corporation (SIDICO) in conjunction with the Voluntary Health Association of Sikkim (VHAS) promotes eco-tourism in two remote villages, Rong in the South District and Lading in the West District. An interesting finding from these projects is that success in involving villagers in the development work and effecting changes among the community is inversely related to accessibility to government funding. In Lading, which is more remote than Rong, and thus had lower recourse to government resources, the project was able to secure higher levels of village participation.

In another eco-tourism project in Assam Lingzey (near Gangtok) run by project KEEP (Khedi Eco-tourism and Eco-development Promotion) local residents offer rooms in their homes for home-stays and work as guides for trekkers traversing the Khedi route and for day-long hikes through the village and neighbouring areas. By involving visitors in their traditional way of life, the project encourages the local Bhutia people to retain the traditional features of their homes, local customs, and sensitizes village inhabitants and visitors to the importance of environmental preservation.

To promote village tourism, thirty model villages having all the basic and modern facilities are being constructed in different parts of the State. All these will enable the visitors to enjoy a first-hand experience of the rich heritage and lifestyle of Sikkim. The Government is ensuring that these model villages are in every tourist's itinerary.

To enable tourists to comfortably visit the old temples, monasteries, churches, gurudwaras and mosques and other shrines in Sikkim, pilgrim tourism is being promoted vigorously. The State government now proposes to support at least one tourist centre in each Gram Panchayat Unit in the State.

Adventure Tourism is one of the prime tourist products of Sikkim. About 80% of the foreign tourists come to Sikkim with their prime motivation being to go for trekking and biking on the mountains of Sikkim and for Water Sports in Teesta and Rangit. Among domestic tourists also, the number of youths who are interested in Adventure Tourism has been increasing every year.

There is a huge market for adventure tourism in Sikkim. The State Government has identified and promoted adventure tourism in the five main routes which include "Monastic trek" (51 kms), "Rhododendron Trek" (18 kms), "Khangchendzonga Trek"

(88 kms), “Coronation Trek” (60 kms) and “Kasturi Orar Trek” (78 kms). The Himalayan Centre for Adventure Tourism is being established at Chemchey Village. The setting up of this centre will further boost the activities of Government in the adventure tourism sector. This will also add a new facet of “mountain tourism” in the overall tourism development interventions in the State. Three more peak which are below 20000 ft viz., Brum Khangtse, Lama Angden and Frey peak have been opened for alpine expeditions in 2005.

A new adventure tourist complex, the Rangit Water World (RWW) at the NHPC Dam at Legship - the first of its kind for boating and rafting in dam water – has been inaugurated. It is a new tourist spot that provides a major employment opportunity for the local youth.

The Surajkund Mela near Delhi attracts lakhs of visitors in February every year as it promotes crafts from all over India. Sikkim was the theme of the Surajkund Mela in 2002 when its crafts, folk arts, heritage and tourism attractions were presented for its visitors.

New projects like Nagi Dara Lake Development, South Sikkim and WSA at Simchuthang, South Sikkim and at Sirwani have been completed. Touch screen kiosks have been installed at Pelling, Pemayangtse, Siliguri, Kolkata, Delhi, Rangpo and Gangtok. Supply of adventure tourism related equipments and angling equipments has been made and a number of way side amenities including cafeteria, public convenience, information centres, guest houses, and village craft centre have been created. A range of new tourist attractions including 135 ft statue of Guru Padmasambhava at Samdruptse, South Sikkim and Tashi View Point, East Sikkim, Water Garden, Martam, East Sikkim, development of seven sisters water fall at Menronggong in North Sikkim, construction of tourist complex/trekking camp at Yuksam and development of Rock Garden at Rimbi, West Sikkim has been constructed. Besides cleaning drive of the existing trekking trails and Tsomgo Lake, training on Water Sports was conducted by National Institute of Water Sports, Goa, for introduction of boating at Aritar lake and Uttaray in the near future.

*A Pilgrim cum Cultural Center is proposed on top of the hill at Solophok which is 5 Km away from Namchi town in South District. This hill is opposite to Samdruptse Hill where Statue of Guru Padamasambhava exists.*

The Institute of Hotel Management, Gangtok was setup in the year 1990 by the Ministry of Tourism, Government of India and Government of Sikkim with the main aim to

expand and promote hospitality education, and also to fulfill the requirement of manpower in the hospitality industry. The Institute also provides job-oriented and professional education including B. Sc in Hotel & Hospitality Administration, Trade Diploma and short training courses in Tourism sector like guides training, training for the hoteliers. The idea is to promote and popularize hospitality education according to the demand of the industry. Most of passed out students have been absorbed in reputed Airlines, Cruise liners, Hotel like Taj Group, The Oberoi, ITC, etc. in India and abroad.

The State has organized a Tourism Orientation Programme for transport operators and taxi drivers with a view to motivate them to enhance their professionalism and make them realize the importance of their relationship with the tourists.

## **II Major Issues :**

The most important challenge comes from the infrastructure sector. Though the State is consciously emphasizing on non-mass tourism so as not to exceed the carrying capacity of various amenities in the state, it is impossible to restrict the number of tourists to a limited number. The only alternative for the government is to enhance the level of infrastructure facilities and improve the quality of the existing amenities drastically. This is where the state government has been trying to attract the private investors both from within India and also from other countries. Sikkim at this juncture needs to look back and

### ***Integrating Trade and Tourism through Nathu la Route***

Tourism is Sikkim's major strength. It has the potential of acquiring a status of the backbone of Sikkimese economy and society. Therefore, a conscious attempt should be made to gradually integrate trade through Nathu la with the movement of tourists across the border. Historically also trade was done alongside tourism mainly pilgrimage. A significant exchange of tourists takes place between Nepal and Tibet through the land route of Kathmandu-Kodari highway. Tourists are likely to make beeline to watch how trade actually takes place between India and China at Sherathang and Renqinggang respectively. Like Nathu la, one can expect Sherathang and the proposed Nathu la museum to be rather prime attractions for tourists in Sikkim. Equally a large number of tourists can come from the Chinese side.

The Tibet tourism is on a developing stage. It was only in the post 1980 period that Tibet was opened up to foreigners. Globally known as the "roof of the world", Tibet lately has focused on "Eco-tourism". There are over a hundred high quality tourist attractions within the TAR. Annually there are over 6000 pilgrims who make their way from India to this region. Most of them make their way to this region via the Nepal-



China border town of Khasa (Tatopani). For the Indian tourists the Pulan Port at Taklakot (in Uttar Pradesh, India) is the only accessible port of entry. Nathu la would be logistically more economic, historical and culturally a better port of entry.

On a very simple assumption also the charges on tourists visiting Sherathang and Nathu la could generate a revenue of Rs 1.81 crore in 2006 and Rs 3.47 crore in 2010. The income effects on roadside hotels and restaurants, handicrafts and transport and communication and many other backward and forward linkages are likely to be immense.

Besides Sikkim could be the hub connecting all the major Buddhist destinations in India and neighbouring countries – Bodh Gaya in Bihar, Rumtek in Sikkim, Tawang in Arunachal Pradesh, Lumbini in Nepal and Taktsang in Bhutan to Jokhang and Potala in Lhasa. This is going to be further strengthened by the proposed air link between Bagdogra and Kathmandu.

The other most attractive areas of interests for the people of Tibet Autonomous Region and nearby areas will be the health and educational facilities that are available in and around Sikkim. The entire Sikkim-Darjeeling belt has been famous for educational institutions and the quality of education they impart. The huge surge in demand for the English speaking students and professionals in China could in fact trigger a beeline for educational institutions in Sikkim and surrounding districts.

However, the present diplomatic arrangement does not allow the use of Nathu la route as a transit point to visit various parts of Tibet and mainland China. A separate international agreement needs to be in place.

The Nathu la Trade Study Group has recommended integration of trade with tourism between Sikkim and Tibet Autonomous region of China by 2012. For this a fresh bilateral legal basis needs to be concluded to facilitate the movement of tourists across the border. The Group also recommended that 2018 onwards this tourism linkages should be extended to *SAARC tourism thereby integrating* tourism activities of third countries of the region including Bangladesh, Bhutan and Nepal. This means opening of all the SAARC tourists to cross the border through Nathu la.

The trade-tourism integration will call for the signing of a separate treaty/ protocol between India and China. The Government of Sikkim in concert with other north-eastern States and West Bengal should put forward proposals for integrating tourism with trade to the Union Government at an appropriate level so as to achieve the goal by 2012. The State government should also initiate discussion with the Union Government

on lifting restrictions on the entry of tourists from mainland China, Bangladesh and Myanmar into Sikkim. Networking of the tourism related institutions in Sikkim and other states of India and in Nepal, Bhutan and China may be initiated including by starting Gangtok-Lhasa Bus Service.

A modern museum that would house all the artifacts, archival materials, memoirs and other objects related to various missions, agreements, physical exchanges regarding Nathu la trade may be set up at Nathu la.

(Lama, Mahendra P, *Sikkim-Tibet Trade via Nathu la : A Policy Study on Prospects, Opportunities and Requisite Preparedness*, prepared by Nathu la Trade Study Group for the Government of Sikkim, August 2005)

introspect. It essentially requires a comprehensive road map that clearly defines roles for all the government agencies involved, as well as for private service providers, industry associations like Travel Agents Association of Sikkim (TAAS), the Hotel and Restaurant Owners Association), and representatives from eco-tourism projects, CBOs working with local communities, and local communities themselves.

There are still no airport or rail services, so travel is only by road, and entry to the state is almost exclusively through one highway, the NH31A. Helicopter services from Bagdogra to the helipad are in general erratic and expensive. The construction of an airport in Pakyong and standardized maintenance of road network need to be carried out urgently. Roads connecting major tourist destinations have to be ranked by priority and upgraded to international standards to provide all-weather access, an important prerequisite to lengthening the tourist season. One method would be to invite private sector investors on a 'build, operate and transfer' (BOT) basis, which has been successfully done in other states, and made economically viable through the introduction of toll systems.

The other major challenge is to change the seasonal character of tourist arrivals in the state so that the tourists arrivals spread over through out the year. Traditionally most of the tourists arrivals are in the months of April – June and October. This is because of the both the 'holiday season' months and also scorching summer in the plains land of India. There are very small number of tourists arrivals both during monsoon (July-September) and winter months (December – February). To change this clustered seasonality is a daunting task. This would allow more efficient year-round use of tourism infrastructure, which would result in lower prices during the 'season months', as well as provide more regular income for those in the hospitality industry. It requires major policy interventions and investment in the up gradation and existing facilities and creation of new amenities. It also requires attracting a new set of tourist particularly from the countries abroad. This

is also related to the average length of stay of tourists which are found to be rather very short. Once the very nature of origin of tourists and seasons change, the experts believe that the length of stay will also steadily improve.

Equally vital issue has been the concentration of tourist in the East district that too mainly Gangtok and around. An estimated 70 per cent, visit the East District; the other most popular district is the West where an estimated 15 per cent visit, and only 10 per cent visit the South District. Hardly any tourist go to the North district. Though the proportion of people visiting the South is likely to increase with Namchi being developed as an important tourist spot after the recent construction of the Guru Rimpoche statue on the outskirts of the town, the pressure on the amenities in East district would continue to be there. More seriously, tourism related demands have led to mushrooming of accommodations and facilitations like transport in the Gangtok town. All these have caused tremendous pressure on the carrying capacity. The de-concentration effort would include making other districts more attractive with better and friendly access, wider amenities and providing distinct incentives for the investors. At the same time a strong regulatory framework in the management of tourism in the East district could be a deterrence in this unhealthy clusterisation.

Another formidable challenge is to both promote Sikkim as a brand name of eco-tourism and find niche for it in both India and abroad. Tourism is an increasingly competitive business, and given Sikkim's low visibility on the 'tourist map' of India, strong branding and marketing of the state's attractions is needed. Only the government can promote the entire state as a tourist destination (along the lines of "Incredible India", the branding of the entire country as a place to visit). Branding of states has been done successfully by governments in Rajasthan and Kerala, and the STDC (or Tourism Department) could use a variety of media avenues to similarly highlight Sikkim's unique qualities as a tourist destination.