



STRATEGIC URBAN PLAN

A FINAL REPORT

OCTOBER 2008



S I K K I M

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- Education Department
- Energy & Power Department
- Forest Department
- Health Care Human Services & Family Welfare Department
- Land Revenue Department
- Mines, Minerals & Geology Department
- Roads & Bridges Department
- Rural Management Development Department
- Tourism Department
- Transport Department
- Urban Development & Housing Department
- Water Security & Public Health Engineering Department

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In particular, great appreciation is expressed to:

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 - Additional Chief Secretary (Chairman)
 - Secretary-In-Charge, Urban Development & Housing Department
 - Secretary-In-Charge, Tourism Department
 - PCE-cum-Secretary, Roads & Bridges Department
 - PCE-cum-Secretary, Water Security and Public Health Engineering Department
 - Director, Mines, Minerals and Geology Department
 - Director, Department of Economics, Statistics, Monitoring & Evaluation

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Part III : Implementation & Conclusion

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Executive Summary

Sikkim is a growing state with an increasing population from 200,000 people in the 1970s to 580,000 by 2006. It is projected that the State population could expand to as much as 1.1 million by Year 2040. In response to such rate of growing population, the Government of Sikkim sees the importance of formulating a State Strategic Urban Plan as a structured development blueprint to guide how Sikkim should be developed over next 30 years.

Approach and Methodology

The State Strategic Urban Plan will first examine the existing condition of Sikkim in order to identify the driving forces and changes which will constitute as key issues and trends to explore. A few urban development scenarios are then constructed and evaluated such that an appropriate urban center structure will be recommended. The proposed urban development structure will become the planning basis to work out population distribution, urban land requirements for township development, transportation connection and facilities provisions and distribution across the State. For planning purpose, 3 staging milestones are defined: short term by Year 2015, medium term by Year 2025 and Long term by Year 2040.

Urban Center Structure

The recommended structure is to adopt a “multiple nuclei structure” for the State: to grow Namchi as a new center and also to give Gangtok a slightly larger share of urban population in recognition of its status as the State capital – urban population is proposed to be 50% of the total State population in the long term.

A township hierarchy will emerge such that Gangtok and Namchi are the 1st Tier urban center followed by Mangan and Geyzing as the 2nd Tier urban center. Mangan and Geyzing will play a supporting role to Gangtok and Namchi. In terms of urban population distribution, Gangtok and Namchi will take the largest share of 45% and 35% respectively. Mangan and Geyzing will be given 10% each. 16 urban centers across the current 4 districts will be set up and categorized based on the defined township hierarchy using the Indian Constitutional Classification of Municipalities.

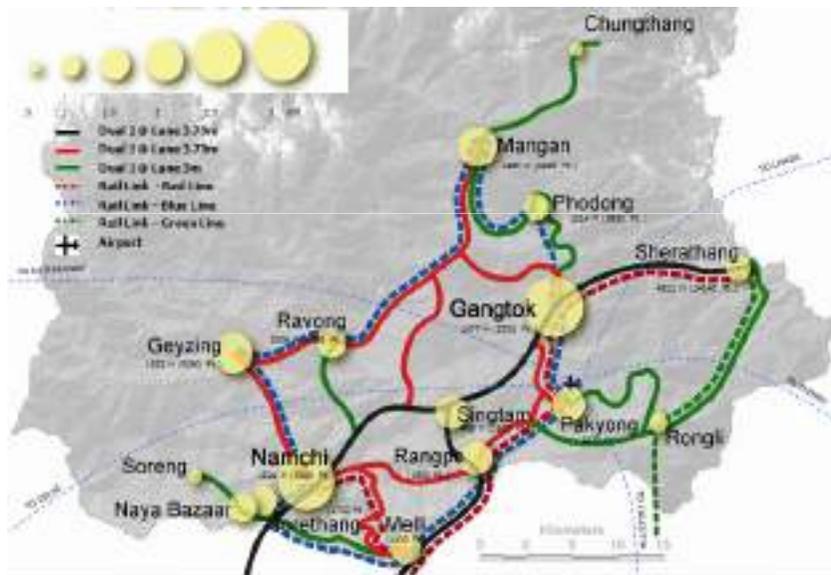
	East	South	West	North
Tier 1	•Gangtok	•Namchi		
Tier 2			•Geyzing	•Mangan
Tier 3	•Singtam •Rangpo •Sherathang	•Ravong •Jorethang •Melli	•Nayabazaar •Soreng	•Phodong •Chungthang

Executive Summary

State Strategic Urban Plan

The eventual Long term State Strategic Plan by Year 2040 (as seen below) has taken into consideration the projected population size and spread, anticipated township scale of the 16 centers and their roles according to the proposed population density for individual urban centers, inter-state and intra-state major transportation linkages, in particular for connections between the 16 urban centers in terms of road and rail transport. The road system is structured based on a 3-tier road hierarchy defined according to expected commuting traffic between urban centers. The State Strategic Plan is to ensure a balanced development of urban centers across the State and to enable better transportation linkages between the key centers of Sikkim in terms of shorter commuting time and direct route of travel.

The floating population arising mainly from tourists visiting Sikkim is projected in the tourism analysis. It will have impacts on the provision of infrastructure and selective facilities such as hotels, larger scale commercial facilities. The provision of facilities in terms of types and quantity primarily follow the principles of the Indian Standards for Facilities Provision but with some moderations to the norms in order to ensure applicability into the context of Sikkim. Facilities provisions for Sikkim are planned for 4 geographical levels (State, District, Community and Neighbourhood) in 3 milestones aligning with the defined time scale of short, medium and long terms. The specific locations for the identified facilities for urban centers will only be examined at the next level of DGP planning.



Executive Summary

Prospects of Tourism

Apart from land use planning for long term development in Sikkim as discussed earlier, the tourism industry, being a key economic driver, is singled out and critically examined.

Sikkim has enjoyed tremendous growth in tourism arrivals over the past decade. Since 1997, the number of visitors to Sikkim has grown almost tripled to 349, 100 in 2007. This growth is a reflection of Sikkim's unique strengths as a holiday destination. Sikkim offers nature, religion and adventure experiences to both domestic and international visitors.

Nevertheless, Sikkim as a tourism destination has weaknesses in the areas of access connectivity and uniform standards of its tourism facilities. In addition, there are many challenges in the form of competing regional destinations, unrestrained growth in visitors and possible negative perceptions of Sikkim due to their inconsistent quality of tourism experience.

Based on current data and the assumption that Sikkim's pro-growth tourism policies will continue, the following visitor arrivals for Sikkim for 2015, 2025 and 2040 are projected.

Visitor Projections			
	2015	2025	2040
Domestic	763,958	2,036,027	6,178,936
International	33,631	74,306	244,030
Total	797,590	2,110,333	6,422,966

Based on these visitor projections, it is estimated that hotel demand in Sikkim will grow to 8, 811 hotels in Sikkim by 2040.

To prepare for the increasingly important role that tourism will play in Sikkim, there are several important issues that will need to be urgently addressed.

The Sikkim Tourism Department is responsible for the overall development of tourism in Sikkim and will play a key role in providing direction and leadership in the growth of tourism. A well developed and articulated Tourism Master Plan for Sikkim is crucial to chart the way forward and guide the tourism industry's development.

The frequency and quality of tourism data currently collected by Tourism Department and the Department of Economics, Statistics Monitoring and Evaluation needs to be upgraded to guide tourism policy formulation and industry development.

Sikkim has much potential for growth as a tourism spot with many areas in the four districts ready for development into tourism spots. However, without a master plan to guide developments, there is always possibility of tourism expansion growing unbridled and resulting in environmental degradation. The impact of new tourism products such as the planned casinos and expansion of tourism activities to new communities need to be studied more closely to allow the economic benefits of tourism to reach all strata of society.

Executive Summary

State Infrastructure Plan

Given the above long term physical planning and tourism analysis, relevant infrastructure provisions are required to support future developments. The following highlights the future plans of water supply management, waste water treatment, solid waste management and power supply facilities.

For water supply, the main challenges for urbanised areas in Sikkim are infrastructural costs, distribution of water, old piping, water leakage and water quality. With an increasing urban population by 2040, a conservative assessment suggests a water shortage in Mangan (2040), Geyzing-Pelling (in lean period by 2015 onwards) and Namchi (2015 onwards). It is important that water supply be given high priority, especially in Namchi. Support should also be given to innovative ways and technologies to augment water supply sources and water treatment methods to overcome constraints.

There is currently limited wastewater treatment in Sikkim state except for Gangtok town. With increasing urbanisation, it is paramount that infrastructure investments in this segment for the other towns are considered. More modular units should also be considered given the difficult terrains for outlying rural area around the town, to reduce high infrastructural cost. Population projections for planned urban towns forecast a shortage of wastewater treatment and distribution for all towns, with an urgent need to serve expanded areas.

Increasing population in major towns of Sikkim has generated more solid waste. The amount is expected to outstrip current capacity at East District as early as 2012. An integrated Municipal Solid Waste (MSW) plan is proposed. A sustainable form of solid waste collection by NGOs with proper planning of transfer station/composting/landfill facilities needed over the short, medium and long term are proposed.

These include adopting latest technologies (on-the-ground adaptation, e.g. biological systems, size reduction, etc) and best practices in waste management.

For power supply, Sikkim has no lack of natural resources (hydro) and upcoming forecast demand over long term can be met with the existing/upcoming power generation project. Improvements should be made to the transmission system, having sufficient capability to meet peak demand (including floating population), with a reliable network. Future urban planning needs to take into consideration a buffer zone for high voltage transmission line in populated areas, and underground cables for urban centres with a high population density.

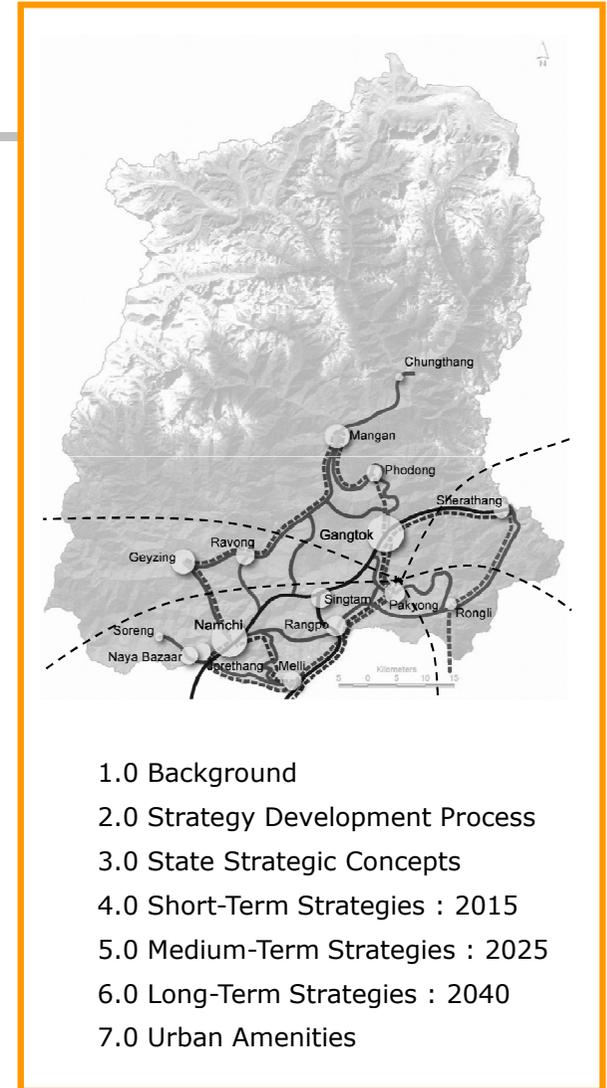
There should also be a sustained effort on environmental management. Gangtok has an active 3R program in solid waste that can be duplicated in other towns. Sikkim can learn from relevant active programs in other nations. The health risks related to MSW management should also be given attention. A review of the existing environmental standards and regulation, together with comparison with existing international standards was also presented.

Moving Forward

In order to ensure proper execution of the State Strategic Urban Plan, various measures and planning mandates are recommended. For example, gazetting the Plan and development control regulations as official documents, reviewing the Plan every 5 yearly, setting up a permanent Strategic Planning Review Panel of at least 11 relevant government agencies, and increasing the UD&HD's involvement in all development projects and proposals. Similarly, the same strategy can be extended to the implementation and administration of the Infrastructure Strategic Plan by the relevant authorities.

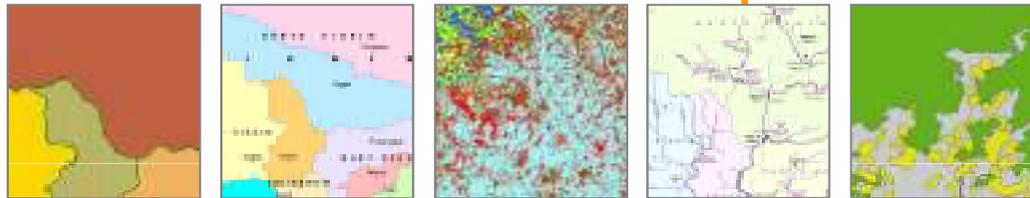
Part I :

State Strategic Urban Plan



1.0 Background

- 1.1 Preface
- 1.2 Approach & Methodology
- 1.3 A Dissected View of Sikkim
- 1.4 Current Tourism Scenario
- 1.5 Overall SWOT Analysis



1.1 Preface

The Government of Sikkim (GoS) and the Building & Construction Authority (BCA) of Singapore signed a MOU in June 2006 in which BCA agreed to assist in forming a consortium to undertake various important projects in Sikkim.

In Dec 2007, Surbana International Consultants Pte Ltd, led by BCA and in collaboration with other Singapore-based specialists, Master Consult and Institute of Environmental Science & Engineering of Nanyang Technological University, were commissioned to carry out urban planning consultancy services for preparation of Master Plans for 4 selected towns in the State of Sikkim. The project team has commenced work since.

This consultancy service covers 2 key components:

- Develop a State Strategic Urban Plan to guide development of Sikkim in next 25 - 40 years
 - A State Strategic Plan 2040 is a planning guide for long term growth of the State of Sikkim to ensure structured and coordinated development.

- Prepare a Master Plan (or Development Guide Plan) for each of the 4 District capitals: namely, Gangtok, Namchi, Mangan, and Geyzing
 - A Development Guide Plan is a Land Use Structure Plan that guides different uses of land within the Urban Area.

As part of the interactive planning process to brainstorm and to develop a State Strategic Urban Plan, a workshop was held in late January 2008 among the Steering Committee, senior Sikkim Government Officials, and the Consultants to deliberate the possible scenarios and strategies so that a right direction was set for the strategic study. The workshop was followed up by the Stakeholders' Meeting at Chintan Bhawan of Gangtok in September 2008 to deliberate the draft Strategic Urban Plan for the State of Sikkim. The Honourable Chief Minister, Shri Pawan Chamling, together with other Ministers, high level officials of Government of Sikkim, Sikkim residents and business community, attended the meeting and shared their views on the proposed plan. Thereafter, Surbana International Consultants has reviewed and refined the proposed Strategic Urban Plan.

This report is a final submission of the revised Strategic Urban Plan for the State of Sikkim.

1.2 Approach & Methodology

To enable a right focus on the Strategic Urban Plan for the State, the analysis is divided into three broad categories:

- Socio-economic sector analyzing what Sikkim can do and how to do it.
- Urban planning and transport sector studying city hierarchy and roles, connectivity and development patterns.
- Environment sector tackling issues relating to water supply, waste disposal and management and environment management to support the State development in short and long terms.

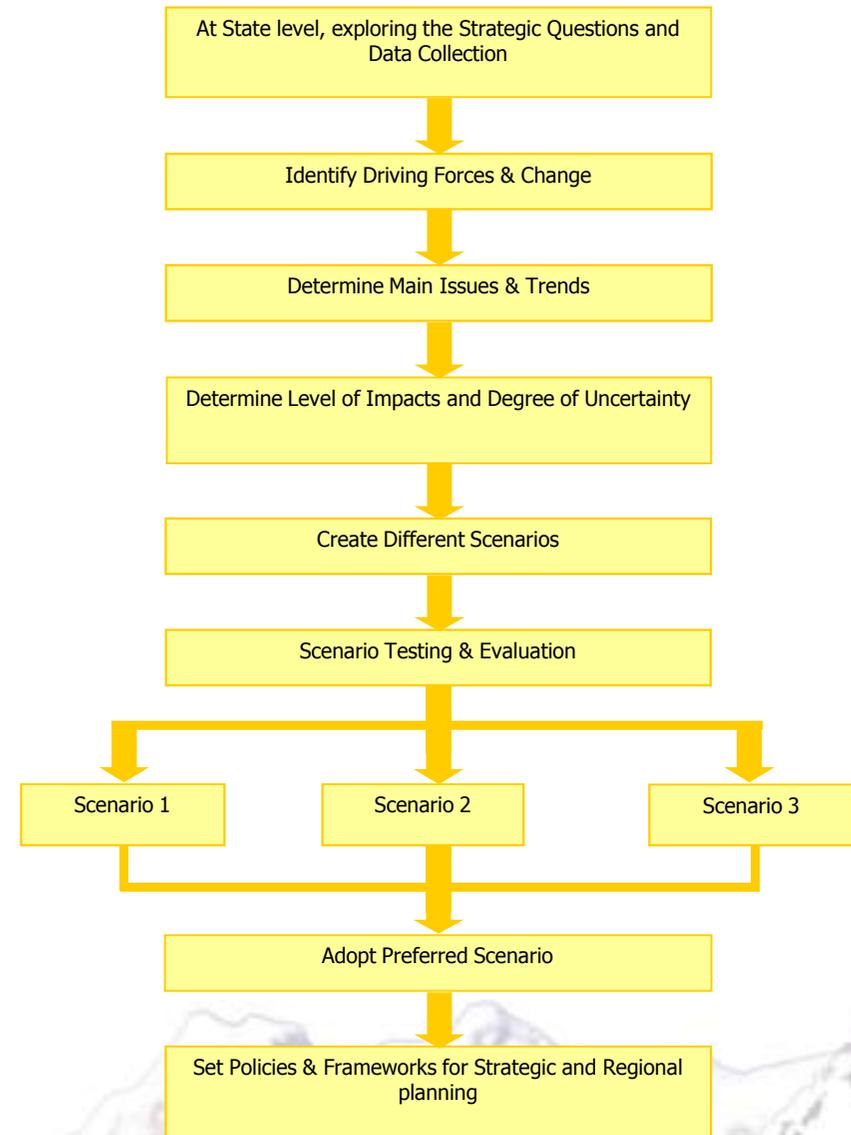
Different Scenarios will be illustrated and weighted considering the implications. Policies will then be formulated to set appropriate framework to steer toward realization of the goals.

As the Strategic urban Plan is a visionary planning document setting a long-term direction for the State in next 30 years, physical development will be gradually implemented and hence it is essential to define development milestones at various time scale to review the growth progress.

For the purpose of this Strategic Urban Plan, 3 stages are proposed as follows:

- Short Term By Year 2015
- Medium Term By Year 2025
- Long Term By Year 2040

Table 1.2.1 Framework for Developing the State Strategic Urban Plan



1.2 Approach & Methodology

Based on the defined time scale, analysis will first focus on the projected growth and scale of population over time since population is the fundamental factor dictating urban development. The following 4 key areas will be deliberated in the report. Rural development is however not within the study scope of this Strategic Urban Plan.

□ Population & Distribution

Analyze possible scenarios for geographical distribution of the population across the State based on the projected population size and expected growth of individual towns.

□ Urban Land Area/Township Hierarchy

Upon setting of the population model, analyze and evaluate the possible hierarchy of township and related scale of urban land requirement to accommodate the targeted population over next 5 - 10 yrs, 15 - 20 yrs and 30 - 35 yrs.

□ Connections

While urban land development is determined, explore possible efficient routes of connections among key centers and towns to be developed by 2015, 2025 & 2040.

□ Facilities

Take a further step to ascertain various facilities requirements based on the proposed town hierarchy & population threshold, as well as relevant planning standards in India.

Table 1.2.2 Key Issues to be Addressed in the State Strategic Urban Plan

	2006	2015	2025	2040
State Population & Distribution	581546	660000	790000	1100000



	2006	2015	2025	2040
Urban Land Area & Township Hierarchy				



	2006	2015	2025	2040
Connections				



	2006	2015	2025	2040
Facilities				

1.3 A Dissected View of Sikkim

Analysis of Existing Sikkim

Before planning scenarios and proposals are conceived, it is important to first understand what is happening in Sikkim today by ascertaining the main driving forces and development issues.

The analysis on the existing condition of Sikkim herein will serve as a key platform to develop planning strategies which are to be practical and relevant to the context of Sikkim.



Figure 1.3.1 Location of Sikkim

1.3 A Dissected View of Sikkim

Geographical Character

Sikkim is the smallest state in India with land area of 7096 sq km. The State of Sikkim is encircled by three different international boundaries including the additional neighboring state of West Bengal.

- East - Bhutan
- West - Nepal
- North & East - Tibet Autonomous Region of PRC
- South - West Bengal

The State is divided into 4 main districts, out of which three are of similar land sizes while the north district due to its mountainous nature accounts for a larger share as much as 60% of total State land area.

- East District - 13%
- South District - 11%
- West District - 16%
- North District - 60%



Figure 1.3.2 Location of Sikkim



Figure 1.3.3 Districts in Sikkim

1.3 A Dissected View of Sikkim

Administrative Zone

The four districts are further divided into 9 Sub-divisions in total, which cater to the rural population for basic administrative / local facilities.

- Mangan*
- Ravong
- Gangtok*
- Geyzing*
- Chungthang
- Namchi*
- Pakyong
- Soreng
- Rongli

Four of the above listed subdivision heads are the district headquarters – Gangtok being State Capital serving the East District, Namchi as administrative district head quarter for South District and Geyzing and Mangan for West and North Districts respectively.

In long term planning, all of these subdivision heads are expected to grow into a much larger community that will hold state significance.

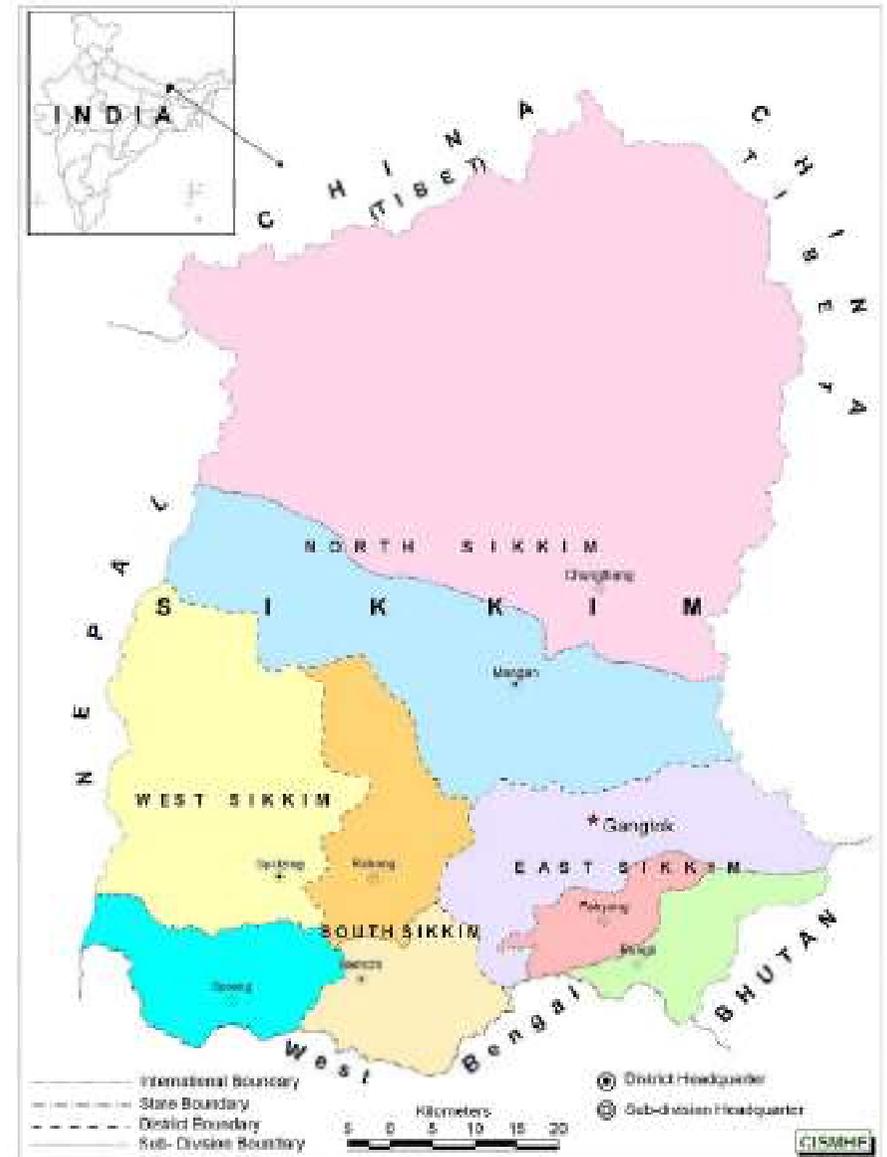


Figure 1.3.4 Districts and Sub-districts in Sikkim

Source: Carrying Capacity Study of Teesta Basin, Ministry of Environment & Forest, GOI

1.3 A Dissected View of Sikkim

Administrative Zone

Based on the current urban agglomerations, the state urban population is mainly accommodated in 8 towns. These eight identified urban centers are as below.

- Mangan*
- Gangtok*
- Geyzing*
- Namchi*
- Singtam
- Jorethang
- Nayabazaar
- Rangpo

Four of the above listed urban centers, namely Mangan, Gangtok, Geyzing and Namchi, are the district headquarters. Gangtok holds the major significance. The rest of the urban centers and towns are largely dependent on Gangtok for most of the major facilities and services. Namchi, being located towards the South and in closer proximity to the Highway and the State of West Bengal, has a potential to become a major urban centre. Singtam is one of the major market centers and holds the grade of Class – I Bazaar category. Jorethang and Nayabazaar function as industrial activity nodes and local commercial centers. In addition to being a market center, Rangpo also offers institutional activities along its stretch.

A proper planning hierarchy shall be identified for the urban centers and townships to avoid lopsided developments concentrating in the East.



Figure 1.3.5 Identified Urban Centers in Sikkim

1.3 A Dissected View of Sikkim

Trade / Commerce / Industrial Development Pattern

The existing industrial activities in Singtam and Rangpo give rise to a potential of expanding their roles as trade/industrial nodes for Sikkim due to their locations along the National Highway enabling good accessibility and transportation of goods/industrial products.

Other industrial activities such as breweries, distilleries, tanning, watch making etc are found in the southern reaches of the state in the towns of Melli and Jorethang.

Therefore, there is an inherent potential for lining up these four towns to form an industrial corridor along the N31A Highway. This corridor can be extended further toward the Nathu La Pass since the latter will become an important border trade route in time to come.



Figure 1.3.6 Existing Industrial Pattern in Sikkim



Figure 1.3.7 Potential Industrial Pattern in Sikkim

1.3 A Dissected View of Sikkim

External Border Connections

Connection points with the 3 neighboring countries and the State of West Bengal are illustrated on the map. Out of 19 existing points of connection, three are interstate connections and sixteen others are cross border links as sourced from the Sikkim Road Guide and the Political Map.

The recently opened Nathu La Pass is a major cross border activity node with significant impact on future growth and development of Sikkim. Other potential activity nodes near the neighboring countries, namely Nepal, Bhutan and Tibet, offer another business fronts where potential cross border activities can be capitalized to strengthen economic development of towns at the fringe of Sikkim.

Interstate connection is currently established by the only National Highway NH31A linking Siliguri of West Bengal to Gangtok, which is heavily used to transport tourists and cargoes to Sikkim and holds a strategic significance to the future growth of Sikkim.

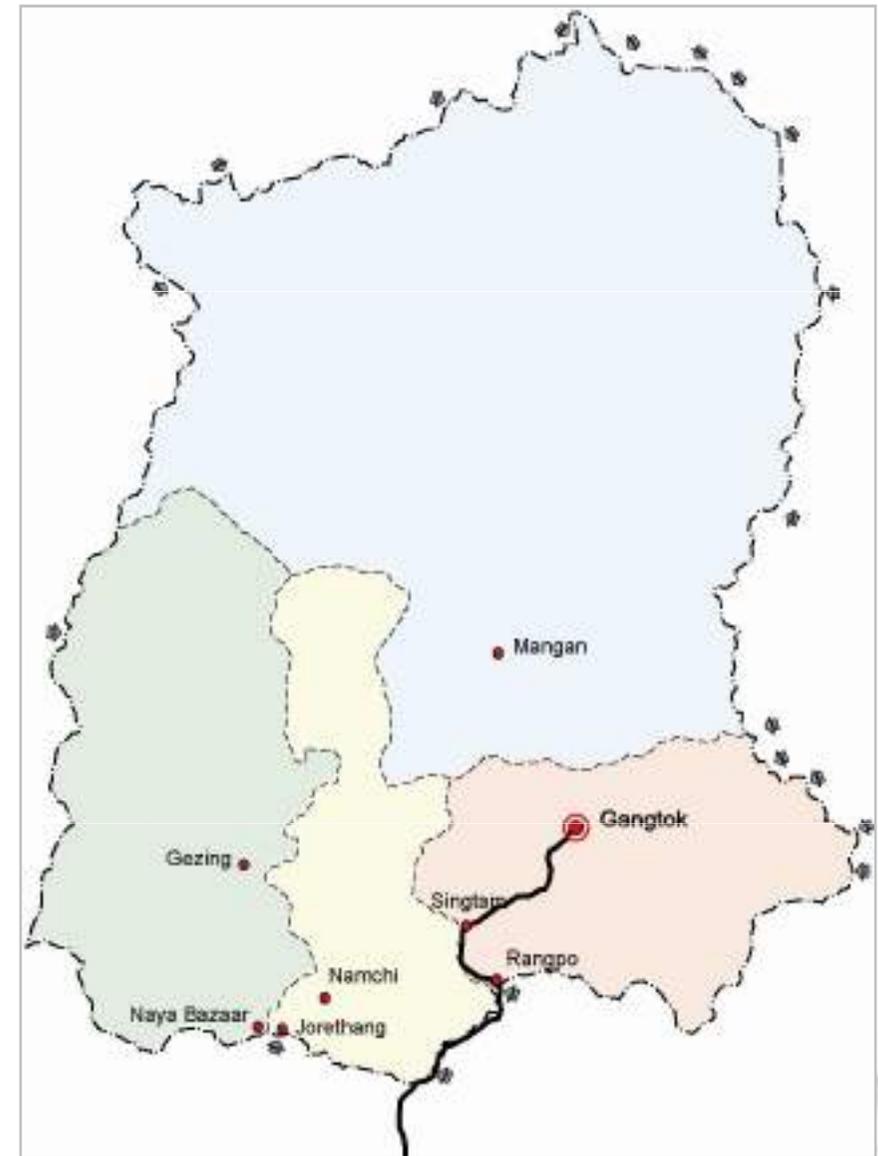


Figure 1.3.8 Location of External Linkages into Sikkim

1.3 A Dissected View of Sikkim

Physical Landscape

The state is rich in biological diversity with flora & fauna of tropical, temperate and alpine zones. Land use classifications reflect a limited 1643.59 sq km of land available for economic uses with around 82% of land recorded as reserved forest which lies under administrative control of Forest, Environment & Wildlife Management and hence is unavailable for development of human settlement. The limitation is further imposed to the available Revenue Area due to the constraints such as heavy slope, unstable soil conditions and the land slide prone areas. Broad Land uses are classified as:

- Reserved, Khasmal & Gorucharan Forests - 37.34%
- Alpine Pasture and Scrub (RF) - 14.44%
- Perpetual Snow Cover(RF) - 29.5%
- Revenue Area - 23%

Other than broad land use classification, all the existing land uses statewide should be listed in details covering commercial, residential, educational, public/ private facilities, open spaces and roads etc. and with each respective growth pattern over the last 10, 20 years. The inventory shall be the basis for planning the future land uses. However, such comprehensive set of data is not easily available.

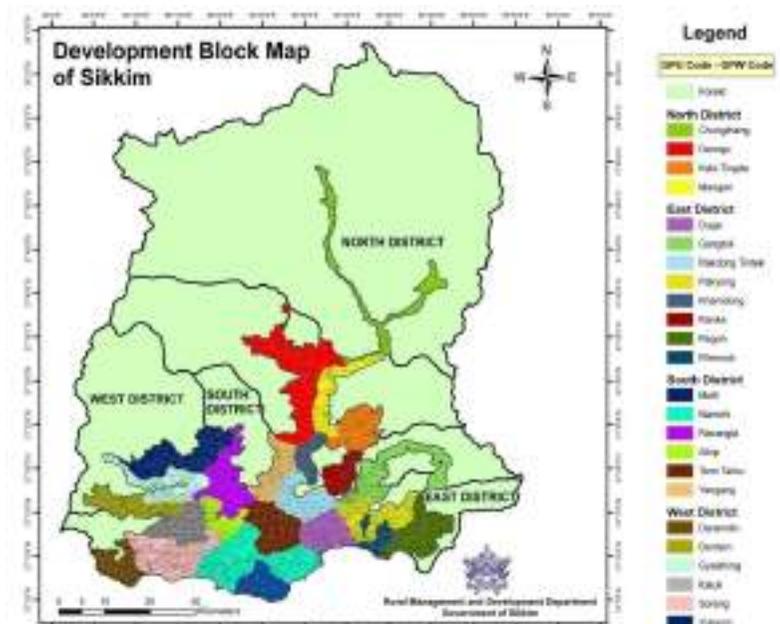


Figure 1.3.9 Development Block Map of Sikkim
Source: Gangtok Block Development Office, GOI

1.3 A Dissected View of Sikkim

Constraints - Protected Areas within Reserved Forest Land

About 30% of land area (Total 2176.11 sq km) is protected under a national park and six wildlife sanctuaries. They spread within the 4 districts with North and West Districts mostly affected.

- Khangchendzonga National Park - 1784.00 sq km
- Shingba Rhododendron Sanctuary - 43.00 sq km
- Kyongnosla Alpine Sanctuary - 31.00 sq km
- Fambonglho Wildlife Sanctuary - 51.76 sq km
- Pangolakha Wildlife Sanctuary - 128.00 sq km
- Mainam Wildlife Sanctuary - 34.35 sq km
- Barsey Rhododendron Sanctuary - 104.00 sq km

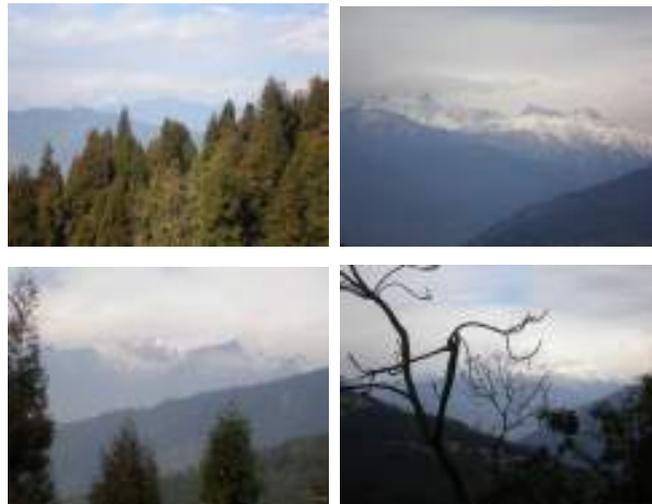


Figure 1.3.10 Views of Protected Areas in Sikkim

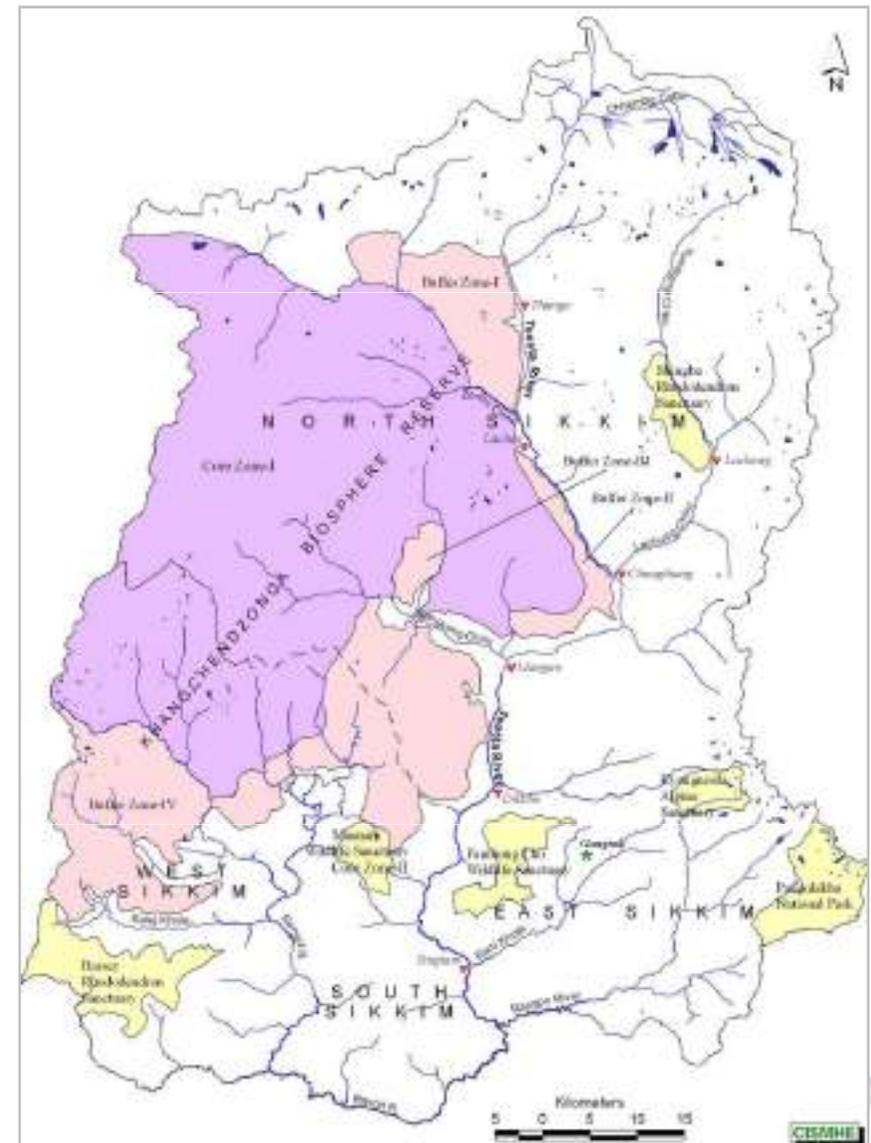


Figure 1.3.11 Location Map of Protected Areas

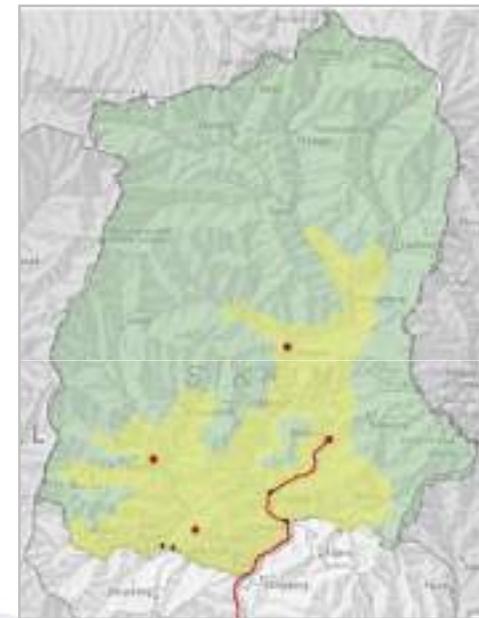
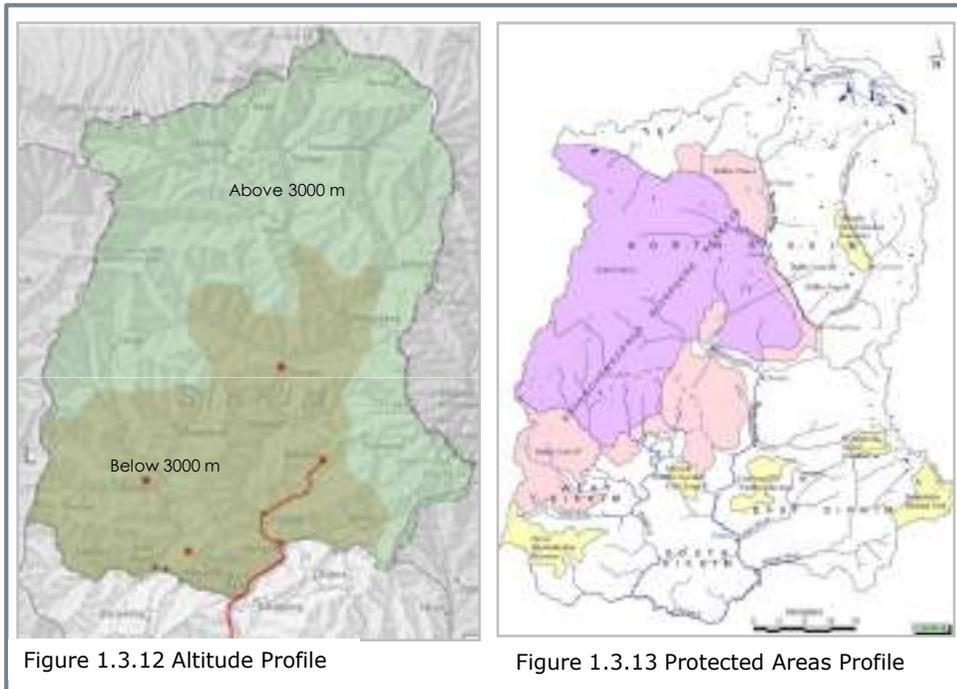
Source: Carrying Capacity Study of Teesta Basin, Ministry of Environment & Forest, GOI

1.3 A Dissected View of Sikkim

Constraints - Altitude Analysis

The physical terrain is entirely hilly with diverse range of altitude from 213m to 8500m. The Princeton Altitude Study indicate that land above 3000m amsl inhibits human habitation. As the harsh climate restrict extent of human habitation within attitudes of 3000m. However, large portion of Sikkim area lies above and much beyond 3000m, thus limiting the land mass available for human activities (see Figure 1.3.12).

When different constraints are overlaid, the possible land area available for urbanization is apparently limited toward the southern part of Sikkim, as shown in Figure 1.3.14 below. The potential profile of land availability will further be examined for its suitability for urbanization.



1.3 A Dissected View of Sikkim

Constraints - Slope Analysis

Slope steepness is the primary determinant of land developability. More than 43% of geographical area lies above 50% slope category that is difficult to use or almost non-developable and hence such area lies uninhabited.

The restrictive hillside ordinance prohibit development on slopes in excess of 20%. However, low density residentials could be developed in hillsides with slopes ranging from 25%-35% as indicated by APA Hill side grading report. In Sikkim's context, due to larger limitations on available land, moderately steep areas of less than 30% slope could be considered for land development.

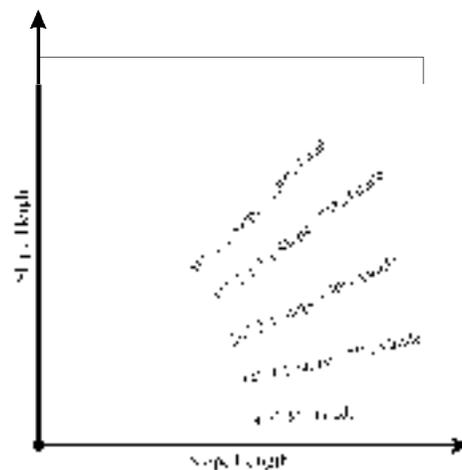


Figure 1.3.15 Classification of Slope Steepness
Source: APA Hillside Grading Seminar, May 1991.

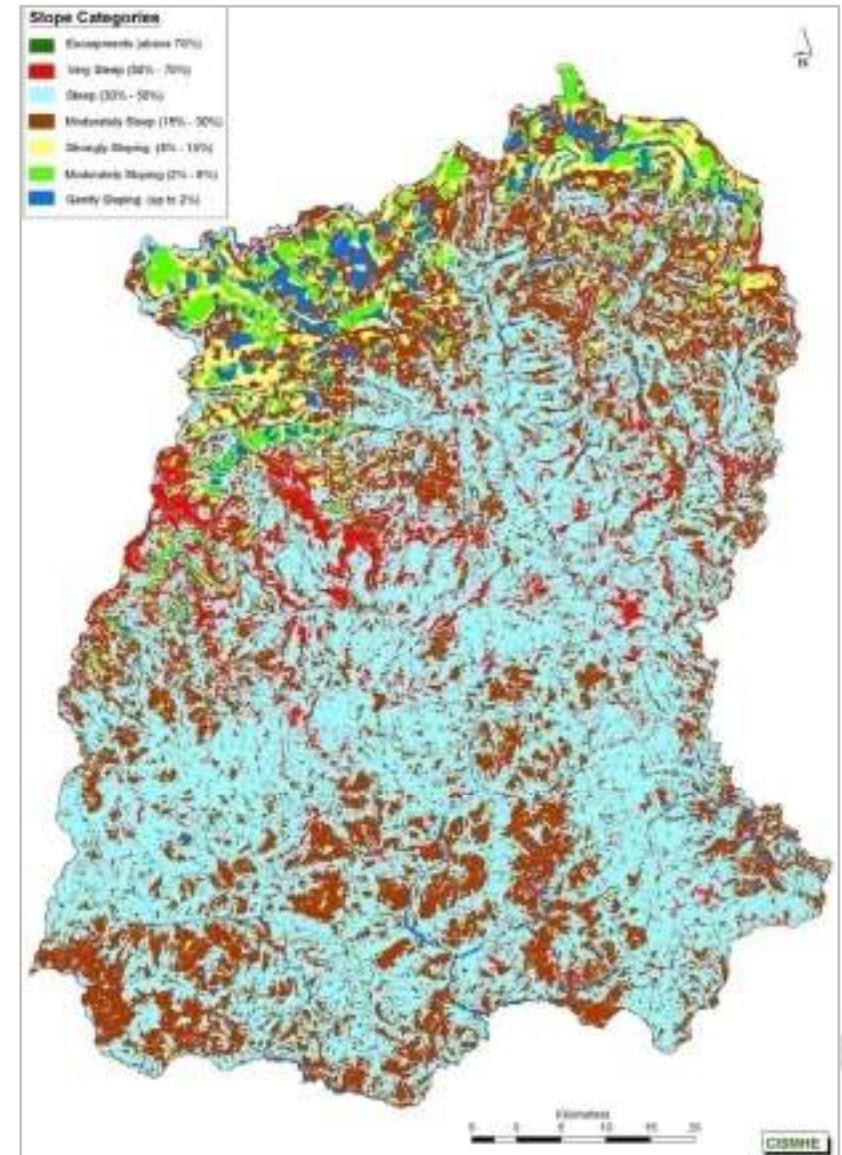


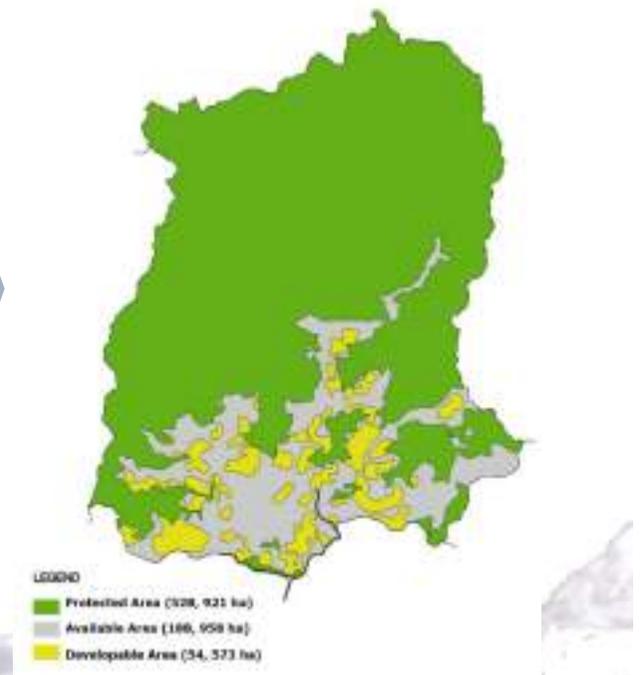
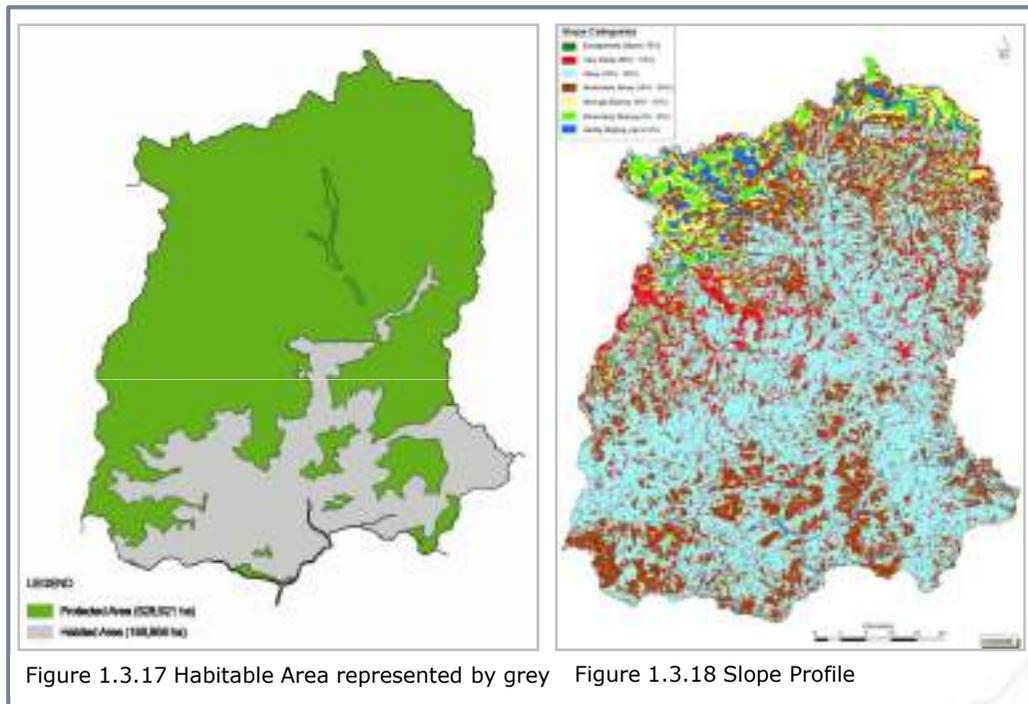
Figure 1.3.16 Map Showing Slope Steepness in Sikkim
Source: Carrying Capacity Study of Teesta Basin, Ministry of Environment & Forest, GOI

1.3 A Dissected View of Sikkim

Constraints - Slope Analysis

Difficult terrain imposes significant development constraints. In addition to the altitude factor determining suitability of land for development, slope gives another dimension of constraint. Developments should be maximized in areas with gentle terrain. As the existing habitable profile includes substantial land area classified as Steep Area (30 -50% slope), it is necessary to ascertain the Moderately Steep Area (15 - 30% slope) within the Habitable region as development priority area.

When the slope constraint layer is superimposed on the existing habitation profile (see Figure 1.3.19), an additional profile of 7% of moderately steep area within the habitable region may emerge and it will be considered as high priority area for urban development (areas in yellow on the plan below).



1.3 A Dissected View of Sikkim

Water Resource

Sikkim is rich in water resources comprising the main Himalayan River Teesta and its several tributaries, and a large number of other glacial lakes. The current hydro power projects along River Teesta can create opportunities for growth of towns such as Mangan.

However, flash floods and related land slips are important issues that need to be considered in planning of future expansions. Existing information indicate that Thirteen Townships: Chungthang, Dikchu, Ranipool, Singtam, Sirwani, Rangpo, Rorathang, Rongli, Legship, Reshi, Melli, Jorethang and Mazitar suffer flashfloods.



Figure 1.3.20 Waterbodies Plan of Sikkim

Source: Carrying Capacity Study of Teesta Basin, Ministry of Environment & Forest, GOI

1.3 A Dissected View of Sikkim

Existing Regional Transportation

Road Network

External road link is limited to National Highway 31A which enters the State at Rangpo and connects to Gangtok via Singtam. With only 1 point of connection and its restrictive capacity of dual 1 carriageway, bottleneck traffic may result and hence more links or a wider road will have to be explored in tandem with expected growth of Sikkim.

Air Link

There is no airport in Sikkim at present. External arrivals by air rely solely on the Bagdogra Airport in West Bengal. Visitors to Sikkim may then either change to the 5-seater helicopter connecting Gangtok directly with the Bagdogra Airport, or take land transport for about 4-hour ride to Gangtok. The necessity of transit may, to a certain extent, undermine the appeal to visitors going to Sikkim.

Rail Link

West Bengal Towns of Darjeeling, Siliguri, Sevoke and Damdim are the closest rail link to Sikkim. These towns being already accessible by rail opens up the possible State linkages to the rest of the country.

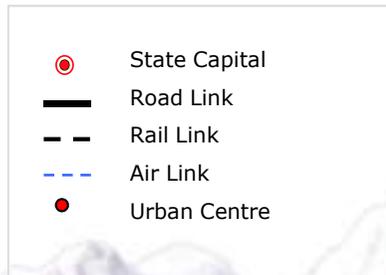


Figure 1.3.21 Existing Regional Transport Routes

1.3 A Dissected View of Sikkim

Transportation Schemes Explored

Given the prevailing transportation issues, some new schemes have been raised to improve the transportation system. While some still remain as concept, a few have been studied and are to be implemented. They shall be considered in the making of the State Strategic Urban Plan.

Road Network

- Alternative Highway from Melli to Gangtok.
- Extension of the existing Highway Rangpo – Gangtok to Nathu La (Concept).
- Alternative route to Nathu La from Damdim via Lava – Pedong –Kupup – Nathu La (Concept).
- Expressway: Sevoke to Gangtok tunnel (Concept).
- Bypass from Ranipul to Kyangnosla to be implemented (approx.45.5 Km)

Air Link

- New airport at Pakyong to be implemented.

Rail Link

- Rail connection between Nathu La – Sevoke.
- Rail link between Rangpo and Siliguri by 2012.
- Rail Link between New Jalpaiguri & Jorethang.
- Rail Link near to trading point at Sherathang, Nathu La (Concept).

Note: New Proposal assumed to use the existing road network

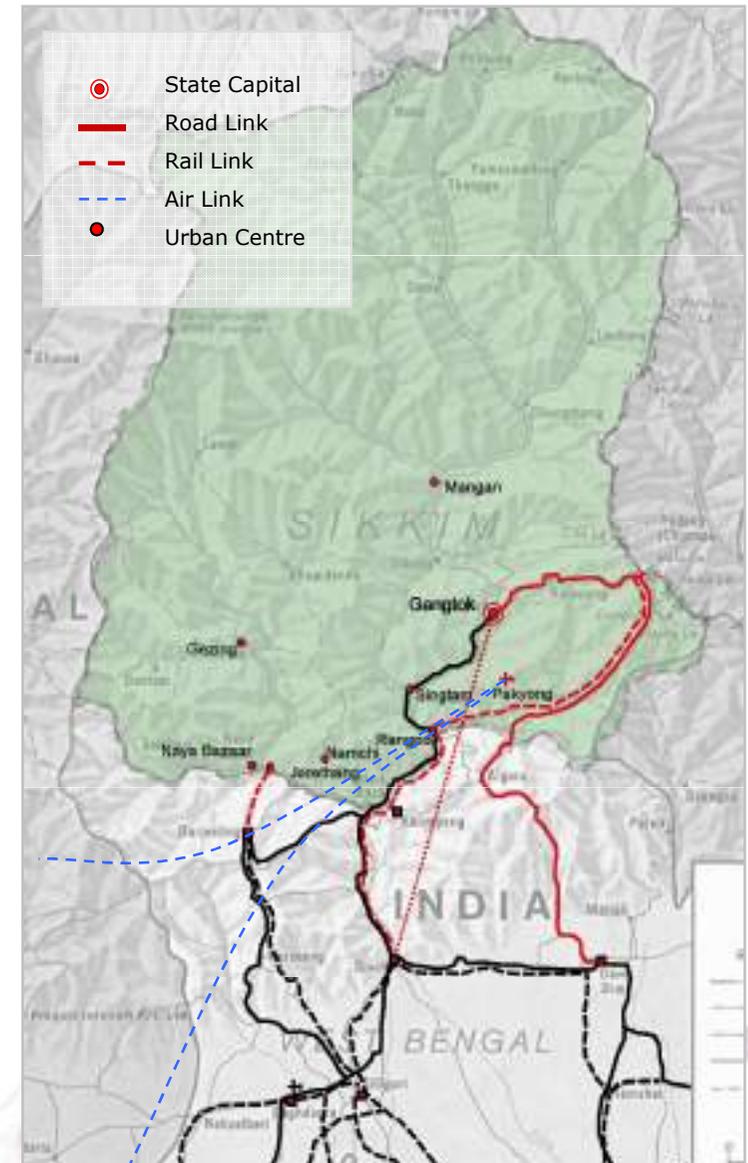


Figure 1.3.22 New Transport Routes Explored

1.3 A Dissected View of Sikkim

Existing Transportation Issues

Road Network

Within Sikkim, key highways are NH31A from Gangtok to Rangpo and North Sikkim Highway (NSH) from Gangtok to Chungthang.

Though existing road network provides connections to most of the important towns, journeys from one town to another are usually long due to winding and narrow routes of poor surface condition. So, it is essential for future planning

- (i) to upgrade these routes to higher traffic carrying capacity in accordance with the respective road hierarchy; and
- (ii) to shorten commuting distance where possible.

Existing road network shall also be rationalized such that a clear road structure and hierarchy is defined to determine the level of upgrading/improvements and their priority.

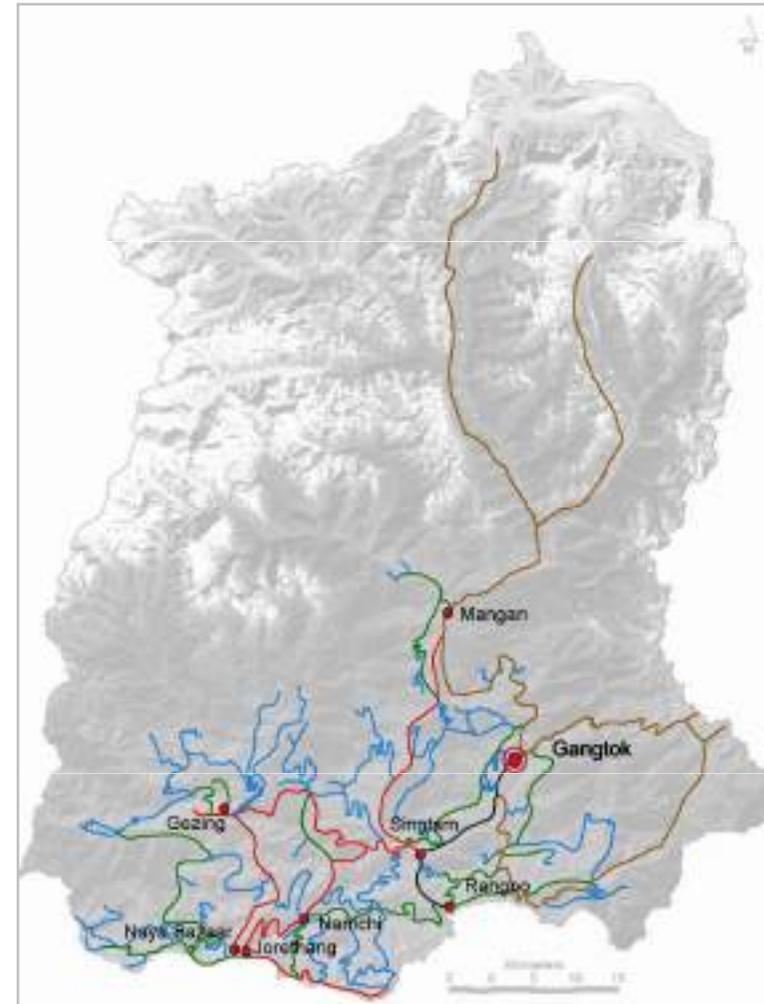
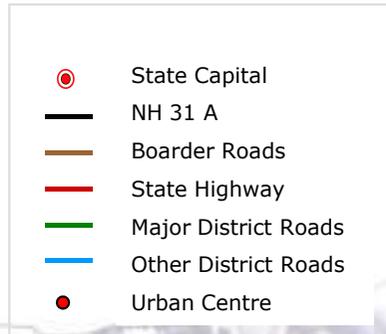


Figure 1.3.23 Existing Road Networks in Sikkim
Source: Road Department

1.4 Current Tourism Scenario

As the tourism support for the overall urban planning master plan, Master Consult Services, Tourism Specialist of the Surbana Team, reviewed the existing tourism facilities and activities within Sikkim. The visitors arrivals numbers supplied by the UDHD was reviewed and the expected visitors (domestic and international) and the required rooms over the next 25-40 years was then projected.

Tourism has an important contribution to urban planning, especially where it has a high impact on the state's resources, as it is in Sikkim. To determine the scale of tourism's contribution and impact, the following analysis will be undertaken:

- Tourism Trends
- Visitor Arrivals
- Hotel Demand and Supply

The rate and scale of tourism development in Sikkim is dependent on many internal and external factors, where benign global conditions and aggressive promotion may lead to higher tourism growth; or where difficult global conditions and a more measured tourism strategy may result in moderate tourism expansion.



Figure 1.4.1 Mountains in Sikkim

Different scenarios and an optimal tourism growth strategy will be examined and outlined in next chapter. Recommendations on policies to achieve this optimal strategy and its consequences for Sikkim's long term urban planning are also examined.

1.4 Current Tourism Scenario

Based on the defined time scale, analysis will first focus on the projected visitor arrivals growth over time since visitor arrivals and the consequent demand for hotel accommodations is a fundamental factor dictating the scale of tourism development. The following 4 key areas will be deliberated in the report.

□ Tourism Trends

International tourism trends will be analyzed to discuss their impact on Sikkim's tourism. Specifically the specific market segments where Sikkim has particular comparative strengths will be examined.

□ Visitor Arrivals

Sikkim's tourism arrivals, their mix in terms of source of origin, type of visitor, accommodation needs and length of stay will be analyzed.

□ Tourism Attractions and Facilities

Tourists have an impact on the demand of a variety of attractions and facilities as part of the tourism experience. An analysis on the number, nature, type and location of tourism attractions and facilities commensurate to Sikkim's tourism development will be carried out.



Figure 1.4.2 Temples

□ Accommodation Needs

To meet the accommodation needs of tourists, separate analyses of the hotel industry and their demand for space and their likely impact on the environment will be carried out.

1.4 Current Tourism Scenario

World Tourism Trends

Tourism Continues To Grow – According to the United Nations World Tourism Organization (UNWTO), 2006 exceeded expectations with over 846 million international tourist arrivals, corresponding to an increase of 5.4% over the previous year. The tourism sector continued to enjoy above average results and recorded a third year of sustained growth.

Asian Growth Impressive – Although Africa registered the highest tourist arrivals growth rate in 2006 over a low base, tourism in Asia continued its impressive growth of 7.1%.

Tourism Expenditure Grows – For many tourism destinations, the total visitor expenditure on accommodation, food and drink, local transport, entertainment, shopping etc, continues to be a strong source of foreign exchange and an important pillar of their economies, creating much needed employment and opportunities for development. Some 75 countries earned more than US\$ 1 billion from international tourism in 2006. UNWTO estimates that worldwide receipts from international tourism reached US\$ 733 billion in 2006.

Table 1.4.1 Breakdown of World Market Share of Tourists

	International Tourist Arrivals (millions)					Market Share (%)	Change (%)		Average Annual Growth (%)
	1990	1995	2000	2005	2006*	2006*	05/04	06*/05	'00-'06*
World	436	536	684	803	846	100	5.5	5.4	3.6
Europe	262.3	310.8	392.5	438.7	460.8	54.4	4.3	5	2.7
Asia Pacific	56.2	82.5	110.6	155.3	167.2	19.8	7.8	7.7	7.1
Americas	92.8	109	128.2	133.2	135.9	16.1	5.9	2	1
Africa	15.2	20.1	27.9	37.3	40.7	4.8	8.8	9.2	6.5
Middle East	9.6	13.7	24.5	38.3	41.8	4.9	5.9	8.9	9.3

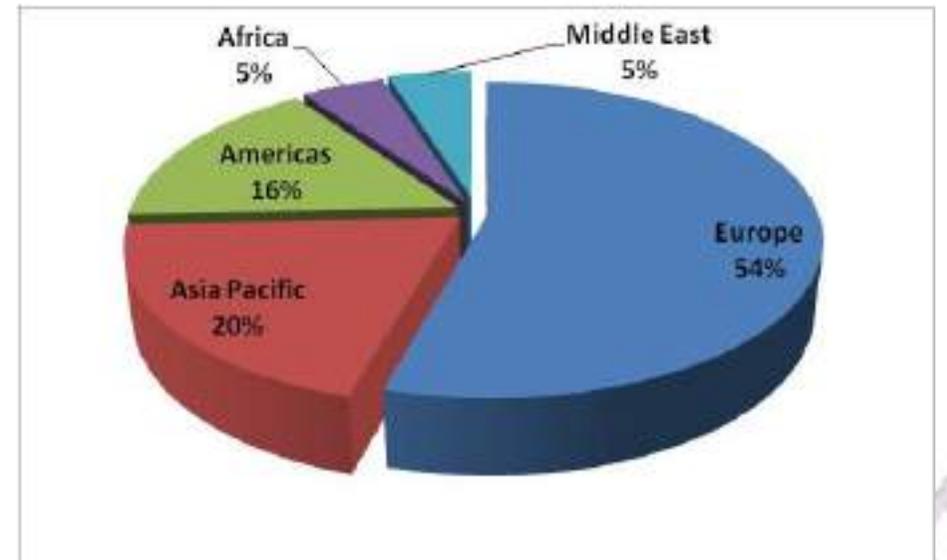


Figure 1.4.3 Graphical Representation of World Market Share of Tourists

1.4 Current Tourism Scenario

World Tourism Trends

Leisure, recreation and holidays dominate – In 2006, just over half of all international tourist arrivals were motivated by leisure, recreation and holidays (51%) – a total of 430 million. Business travel accounted for some 16% (131 million), and 27% represented travel for other purposes, such as visiting friends and relatives (VFR), religious reasons / pilgrimages, health treatment, etc (225 million).

Growing importance of Market Niches – With an increasingly sophisticated travelling public, tourists are now seeking more specialised and specific tourism experiences. The growing awareness of environmental concerns and green issues have made *eco-tourism* and *sustainable tourism* hot themes in tourism today. Another important and growing segment is religious tours and pilgrimages where devotees and adherents visit places of religious interest and significance.

Air transport to grow faster – Air transport (46%) and transport over land – whether by road (43%) or rail (4%) – generate roughly equal shares of all arrivals, while arrivals over water accounted for 7% in 2006. For the past three years, the trend has been for air transport to grow at a faster pace than ground and water transport.

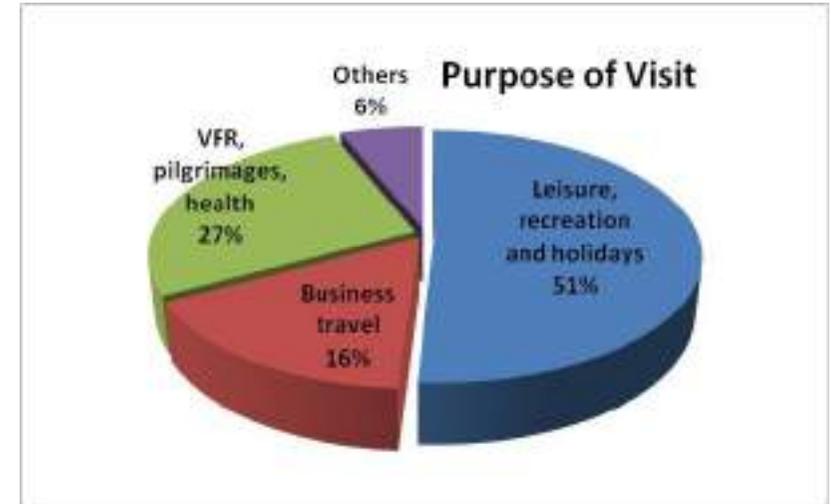


Figure 1.4.4 Graphical Representation of World Tourism Trends – Purpose of Visit



Figure 1.4.5 Graphical Representation of World Tourism Trends – Mode of Visit

1.4 Current Tourism Scenario

India Tourism Trends - Visitor Arrivals Analysis

International Tourism into India Grows – According to the UNWTO, India received 4.4 million international tourists in 2006, an increase of 13.5% over 2005 when it recorded 3.9 million visitors. This amounted to 2.7% of Asia’s total tourist arrivals. This is a relatively miniscule figure for an important destination like India and this is explained by the emphasis on domestic tourism rather than international tourism.

Table 1.4.2 Number and Receipts of International Tourists Traveling into India

	International Tourist Arrivals				
	x 1000		Change (%)		Share (%)
	2005	2006*	04/05	06*/05	2006*
Asia Pacific	155,272	167,228	7.8	7.7	100
India	3,919	4,447	13.3	13.5	2.7
	International Tourism Receipts				Share (%)
	(US\$ million)				
	2005	2006*	2006*		
Asia Pacific	134,473	152,615	100		
India	7,524	8,885	5.8		

Receipts Rise – International visitors to India spent US\$8.9b or 5.8% of Asia’s international tourism receipts. Visitors to India spend significantly more per capita compared to international visitors to other Asia Pacific destinations.

Table 1.4.3 Breakdown of International Tourists Visiting India by Nationality

Country	Arrivals	% share
UK	0.647	16.5%
USA	0.618	15.8%
Canada	0.156	3.9%
France	0.151	3.8%
Sri Lanka	0.138	3.5%
Germany	0.129	3.3%
Japan	0.102	2.6%
Malaysia	0.098	2.5%
Australia	0.096	2.4%
Singapore	0.071	1.8%
Others	1.715	43.9%
Total	3.920	100%

1.4 Current Tourism Scenario

India Tourism Trends – Visitor Arrivals Analysis

Domestic tourism predominates – It is estimated that the size of domestic tourism in India is some 20 to 25 times that of international tourism. There is a strong domestic market for day-trippers and weekend getaways for India's burgeoning middle class.

Table 1.4.4 Breakdown of Number of Domestic Visits by Year

Years	Domestic Visits	% Change
1991	66.7	-
1992	81.5	22.2%
1993	105.8	29.8%
1994	127.1	20.1%
1995	136.6	7.5%
1996	140.1	2.6%
1997	159.9	14.1%
1998	168.2	5.2%
1999	190.7	13.4%
2000	220.1	15.4%
2001	236.5	7.5%
2002	269.6	14.0%
2003	309.0	14.6%
2004	366.2	18.5%
2005	382.1	4.3%

Source : Department of Tourism, Government of India

1.4 Current Tourism Scenario

Sikkim Tourism Trends – Visitor Arrivals

According to tourist arrival data collected, Sikkim enjoyed continuous growth in visitor arrivals over the past decade. One significant feature of Sikkim's tourism is the predominance of domestic visitors, making up about 95% of the total visitors.

The visitors are drawn to Sikkim by the picturesque sceneries and many places of worship. Sikkim is also a quick getaway destination for day-trippers from the neighboring state of West Bengal.

A detailed analysis of the visitors is covered in Chapter 2.

Table 1.4.5 Breakdown of International and Domestic Tourists Visiting India by Year

Year	International	Domestic	Total
1997	8,068	116,500	124,568
1998	6,111	133,158	139,269
1999	8,563	139,085	147,648
2000	8,794	144,203	152,997
2001	7,757	146,923	154,680
2002	8,539	160,789	169,328
2003	10,954	176,659	187,613
2004	14,646	230,719	245,365
2005	16,827	241,697	258,524
2006	18,026	292,486	310,512
2007	17,837	331,263	349,100

Source: Urban Development and Housing Department

1.4 Current Tourism Scenario

Sikkim Tourism – Overview

Sikkim has been cited as a tourism wonderland by travellers. Overlooked by Mt. Kanchenjunga, the world's third highest peak, Sikkim is a destination attractive for the sightseeing, trekkers and religious travellers.

With cold winters generally in the months of November to February and the monsoon season from May to September, visitors tend to visit Sikkim between March and early May and September to October. These seasonal influences have a direct and noticeable effect on the visitor arrivals during the year.

As there are no railway stations or airports in Sikkim, international tourists visiting Gangtok take a 3-4 hour car ride from the nearest airport located in Bagdogra. A 30-minute helicopter ride is also available but its frequency is only once a day and can be disrupted or cancelled due to adverse weather conditions.

Divided into four districts, Sikkim's tourism attractions can also be categorized geographically. The major tourism spots are mainly located in the East (near Gangtok) and the West (the trekking zones).

Table 1.4.6 Important Tourism Spots in Sikkim

IMPORTANT TOURISM SPOTS			
East	West	North	South
1 Rumtek Monastery	1 Pelling	1 Kabi Lungchok	1 Namchi
2 Enchain Monastery	2 Singshore Bridge	2 Phodong Monastery	2 Tendong Hill
3 Cottage Industry	3 Khechopairi Lake	3 Lachung	3 Temi Tea Garden
4 Flower Show	4 Yuksom	4 Yumthang	4 Menam Hill
5 Tibetology	5 Tashiding Monastery	5 Phensong Monastery	5 Phur Tsa-Chu
6 Chorten	6 Pemayangtse Monastery	6 Chungthang	6 Rabongla
7 Saramsa Garden	7 Sangacholing Monastery	7 Singik	7 Jorethang
8 Hanuman Tok	8 Dubdi Monastery	8 Lachen	
9 Ganesh Tok	9 Geyzing Bazar		
10 Tashi View Point	10 Versey		
11 Nam-Ilam View Point	11 Rabdentse Palace Ruins		
12 Changu Lake	12 Dzongri		

Source: Sikkim : A Statistical Profile 2004-05

1.4 Current Tourism Scenario

Sikkim Tourism – Overview

According to data obtained from the Sikkim: A Statistical Profile 2004-05, there are about 39 tourism spots located in the four districts.

There are also five important trekking routes and they are namely:

- Monastic Trek
- Rhododendron Trek
- Khangchenzonga Trek
- Coronation Trek
- Kasturi Orar Trek

The major nature parks and sanctuaries are

- Kanchenzanga National Park
- Fabong Lho Wildlife Sanctuary
- Shingba Rhododendron Sanctuary
- Kyongnosla Alpine Sanctuary
- Mainam Wildlife Sanctuary
- Barsey Rhododendron Sanctuary

The important monasteries are

- Rumtek Monastery (East)
- Enchey Monastery (East)
- Zurmang Monastery (East)
- Pemayantse Monastery (West)
- Sanga-Choling (West)
- Dubdi Monastery (West)
- Tashiding Monastery (West)
- Phensang Monastery (North)
- Phodong Monastery (North)
- Tholung Monastery (North)
- Ralong Monastery (South)

The highest mountains are located in the west district and the three tallest ones are

- Mt Kang-Chen-Dzonza (28,156 ft)
- Mt Kabru (24,215 ft)
- Mt Siniolchu (22,600 ft)

1.5 Overall SWOT Analysis

Physical Environment Analysis

From the preceding illustrations of existing condition, an overall SWOT can be summarized as below:

Strengths

- Already established Urban Centers validate the growing pace and trend of urbanization, Gangtok in particular.
- Multiple road connections exist for most of the towns and they can be made good use for transportation between towns by selective road upgrading.
- A new airport to be constructed at Pakyong will open up wider opportunities for future growth of the State economy.
- Rich in biological diversity, multi-climatic zones, and mountainous nature may sustain the attractiveness of Sikkim to both domestic and international tourists.
- The abundant water resources of fresh quality create opportunities for many hydro power projects to deal with the increasing demand for power as a result of urbanization.

Weaknesses

- Imbalance of development of existing towns results in domination by the East District especially the congested Gangtok town.
- Limited point of external connection via N31A Highway is causing a high risk of bottleneck traffic
- Current long travelling time between towns due to poor road condition and winding routes with narrow lanes is undermining desire of travelling by roads.
- The limited 7% of total State land ready for economic uses, hilly terrain of generally very steep slope, and unfavourable high altitude, are imposing multi-dimensional constraints on future urban growth.
- Incomplete data on existing land use profile across the State is making future planning rather difficult, since existing issues may not have been understood thoroughly .

1.5 Overall SWOT Analysis

Physical Environment Analysis

From the preceding illustrations of existing condition, an overall SWOT can be summarized as below:

Opportunities

- The 4 subdivision heads have already formed a township hierarchy for Sikkim, with individual potential to grow as a key urban center.
- Untapped or underdeveloped points of border connection could become possible future business nodes of cross-border trade activities.
- Established industries along N31A Highway create an opportunity to form a vibrant business corridor for synergy of different trades.
- New physical infrastructures e.g. the 2 bypasses and the new airport at Pakyong will help to shorten travel time and hence raise Sikkim's attractiveness as a tourist and business destination.

Threats

- With limited developable land area of 7%, a long-term planning approach is constrained by the need to deal with environmental sensitivity.
- Future infrastructure improvements with such difficult terrain require substantial and heavy financial commitments that is a huge challenge to a small state like Sikkim.
- Current developments dominantly in Gangtok make efforts to decentralize population and growth in other towns more difficult as rural-urban migrants will still favor Gangtok to others.
- The State's location within the high seismic IV zone is carrying potential risk of high cost of damage due to urbanization of greater density.

1.5 Overall SWOT Analysis

Policy Perspective

The analysis of the existing condition in Sikkim and interactions with the departments of the Sikkim Government also reveal many challenges in administration of various policies affecting developments in Sikkim. General observation is as follows:

Strengths

- Strong governance in the State facilitates smooth adoption and implementation of new regulatory policies.
- Complementary rural development planning in particular on infrastructure provision in areas beyond urban periphery is laying a good foundation for future urbanization.
- Many ad-hoc planning initiatives within the urban area such as local streetscape upgrading scheme for M G Marg show great improvements at the local level.
- Strong awareness of environmental protection and established environmental/ forest policies protect the sensitive assets of Sikkim.

Opportunities

- A central agency to coordinate the physical development in urban areas can be set up to ensure better utilization of resources.
- There is a need for a macro strategic plan to see how future urbanization can tap on the rural infrastructure developments when an urban centre expands. All the ad-hoc planning initiatives may be collated at the macro planning level so that priority can be assigned to enable balanced development across the State.
- More developments especially industrial uses will put the existing environmental protection policies to test and certain rule tightening measures may be required to uphold the “Green State” image.

1.5 Overall SWOT Analysis

Policy Perspective

The analysis of the existing condition in Sikkim and interactions with the departments of the Sikkim Government also reveal many challenges in administration of various policies affecting developments in Sikkim. General observation is as follows:

Weaknesses

- While planning regulations are documented as statutory rules, they are weakly enforced and that results in inconsistent development controls.
- As every department takes care of its own individual development plans or projects, the execution of these individual plans or projects, if without proper coordination with other departments in terms of timing, is likely to cause regular social disruptions and inconvenience as well as wastage of resources. Laying or repair of utility services under roads is a common problem.
- Without a comprehensive State Strategic Plan to give a big picture at the State level, resource management and utilization may not be put to optimum practice.

Threats

- Haphazard developments will continue to mar the landscape of urban centers if enforcement of the prevailing regulatory planning policies and rules remains inconsistent.

1.5 Overall SWOT Analysis

Tourism Perspective

Strengths

- Sikkim is rich in biological diversity, multi-climatic zones, and mountainous nature.
- Sikkim is home to many important religious sites, monasteries and places of religious significance to Hinduism and Buddhism.
- The high altitude and cool weather in Sikkim make it an ideal location for get-away holidays for Indian nationals living in the plains and cities.
- Proximity to major cities in India and Tibet / China

Weaknesses

- Poor international connectivity due to the absence of airport
- Road and rail access to and within Sikkim is poor with many roads often impassable during severe weather
- Hotels and other types of accommodation are unregulated and of inconsistent quality and standards
- Seasonal weather patterns dictate months available for tourism
- Lack of depth and range of tourism attractions and facilities
- Service quality in Sikkim not international level

Opportunities

- The opening of an airport at Pakyong will herald a quantum improvement in connectivity to other major Indian cities and international markets.
- The proposed casinos in 5-star hotels will attract a steady stream of Indian and other visitors
- Eco-tourism and wildlife
- Wellness and medical tourism
- Village and tea tourism
- Religious, culture and heritage tourism
- More trekking trails and adventure tourism
- Opening of Natula Pass

Threats

- Unrestrained growth in tourists can result in environmental degradation
- Lack of quality control can result in negative tourism image for Sikkim
- Continued popularity of regional destinations (e.g. Nepal and Bhutan) can sideline Sikkim for years to come as an eco tourism destination