City Development Plan for Siliguri – 2041

(Final Report)

April 2015

Supported under

Capacity Building for Urban Development project (CBUD)

A Joint Partnership Program between

Ministry of Urban Development, Government of India

and

The World Bank

CRISIL
INFRASTRUCTURE ADVISORY

CRISIL Risk and Infrastructure Solutions Limited

Ministry of Urban Development

Capacity Building for Urban Development Project

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Consulting Firm:

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Acknowledgment

The Ministry of Urban Development (MoUD) has launched the Capacity Building for Urban Development (CBUD) project supported by the World Bank to give a thrust to the implementation of reforms proposed to be undertaken by urban local bodies. The CBUD project has identified issues for intervention and areas of technical assistance that are required in the 30 cities spread across the country that were identified under the project for Technical Assistance. Formulation of new/revised city development plans (CDP) is one such initiative. First-generation CDPs were prepared for most of the cities under the JnNURM/UIDSSMT programme of GoI; these are proposed to be revised under this project as per the revised CDP guidelines issued by MoUD in April, 2013.

CRISIL Risk and Infrastructure Solutions Limited (CRIS) would like to thank MoUD for giving it an opportunity to work on this prestigious assignment**.** CRIS would like to express its sincere gratitude for the guidance and support provided by Dr.Sameer Sharma, IAS, Joint Secretary (Smart Cities); Mr. Shailendra Vikram Singh, Director (Smart Cities-III and Capacity Building); and Mr. Sanjay Sharma, Under Secretary (Smart Cities-III), MoUD. CRIS would also like to place on record and thank the officials of the Town and Country Planning Organization, MoUD, specially Mr. R Srinivas (Town and Country Planner), Mr. Sudeep Roy (Assistant Town and Country Planner), and Ms. D Blessy (Assistant Town and Country Planner) for their valuable suggestions provided during the Technical Advisory Committee meetings.

We would also like to thank the former Joint Secretary and Mission Director Ms. Nisha Singh, IAS, and Mr. Anand Mohan, former Director (N-IV), MoUD.

CRIS is also grateful to the CBUD project team at MoUD – Mr. Nabroon Bhattacharya (Team Leader), Mr. Hitesh Vaidya (Deputy Team Leader), Mr. Mahtab Alam (Urban Planning Specialist), Mr. Dinesh Harode (Urban Planning Specialist), and Ms. Basobi Sheel (Social Development Specialist) – for their timely and consistent technical support throughout the assignment.

We would like to take this opportunity to acknowledge the support provided by the Municipal Commissioner Mr. Sonam W.Bhutia the nodal officer for CBUD Project Ms. Joyeeta, and all other officials of the Siliguri Municipal Corporation for providing the required data and information, identifying city-level issues, and organising the stakeholder workshops conducted as part of the CDP formulation. Last but not the least, we would like to extend a deep sense of gratitude to the CEO of Siliguri Jalpaiguri Development Authority, Ms. R.Vimala, IAS and all key stakeholders of Siliguri city who have provided their valuable feedback and suggestions on issues concerning the city and its future infrastructure requirements, and have prioritised the implementation of the project.

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Abbreviations

Acronym	Definition
ADP	Annual Development Plan
ADT	Average Daily Traffic
BADP	Border Area Development Programme
BOD	Biological Oxygen Demand
BOT	Build – Operate - Transfer
BPL	Below Poverty Line
BPO	Business Process Outsourcing
BSNL	Bharat Sanchar Nigam Limited
BSUP	Basic Services for Urban Poor
CAA	Constitutional Amendment Act
CAGR	Compound Annual Growth Rate
CBD	Central Business District
CBSE	Central Board of Secondary Education
CBUD	Capacity Building for Urban Development
CDP	City Development Plan
CDS	Community Development Societies
CEPT	Centre for Environmental Planning and Technology
CFP	City Financial Plan
CIP	Capital Investment Plan
CMP	Comprehensive Mobility Plan
CMU	Change Management Unit
CNG	Compressed Natural Gas
CPCB	Central Pollution Control Board
CPHEEO	Central Public Health and Environmental Engineering Organization
CRIS	CRISIL Risk and Infrastructure Solutions Limited
CSP	City Sanitation Plan
CWM	Cold Water Main
CWR	Clear Water Reservoir
DCB	Demand Collection Balance
DDP	Draft Development Plan
DEAS	Double Entry Accounting System
DIC	District Industries Centre
DIFD	Department for Institutional Development
DPC	District Planning committee
DPE	Density Polyethylene
DPG	Directorate of Public Grievances
DPR	Detailed Project Report
DSCR	Debt-Service Coverage Ratio
DTG	DDP Technical Group
DWCUA	Development of Women and Children in Urban Areas
ECG	Electrocardiography
EHTTOA	Eastern Himalaya Travel & Tour Operators' Association
ESR	Elevated Service Reservoir
EWS	Economically Weaker Section
FGD	Focus Group Discussion

FOCIN	Federation of Chamber of Commerce and Industry of North Bengal
FOP	Financial Operating Plan
GDP	Gross Domestic Product
GIS	Geographic Information System
GLR	Ground Level Reservoir
GSDP	Gross State Domestic Product
GSLI	Group Savings Linked Insurance
HDPE	High Density Polyethylene
HHW	Household Hazardous Waste
HJRO	Hindustan Jiban Rasayan Organisation
HPEC	High Powered Expert Committee
ICDS	Integrated Child Development Services
ICF	Innovative Challenge Fund
ICSE	Indian Certificate of Secondary Education
IDA	International Development Association
IDFC	Infrastructure Development Finance Company
IEC	Information Education and Communication
IGCC	Integrated Gasification Combined Cycle
IGNOU	Indira Gandhi National Open University
IGNWPS	Indira Gandhi National Widow Pension Scheme
IHSDP	Integrated Housing and Slum Development Programmes
IIT	Indian Institute of Technology
ILCS	Integrated Low Cost Sanitation
IPCC	Intergovernmental Panel on Climate Change
IPP	Indian Population Programme
IPT	Intermediate Public Transport
IRAD	Indian Road Accident Database
ITES	Information Technology Enabled Service
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JSY	Janani Suraksha Yojana
KUSP	Kolkata Urban Services For The Poor
KVA	Kilo-Volt-Ampere
LED	Light-Emitting Diode
LIG	Low Income Groups
LMV	Light Motor Vehicle
LPCD	Liters Per Capita per Day
LRT	Light Rail Transit
LUDCP	Land Use and Development Control Plan
MGD	Million Gallons Per Day
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIC	Mayor-In-Council
MLD	Million Litres Per Day
MSME	Medium and Small Scale Industries
MSW	Municipal Solid Waste
MTP	Medical Termination of Pregnancy
NAPCC	National Action Plan on Climate Change
NASSCOM	National Association of Software and Services Companies
NBC	National Building Code
NBSTC	North Bengal State Transport Corporation

NEIIP	North East Industrial and Investment Promotion Policy
NFBS	National Family Benefit Scheme
NHC	National Hurricane Center
NHG	National Health Group
NJP	New Jalpaiguri
NMSA	National Mission for Sustainable Agriculture
NOAPS	National Old-Age Pension Scheme
NRW	Non-Revenue Water
NSDP	National Skills Development Program
NUPAM	National Urban Poverty Alleviation Mission
ODP	Outline Development Plan.
OHR	Over Head Reservoir
OPD	Out Patient Department
OSD	Officer on Special Duty
PCB	Pollution Control Board
PCU	Passenger Car Unit
PHED	Public Health and Engineering Department
PMEGP	Prime Minister Employment Generation Programme
PMU	Project Management Unit
PPP	Public Private Partnership
PTR	Pupil-Teacher Ratio
PWD	Public Works Department
RAY	Rajiv Awas Yojana
RBA	Rapid Baseline Assesment
RCV	Resident Community Volunteer
RDF	Reduced Derived Fuel
RFP	Request For Proposal
RFQ	Request For Qualification
RSPM	Respiratory Suspended Particulate Matter
SAE	Society of Automotive Engineers
SBHS	Siliguri Boys High School
SCADA	Supervisory Control and Data Acquisition
SCAOWS	Siliguri City Auto Operators' Welfare Society
SDH	Siliguri District Hospital
SDO	Sub-Divisional Officer
SEZ	Special Economic Zone
SHG	Self Help Group
SIDBI	Small Industries Development Bank of India
SIFC	State Investment Facilitation Centre
SIT	Siliguri Institute Of Technology
SJDA	Siliguri Jalpaiguri Development Authority
SJPA	Siliguri Jalpaiguri Planning Area
SJSRY	Swarna Jayanti Shahari Rozgar Yojana
SMC	Siliguri Municipal Corporation
SNT	Sikkim National Transport
SPA	School of Planning and Architecture
SPM	Suspended Particulate Matter
SPV	Special Purpose Vehicle
SSI	Small Scale Industry

SSK	Sahbhagi Shikshan Kendra
SSM	Sarva Shiksha Mission
STP	Sewerage Treatment Plant
STPI	Software Technology Parks of India
SUA	Siliguri Urban Agglomeration
SUDA	State Urban Development Agency
SWD	Storm Water Drainage
SWM	Solid waste Management
SWOT	Strength Weakness Opportunities & Threats
TOD	Transit Oriented Development
TPD	Tonne per Day
TPO	Town Planning Officer
UDPFI	Urban Development Plans Formulation and Implementation
UGD	Under Ground Drainage
UHI	Urban Heat Island
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULB	Urban Local Body
UPE	Urban Poverty Elevation
UPVC	Un-plasticized polyvinyl chloride
URDPFI	Urban & Regional Development Plans Formulation and Implementation
USAID	United States Agency for International Development
USEP	Urban Self Employment Program
USHA	Urban Statistics for Human Resource and Assessments
UWSP	Urban Women Self-Help program
VAMBAY	Valmiki Ambedkar Awas Yojna
VAT	Value Added Tax
WBDMA	West Bengal Department of Municipal Affairs
WBFDCL	West Bengal Forest Development Corporation Limited
WBIDC	West Bengal Industrial Development Corporation Ltd.
WBM	Water Bound Macadam
WBPCB	West Bengal Pollution Control Board
WBREDA	West Bengal Renewable Energy Development Agency
WBSEDCL	West Bengal State Electricity Distribution Company Limited
WBSETCL	West Bengal State Electricity Transmission Company Limited
WBTDC	West Bengal Tourism Development Corporation
WHO	World Health Organisation
WTP	Water Treatment Plant

Executive Summary

A city development plan (CDP) is a corporate strategy for any urban local body that presents both a vision of the city's desired future and mission statements on how the city (together with other stakeholders), intends to work towards achieving that vision in the next ten/fifteen years. The CDP translates the mission into actions and actions into desired outcomes. The objective of involving stakeholders and getting endorsements by the urban local body and other implementing agencies is to hold them accountable for the mission statements, actions and expected outcomes.

Siliguri Municipal Corporation (SMC) did not have a city development plan. However, the corporation prepared draft development plans which were limited to investments required in a piecemeal manner and did not envisage an overall change and comprehensive infrastructure planning for the city. The current CDP for Siliguri has been attuned to the objectives of the Capacity Building for Urban Development (CBUD) project (Ministry of Urban Development, Government of India) which are to address the major constraints of urban development and specifically focus on capacity-building requirements for successful urban management and poverty reduction across selected ULBs in India.

Siliguri, the gateway to North-East India is not only of vital importance to the state of West Bengal but to India as a whole. It is signified by four Ts – tea, timber, tourism and transport, and is without a competitor in North Bengal in these aspects. Its hinterland consists of North Bengal, Sikkim, Bhutan, Nepal and Assam. It is one of the most rapidly developing metropolises of the state.

Settlements in Siliguri started with the setting up of tea plantations and a junction station (in July 1881) for passengers to board the famous toy train bound for Darjeeling. Growth of the town picked up momentum after India's Independence. People flowed in from the hinterland states of Bihar, Uttar Pradesh and Assam. There was also a major influx of business communicates from other parts of the country such as Rajasthan who came here to foster the town's latent business opportunities and gave it a cosmopolitan character eventually. Siliguri was also a major hub for trading in jute. Rally brothers, Lamden Clerk, Clerk Mayer and other companies had their offices and godowns (storehouses) in the city.

Siliguri is popularly known as the gateway or the chicken neck of north-east India as its corridor establishes a connection between the rest of India and the north-eastern states. The city is spread over two districts in West Bengal, Darjeeling and Jalpaiguri. Naxalbari, Jalpaiguri, Rajgunje, and Malbajar are some important towns near Siliguri. Siliguri is the headquarters of the plains sub-division of Darjeeling District of West Bengal and is situated 392 feet above mean sea level in the foothills of the Himalayas on the banks of the river Mahananda. Siliguri is located proximity of three international borders (Bangladesh, China, and Nepal). It also links hill stations such as Gangtok, Darjeeling, Kalimpong, Kurseong and Mirik and the northeast states with the rest of India. Moreover, as a gateway to the wonderful sights of the Himalayan peaks and ranges in Darjeeling, Siliguri offers important tourist activities that stimulate its economy.

The Siliguri Municipality was established in 1949. Till 1994, Siliguri Municipality had 30 wards under it. After the declaration of the Siliguri Municipal Corporation in 1994, 17 new wards were added to its jurisdiction taking its total area to 41.9 sq. km. Siliguri Municipal Corporation falls in two districts, Darjeeling and Jalpaiguri; 14 out of 47 wards of the SMC fall in the neighbouring Jalpaiguri district.

Siliguri is located at 26.71°N and 88.43°E in the foothills of Himalayas. The place can be reached overnight by both road and train from the state capital Kolkata. It is connected to Kolkata by NH-31 and to the other cities of West Bengal, Assam and Bihar state by road; it lies on Asian Highway 2. Siliguri

has three railway stations, namely, Siliguri town, Siliguri Junction and New Jalpaiguri. The Bagdogra International Airport situated about 15 km away is the only airport in the region.

According to Census 2011, the city had a population of 5.13 lakhs. Out of 47 wards, 14 wards fall in the Jalpaiguri district and the remaining 33 wards in the Darjeeling district. The population density of the city is 11,274 persons per sq.km. The literacy rate of the Siliguri urban area stands at 79% and sex ratio at 946. As per population growth trends and future economic growth projections, Siliguri's population would increase from 5.1 lakh in 2011 to 9.12 lakhs by 2031 and 11.31 lakh by 2041.

The strategic location of Siliguri makes it a base for essential supplies to the entire north-east region. With tea, timber, tourism and transport as its core businesses, Siliguri serves as the headquarters of the Federation of Chamber of Commerce and Industry of North Bengal (FOCIN). Trade and commerce play a major role in the local economy of Siliguri Municipal Corporation. The formal service sector also contributes significantly to the local economy within the Municipal Corporation. It constitutes academic institutes (schools, colleges and other academic institutions), automobile repair centers, banks and post offices, health institutions, hotels, IT offices, retail outlets and trading centres.

The tertiary sector dominates the economy of the SMC area while the surrounding areas are characterized largely by agro-based and forest-based economies. In 2011, only 9% of the workforce in the SMC area was engaged in the secondary sector with 87% based in the tertiary sector. The overall work force participation in 2011 in the SMC area was 36.62%.

Today, the city's growth depends on aspects like physical infrastructure, social infrastructure, economic and employment opportunities, city administration setup, and urban environment. Based on assessment of physical and economical infrastructure within the city and region. Given this scenario, there is a need to develop physical and social infrastructure of the city, the industrial corridors and mass transit facilities to connect the residential zones to the employment zones.

In the light of the above, through a participatory approach, the vision for Siliguri has been formulated as **"developing a clean, green and planned city by emphasizing on tourism, transit and trade by 2021".**

Sectors such as water supply, sewerage and sanitation, solid water management, storm water drainage, traffic and transportation, urban poverty and slum improvement, local economic development, urban environment, social infrastructure, and heritage management are covered under development goals in the CDP. The development goals have been framed on the basis of priority areas, to achieve the Vision for the city and to meet sector-specific service-level benchmarks and indicators. The goals have been substantiated with detailed action plans.

Projects have been identified on the basis of demand-gap analysis. Further, sector strategies and action plans have been finalised based on discussions with relevant stakeholders. The goals and service outcomes are envisaged to be implemented by 2021 as an immediate priority. The projects identified involve rehabilitation of existing infrastructure systems and augmentation of capacity to meet the demands of future population. The sector-wise demand gap assessment as follows:

i. Water supply

In the case of water supply, the key problem areas for Siliguri are dependence on multiple systems of water supply, losses in the distribution system due to the old distribution network and uneven water supply distribution across the city. Further, the new areas have not been covered with water supply network. As per our assessment, there is a current gap of 45 MLD in the existing water supply demand. Further, to meet the future requirement for the ultimate population of 2041, the city requires around 116 MLD of additional water. In order to meet the water quality issues in new areas and future population growth, additional requirement of 184 MLD of treatment capacity has been projected.

ii. Sewerage and sanitation

The key issue in the case of sewerage and sanitation is lack of an underground drainage (UGD) system and sewerage treatment facilities. There is no UGD system and the whole city is dependent on private septic tanks. Therefore, SMC should develop a comprehensive sewerage system in the city. As per our gap analysis, the city would require a sewerage treatment plant of 147 MLD capacity to treat generated sewerage by 2041. For the short term (2021), the city requires plants of 93 MLD capacity each and 898 km of branch sewer lines.

iii. Solid waste management

In Siliguri, about 82% of the households are covered with solid waste management (SWM) services. Thus the key challenges in SWM are inadequate segregation of waste at source, treatment of solid waste management, SWM recovery mechanisms, and lack of a scientific landfill site in the city. As per the gap analysis, the city would require around 450 MT fleet capacity for transportation of waste to the treatment plant, and a waste processing and compost plant of around 231 MT capacity to be set up by 2021.

iv. Storm water drainage

The city does not have a distinct storm water drainage network. About 83% of the road network is covered by an open drainage system. As per our gap analysis, the city would require additional 848 km of storm water network by 2021 to cover the entire city.

v. Traffic and transportation

The city does not have 100% coverage of cement concrete /bitumen tar surface roads. Pedestrian safety and increasing accident rate are the other major concerns. Lack of foot over-bridges and zebra crossings on major congested roads hinder smooth pedestrian movement. All the major roads have on-street parking, which reduces effective right of way (RoW). Further, the city does not have a proper public transport system.

vi. Housing and basic services for urban poor

With respect to housing and basic services for the urban poor, the key challenges are dilapidated housing and lack of service coverage in terms of individual toilets and social infrastructure facilities. Further, the service levels should be improved so that slum-dwellers can easily access water supply, sewerage, door-to-door waste collection, CC roads, and street-lighting facilities.

Our action plan includes categorization of slums; integrated development of slums through adoption of slum networking strategies; rehabilitation of slums through development of pucca housing; construction of housing; providing access to health and education by implementing the health and education action plans; as well as livelihood restoration through activity centers and skill development programmes.

vii. Social infrastructure

The key challenges in the social and cultural infrastructure space are lack of adequate education infrastructure for pre-primary, primary, and higher secondary education. Also, there is a need to develop health care infrastructure at both the neighborhood and city levels. Further, socio-cultural infrastructure like community centers must be developed in the identified wards. The requirement for development of schools, hospitals, socio-cultural facilities and parks and playgrounds has been assessed as per URDPFI guidelines. Construction of veterinary services for stray animals has also been proposed.

viii. Urban environment, disaster management and climate change

The two major interventions identified under urban environment are rejuvenation of water bodies and pollution mitigation strategies. Under pollution mitigation, augmentation of pollution control check

devices, installation of sprinklers in identified corridors, and plantation activities have been identified. The second intervention is mapping of water bodies, eviction of encroachments, and construction of rainwater harvesting pits, implementing pollution mitigation strategies, take up energy conservation and diligent impact assessment and monitoring for infrastructure projects. Further, climate change mitigation measures like solar street-lighting along major arteries and rooftop photovoltaic paneling in government and institutional buildings have been proposed for investment.

ix. Local economic development

Projects under local economic development have been envisioned in keeping with the vision formulated for the city. As the vision suggests, the city should ideally shine as a tourist, transit and trading hub by 2041. In view of the rapid economic growth of city, a tea museum and timber based furniture units could be developed in the city.

x. Tourism sector development

The city can be groomed as a transit hub for tourist activity in view of the tourist locations existing within 100 km radius of the city. Strategies to this end include development of tourist amenities and accommodation facilities. These projects could be taken up by the state tourism department. Further, construction of tourist information kiosks, bus stands, and railway stations could be taken up by SMC.

SMC's financial assessment

Siliguri Municipal Corporation's major source of income is tax revenue and revenue from fees and user charges. Market rent and water tax are the main avenues of income for the corporation, followed by revenue grants, contributions and subsidies. The highest expense is incurred on establishment by the corporation. From the detailed revenue and expenditure balance sheet, it is evident that the corporation is running under deficit.

The corporation has already implemented property tax in the corporation area. The property tax is fixed on 'base unit area value' – as per the West Bengal Municipal Corporation (Amendment) Act, 2009 – by the state valuation agency and is revised every five years. However, the property tax in the state has not been revised for the last 10 years, although revision of the tax has been initiated by the valuation agency. As per the West Bengal Valuation Board's draft valuation list, total assessed properties in SMC number 96,000 approx. However, till date, only 80,307 properties have been taxed. Revenue income of SMC increased from Rs.2,771 lakh in 2008-09 to Rs. 6,033 lakhs in 2012-13. While revenue income grew on a year-on-year basis, the annual rate of growth also increased except in when it declined to 11% compared to 20.8% in 2010-11.

Investment requirements and city investment plan

SMC's investment requirements to implement the sectoral action plans outlined in the CDP have been identified and included in a city investment plan (CIP). CIP is generally prepared in line with the identified vision for a city through a comprehensive process of gap assessment and stakeholder consultations. The assessment has also based on identified sector-specific strategies, implementation actions, and associated reforms with specific inputs from stakeholders too. The strategies adopted are to improve service delivery through efficiency measures and creation of infrastructure assets, and better all governance aspects.

The total estimated capital investment required to provide efficient services to the present population and future population of the city by 2041 is Rs. 3,357 crore. A sum of Rs. 2,710 crore is proposed for investment by 2020-21 to cater to infrastructure requirement. The table below presents a summary of sector-wise investment needs and investments.

S.No	Sector	Short Term 2021	Long Term 2021-41	Total investment
		(investment in Rs. Crore)		
1	Water Supply	337	52	389
2	Sewerage & Sanitation	408	13	421
3	Urban Roads, Traffic & Transport, Street Lighting	76	41	117
4	Storm Water Drains	424	0	424
5	Housing & basic services for urban poor	407	242	650
6	Solid Waste Management	210	67	276
7	Urban Environment	568	83	651
8	Social Infrastructure, Heritage and Socio Culture	114	114	227
9	Local Economic Development	95	7	102
10	Tourism Development	38	0	38
11	Urban Governance	34	34	67
	Total investment estimated	**2,710**	**647**	**3,362**

Source: CRIS analysis

About 19% of the investment has been identified towards urban roads, traffic and transportation; 19% towards housing and basic services for the urban poor; 13% towards sewerage and sanitation; 1% towards social infrastructure ;13% towards storm water drains; 4% towards local economic development; 3% towards solid waste management; and 7% towards urban environment. The rest of the investment has been earmarked for tourism development and urban governance.

The following agencies would be responsible for implementing the projects identified in the CDP.

1. **Siliguri Municipal Corporation:** SMC would be responsible for design, construction, operation, and maintenance of water supply, sewerage system, SWM, SWD, housing and basic services for the urban poor, municipal roads, parks, and playgrounds. SMC would be the implementing agency for all projects identified in the above-mentioned sectors. It would have to contribute 83% of the total investment.
2. **Siliguri Jalpaiguri Development Authority:** SJDA would be responsible for revision of master plans and land use conversions. It would be the implementing agency for the proposed transit-oriented development in the city. Also, regional transport projects like the construction of a logistic hub, transport nagar and truck terminals would be helmed by SJDA. It would be required to contribute 5% of the total investment.
3. **West Bengal Industrial Development Corporation Ltd. (WBIDC):** WBIDC is responsible for the development of common infrastructure facilities in industrial zones like access roads, internal roads, water supply network, drains and effluent channels. Hence, WBIDC would be the implementing agency for the development of special economic zones in the city. It would have to contribute 1% of the total investment.
4. **West Bengal Tourism Development Corporation (WBTDC):** WBTDC is in charge of construction, operation and maintenance of tourist points within the state. Hence, WBTDC has been identified as a suitable agency for tourism development projects identified in the CDP. WBTDC would have to contribute 1% of the total investment.

5. **West Bengal Renewable Energy Development Agency (WBREDA)**: WBREDA is responsible for provision of technical assistance to projects in the non-conventional energy sector. Further, the department also implements small-scale projects with fund support from the Ministry of New and Renewable Energy. Hence, WBREDA would be assigned all renewable energy projects in the city. It would have to share 3% of the total investment.
6. **Department of education and health:** The state department for education and health would be responsible for development of education and health facilities identified as per the URDPFI guidelines. The education department would have to contribute 1% of the total investment and the health department 4%.

Sr.No	Name of Agency	2021		2041	
		Investment Estimated	%	Investment Estimated	%
1	SMC	2,282	84%	2,798	83%
2	SJDA	109	4%	166	5%
3	WBIDC	36	1%	36	1%
4	North Bengal State Transport Corporation	70	3%	70	2%
5	WBTDC	38	1%	38	1%
6	WBREDA	42	2%	84	3%
7	Department of Education	18	1%	35	1%
8	Department of Health	115	4%	135	4%
Total investment		**2,710**	**100%**	**3,362**	**100%**

Source: CRIS analysis

SMC's investment

The overall investment required for 2041 is Rs 3,362 crores. SMC would be responsible for taking up projects worth Rs 2,282 crores by 2021; the remaining investment would have to be made by parastatals/state government departments. The sector-wise breakup of SMC's investment for 2021 has been presented in the table below.

Sector	2021 (Investment estimated in Rs. Crore	2041 (Investment estimated in Rs. Crore
Water Supply	337	389
Sewerage & Sanitation	408	421
Solid Waste Management	76	117
Storm Water Drains	424	424
Urban Roads, Traffic & Transport, Street Lighting	287	480
Housing & basic services for urban poor	77	107
Urban Environment	568	651
Social Infrastructure	72	143
Local Economic Development	0	0
Tourism Development	0	0
Urban Governance	34	67
Total investment	**2,282**	**2,798**

Source: CRIS analysis

SMC's investment capacity and financial operating plan

We have assessed SMC's investment capacity through a financial operating plan (FOP)[1], which gives a multi-year forecast of finances for the medium term. In line with the phasing of identified projects in the capital investment (CIP), the FOP has been generated for the same period for SMC, to assess SMC's investment-sustaining capacity. A salient feature of the FOP is that all outstanding dues, including debt and non-debt liabilities if any, are also taken into account. Accordingly, the annual accounts of SMC for the period between the financial years 2008-09 and 2012-13 were used to determine past trends for both revenue and expenditure items and to arrive at appropriate growth assumptions for each of the income and expense items. After forecasting the revenue account, the CIP has been loaded on to cash flow.

The project funding structure comprises grants under the New Urban Development Mission (NUDM) framework[2] (accounting for 70% of the funding as per JNNURM structure has been assumed); internal surplus and debt are considered to meet the balance fund requirement. The level of investment that SMC can sustain is determined by studying the overall surpluses/year-to-year opening balance and debt-service coverage ratio (DSCR). A spread sheet FOP model has been customized to depict the financial position of SMC. The investment-sustaining capacity of SMC has been assessed based on the FOP assumptions. The model was used to calculate the overall surpluses under various scenarios involving combinations of internal revenue improvement, state support, financing terms, etc.

Given the existing financial position of SMC, the revenue and capital accounts of SMC are projected against the growth scenario. The FOP is generated from the sustainable investment point of view in line with current growth trends against the identified investment.

The overall investment estimated is Rs. 2,282 crore (on constant prices). However, as per the current prices, the estimated investment would be Rs. 2,465 crore (which includes cost escalation and physical contingencies). It is observed that without any grant support, SMC can implement projects worth Rs. 114 crore only. With grants, SMC can take up priority projects in the areas of sewerage and sanitation, solid waste management, and traffic and transportation. Thus, there is a need to augment SMC's investment capacity by implementing revenue enhancement measures and mandated reforms, to enable it to access state and central grants, to achieve improved case investment capacity.

Given the importance of Siliguri city in the region, it is very important to upgrade the city's basic infrastructure facilities to attract investment and industries to the city and also boost economic development in the region.

Therefore, SMC should aim to implement the improved case investment capacity (Rs. 913 crore) with grant support from state and central governments. SMC needs to take the following steps to achieve this improved case scenario investment:

- Reforms in property tax need to be implemented immediately to improve coverage and collection efficiency; policy-level changes may also be needed to streamline the department.
- Water tariff structure is to be revised immediately. SMC should explore a volumetric tariff structure for metered water connections.
- SMC should levy user charges on solid waste management services – SMC may explore this initiative as part of property tax.
- SMC should explore the outsourcing of certain functions to reduce establishment expenditure.

[1] For the preparation of FoP for SMC, we have adopted the methodology as provided in the revised CDP toolkit.

[2] Based on the past trends, it is assumed the funding structure would remain same as it was in the JNNURM;

- SMC should ensure that the contractor carries out operation and maintenance of the assets created (WTP, STP and SWM plants) for a period of five/eight years after the completion of the test runs.
- SMC should curtail regular capital expenditure over the next 5-10 years and take up only priority works in wards.
- SMC should explore the PPP route to implement either the projects or project components.

Thus, the CDP embodies the approach, methodology and implementation actions which can facilitate development of Siliguri city. However, to execute this plan, institutional arrangements need to be streamlined and strengthened. Also, the requisite institutions, system and capacities must be in place. SMC has undertaken several initiatives over the years to reform urban governance and implement reforms at the city level; these initiatives need to be deepened. All these initiatives and associated aspects are discussed in the report.

1. Project Background

1.1 Context

The need for an overall urban improvement and development to sustain the economic growth momentum post the liberalization era first found its expression in the mandate of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched by the Government of India (GoI) in December 2005. The project endeavoured to bring about an improvement in the quality of urban life and make them as investment destinations. The programme derived its initial rationale from the "National Common Minimum Programme" of GoI that laid stress on the expansion of physical infrastructure, and therefore, comprehensive urban renewal and slum development could be taken up. The second rationale for such a large-scale programme was derived from India's international commitment to achieving the Millennium Development Goals; GoI proposed to facilitate investments in the urban sector and strengthen the existing policies in order to achieve these goals.

In recognition of the above mandate, the JNNURM programme was conceived. The scale of the programme was aimed to be in the mission mode primarily to make the cities realize their full potential and become engines for growth. It is argued that the urban sector contributes to over 50% of the country's gross domestic product (GDP), and therefore, focused attention is required for urban infrastructure development.

As already mentioned above, JNNURM is the first flagship national programme for urban development of this nature and size launched by GoI. The programme sought to bring about a change in the way urban development has been perceived. It recognized the importance of two major aspects for urban development in the country:

- The need for urban infrastructure improvement in order to improve quality of life and sustain the local economy as well as to attract more investments; and
- The need for investment to undertake urban infrastructure improvements.

In doing the above, the programme brought about the necessary awareness among the urban local bodies (ULBs) regarding planning and implementation of projects, the need for systematizing urban services and their management, and the need for involving stakeholders in project planning and raising revenues for the urban areas that can sustain the urban infrastructure. Significant emphasis was given to urban governance reforms and the need to link reforms with investments. Assistance therefore to the state governments and ULBs was proposed to flow through a reform-linked plan. Introduction of such reforms was considered crucial for developing sustainable infrastructure that would include,

- Efficient management of created physical assets so as to increase self-sustainability; and
- Enhance efficient service delivery.

Both these aspects were to be achieved through the agenda of reforms in the cities.

Over the past nine years, the programme has committed over Rs. 286 billion for 552 projects involving a total investment of over Rs. 620 billion. Some of the key achievements of the project include the following:

- The mission has been successful in catalyzing multi-year investments and reformed development in urban infrastructure;
- There has been a visible improvement in the delivery of municipal services in many cities;
- Some cities have prepared development/master plans for the first time. There is also greater awareness in the ULBs regarding the need to develop systematic plans for improvement in

infrastructure. There is also an increase in aspiration levels among communities and there is a demand for better infrastructure and services;

- Several projects, especially in the transport sector, have been taken up within the JNNURM framework, which has significantly improved the quality of life in the cities; and
- There has been good progress in the implementation of reforms at policy level at state and central level. Most of the states have framed their policies on reforms and started implementing the same. ULBs have started implementing the reforms in the areas of accounting, e-governance, property tax, and user charges.

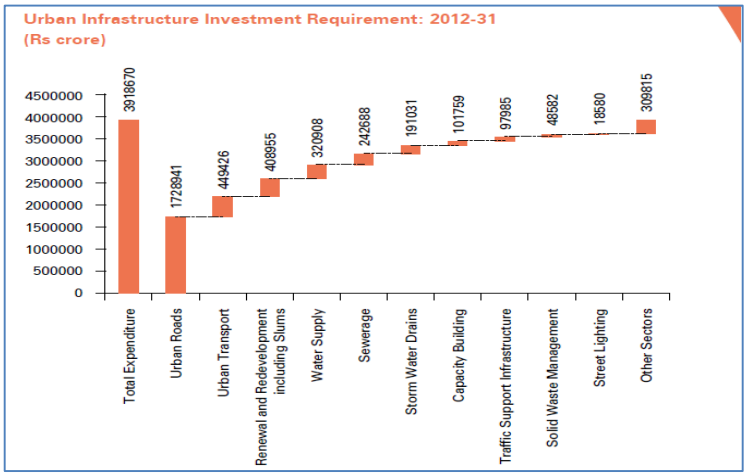
While there has been a significant change in the urban sector due to JNNURM, several challenges have emerged, which need to be addressed:

- The city development plan (CDP) was seen as an investment plan for projects in the immediate term, and not as a vision document for the city, resulting in very limited cities revising the same;
- While preparing the CDP, consultation with the stakeholders was limited and mostly restricted to the line departments and parastatal agencies;
- The pace of project execution has been found to be slow. Some states have been able to take greater advantage of the programme than others;
- Cities have also not been very successful in leveraging JNNURM funds to raise finances on their own or to attract private or PPP-based investment;
- The ULBs are not in a position to take over all the functions mentioned under the 12th Schedule of 74th Constitutional Amendment Act (CAA) at present. Most of the ULBs are also not in a position to take over functions like roads and bridges, water supply sewerage, drainage, and urban forestry due to their present incapacity to do so; and
- Institutional strengthening and capacity building initiatives are yet to be initiated in most of the ULBs. Most of the ULBs are facing capacity-related issues such as lack of staff (staff recruitment has not been carried since long).

The Planning Commission of GoI, through a committee, has devised a framework for the next urban mission. This framework has been prepared after studying and analyzing the successes and challenges in implementing JNNURM and the initiatives taken by other ministries in urban development.

The High Powered Expert Committee (HPEC) report published in 2011 further identified about Rs. 39,000 billion of investment in infrastructure in the urban areas of India (Refer Figure 1).

Figure 1: Urban Infrastructure Investment Requirement 2012-2013



Source: Report on Indian Urban Infrastructure and Services, HPEC, 2011

1.2 Revised CDP under Capacity Building for Urban Development (CBUD) Project

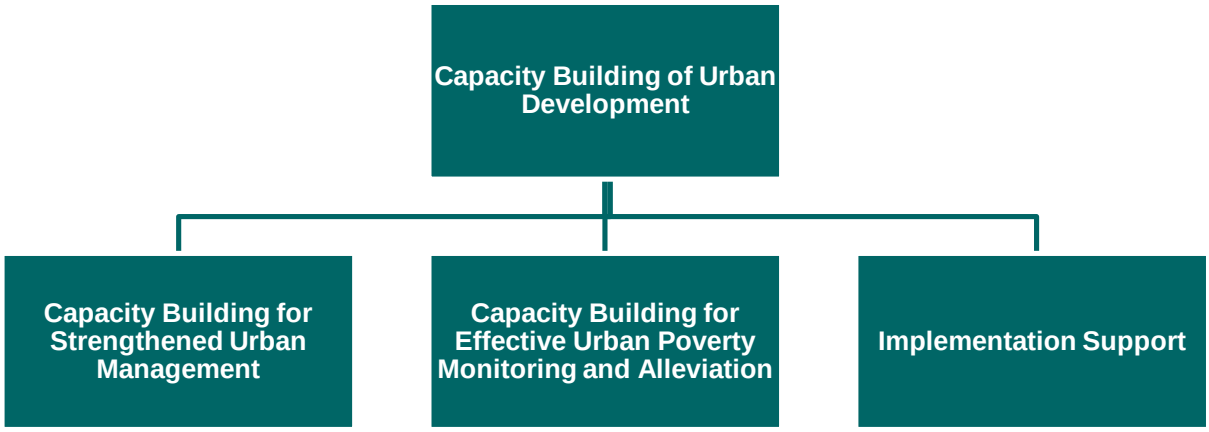
1.2.1 CBUD Programme

In order to give an impetus to reforms under JNNURM, the Ministry of Urban Development (MoUD) and Ministry of Housing and Urban Poverty Alleviation (MoHUPA) have launched a new project called "**Capacity Building for Urban Development" (CBUD)**. The project has been launched with support from the World Bank (WB). GoI has received financing from the WB/International Development Association (IDA) towards the CBUD project. The broad aim of the project is to address the major constraints of urban development and specifically focus on the capacity building requirements for successful urban management and poverty reduction across the selected ULBs in India.

The project will contribute to GoI's overarching objective of creating economically productive, efficient, equitable, and responsive cities. Achieving this objective will help sustain high rates of economic growth, accelerate poverty reduction, and improve services, especially to the urban poor.

The project has three components as presented in Figure 2.

Figure 2: CBUD project components



1. **Capacity Building for Strengthened Urban Management**: This component is aligned with the infrastructure and governance sub-mission of JNNURM and will thus support technical assistance across the several urban management topics.
2. **Capacities Building for Effective Urban Poverty Monitoring and Alleviation:** These capacity-building initiatives are aligned with the basic services to the urban poor sub-mission. They reflect the need for building information systems, sharing experiences, and designing strategies for urban poverty alleviation.
3. **Implementation Support:** This component will support a national project management unit (PMU) for providing overall technical and managerial support during the implementation of the programme. The PMU will have a critical role in promoting and support the project.

1.2.2 Preparation of Revised CDP under CBUD Programme

In order to identify broader issues for intervention and areas of assistance pertaining to development of cities, CDPs, which were already available for most of the cities under JNNURM, need to be revised as per the revised CDP Guidelines (April 2013) issued by MoUD.

MoUD has identified 30 cities across India under the CBUD project to facilitate the support. MoUD invited proposals and entrusted CRISIL Risk and Infrastructure Solutions (CRIS) with the responsibility of preparing the CDPs.

1.3 Revised CDP Guidelines – key areas of emphasis

The revised guidelines issued by MoUD further incorporate certain additional aspects; these aspects shall be covered while preparing both fresh and revised CDPs. The aspects to be incorporated are:

- Formation of CDP Committees – Policy and Technical;
- Inclusion of heritage, health, and education sectors in the CDP;
- Stress on infrastructure management aspects;
- Outcome parameters of projects;
- Revenue enhancement initiatives, expenditure management initiatives, and asset management initiatives;
- Special emphasis on PPP projects; and
- Transit-oriented development (TOD).

Some of the other key areas of importance in the revised guidelines are as follows.

1.3.1 Vision-led planning

The revised guidelines specify that unlike the past CDPs, the city vision needs to be more detailed. The city vision need to be based on understanding the strengths, weaknesses, opportunities, and threats (SWOT) for the city and the needs and priorities of the people of the city. The people must be encouraged at workshops and consultation sessions to visualize the future of the city, their aspirations, and the consequent growth that they anticipate in the city. This vision finally can be translated into respective sectoral visions.

1.3.2 Resource-based planning

Every city in India in the context of its regional location has particular strengths in terms of its resource endowments. Such resources need to be assessed and their strengths realized for city development. The approach for plan preparation could be: a) national resource led planning for cities endowed with natural resources like water bodies) OR b) Economy based (for an industrial or trading city), OR c) Tourism based for heritage cities OR d) combination of the above. This helps in setting the city apart from the rest. The approach can be identified based on:

a) Existing city strengths and opportunities,
b) Regional role of the city in the context of state development, and
c) Needs of the city.

1.3.3 Participatory approach

As already mentioned above, the revised CDP guidelines have specified that the CDP should be treated as a “living document”. For this, periodic revision and updation of the CDP is necessary. Such revisions have to and must be conducted with a participatory planning approach. The CDP guidelines outline that local area plans need to be prepared in consultation with the ward committees to fulfil the expectations of the citizens. Also, the guidelines specify that such an approach is necessary to ensure equity concerns and poverty issues are integrated in the CDP. Consultations also need to be carried out at every stage of the plan preparation and implementation. The citizens must be able to prioritize and choose their needs for infrastructure development.

1.3.4 Equity Concerns, Poverty, and Local Economy Development

Poverty and local economy development go hand in hand. Understanding the local economy would help in devising appropriate infrastructure development strategies that can help in/be conducive to the growth of the local economy and thereby nurture local talent and resources. These need to be given adequate focus in the present CDP exercises, and therefore help in not just local economy development but also in regional economy development.

The 12th Five Year Plan has also started a mission for National Urban Poverty Alleviation Mission (NUPAM) for targeting housing and poverty alleviation based on recommendations of the NUPAM identifying the issues of poverty and housing in city and implementation status of programmes such as Rajiv Awas Yojana, Integrated Housing and Slum Development Programme (IHSDP), etc. Integration of these aspects would be crucial in making the CDP relevant to state and central government policies.

1.3.5 Capacity Building in ULBs

The ULBs presently face serious human resource shortage for planning, development, and urban management activities (including operations and maintenance, monitoring and evaluation, financial management, and procurement). This issue has been highlighted by the study on the appraisal of JNNURM projects as well. The CDP guidelines have proposed that the CDPs must address this issue.

Also, it has been suggested in the guidelines that urban reforms need to be implemented with greater participatory approach. The strategies to arrive at the vision for a city should be linked to the reform agenda. ULBs should be asked to outline the reforms and propose a timeline to achieve the same. Administrative and structural reforms should be made mandatory and carried out as soon as possible. Financial thresholds need to be decided and adhered to in terms of the central assistance under JNNURM being given as a soft loan or a grant. This approach would help in designing an appropriate capacity-building strategy.

1.3.6 Sectoral Action Plans with Goal-Oriented Targets

The revised guidelines specifically highlight the need for preparation of sectoral action plans with targets that are oriented towards specific goals. Action plans are specifically required for sectors including Local Economic Development Plan, Infrastructure Development Action Plan, Housing and Poverty Alleviation Action Plan, Comprehensive Mobility Plan (CMP), Heritage Management Plan (where needed), Financial Management Plan, Institutional and Capacity Building Action Plan and Environment Management Plan (including disaster management). Such sectoral plans would be based on clearly identified goals. Also, inter-sectoral as well as intra-sectoral linkages need to be addressed through the CDP.

1.3.7 Monitoring and Evaluation Arrangements

The guidelines clearly spell out the need for monitoring and evaluation at regular intervals as to the extent of implementation of the CDP. Also, the development of monitoring arrangements would go a long way in securing community participation, who can be involved in the process of monitoring.

1.4 Objective of the Assignment

The CDP aims to identify an integrated solution to the challenges facing the city. It recognizes the economic growth strategy as well as the actions that would be required by various agencies to ensure the sustainable development of the city. The CDP is the ULB's strategy that presents the vision of the desired future for the city, and the mission statements on how the ULB, together with other stakeholders,

intends to work towards achieving this long-term vision. The CDP incorporates the assessment of city majorly at four levels: socio-cultural and economic environment; physical environment; infrastructure services and institutions; and urban poverty and heritage.

The primary objective of this assignment is – to revise and update the existing CDP.

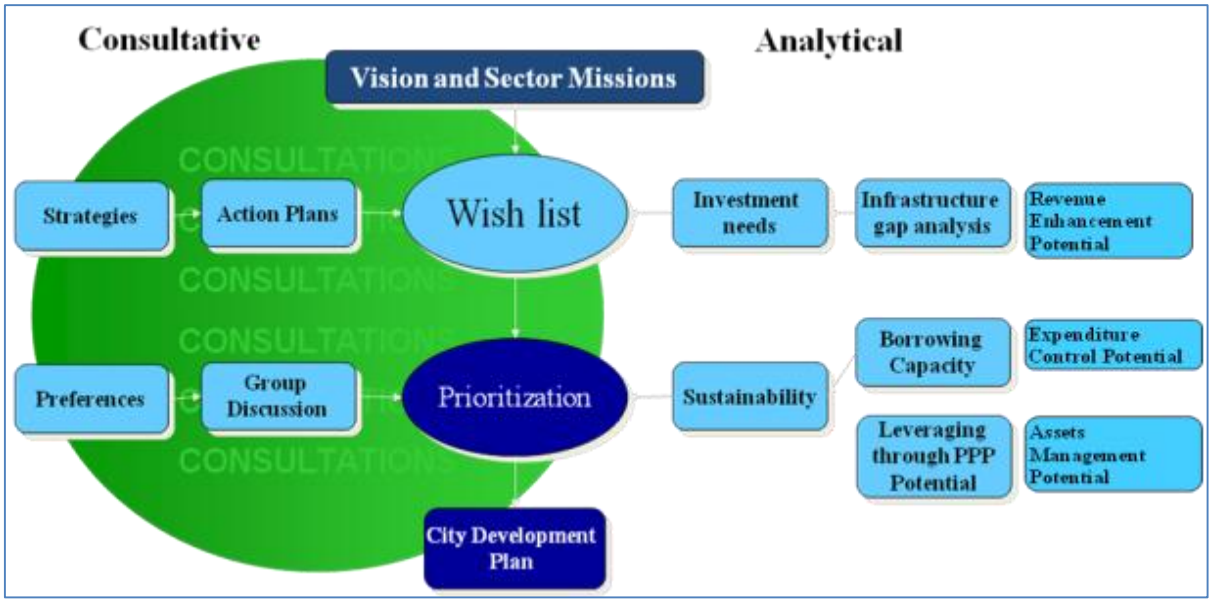
The scope of work in brief shall entail:

- Profiling the present status of the city, providing an in-depth analysis of its demographic, economic, financial, infrastructure, physical, environmental, and institutional aspects;
- Based on the above analysis, developing a perspective and a vision for the city, which would be prepared in consultation with its relevant stakeholders. In order to achieve the vision, a formulation strategy for bridging the gap between where the city is at present and where it wishes to reach need to be prepared;
- The CDP should provide for a Capital Investment Plan (CIP), based on which the concerned ULB will be able to access funds under central/ state government schemes as well as from own and other sources based on priority actions and projects identified in the CDP;
- The document should also provide Financial Operating Plan (FOP) to direct the ULBs for mobilizing various financial resources to implement the identified projects. The inter-sectoral and intra-sectoral issues need to be addressed by the CDP;
- Preparation of the CDP will consist of city development strategies that will emerge out of a structured consultative process. The process will enable elected representatives, key staff of departments of Municipal Corporation/ Municipal Council, parastatal agencies and other institutions, policy makers and the citizens to participate and plan for spatial, social and economic development of the concern cities; and
- The CDP has to adhere to the latest revised toolkit prepared by the MoUD for CDP preparation published on its website www.jnnurm.nic.in in April 2013.

1.5 Approach and Methodology

The approach to the assignment is based on the consultative and analytical assessment of the existing situation. The inputs from stakeholders have been used to prioritize areas of development and to formulate the strategies in order to make the revised CDP an implementable document. The approach of revised CDP preparation is presented in Figure 3.

Figure 3: CDP preparation approach



The revised CDP has been prepared for the period of next 30 years, i.e. 2041. It is a forward-looking consensus program for the city that outlines the path with respect to the following aspects:

Infrastructure Development – Assessment, gap analysis, arriving at investment requirement (short term and long term) and prioritization of various services provided by Municipal Corporation - water supply, sewerage, storm water drainage, roads, traffic & transportation, street-lighting, solid waste management, firefighting, education, health, etc.

Slum Development – Preparation of programme for the development of slum pockets in the city. This includes access to all the basic services as well as housing for urban poor.

Economic Development – The revised CDP focused critically on tapping the existing potential and identifying key economic development opportunities for the city.

Social Development – The revised CDP has taken into account the social development needs of the city such as the need for hospitals, education institutes, and recreational centers.

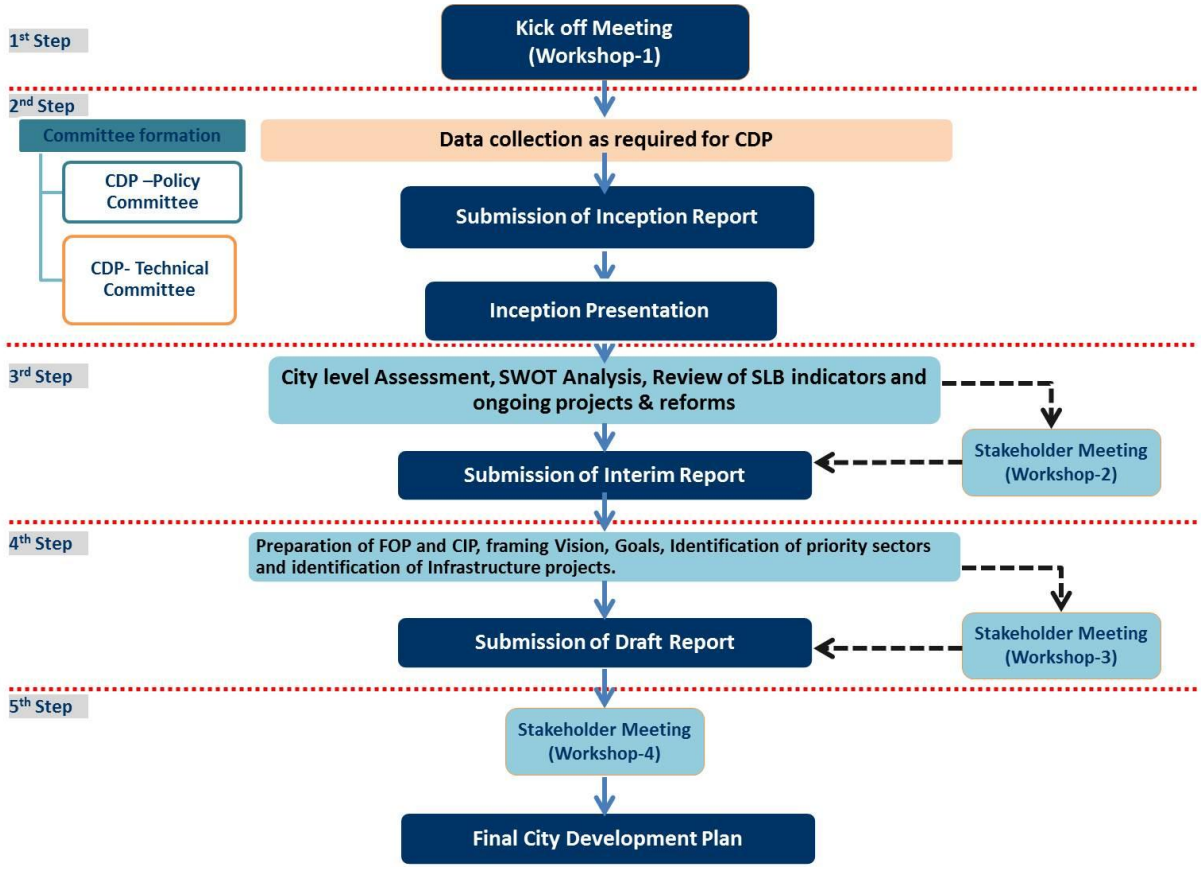
Institutional Development – Assessment of capacity building required for ULBs to undertake development of city.

Financial sustainability -The revised CDP has assessed the revenue sources, areas of expenditure and current and future investment requirement of the city. Based on this, sustainable investment capacity has been arrived and measures to improve revenues and control expenditures have been suggested.

Reform Assessment Plan –The revised CDP also discussed status of various reforms undertaken by the ULBs to bring about improvements. These reforms are in the areas of accounting, e-Governance, property tax, user changes, building byelaws, etc.

Moreover, the approach is based on the philosophy of developing workable solutions. The methodology for undertaking the work of preparation of revised CDP is presented in Figure 4. Broadly, five steps in a sequential order have been undertaken in this work.

Figure 4: CDP Preparation Methodology



Source: Revised CDP toolkit, 2012 and CRIS analysis

1.6 Brief on Siliguri Draft Development Plan

The Siliguri Municipal Corporation Act 1990 requires it to prepare Draft Development Plans (DDP) covering a period of five years and that addresses a range of municipal functions as laid down in the Act. Siliguri Draft Development Plan (2008-2013) report mainly discusses the current infrastructure facilities, population growth, slum infrastructure, land use development, environmental management, local economic development, livelihood and poverty, health care and educational facilities in the city; The report also explains the estimation of infrastructure gaps and supply and demand, and investment requirements for the period of implementation of DDP. The DDP estimated about Rs. 566.59 crore for city development of Siliguri with a 5 years implementation period.

1.7 Brief on Siliguri Comprehensive Mobility Plan

Urban Development Department has initiated the Traffic and Transportation Master Plan (TTMP) for the Siliguri Jalpaiguri Planning Area to address the growing traffic congestion in the study area. As part of the TTMP study, Siliguri Comprehensive Mobility Plans (CMP) has been prepared in 2011. The CMP mainly explains the existing transport system, analysis of existing traffic situation, future urban growth scenario, future transport network scenario, parking and freight areas identification, environmental impact, travel demand forecast, public transport improvement plan, regulatory and institutional measures, and implementation programmes. The CMP identified major traffic & transportation issues in the city including absence of cohesion in the transportation network, lack of development and maintenance of infrastructure, lack of public transport options and absence of enforcement of traffic

rules and regulations, etc. To overcome the challenges in the city, the CMP has estimated the cost of required traffic and transportation projects at city level to be Rs. 266.25 crore. The proposed projects Including strengthening of major arterial roads (Hill cart road, Bidhan road, Sevoke road, Nivedita road and Station feeder road), establishing new links , construction of flyover/underpasses (Check post more, Mallaguri Intersection) and redesign of intersections.

1.8 Key process undertaken for CDP preparation process

CRISIL Risk & Infrastructure Solutions Limited (CRIS) has been appointed by Ministry of Urban Development (MoUD) for the Preparation and Revision of City Development Plans for 13 Selected Cities under Package 1 and 17 selected cities under Package 2. A kick-off meeting was organized by MoUD to review the work plan and approach for the assignment. The meeting was chaired by Ms. Nisha Singh IAS, Joint Secretary and Project Director and was attended by senior officials from MoUD, PMU from CBUD and officials from TCPO, CPWD.

CRIS Team made a presentation on the following aspects

- Our Experience in Preparation of CDPs
- Details of Assignment Coverage
- Our Approach - Revised CDP toolkit
- Proposed Teaming

The minutes of the kick off meeting have been provided in **Annex-1**

1.8.1 List of meetings

The list of meeting carried out during the CDP preparation process with ULB officials, parastatal agencies, city stakeholders have been outlined below.

Table 1: Summary of Various Meetings and Consultations

Sl.No.	Meeting	Date and Venue	Participants
1	1st workshop City-level stakeholder Workshop (Inception Stage)	27th December 2013	Representatives from SMC, SJDA, other line department officials and CRIS team.
2	Stakeholder consultations (One to one consultations)	▪ 9th June 2014 ▪ 9th June 2014 ▪ 11th June 2014 ▪ 12th June 2014 ▪ 11th June 2014 ▪ 13th June 2014 ▪ 16th June 2014 ▪ 14th June 2014 ▪ 15th June 2014 ▪ 13th June 2014 ▪ 24th June 2014 ▪ 14th Oct 2014	▪ SMC urban planner ▪ Municipal Accounts Department ▪ SCAOWS ▪ Hotel Association ▪ Borough II Officer ▪ Mini Bus Syndicate ▪ FOCIN ▪ Ward 20 Councillor (Slum) ▪ Borough I Officer ▪ Ward 28 Councilors (Slum) ▪ EHTTOA ▪ SMC Commissioner, Urban Planner, RAY Cell, Engineering Department,

Sl.No.	Meeting	Date and Venue	Participants
			Health Department, SJDA Officials.
3	2nd workshop City-level stakeholder Workshop (Interim Stage)	12th September, 2014	Chief Municipal Officer, Nodal Officer, SMC officials, ward councilors, line department officials and CRIS team.
4	3rd workshop City Level Stateholder workshop (Draft Stage)	16th February, 2015	SMC Commissioner, Chief Executive Officer, SJDA & Hon'ble Chairperson Board of Administrators (SMC), T. S.D.O, Siliguri, SMC officials, SJDA officials, A.C.P, Traffic Siliguri, other Stakeholders and CRIS team.
5	4th Workshop City Level Stateholder workshop (Final Stage)	12th March, 2015	SMC Commissioner, Chief Executive Officer, SMC officials, SJDA officials, other Stakeholders and CRIS team.
6	Technical Advisory Committee (TAC) meeting on the Draft CDP	24th March 2015 at 313 – B, committee room, Nirman Bhawan, New Delhi	TAC committee members and CRIS team. The suggestions of TAC on Siliguri CDP are presented in Annex-11.

1.8.2 Data Collection

Secondary data on various sectors had been collected from the respective departments such as SMC, Siliguri Jalpaiguri Development Authority (SJDA) and the West Bengal Pollution Control Board. Other major documents such as draft development plans, detailed project reports of various urban services, municipal budgets, comprehensive mobility plan and physical progress of on-going projects were collected. The CRIS team has carried out consultations with various stakeholders of the city and city-level assessments which include Strength, Weakness, and Opportunity and Threat (SWOT) analysis.

1.8.3 Committee Formation

SMC has formulated the policy and technical committees in line with the GoI's revised toolkit on the preparation of City Development Plan. Under the Technical committee, three categories of committees have been formulated which are Infrastructure, land use and environment development committee; Social and livelihood development committee; and Municipal Institutional strengthening. The Technical group for Vision Document & City Development Plan of Siliguri Municipal Corporation was adopted in the Board of Councillors meeting on 28th Jan 14. In May 2014, the Municipal Council was dissolved; Due to this, formation of policy committee is still at discussion stage.

The details of the Technical Committee formulated in the meeting on 27th Jan 2014 are provided in the **Annex-2.**

1.8.4 Stakeholders' consultation & Focus Group Discussions

The consultative process is the key to planning for any city. In Siliguri, City Development Plan is prepared for the first time. Earlier, the corporation used to prepare DDP which was only limited to investment required in a piecemeal manner and could not look into an overall vision and comprehensive infrastructure planning for the city.

Hence, in line with the objectives of the preparation of a fresh CDP for Siliguri city, a stakeholder consultation was planned. Stakeholders at the first level were identified; they included Siliguri Municipal Corporation itself (Commissioner, SJDA officials, all other line department officials); all other key institutions from the city which play a major role in planning, implementation and management, city stakeholders such as market associations, FOCIN, mini bus syndicate and institutions working in social aspects, other associations and the media.

The details of the FGDs conducted are presented in **Annex-3.**

1.8.5 Stakeholder workshop

The snapshot of various stakeholder workshops conducted during the preparation of Siliguri CDP has been presented below. The detailed discussion on these workshop has been presented in the city vision, development goals and strategies section.

a. Inception meeting

Stage 1	Inception meeting
Agenda	The objective of the inception meeting was to discuss with the SMC officials on the process for CDP preparation and the role of the ULB and other line departments in the preparation process etc. and also, explain the relevance of formation of policy and technical committees as envisaged in revised CDP Toolkit.
Timing	The inception meeting was organized in 27th December 2013 at SMC to initiate the commencement of CDP preparation process.
Venue	Indoor Stadium of Siliguri Municipal Corporation
Participants	• Officials from SMC, SJDA and • Representative from CRISIL Risk and Infrastructure Solutions Ltd. (CRIS)
Outcomes	1. Awareness among the municipal officials on prepration of CDP process 2. CRIS team informed during the meeting regarding formation of policy committee and technical committee. 3. Some Key Issues and Challenges faced by the Siliguri city were discussed in the meeting.
Photographs	 

b. Interim workshop

Stage 2	Interim workshop
Agenda	To present the status and performance of service delivery mechanism in Siliguri, City SWOT analysis to the stakeholders and to understand aspirations of the citizen on city development and framing of the vision for Siliguri.
Timing	The workshop was conducted on 12th September 2014 post the city assessment; stakeholder consultations on city issues and prioritization of

Stage 2	Interim workshop
	sectors. (Workshop invitation letter and participants list have been presented in Annex-4 & Annex-5 respectively)
Venue	Municipal Corporation Office, Siliguri.
Participants	The Municipal Commissioner chaired the workshop and there were 35 participants including the representatives from Parastatals agencies, NGOs and academicians.
Outcomes	Grouping of stakeholders was carried out to discuss sector specific issues. The views and suggestion provided were noted down. Sectoral issues and suggestions were identified; Vision formulation exercise was carried out.

Figure 5: Stakeholder workshop at Interim stage

c. Draft workshop

Stage 3	Draft workshop
Agenda	To present the draft CDP including the major proposal and strategies and to take comments, suggestions on various proposals included in the CDP process in Siliguri.
Timing	The workshop was conducted on 16th February 2015, post the discussion with SMC officials on the projects identified
Participants	The workshop was attended by 45 participants which include officials from SMC, SJDA, other line departments, market associations, City Based Organisations and NGOs. (Workshop invitation letter has been presented in Annex-6). There is a considerable participation of women stakeholders in the workshop.
Outcomes	The commissioner of SMC and CEO of SJDA have chaired the workshop. The CRIS team made a presentation on city level assessment, sector wise demand gap analysis, projects identified and capital investment plan for the city. Further, CRIS team discussed on the financial sustainability of SMC to take-up the projects on various scenarios. CRIS team has requested the stakeholder to provide their inputs/ suggestion on the proposed projects for the city.

Figure 6: Stakeholder workshop at draft CDP stage

d. Final workshop

Stage 4	Final workshop
Agenda	To present the final revisions on Siliguri CDP including the major proposal and strategies and to take comments, suggestions on various proposals included in the CDP process.
Timing	The workshop was conducted on 12th March 2014, post the discussion with SMC officials on the projects finalization.
Participants	The workshop was attended by 40 participants which include officials from SMC, SJDA, other line deprtments, City Based Organisations and NGOs. (Workshop invitation letter has been presented in Annex-7). There is a considerable participation of women stakeholders in the workshop.
Outcomes	The commissioner of SMC has chaired the workshop. The CRIS team made a presentation on revised capital investment plan and financial operating plan for the city. Further, CRIS team discussed on the River fornt development project for Siliguri city. CRIS team has requested the stakeholder to provide their inputs/ suggestion on the proposed projects for the city.

1.8.6 CDP submission

The inception and Interim reports have been submitted to MoUD and SMC on 31st December 2013 and 30th November, 2014 respectively. Subsequent to the final stakeholder workshop held on 12th March 2014 for Siliguri CDP, CRIS team has incorporated the suggestions received from the stakeholders and the CBUD team; accordingly updated the draft CDP. The updated Draft CDP has been submitted to MoUD and SMC on 3rd January 2015. The Technical Advisory committee has reviewed the draft report and provided the suggestions on submitted draft report. Based on the suggestions, the report has been revised for submission. The minutes of meeting of TAC meeting held on 24th March, 2015 has presented in **Annex-12.**

2. Introduction to the City

Siliguri, the gateway to North-East India, is not only of vital importance to the state of West Bengal but to India as a whole. It is signified by four T's – tea, timber, tourism and transport in north Bengal. Its hinterland consists of North Bengal, Sikkim, Bhutan, Nepal and Assam. It is one of the most rapidly developing metropolises of the state. Situated in Darjeeling district, it is the district's largest city; however, the district headquarters is located at Darjeeling. Siliguri is a unique city as 15 out of the 47 wards of Siliguri Municipal Corporation (SMC) fall in the neighboring Jalpaiguri district. The southern part of the district forms a part of SMC.

Settlements in Siliguri started with the setting up of tea plantations, and a junction station (in July 1881) for passengers to board the famous toy train bound for Darjeeling. In 1878, Mr. Franklin Prestage (an agent of the Eastern Bengal Railway Company) first proposed the laying of a train line from Siliguri to Darjeeling to the Government of Bengal with a detailed scheme. Sir Ashley Eden, the Lieutenant-Governor, appointed a committee to examine the project. This committee found the project to be feasible and reported it would be of great advantage to the government and public; the same was accepted in 1879.

Four 'T's of Siliguri – tea, timber, tourism and transport.

The world famous Darjiling Tea grows within a hundred km radius around Siliguri. Traditionally the settlement developed as a tea plantation and it is still the major trade centre for tea. The Terai forests in the foot hills of Himalayas is a major source of timbers. Siliguri acts as a trading centre for entire North Bengal and Sikkim. Siliguri, though not a significant tourist attraction itself, is the only transportation gateway to Darjiling, Dooars, Sikkim, Bhutan and Nepal. Domestic and Foreign tourists provide a major economic support to this city. All road and railway corridor from mainland India to North Bengal, The Seven Sisters and neighboring nations pass through Siliguri. In addition to Tea and Timber, Siliguri is a trade hub for various goods especially electronic goods. It is a major market place in North Bengal.

Construction started that very year and by 1880, the railway line had reached Tindharia. Later that year, the line was completed till Kurseong. By July 1881, it was opened for traffic right through to Darjeeling. The name given to the railway line was "Darjeeling Himalayan Railway Company."

A hundred years ago, in 1907, it was declared a sub-division (Mahakuma) in Darjeeling by the British administration. The land measurement of the area started in 1891. It was a small village at that time.

Figure 7: Siliguri City Location Map

Source: Maps of India (Image) and CRIS analysis

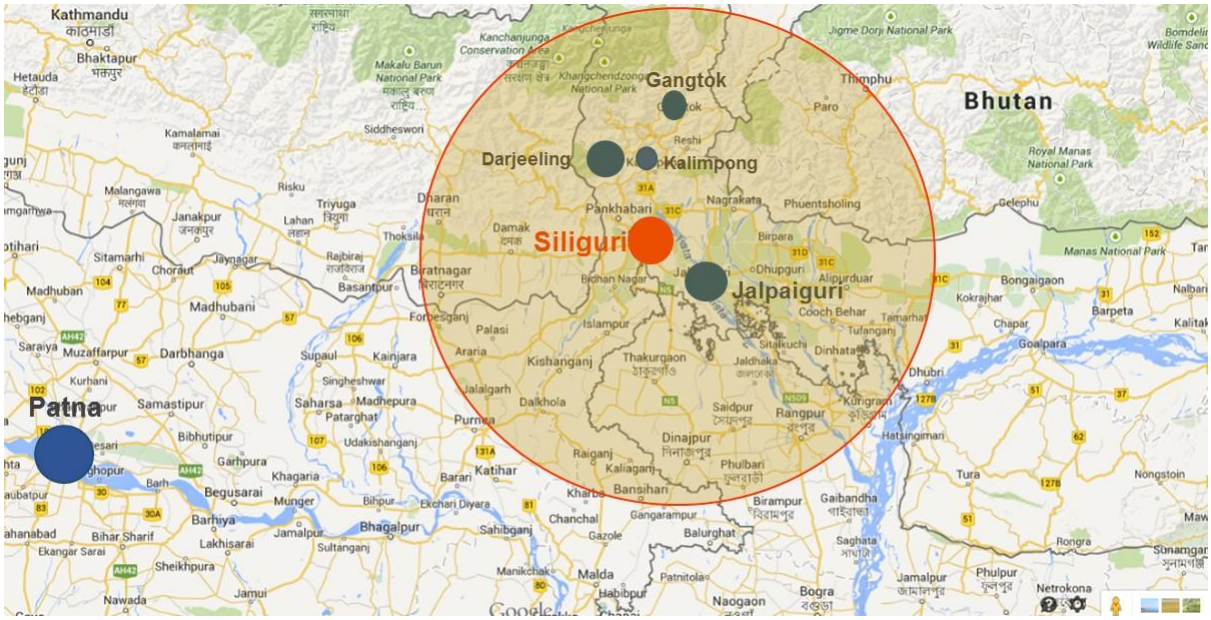
Siliguri really grew after India's Independence. First, thousands of refugees poured in from East Pakistan after Partition, followed by refugees from Assam in the 1960s who lost their home in anti-Bengali riots there. During this period, there were several wars in which Siliguri took centre stage – the 1962 Indo-China war, the 1965 Indo-Pak war and ultimately the 1971 war with Pakistan culminating in the creation of Bangladesh. Each event triggered major inflow of refugees to the town.

Siliguri was initially covered with deep forests and inhabited by tigers, leopards, elephants, and a variety of deer, reptiles and birds. The names of places like Bagdogra and Hatighisha in the region testify to the same.

2.1 Regional Setting

Siliguri is spread over two districts in West Bengal, viz., Darjeeling and Jalpaiguri. Naxalbari, Jalpaiguri, Rajgunje, and Malbajar are some important towns near Siliguri. Siliguri is the headquarters of the plains sub-division of Darjeeling district of West Bengal and is situated 392 feet above mean sea level in the foothills of the Himalayas on the banks of the river Mahananda. It is located in the Siliguri Corridor, a narrow strip of land linking mainland India to its north-eastern states. (Refer to Figure 8.) The city is popularly known as the gateway or the chicken neck of north-east India because its corridor establishes a connection between the rest of India and the north-eastern states.

Figure 8: Siliguri regional setting



Source: Google (Image) and CRIS analysis

Siliguri connects three international borders (Bangladesh, China, and Nepal). It also connects hill stations such as Gangtok, Darjeeling, Kalimpong, Kurseong and Mirik and the northeast states with the rest of India.

Moreover, as a gateway to the wonderful sights of the Himalayan peaks and ranges in Darjeeling, Siliguri offers important tourist activities that stimulate the economy of the town. During the initial period of its growth, people also flowed in from the hinterland states of Bihar, Uttar Pradesh and Assam; with the passing of time, Siliguri town acquired a cosmopolitan character.

Economic linkages

There was also a major influx of business communicates from other parts of India such as Bihar and Rajasthan, people who came to Siliguri to foster business opportunities latent in the town and eventually gave it a cosmopolitan character. The place was also a major hub for trading in jute. Jute was purchased here and stored in godowns before being sent to Kolkata's jute factories.

Functional linkages

Located in the Siliguri Corridor or Chicken's Neck — a very narrow strip of land linking mainland India to its north-eastern states – Siliguri is also the transit point for air, road and rail traffic to the neighboring countries of Nepal, Bhutan and Bangladesh. It literally serves as doors to these regions, hence the name Dooars, which is derived from the Sanskrit word dwaar or gate. The town hosts over 6,00,000 domestic and 20,000 foreign visitors annually. It is the commercial nerve centre of North Bengal.

Increasing population demanded facilities for higher education. The Siliguri College was established in 1950, followed by the Siliguri College of Commerce in 1962. In 1981, the Siliguri Women's College was set up; subsequently, in 1987, the Kalipada Ghosh Terai Mahavidyalaya was established in Bagdogra and in 1998, the Surya Sen College was inaugurated.

North Bengal University, the only university in the entire region, was established in 1962 at a place called Shivmandir near Siliguri. The place was officially renamed as Raja Rammohanpur, but the old

name still persists. Initial classes of the university were held in the Siliguri college campus. The Medical College and Hospital was established in 1967.

2.2 Administrative Boundaries

Siliguri Municipality was established in 1949 and housed in a wooden construction on Hill Cart Road. The first chairman of the municipal corporation was the then sub-divisional officer (SDO) Sri. Sachindra Mohan Guha. On 18th October 1952, the then Governor of Bengal, Sri.Harendrakumar Mukhopadhaya, laid the foundation stone of Gour Bhawan, the municipality's present offfice. On 26th January 1960, the building was inaugurated by Sri.Bireswar Majumdar.

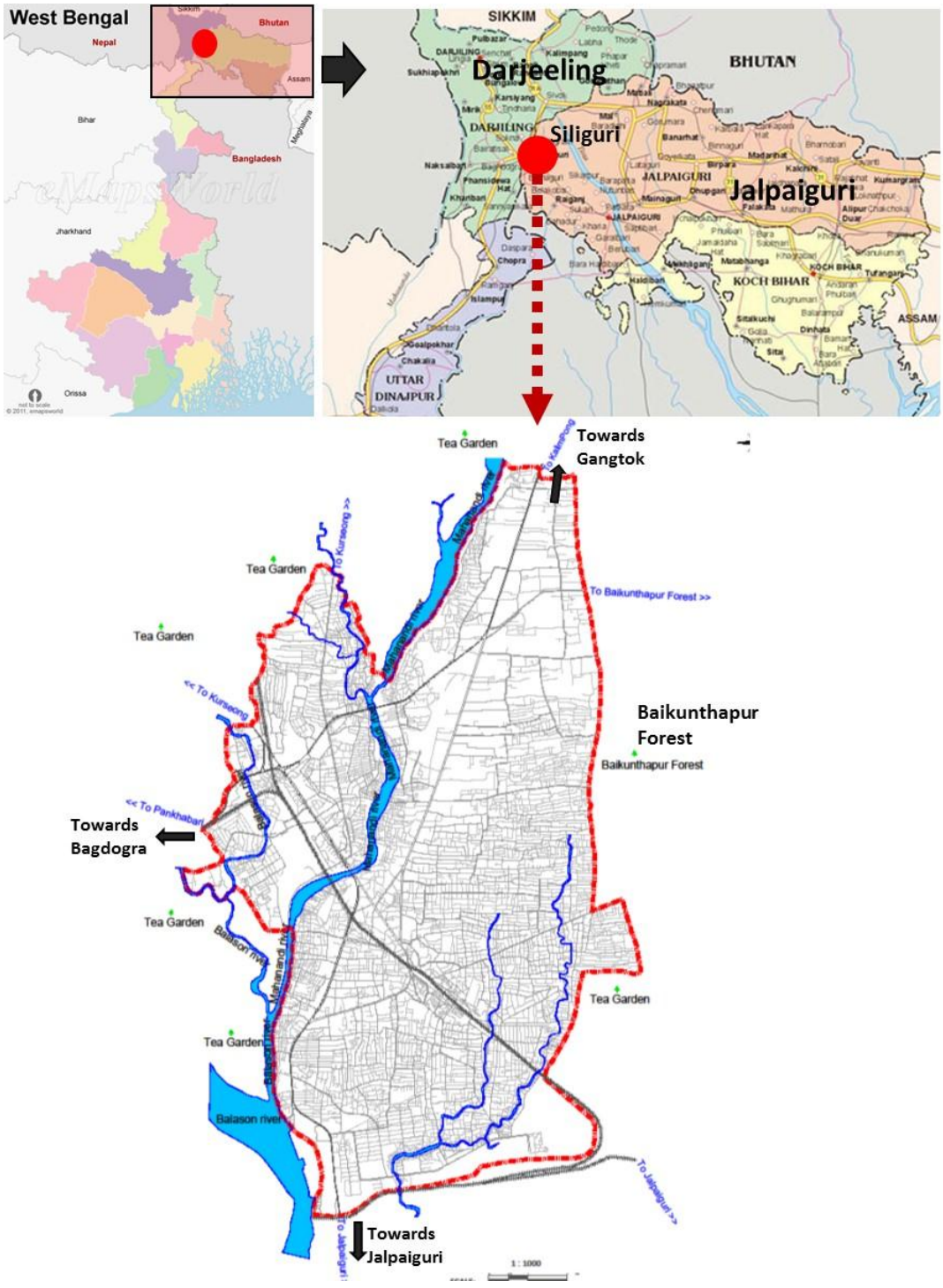
Till 1994, Siliguri Municipality had 30 wards under it. After the declaration of Siliguri Municipal Corporation in 1994, 17 new wards were added to its jurisdiction. The total area is 41.9 sq. km.

The Siliguri Municipal Corporation caters to two districts – Darjeeling and Jalpaiguri; 14 out of 47 wards of the Siliguri Municipal Corporation fall in the neighbouring Jalpaiguri district. Siliguri City is situated in the Siliguri Jalpaiguri Planning Area (SJPA) and the responsibility for planning and development of the city lies with the Siliguri Jalpaiguri Development Authority (SJPA). The land area under the jurisdiction of the Siliguri Jalpiguri Planning Area (SJPA) is 1,266.64 sq. km. after the recent inclusion of a portion of Phansidewa. Six police stations, viz., Siliguri, Matigara, Naxalbari, Jalpaiguri, Bhaktinagar and Rajganj come under SJPA. The area has been divided into five community development blocks, namely – Matigara, Naxalbari and Phansidewa in Darjeeling district and Jalpaiguri and Rajganj in Jalpaiguri District. The Siliguri Agglomeration Area consists of Siliguri Municipal Corporation and four census towns – Kalkut, Dabgram, Binnaguri and Chakiabhita. Figure 9 shows the administrative boundaries of the region.

2.3 Location and connectivity

Siliguri is located at 26.71°N and 88.43°E in the foothills of Himalayas. Siliguri can be reached overnight by both road and train from the state capital Kolkata. It is connected to Kolkata by NH-31 and to the other cities of West Bengal, Assam and Bihar by road. From Siliguri, the villages and towns in the Himalayas can be reached by road using private vehicles like jeeps and SUVs. Siliguri is also rail-linked via the New Jalpaiguri Station and air-linked via Bagdogra Airport to Kolkata, Delhi, Mumbai, Bangkok, and Thimphu/Paru.

Figure 9: Administrative boundaries



Source: Maps of India and CRIS analysis

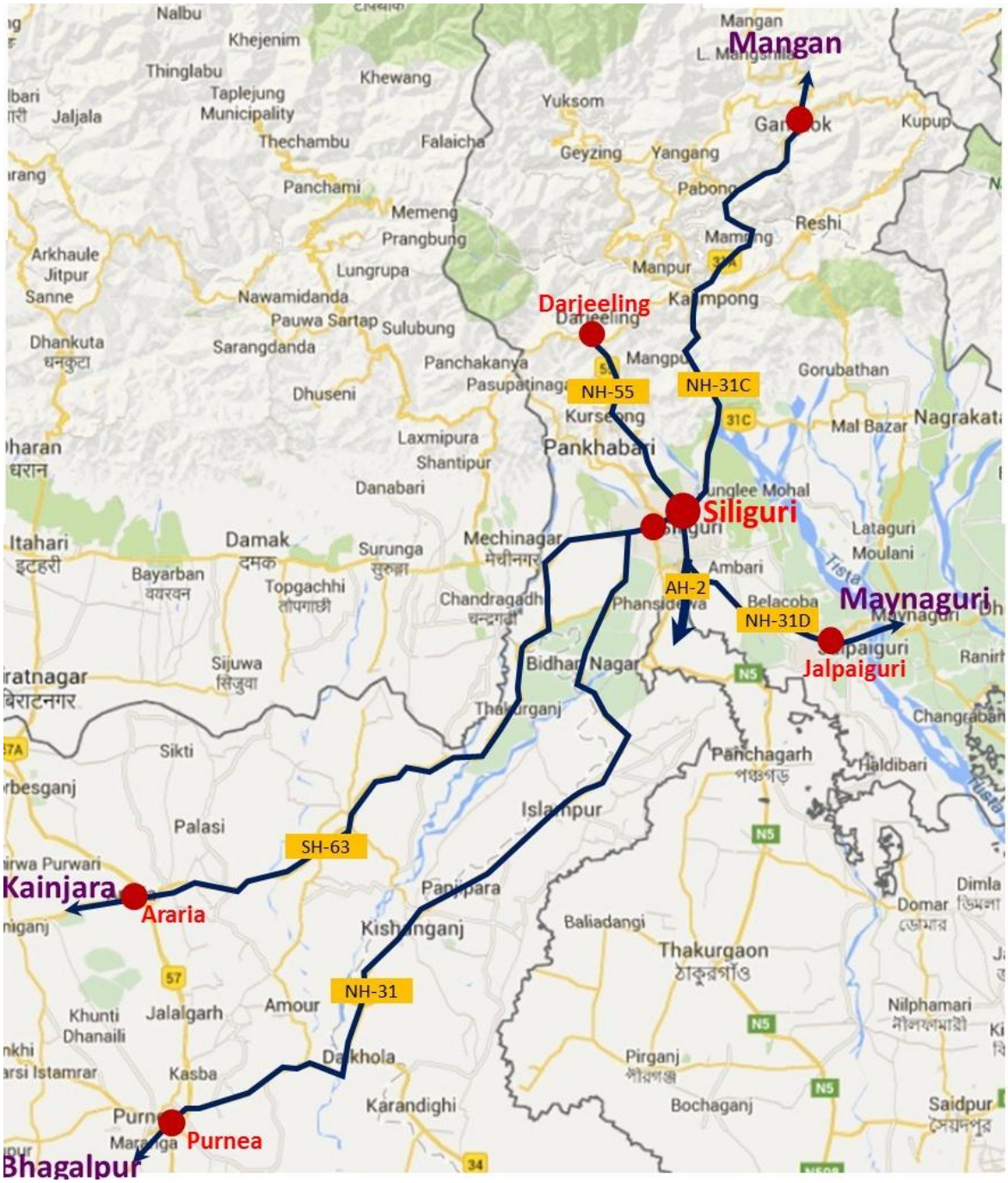
2.3.1 Road

The Tenzing Norgay Central Bus Terminus situated next to the North Bengal State Transport Corporation (NBSTC) bus stop is a major stop for most private and state-owned buses in the region. The Royal Government of Bhutan also operates buses from Siliguri to its border town Phuentsholing.

Air-conditioned sleeper coach bus service is available from Siliguri to Kolkata, Patna and Assam. Jeeps also link Siliguri to the neighboring hill towns of Darjeeling, Gangtok, Kurseong, Kalimpong, Mirik, Jorethang, Namchi, etc.

The Sikkim Government buses reach various destinations of Sikkim from the Sikkim Nationalized Transport (SNT) bus station near the Tenzing Norgay Bus Terminus. There is another bus terminus named P.C. Mittal Bus Stand at Sevoke Road. All buses heading for the Terai and Dooars region start from here. Siliguri lies on Asian Highway 2. Figure 10 shows the road connectivity of Siliguri.

Figure 10: Siliguri city road connectivity with surrounding region



Source: Google (Image) and CRIS analysis

2.3.2 Rail

Siliguri has three railway stations:

- **Siliguri Town** – The oldest station in Siliguri opened on 23 August 1880 during the British Raj. This station served as the terminus for trains coming from Kolkata and the starting point for the world-famous Darjeeling Himalayan Railway, built to transport passengers to Darjeeling. This station has historical value; many famous visitors to Darjeeling accessed North Bengal via this route. This station is situated in the heart of the city. Since it generates almost no traffic today, a need to shift this station and lines, to free valuable land is felt, but the feasibility of the proposal is being debated.
- **Siliguri Junction** – This station was opened in 1949 and used to be the point of departure of all trains to the north-eastern states, until the broad gauge was extended to New Bongaigaon. Siliguri Junction is the only station in India with tracks of all three gauges (broad, meter and narrow) used in India.
- **New Jalpaiguri, Siliguri Station or commonly called NJP** – This station was opened in 1964 as a greenfield project, 2.5 km south of Hasmi Chowk. Initially named New Siliguri (but later renamed New Jalpaiguri as it is located in Jalpaiguri District), this is now the most important station in the region. This station connects Siliguri to most stations in India by railway. The Darjeeling Himalayan toy train is the main attraction of this station. It is the largest railway station in the entire north-east with a wide parking area.

There are a few more railway stations in the urban agglomeration:

- **Bagdogra, Siliguri** – With the extension of the broad-gauge railway track to Siliguri Junction Station, people can now travel directly to the heart of the city without having to alight at New Jalpaiguri. This new broad-gauge track extends to the old Dooars metre-gauge track up to Alipurduar and beyond.
- **Naxalbari, Siliguri** – It is situated at further western part of greater Siliguri city, in the heart of Naxalbari. The railway station has strategic importance as it facilitates not only the people of Naxalbari and Panitanki to connect with other parts of the country but also enables the people of Nepal (of places like Kakarvita, Dhulabari, and Bittamore) to utilize the railway station as a means of communication with the rest of India. The station is to be revved up with a computerized railway ticket reservation center soon. The new broad gauge track that passes from Siliguri Junction to Aluabari Road (Islampur, Uttar Dinajpur) through Bagdora, Naxalbari, and Thakurganj (Bihar) provides an impetus to travel and trade in this part of the country.

2.3.3 Air

Bagdogra International Airport, Siliguri, situated about 15 km from the city, is the only airport in the region. The airport is connected to Bengaluru, Chandigarh, New Delhi, Kolkata, Guwahati, Mumbai, Chennai, Bangkok (Thailand) and Paro (Bhutan). Bagdogra airport is a customs/army airport.

2.4 Defining the study area

As mentioned, Siliguri Municipal Corporation covers both the Darjeeling and Jalpaiguri districts – an area of 41.9 sq. km. Its area boundaries are well-defined and this has been taken as the study area.

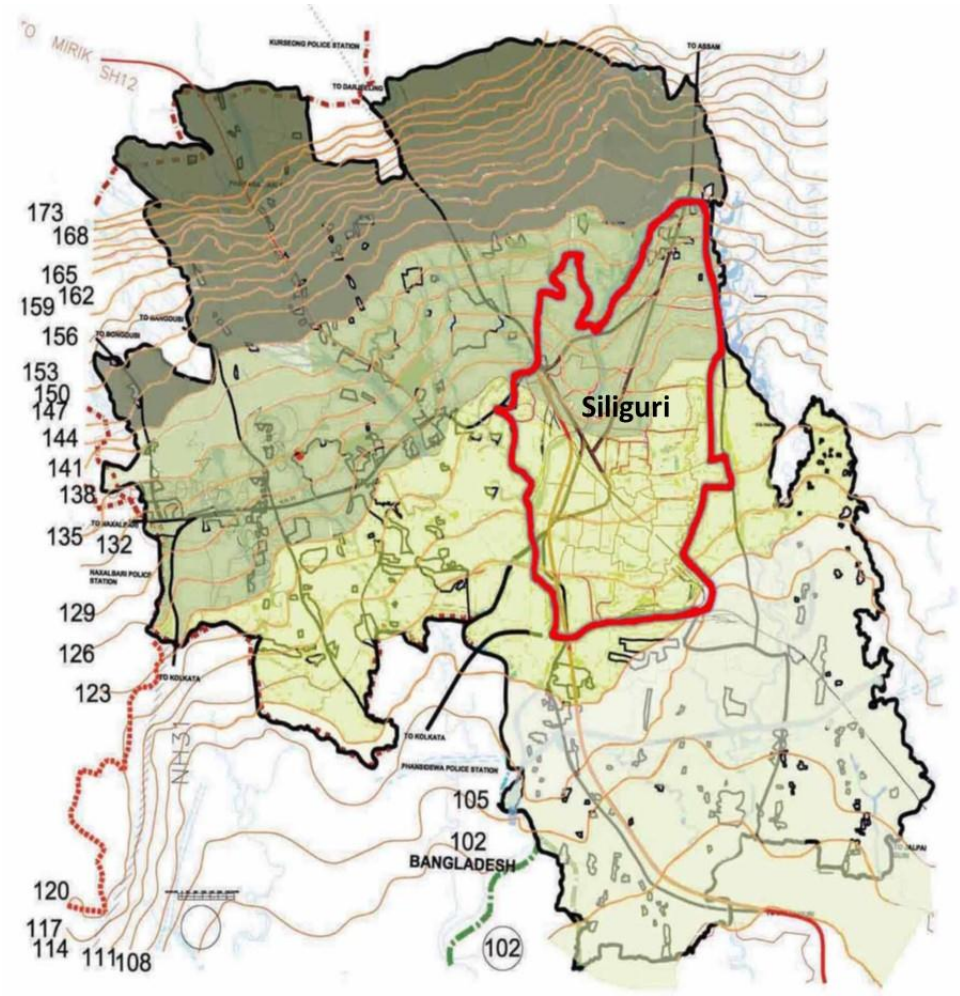
2.5 Physical Setting

2.5.1 Topography and Geology

The northern part of North Bengal is largely made up of glacial and fluvio-glacial deposits of the Quaternary period, while most of the southern part consists of pleistocene to recent flood plain deposits.

Darjeeling is the northern-most district of West Bengal occupying an area of 3,149 sq. km. It consists of a portion of the outlying hills of the lower Himalayas and a stretch of land along their base, known as Terai. The hills rise abruptly from the plains and the elevation increases northward. The mean elevation of Terai is 91.44 m above sea level. The southern part of the district forms a part of SMC. Teesta, Jaldhaka, Rangit and Mahananda together with their tributaries, drain the entire segment of Darjeeling district. Soil in Darjeeling district varies depending on the location and altitude. To the east of river Teesta, it is sandy.

Figure 11: Siliguri Topography



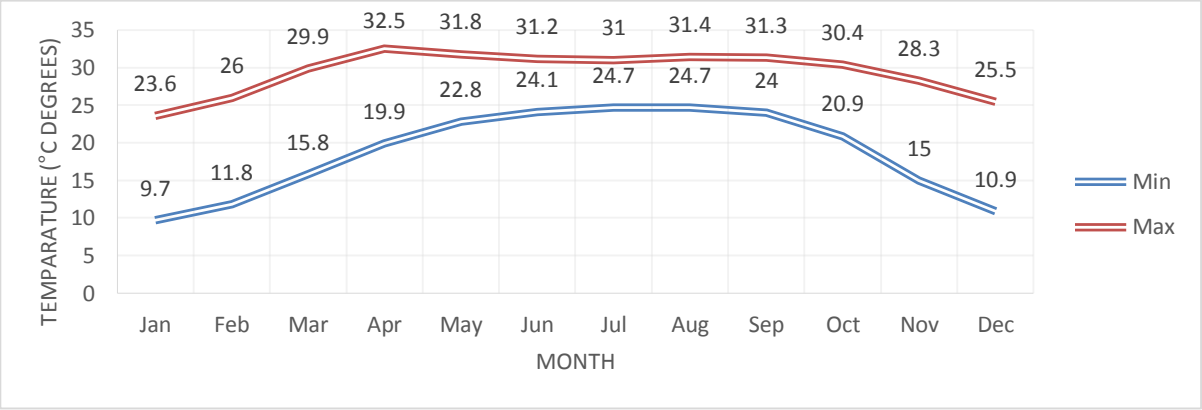
Source: City Development Strategy for Siliguri, 2011

2.5.2 Climatic Parameters

Siliguri has humid subtropical climate that is characterised by hot, humid summers and generally mild winters.

As Siliguri lies in the shadows of the Himalayas, it is cooler than the central and southern regions of West Bengal. The average temperature in summer rarely exceeds 35°C. It is the hottest from May to mid-June, the average temperature being 28°C. Winters in Siliguri, stretching from December to February, are relatively cool with temperatures ranging between 3°C and 15°C. From mid-December to early January, the temperature drops down to 8-10º C. Another feature of the winter of Siliguri is dense fog with light rain. The climate of Siliguri favours tea and timber, and induces tourists.

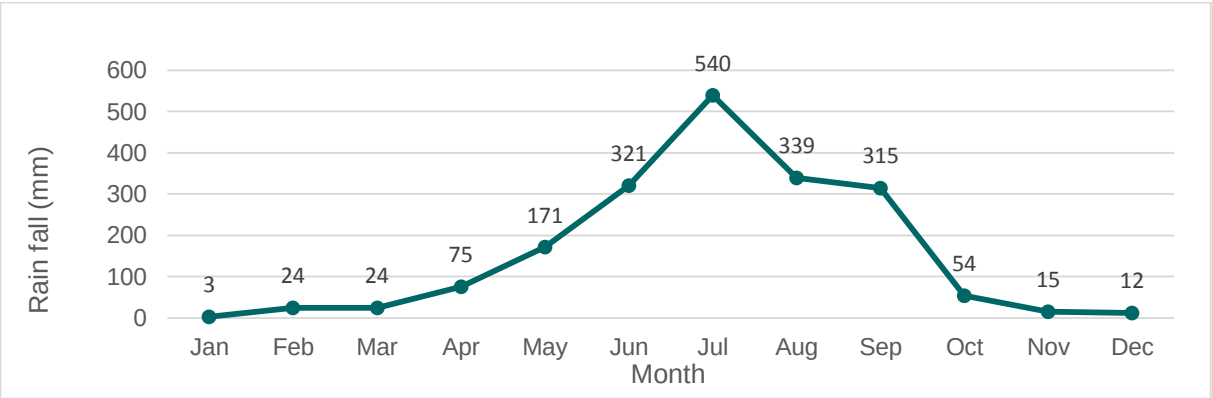
Figure 12: Annual temperature variation of Siliguri (2012)



Source: Detailed project report on sewerage works, SJDA, 2013

The monsoon season in Siliguri starts from mid-June and extends to September with large variations in rainfall. Due to its location at the foothills of the Himalayas, Siliguri's annual rainfall (ranging from 1,800 mm to 4,000 mm) is higher than the West Bengal average. The rains are heaviest in July and August; intense rainfall up to 200 mm per day has been recorded in these periods in the past.

Figure 13: Annual rainfall graph (2012)



Source: Detailed project report on sewerage works, SJDA, 2013

Maximum relative humidity in Siliguri ranges from 47–53% and minimum relative humidity 29–31%. The humidity levels are higher in the region from May to mid-June. The city experiences winds predominantly from the east and the north-east directions.

2.5.3 Water Resources

North Bengal is known for its rivers and forests. The lush green forests of north-east start from this region. The foothills of the Himalayas are riddled with numerous rivers and their tributaries.

2.5.3.1 Surface water

Siliguri is situated on the banks of River Mahananda and River Balason; their confluence is located at the south-southwest border of the city. River Mahananda is the main source of surface water. To the east of Siliguri, about an hour's drive away stands the Gajol Doba reservoir, which was formed by the first Teesta Barrage. The reservoir is located in Baikanthapur forest, a haven for migratory birds; the reservoir is being considered to serve as a new water source for Siliguri.

2.5.3.2 Ground water scenario

Ground water is the second major source of water for the city. With a spurt in the city's population, this resource is being exploited.

Ground water containing arsenic is a common problem in West Bengal. According to The Geological Survey of India's findings (2008), arsenic is present in the ground water of the Siliguri–Jalpaiguri area of West Bengal. This is the place where the Teesta River descends from the Himalayas to meet the alluvial plain. The area represents alluvial fan and floodplains of Teesta, Mahananda-Balasan, Jaladhaka and its tributaries. In the river sediment samples, para and ferro-magnetic minerals with 0.3–0.05 mm fractions contain 9–80 ppm of arsenic. The study indicates that iron-bearing minerals, viz., biotite, hornblende as well as iron-coated grains of the sediment majorly contribute to the arsenic component. Though magnetite as a mineral shows maximum arsenic content (22 ppm), it is volumetrically not of much significance. Measurement of ground water collected from tube wells betrays up to 0.05 ppm of arsenic. These arsenic-contaminated tube wells occur in a linear fashion along the course of the rivers. Moreover, localization of contaminated tube wells coincides with the change of channel gradient as observed in longitudinal section. The study traces a cause–effect relationship of arsenic occurrence with river gradient and fluvial sedimentation.

2.5.4 Forest resources, flora and fauna

The most valuable resource of Siliguri is the forest surrounding it. This area was home to tigers, leopards, elephants, rhinoceros and a variety of deer, reptiles and birds. Tea plantations have encroached on most of the forest cover, followed by cultivation. Still there are many forests in the vicinity; the main ones are mapped below.

Baikunthapur forest – This is situated immediately to the north and north-east of Siliguri and is ecologically very important. It is home to elephants. The Gajoldoba reservoir located within this forest is used by many water birds from Ladakh and Central Asia like little grebe, great crested grebe, bar-headed goose, greylag goose, lesser whistling duck, ruddy shelduck, common shelduck, cotton teal, tufted duck, common teal, eurasian wigeon, spot-billed duck, mallard, great cormorant, indian cormorant, little cormorant, indian pond heron, grey heron, purple heron, northern lapwing, river lapwing, grey-headed lapwing and little ringed plover.

Mahananda reserve forest – The Mahananda Wildlife Sanctuary or Reserve is located 8 km north from the city of Siliguri in the Sukna forest range. It is a vast stretch of wilderness with thick foliage stretching along the tributary of the Mahananda River, called the Panchanoi River. The Mahananda Wildlife Sanctuary is a natural habitat of many varieties of wildlife fauna and flora. The foliage includes thick woody trees and dense bushes; among animals figure rare mountain goats, chetals, barking dear, fishing cats, sambars, tigers, elephants and the Indian bison.

3. Demographic profile

This chapter presents a detailed overview of the demographic profile of the city and its overall position with reference to the state and district. It also describes population growth trends, spatial distribution and other demographic characteristics of the city. In addition to that, based on the past trends and potential of the city, the future population has been estimated through various scientific methods.

3.1 Background

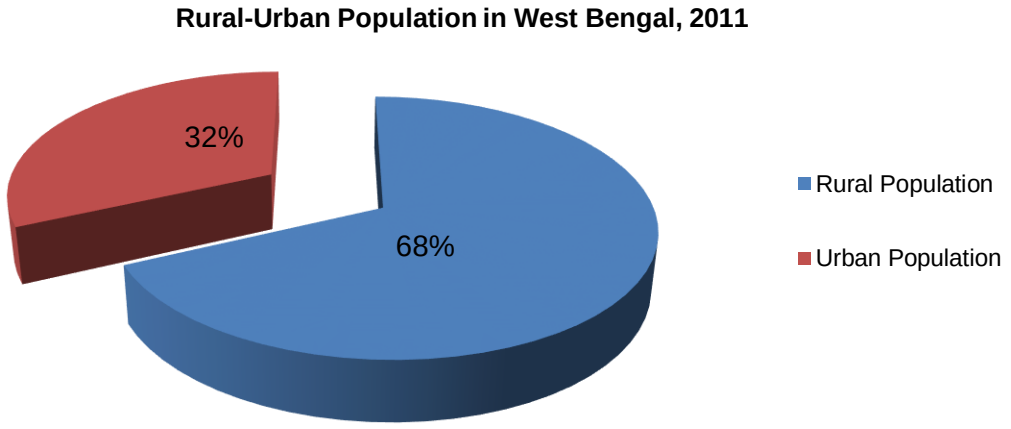
As per Census 2011, the population of West Bengal was about 9.13 crores. This contributes to 7.55 % of the country's total population; the population was spread over an area of 88,752 sq. km. The state is administratively divided into 19 districts. Decadal population growth percentage between 2001 and 2011 was 13.93 %.

3.2 Population and urbanization

As per details from Census 2011, West Bengal has a population of 9.13 crores, which marks an increase from the figure of 8.02 crores in 2001 census. The total population of West Bengal as per the 2011 Census is 91,276,115 of which males and females number 46,809,027 and 44,467,088 respectively. In 2001, the total population was 80,176,197 among which males were 41,465,985 and females 38,710,212. The total population growth in this decade was 13.84 percent while in the previous decade it was 17.84 percent. The population of West Bengal formed 7.54 percent of India in 2011. In 2001, the figure was 7.79 percent.

Of the total population of West Bengal, around 31.87 percent live in urban areas. In actual numbers, males and females were 1,49,64,082 and 1,41,28,920 respectively. The total population of the urban areas of West Bengal state was 2,90,93,002. The population growth rate recorded for this decade (2001-2011) was 29.72% in the urban areas. (Refer Figure 14).

Figure 14: Rural-Urban Population in West Bengal, 2011



Source: Census of India, 2011

3.3 Darjeeling and Jalpaiguri districts

West Bengal has 31.87% of its population living in urban areas. These urban areas are spread across 19 districts of the state. Siliguri city falls in the Darjeeling as well as in the Jalpaiguri districts. Siliguri Municipal Corporation has 47 wards; of these, 33 wards fall under the Darjeeling District and 14 wards under the Jalpaiguri District.

3.3.1 Darjeeling district

Darjeeling district is the northernmost district of the state of West Bengal in eastern India, located in the foothills of the Himalayas. The district is famous for its beautiful hills and Darjeeling tea. Darjeeling is the district headquarters. Kalimpong, Kurseong and Siliguri, three other major towns in the district, are the sub-divisional headquarters of the district. Mirik, another town of the district, has been developed as a lake resort since the late 1970s. Geographically, the district can be divided into two broad divisions, the hills and the plains.

As of 2011, it is the second-least populous district of West Bengal (out of 19), after Dakshin Dinajpur. According to the 2011 Census, Darjeeling district has a population of 1,842,034. This gives it a ranking of 257th in India (out of a total of 640. The district has a population density of 585 inhabitants per square kilometer (1,520 /sq. m). Its population growth rate over the decade 2001-2011 was 14.47%. Darjeeling has a sex ratio of 971 females for every 1000 males, and a literacy rate of 79.92%. Darjeeling has 2.5% of its population living in urban areas.

Table 2: Darjeeling district demographic description

Description	2001	2011
Population	1,609,172	1,842,034
Male	830,644	934,796
Female	778,528	907,238
Population Growth	23.79%	14.47%
Area sq. km	3,149	3,149
Density/sq.km	511	585
Proportion to West Bengal population	2.01%	2.02%
Sex Ratio (Per 1000)	937	971
Child Sex Ratio (0-6 Age)	962	943
Average Literacy	71.79	79.92
Male Literacy	80.05	85.94
Female Literacy	62.94	73.74
Total Child Population (0-6 Age)	204,643	180,170
Male Population (0-6 Age)	104,324	92,728
Female Population (0-6 Age)	100,319	87,442
Literates	1,008,288	1,328,218
Male Literates	581,420	723,711
Female Literates	426,868	604,507
Child Proportion (0-6 Age)	12.72%	9.78%

Description	2001	2011
Boys Proportion (0-6 Age)	12.56%	9.92%
Girls Proportion (0-6 Age)	12.89%	9.64%

Source: Census 2001 & 2011

Darjeeling district has 2.02% of total West Bengal's population. It is the second-least populated district of the state after Dakshin Dinajpur which has a population of 16.76 lakh and which constitutes 1.84% of the total population of the West Bengal state. North Twenty-Four Parganas and South Twenty-Four Parganas are the most populated districts of the state.

The urban population of the Darjeeling district is 7.27 lakhs which is 39.41% of the total population of the district and 2.5% of the total urban population of the state.

The district comprises four subdivisions: Darjeeling Sadar, Kalimpong, Kurseong and Siliguri. Darjeeling is the district headquarters. There are 17 police stations, 12 community development blocks, 4 municipalities, one Municipal Corporation and 134 gram panchayats in this district. Darjeeling and Kalimpong contain one municipality each and Kurseong has two. Siliguri has a municipal corporation instead. In all, there are 9 urban units, 4 municipalities, 1 municipal corporation and 4 census towns.

In the Siliguri sub-division, there are the:

- Siliguri Municipal Corporation (Area under Darjeeling District)
- Matigara (Community Development Block) consists of rural areas within 5 Gram Panchayats and one Census town: Bairatisal
- Naxalbari (Community Development Block) consists of rural area within 6 Gram Panchayats and one Census town: Uttar Bagdogra.
- Phansidewa (Community Development Block) consists of rural area within 7 gram panchayats.
- Kharibari (Community Development Block) consists of rural areas within 4 gram panchayats.

3.3.2 Jalpaiguri district

The district situated in the northern part of West Bengal has international borders with Bhutan and Bangladesh in the north and south respectively and borders with Assam and Darjeeling hills in the east, west and northwest. The entire topography is crisscrossed with rivulets, rivers and hills. The district is primarily rural with more than 80% rural population. It has also a high percentage of SC/ST population. A relatively sizeable population resides in the tea gardens and forest villages which are isolated and mostly inaccessible. The district is the gateway to the entire north-eastern states and Bhutan and has a high percentage of migrated population of different cultural groups.

As of 2011, it is the 12th most populous district of West Bengal (out of 19), after Maldah. According to Census 2011, Jalpaguri district has a population of 38,72,846. This gives it a ranking of 66th in India (out of a total of 640). The district has a population density of 622 inhabitants per square kilometer. Its population growth rate over the decade 2001-2011 was 13.87% Darjeeling has a sex ratio of 953 females for every 1000 males, and a literacy rate of 79.95%. Jalpaiguri has 27.37% urban population from the total population of the district. A brief on Jalpaiguri district is given in table below.

Table 3: Jalpaiguri district demographic description

Description	2001	2011
Population	3,401,173	3,872,846
Male	1,751,145	1,983,064
Female	1,650,028	1,889,782
Population Growth	21.45%	13.87%
Area Sq. Km	6,227	6,227
Density/sq.km	546	622
Proportion to West Bengal Population	4.24%	4.24%
Sex Ratio (Per 1000)	942	953
Child Sex Ratio (0-6 Age)	969	955
Average Literacy	62.85	73.25
Male Literacy	72.83	79.95
Female Literacy	52.21	66.23
Total Child Population (0-6 Age)	521,287	461,700
Male Population (0-6 Age)	264,706	236,117
Female Population (0-6 Age)	256,581	225,583
Literates	1,810,083	2,498,780
Male Literates	1,082,575	1,396,622
Female Literates	727,508	1,102,158
Child Proportion (0-6 Age)	15.33%	11.92%
Boys Proportion (0-6 Age)	15.12%	11.91%
Girls Proportion (0-6 Age)	15.55%	11.94%

Source: Census 2001 & 2011

Jalpaiguri district has 4.24% of total West Bengal's population. It is the 12th most populated district of the state after Maldah which has a population of 39.88 lakh, which is 4.37% of the total population of the West Bengal state. North Twenty-Four Parganas and South Twenty-Four Parganas are the most populated districts of the state.

The urban population of Darjeeling district is 38.72 lakhs which is 27.37% of the total population of the district and 3.64% of the total urban population of the state (Refer to Table 4).

Table 4: Total Urban Population of Jalpaiguri and Darjeeling Districts

S.No.	Area	Population (Million)	Percentage	Population (Million)	Percentage
1	West Bengal	91.28	100%	29.09	31.87%
2	Jalpaiguri District	3.87	4.24%	1.06	27.37%
3	Darjeeling District	1.85	2.02%	0.73	39.42%

Source: Census 2011

3.3.3 Siliguri city

Siliguri is one of the urban centre's and a fast-growing cities. According to Census 2011, the city had a population of 5.13 lakhs. Out of 47 wards, Siliguri has 14 wards in Jalpaiguri district and the remaining 33 wards in the Darjeeling district. The SMC population which falls in the Darjeeling district accounted for 0.32% of the total state's population and SMC population which falls in the Jalpaiguri district accounted for 0.24% of the total state's population. SMC population which falls in the Darjeeling district, accounts for 15.93% of the total Darjeeling population and SMC population which falls in the Jalpaiguri district accounts for 5.53% of total Jalpaiguri's population. SMC's population accounts for 1.01% of the urban population of the state in Darjeeling district and 0.75% of the urban population in Jalpaiguri district. The comparison of Siliguri city's population is given in Table 5.

Table 5: Comparative population of Siliguri city

Indicator	Population (In Lakhs)			% of Urban Population w.r.t. Total Population	Urban population comparison	Total population comparison
	Total	Rural	Urban			
West Bengal State	912.8	621.8	290.9	31.9%	1.0%	0.3%
Darjeeling District	18.5	11.2	7.3	39.4%	40.4%	15.9%
Siliguri City in Darjeeling District	2.9	-	2.9	100.0%	100.0%	100.0%
West Bengal State	912.8	621.8	290.9	31.9%	0.8%	0.2%
Jalpaiguri District	38.7	28.1	10.6	27.4%	20.6%	5.6%
Siliguri City in Jalpaiguri District	2.2	-	2.2	100.0%	100.0%	100.0%

Source: Census 2011

3.4 Scheduled Caste and Scheduled Tribe Population

The city has a considerable Scheduled Caste (SC) and Scheduled Tribe (ST) population. As per Census 2011, the SC and ST population accounted for 12% and 1% of the total population respectively.

Table 6: SC and ST Population

Category/	Population (2011)
SC	63,759
ST	6,140

Source: Census of India, 2011

3.5 Migration

One of the major factors of high growth rate of population in SMC area is high in- migration. Social disturbances in neighbouring countries (Bangladesh and Nepal), neighbouring states (Assam), and better economic opportunities in Siliguri are the main causes of in-migration.

3.6 Population Growth Trend

Siliguri was a tiny village of less than 800 population in 1901 and received its recognition as a municipal town with a population of 32,480 with an area of 15.54 sq.km in 1951. The original town was the areas known as Hakim Para near the Siliguri town railway station; it started expanding towards north and north east towards Ashram Para. The town showed its vital potentiality as it grew as a centre port for

the trade between India, Sikkim, Bhutan, Nepal and Tibet. Assam rail link in 1950's made this town a gateway to North-East India. The NH-31 and other road networks ushered a new era in the transport horizon in the entire North-East India.

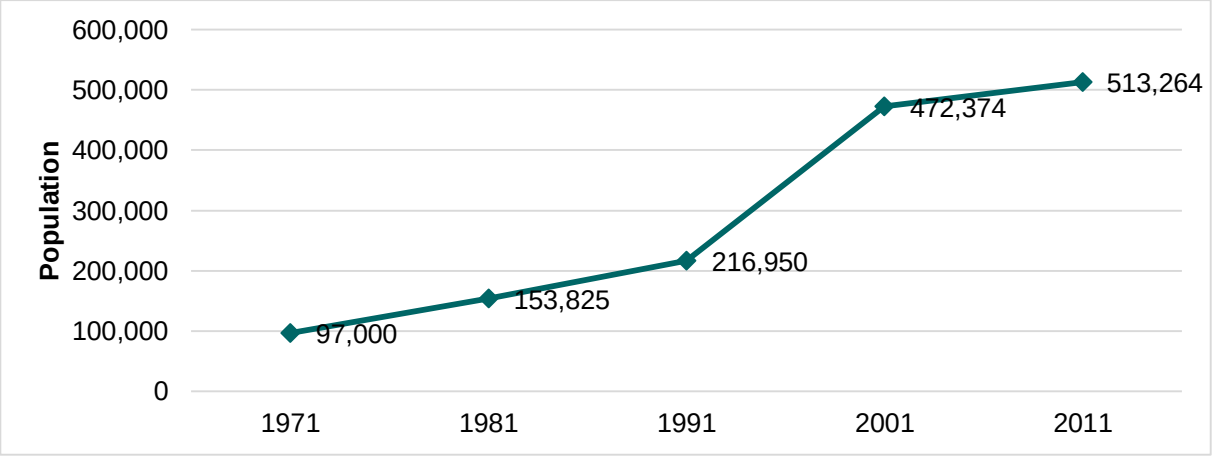
Table 7: Population growth trends

Census Year	Population	Decadal Change	Decadal Growth Rate	Area, sq.km'	Remarks
1971	97,000				Influx of migrants in the city. Municipality made into Municipal Corporation in 1994 by adding peripheral areas.
1981	153,825	56,825	58.58%	15.4	
1991	216,950	63,125	41.04%	15.4	
2001	472,374	255,424	117.73%	41.9	Up-gradation from municipality to corporation – inclusion of peripheral areas
2011	513,264	40,890	8.66%	41.9	Future growth is subjected to supportive infrastructure for economic activities. City is rapidly developing in terms of economic activities. However, the residential population is slowly moving towards outskirts of the city (outside municipal boundary)

Source: Siliguri Draft Development Plan (2008), Census-2011

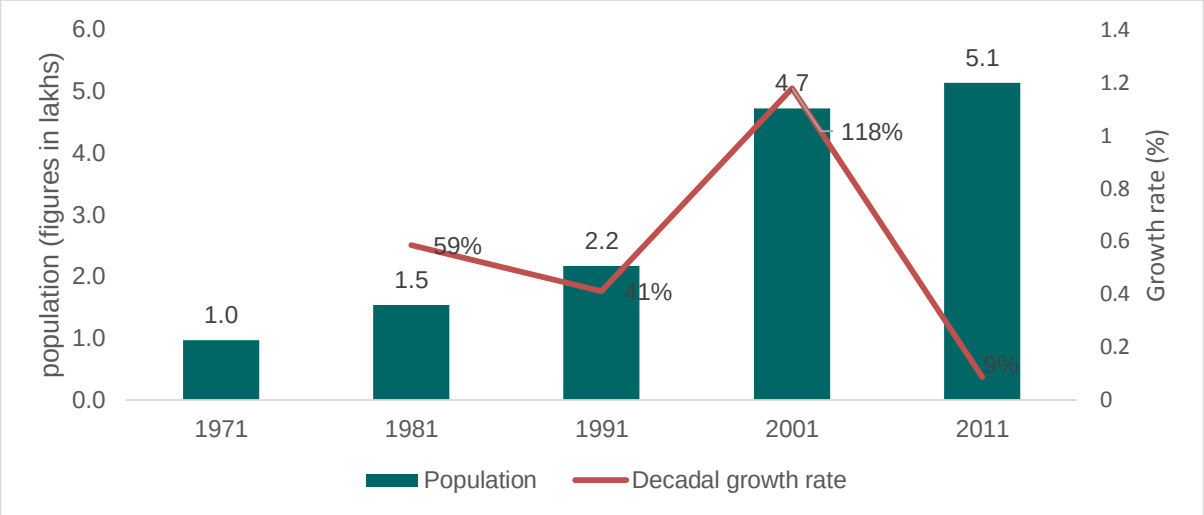
The growth of the town received momentum just after independence of India with immigrants from Nepal, Southern Bhutan and adjacent Indian states apart from eastern Bengal. There was also major influx of business communities from other parts of the country. After 1981, some important State Government offices have been established in Siliguri. The sudden increase in population in 2001 is attributed to the formation of Siliguri Municipal Corporation in 1994 and addition of 17 wards within the corporation limits. This is due to intra city migration from core city to peripheral areas. During the last decade (2001-11) the town recorded a net population increase of forty one thousand persons. The population trends in Siliguri are depicted in Figure 15.

Figure 15: Population trends in Siliguri



Source: Census of India

Figure 16: Siliguri population decadal growth rate



Source: Census of India

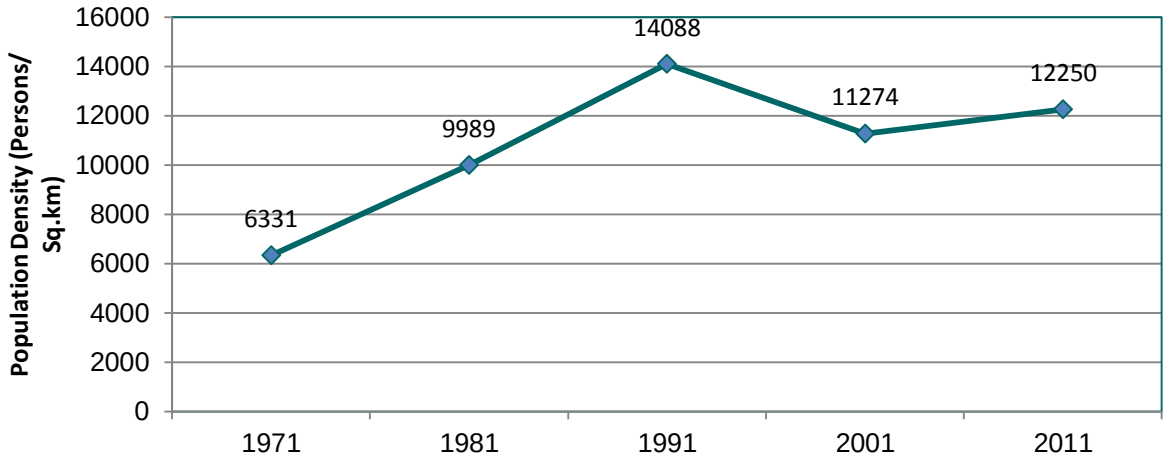
As depicted in Figure 16, the city has experienced very high growth rate during different times in the past due to various externalities (mainly expansion of administrative area). The significant growth necessitated the formation of Siliguri Jalpaiguri Development Authority (SJDA) as a nodal agency for the development of the areas including the towns of Siliguri, Jalpaiguri and Naxalbari within the Siliguri Jalpaiguri Planning Area (SJPA).

3.7 Population density

Population density has grown from 6,331 persons per sq. km in 1971 to 14,088 persons per sq. km in 1991. In the subsequent decade, population density has decreased to 11,274 persons per sq.km. This was due to expansion of SMC's limits to 41.9 sq. km and further the city's elevation to the level of a corporation. The population density trend in past few years is depicted in Figure 17.

As per URDPFI guidelines, medium size cities densities may vary between 100 and 150 persons per hectare. As per census 2011, Siliguri city having around 106 persons/ha, which shows the scope for further densification in the city.

Figure 17: Density in Siliguri



Source: Census of India

Table 8: Average population density in Siliguri

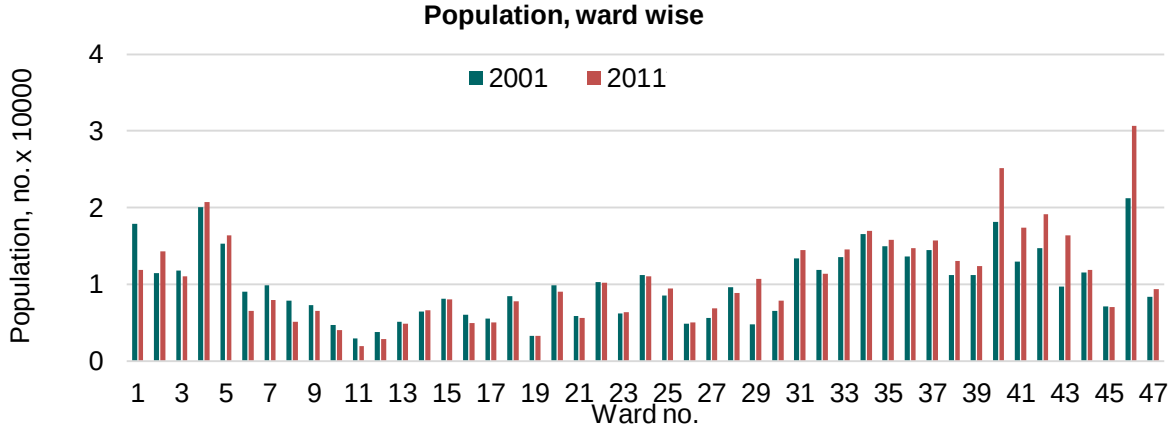
Parameter	Siliguri	URDPFI Guidelines
Density	106 persons/Ha	100-150 persons/Ha, (Medium size towns)

Source: Census of India, URDPFI Guidelines, 2014

3.8 Population Distribution

Subsequent to the conversion to Municipal Corporation in 1994, many of the original wards have decongested (wards 9-12 and 17) and wards in added areas have seen population increase in range of 75% to 270%. Population of 10 wards was above 100%. The decongestion of older wards has continued whereas the population increase in the added areas grew in the decade of 2001-2011. Hence, the decadal population growth has reduced from 47.5% in 1991-2001 to 7.8% in 2001-2011. As depicted in Figure 18 the areas surrounding NJP station and Hill Cart Road continue to be most congested parts of the city. The ward wise population details are presented in **Annex-8.**

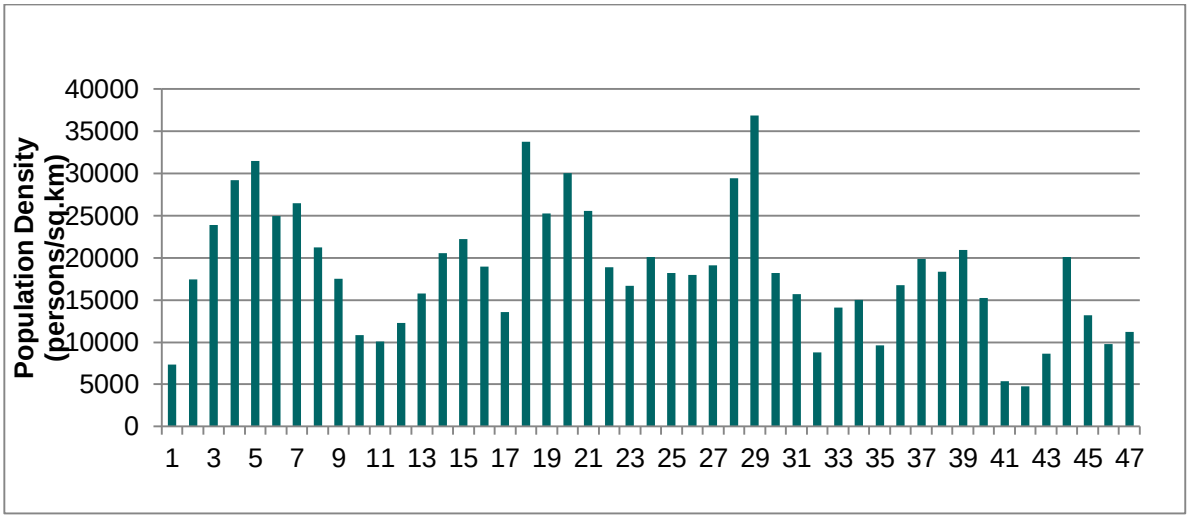
Figure 18: Ward wise population



Source: Census of India, 2001 & 2011

As indicated in the Figure 19, ward numbers 29, 18 and 5 are the densest wards in the city. These wards have reported density between 4,022 to 36,907 persons per sq.km. Further, 29 ward has highest density of 36,907 persons per s q.km. Further, it has been observed that within the city there has been internal movement from the core city to peripheral areas due to congestion in core city. Hence, wards in the core city experienced a negative population growth in the last decade.

Figure 19: Ward wise density, 2011



Source: Census of India, 2011

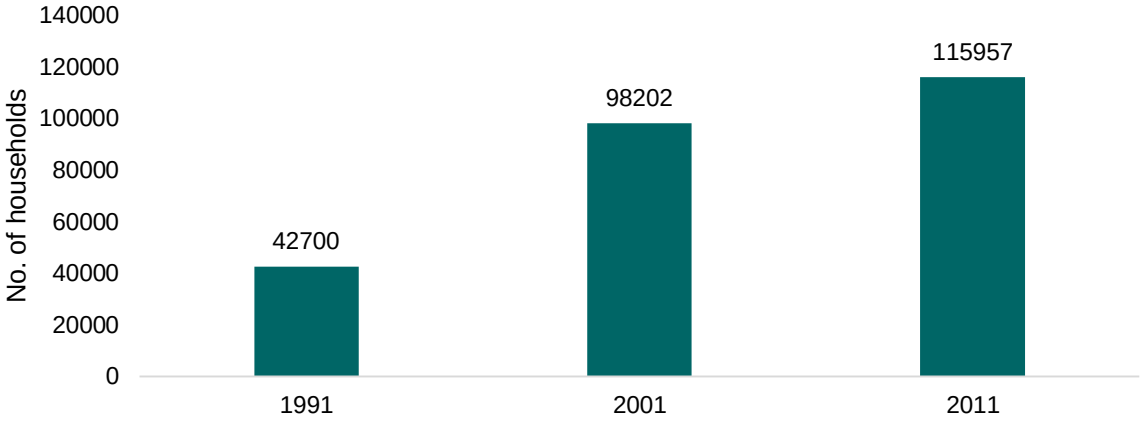
Further, population density is highest in the core area and is comparatively higher along the main arterial roads.

3.9 Average household size

Siliguri has witnessed a constant increase in the total number of household during the past four decades. In 1991, Siliguri had 0.42 Lakh households which increased to 0.98 Lakh household in 2001. During 2001-2011 Siliguri saw an increase in 0.18 lakh households and at present there are 1.16 lakh household in Siliguri. The huge leap in the number of household is primarily due to the increased Municipal Wards in the Siliguri municipal corporation limits.

Household size in SMC is 1.16 lakh as per 2011 census which is almost 0.58% the state figure of 200.67 lakh.

Figure 20: Number of Households



Source: Census of India

The average household size during the year 1991 was 5.08. During the year 2001 an increase in the household size was noticed. The average household size in 2001 was 4.81 which reduced to 4.43 in 2011 as indicated in the table below

Table 9: Number of Household and Average Household size

Year	Number of Households in Siliguri (Lakhs)	Average Household Size in Siliguri
1991	0.42	5.08
2001	0.98	4.81
2011	1.15	4.43

Source: Census of India

3.10 Literacy rate

As per Census 2011, the literacy rate of the Siliguri urban area stands at 79%; male literates are about 88.82%, whereas female literacy is about 81.94% of the female population. It is observed that literacy rate has increased from 2001 to 2011. In the year 2001, the literacy rate has increased to 3.37% as compared to previous year. In 1991 the literacy rate of the SMC was 74.23 % which has increased to 77.6%. The male and female literate shows increasing trend. As depicted in the Table 10 the literacy rate of the region is slightly above the state and national level.

Table 10: Literacy rate

Parameter/Year	Literacy rate (Population with person of age 7 and above)		
	SMC	West Bengal	India
Total Population			
2001	77.6 %	68.6 %	65.3 %
2011	78.5 %	76.2 %	74.0 %
Male Population			
2001	82.6%	77.5 %	75.8 %
2011	88.2 %	81.6%	82.1 %
Female Population			
2001	71.8 %	59.6 %	54.1 %
2011	81.9 %	66.5 %	65.4 %

Source: Census 2001, 2011.

3.11 Sex ratio

As per Census 2011, the sex ratio in Siliguri is 946 females per 1000 males, whereas at the state level, the ratio is about 963 respectively. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. The absolute numbers for sex ratio during 2001 and 2011 for Siliguri city, state and national level are presented in the Table 11. There is no improvement in Siliguri city sex ratio.

Table 11: Sex ratio

Parameter/Year	SMC	West Bengal	India
2001	946	964	943
2011	946	950	933

Source: Census 2001, 2011.

As indicated in table above, the sex ratio of SMC is higher than the national average. This could be attributed to the role of SMC in spreading awareness among the citizens to prevent prenatal sex determination of foetus. This enables to maintain a healthy sex ratio in the city.

3.12 Key Observations

- The decade during 1991-01 has witnessed the maximum population growth, due to expansion of jurisdiction from 15.4 sq.km to 41.9 sq.km;
- Population growth during 2001-11 is nominal, where most of the residential development happened in peripheral areas of SMC, where SJDA had identified areas for residential use.
- The areas surrounding NJP station and Hill Cart Road are the most congested parts of the city with a density of about 0.36 lakh persons per Km.
- The gross density in the city is about 106 persons per hectare which indicates scope for densification in the city. As per URDPFI guidelines the density can go up to 150 persons per hectare.
- A health sex ratio is being maintained in the city which is partly attributed to the awareness campaigns initiated by SMC to protect the girl child.
- The city is the gateway to northeast and in view of the intrinsic economic potential holds significant position in the region. Improving the basic services and creation of economic facility will certainly boost the population growth in the city.

3.13 Population Projection

The population projections would play a vital role in the assessment of future needs for the city. The projected population would assist in estimating the demand for water supply, sewerage, solid waste management and social infrastructure facilities such as schools, hospitals and parks in the ensuing years. In addition, the population projections have been carried out for the study area for the next 30 years using various methods. The following sections would describe the method adopted for population projections and recommended population projections for the study area.

3.13.1 Basic considerations for population projections

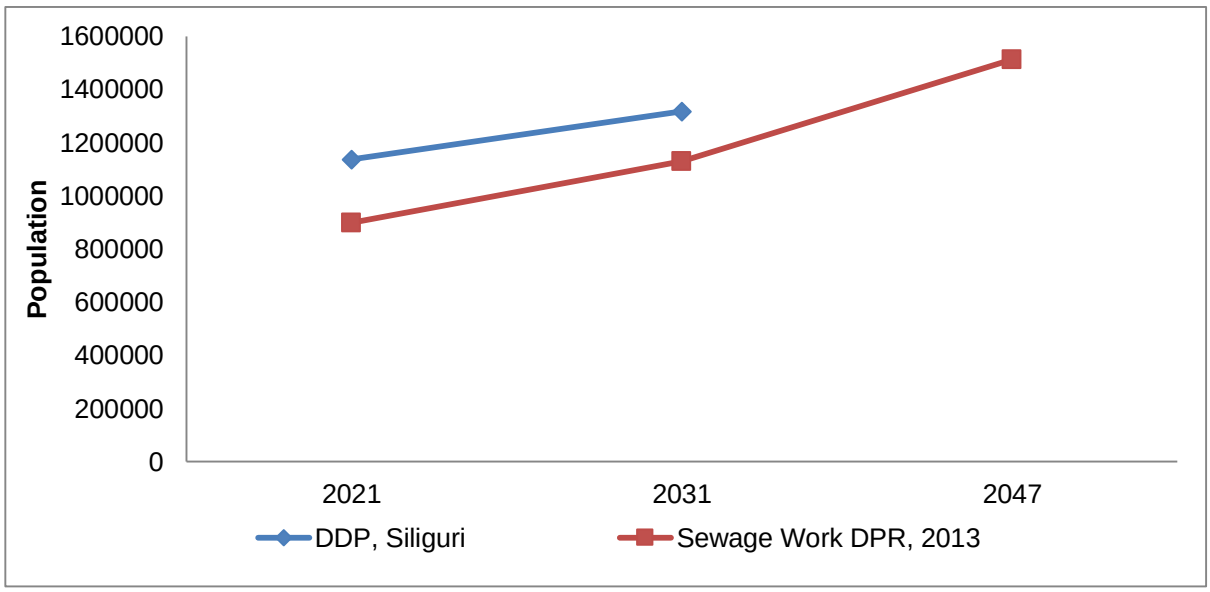
While adopting the population for the next three decades, the following factors were considered which would influence the city's future growth:

- Urbanization trends in the district and the city;
- Recent residential development at North and North-West part of the city;
- Huge scope to accommodate the future population since the density is on the lower side (especially northern part of the city);
- The state level economic policies favor the growth of service sector which would attract in migration to the city (trade and commerce, new infrastructure development, etc.).

3.13.2 Methodology adopted for estimation of population

In order to estimate the population for the next 30 years, initially the population projections finalized in DPR of sewage work project and draft development plan were reviewed. The review indicates that the projected population in the sewage work project was more or less the same. However, the population projections in the draft development plan were on the lower side compared to projections estimated in other study. The trends in population projections in various studies have been provided in the Figure 21 below.

Figure 21: Population projection in various studies



Source: DDP Siliguri, Sewage works DPR-2013

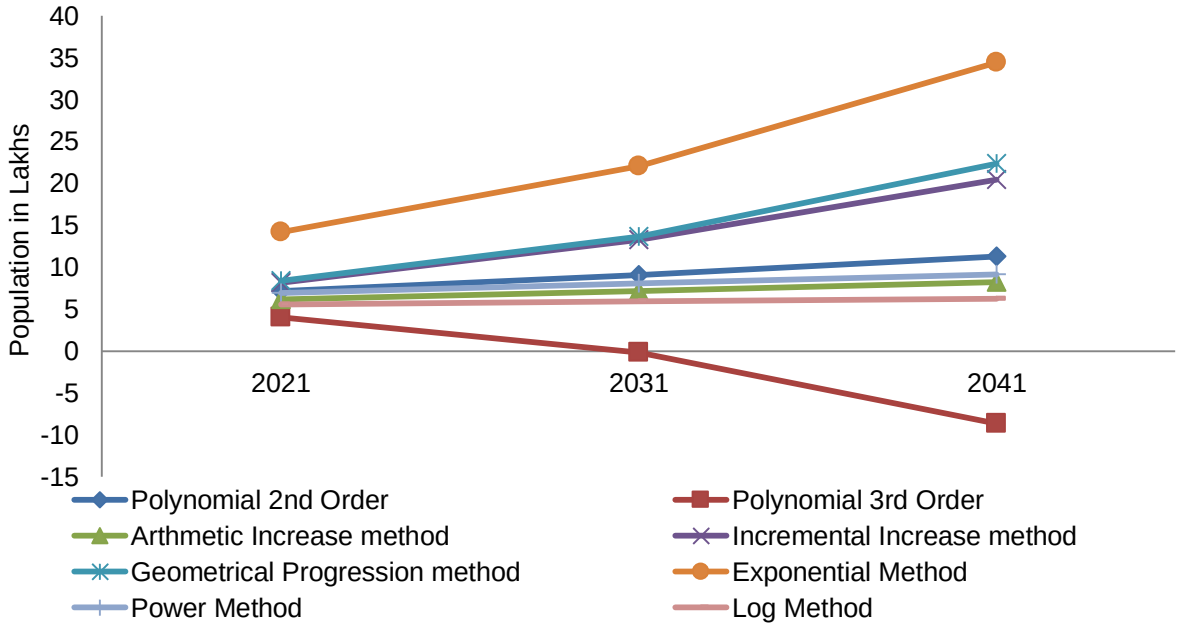
The appropriate method for population projection is adopted to estimate the demand gap analysis for the horizon years, i.e., 2021, 2031 and 2041. Based on this, the infrastructure requirement in water supply, sewerage and sanitation, solid waste management, storm water drainage, traffic and transportation and other amenities is forecasted.

Further, based on the population trends during the past four decades, CRISIL has projected the population for the study area using the following methods:

- Arithmetic;
- Geometric;
- Incremental increase;
- Exponential;
- Power;
- Log;
- Polynomial 2nd order; and
- Polynomial 3rd order.

It can be observed from the chart below that the projected population through arithmetic, power and log methods are on the lower side. The Polynomial 3rd order projects the population on a higher side as compared to the other methods. It is estimated that the population would increase to 34.4 lakhs by the end of 2041. Similarly, methods such as geometric and exponential projected the population on a moderately higher side. The population projections under the polynomial 2nd order and incremental increase are same. It is estimated that the population would increase to 11.3 lakhs by the end of 2041. The population projections made through various methods for the next three decades have been presented in the Figure 22 and Table 12 below.

Figure 22: Population projections as per various methods



Source: CRIS- Analysis

Table 12: Population projection using Various Methods

	2021	2031	2041
Polynomial 2nd Order	**716534**	**912261**	**1131050**
Arithmetic Increase method	617205	721146	825087
Incremental Increase method	820622	1331396	2045586
Geometrical Progression method	838342	1369309	2236567
Exponential Method	1417179	2210168	3446876
Power Method	696921	805507	915249
Log Method	556174	592027	623652

Source: CRIS- Analysis

3.13.3 Recommended population projection

The projected population under various methods has been compared with the population projections finalized in the sewage work DPR project and the draft development plan. The exponential order projections are slightly on the higher side as compared to the population finalized in the sewage works DPR.

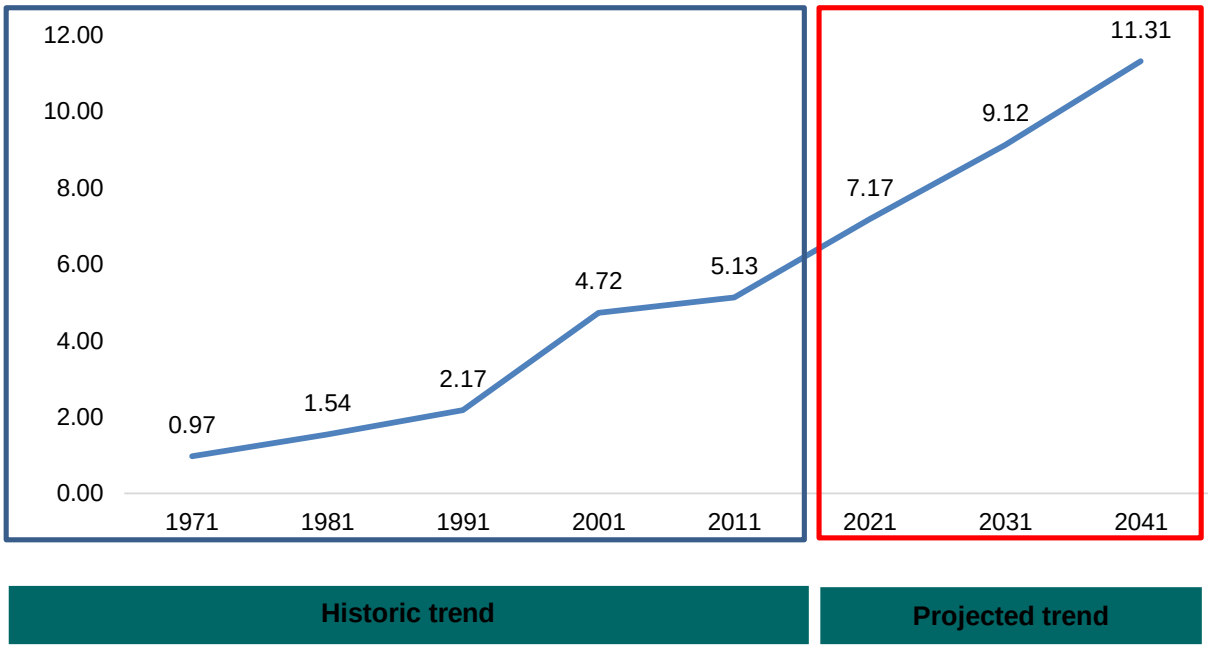
Based on the above factors, the population trends during the past four decades and the projected population in various studies and methods, the polynomial 2nd order method was found appropriate. In the DDP the 2011 scenario was considered as 7.93 lakh but according to the census 2011, it is 5.13 lakhs. As per the polynomial 2nd order method, the population would increase to 9.12 lakhs and 11.31 lakhs in 2031 and 2041, respectively. Further, the results of the various methods were presented during the 1st city-level stakeholder's workshop. The results of all the methods were discussed with SMC officials.

Table 13: Projected population in Siliguri

Year	Polynomial 2nd order method (population in lakhs)	Growth rate considered (%)
2021	7.17	39.60
2031	9.12	27.32
2041	11.31	23.98

Source: CRIS Analysis

Figure 23: Historic and projected population trend in Siliguri



Source: Census 1971 – 2011 and CRIS Analysis

4. Economic profile of the city

This chapter presents a detailed assessment of the economic profile of the city such as key economic drivers of the city, spatial distribution of economic activities, industrial profiles, workforce participation rate, workers' classification and a brief on informal sector activity in the city. Further, the key issues with respect to economic base have been detailed out at the end of the chapter.

4.1 Background

Siliguri is the commercial hub for the entire North Bengal, North-Eastern States and some parts of Bihar. The market of Siliguri caters to a large hinterland of Dooars, Darjeeling, the entire state of Sikkim, parts of the Kingdom of Bhutan as well as parts of North-East India. It is the point of location from where the cargo must be transferred from one carrier to another. Naturally trading has become one of the traditional mainstays of business in Siliguri. Apart from trading, the three T's that is, Tea, Tourism and Timber have accounted for major economic produce.

In 2011, Siliguri witnessed an economic boom in the organized retail, hospitality and real estate industries due to population growth and its strategic geographical location.

4.2 West Bengal economic profile

The economy of West Bengal, is primarily dependent on agriculture and medium-sized industries, although services and heavy industries play increasingly significant roles in the economy of the state. It is one of the most important food-producing states in India, producing nearly 20% of the rice and 33% of India's potato yield. As of 2014, West Bengal is India's sixth-largest economy, and recorded a gross state domestic product (GSDP) of US$ 114.6 billion in 2012-13. The state's GSDP expanded at a compounded annual growth rate (CAGR) of 14.6 percent during 2005-13[3].

It is the second largest tea-growing state in India and accounts for 24 percent of the total tea production in India. The state's total annual production of tea is 226.8 million kg (2009)[4].

4.2.1 Primary sector

Agriculture accounts for the largest share of the labour force in the State. It contributed around 18.7% to the state's gross domestic state product (GSDP) in 2009-10[5]. A plurality of the state's population are peasant farmers. Rice and potato are considered to be the principal food crops of West Bengal. West Bengal is the largest producer of rice in India with an annual output of around 15 million tonnes, and the second-largest producer of potatoes in India with an average annual output of 90 million tonnes. Rice, potato, jute, sugarcane and wheat are the top five crops of the state. Other major food crops include maize, pulses, oil seeds, wheat, barley, and vegetables. The state supplies nearly 33% of the potato requirement and 66% of the jute requirements of India. Tea is another important cash crop. Darjeeling is famous for tea plantations.

[3] *India Brand Equity Foundation, 2014.*
[4] *Economic Review, Government of West Bengal, 2012-13*
[5] *Economic Review, Government of West Bengal, 2012-13*

4.2.2 Secondary sector

State industries are mostly localized in the Kolkata region, the mineral-rich western highlands, and the Haldia port region. There are up to 10,000 registered factories in the state and the West Bengal state government has opened Shilpa bandhu, a single window agency to provide investors with all kinds of assistance in establishing and running industrial units. Kolkata is noted as one of the major centre's of industries including the jute industry. There are numerous steel plants in the state apart from the alloy steel plant at Durgapur. The centre has established a number of industries in the areas of tea, sugar, chemicals and fertilizers. Natural resources like tea and jute have made West Bengal a major centre for the jute and tea industries..

4.2.3 Tertiary sector

In West Bengal, the responsiveness of the growth of the services activities to the growth of the commodity sector (agriculture and allied activities and manufacturing) and to the growth of real income of the rest of the economy is found to be more than proportional in such sub-sectors as trade, banking and transport. West Bengal is the first state to declare IT & ITES as 'public utility service' with a view to boosting up the operations of the 24×7 industry. The declaration has acted as a pointer to the fact that the state has fastened the seatbelts for a takeoff heading towards the target of being among the top IT states in the country. As of 2011, the state has 22 formally approved special economic zones (SEZ). Of these, 17 are related to information technology (IT) or IT-enabled services (ITES).

4.2.4 Economic indices

In terms of net state domestic product (NSDP), West Bengal is the sixth largest economy (2009–2010) in India, with an NSDP of Rs.3,663 billion, behind Maharashtra (Rs.8,179 billion), Uttar Pradesh (Rs.4530 billion), Andhra Pradesh (Rs.4268 billion), Tamil Nadu (Rs.4177 billion), and Gujarat (Rs.3704 billion).

In the period between 2004–2005 and 2009–2010, the average gross state domestic product (GSDP) growth rate was 13.9% (calculated in Indian rupee terms) which is lower than 15.5%, the average for all states of the country. In 2009–10, the tertiary sector of the economy (service industries) was the largest contributor to the gross domestic product of the state, contributing 57.8% of the state's domestic product compared to 24% from the primary sector (agriculture, forestry, mining) and 18.2% from the secondary sector (industrial and manufacturing). At a compounded annual growth rate of 15.2%, the tertiary sector has been the fastest-growing among the three sectors from 2004–05 to 2009–10. The growth has been driven by trade, hotels, real estate, finance, insurance, transport, communications and other services.

4.3 State policies for Siliguri economic development

The State Govt. has announced an industrial and investment policy in 2013. The focus of this Investment and Industrial Policy is to rapidly build and improve infrastructure, as an enabler for industrial growth, by additional 4000 km of highway and bridges, ports, airports and water transport in Public Private Partnership (PPP). The State has a low base of the manufacturing sector, as compared to the leading states on this front; this policy aims at increasing the growth of manufacturing from 4.7 % (2010-11) to 20% at the end of five years.

Policy proposed various infrastructure projects in the State to gear up the industrial growth. The policy proposed few infrastructure projects in and around Siliguri city as follows:

1. Upgrade the Bagdogra customs airport in to International Airport;

2. Development of Urban Haat' in Siliguri (direct marketing facilities to artisans and weavers);
3. Development of Gajoldoba Tourism Hub, Dooars – Site is 25 kilometers from Siliguri and involves development of a Mega Eco Tourism Hub with Lake Resort, 3 star/4 star/Budget hotels, Open Air Theatre, Ayurvedic Spa Village, Arts and Craft Village, Retirement Home, Golf Course, Jungle Trail, Picnic Gardens, etc. over 208 acres; and
4. 31 km long State Highway linking NH-31 from Siliguri to Jalpaiguri via Falakata to be upgraded to National Highway.

4.4 Siliguri city economy

Siliguri is a rapidly developing metropolis in the Indian state of West Bengal. It is the largest city of North Bengal, the second-largest city of West Bengal and connects hill stations like Gangtok, Kalimpong, Kurseong, Mirik and Darjeeling with the rest of India. Siliguri has a large number of trade centres and readymade markets for consumer goods and is thus home to myriad retailers, wholesalers, dealers, distributors and small-scale entrepreneurs. It is the commercial nerve centre of North Bengal.

The city's strategic location makes it a base for essential supplies to the north-east region. Siliguri has gradually developed as a profitable centre for a variety of businesses. As a central hub, many national companies and organizations have set up their offices here. Siliguri is the headquarters of the Federation of Chamber of Commerce and Industry of North Bengal (FOCIN).

Primary	Secondary	Tertiary
• Not prominent agricultural activities within the city. However, few tea estates are located north and north west part of the city (outerside of administrative boundary)	• Timber/Wood Products • Engineering, Chemicals, Electronics, Small & medium scale Manufacturing units	• Trade & Commerce • Tourism • Real Estate,Hotels • Local Markets • IT/ITES

Sector-wise economic activities and workforce participation has been presented in the section below.

4.4.1 Primary Sector

Agriculture production is not significant in the Siliguri Municipal Corporation area. However, the surrounding areas, especially the north and north-western parts of the city, host a few tea estates. The city mainly depends on its surrounding villages for vegetables and dairy activities.

4.4.1.1 Tea Industry

Siliguri has emerged as the third-most important centre of tea trade in the country. The setting up of the Siliguri Tea Auction Centre in 1976 for better marketing of local tea products, gave a major fillip to the tea industry. Both domestic and foreign sales from tea gardens situated in the North-Bengal districts and Assam are now routed through Siliguri. The tea auction centre has greatly reduced the travel time of tea growers of North Bengal to market the end product.

Table 14: Tea auction sale at Siliguri Auction centre

Year	1984	1887	1990	1993	1997	1999	2004
Tea leaf sale million kg	72.2	80.6	90.1	75.8	80.2	85.3	103.2

Source: Tea auction centre report, Siliguri, 2010

4.4.2 Secondary sector

Siliguri region is fast emerging as the industrial capital of northern Bengal; small-scale industries dominate the scene. Within Siliguri, there are 3,725 units which currently employ 24,921 people and account for 15.76% of the total work force of the SMC area. The leading small-scale industry (SSI) categories in the region are engineering, chemicals, paper and tea. Six of the 26 tea processing units in SJDA are located in Siliguri municipality.

A chunk of 21 acres of industrial estate has been developed by West Bengal small scale industries development corporation (WBSSIDC) in 1981 at 2nd mile location (Sevoke road) in Siliguri. It has around 103 plots which are allocated for different industries. Siliguri Flour Mills Ltd. is one of the prime industries in this cluster.

Apart from that, the Darjeeling district is one of the largest tea producers in India. West Bengal produces 225,600 metric tonnes of tea 23.14% of the total tea produced in India and has around 307 tea estates.

4.4.2.1 Timber industry

Siliguri has tremendous potential for wood and timber-based industries, the region being rich in these natural resources. It has a number of West Bengal Forest Development Corporation Ltd. (WBFDCL) joinery and carpentry units that supply high-quality furniture and joinery items to the public at competitive prices. Besides, sawn timber is sold to buyers and dealers in bulk from Government saw mills in Siliguri. WBFDCL is responsible for selling sawn timber like sal, teak, dhupi and jarul at fixed prices to the public through its retail sales centres in West Bengal including in Siliguri.

4.4.3 Tertiary sector

Trade and commerce play a major role in the local economy of Siliguri city. A considerable number of small-scale and cottage industries (grill factory, atta mills and steel furniture) are spread over the municipal area, predominantly in the wards of the Sevoke Road area and Burdwan Road.

The formal service sector also contributes significantly to the local economy within the municipal corporation. It encompasses academic institutes (schools, colleges and other academic institutions), automobile repair centres, banks and post offices, health institutions, hotels, retail outlets and trading centres which are located along transportation corridors like Burdwan Road, Sevoke Road, and other major local roads. These outlets of the service sector are served by local people. A great number of outsiders also come from various parts of the districts of Jalpaiguri, Maldah and Uttar Dinajpur. Employment details of the formal sector are summarised in the table below.

Table 15: Employment details of tertiary sector

Sector	No. of units/shops	Person Employed
Small Scale Industry	750	25,000
Construction Companies	1200	45,000
Bank and Insurance	35	875
Service Sector (Including Nursing homes)	20,000	25000-30000

Source: Draft Development Plan 2008

Table 16: Commercial establishments (trade) in Siliguri

S.No.	Category type	Approximate no.of Establishments
1	Fish, meat Poultry	384
2	Fruits and vegetables	5,341
3	Groceries and provisions	356

S.No.	Category type	Approximate no.of Establishments
4	Eating Places	4,314
5	Pan and Cigarettes	3,500
6	Textile and Clothing	2,500
7	Medical	2,000
8	Computer and Electronics	136
9	Electrical	2,135
10	Gifts, books, stationery	754
11	Hardware, building materials	1,211
12	Household merchandise	331
13	Furniture and Interior	157
14	Jewelry	953
15	Optics and watches	478
16	Footwear	1,231
17	Recreation	17
18	Transport	500
19	Service Outlets	5,000
20	Miscellaneous	150
21	Hotels	533
	Total	**31,981**

Source: Socio-economic study, SJDA, 2008

Information Technology

Siliguri is fast emerging as an information technology (IT) hub, an alternative destination for Kolkata, for info-tech companies. Siliguri already has good infrastructure and modern amenities for people who work in IT parks. Some major IT companies have already set up base in Siliguri and more will be heading there soon. The West Bengal Government has set up an IT park in Siliguri recently, to provide bigger opportunities to IT/ITES companies to start their businesses in Siliguri. However, the IT firms are located outside the municipal boundaries.

4.4.3.1.1 Malls

A few malls have come up in Siliguri in recent years, signalling growth of modern infrastructure facilities in the city. The national and international branded goods' shops in these malls facilitate trading and commerce. Some of the malls are:

- Cosmos Mall, Sevoke Road, a large and up-scale mall
- City Mall, Sevoke Road
- Orbit Mall, Sevoke Road, includes an INOX movie theatre
- City Center, Uttarayon

4.4.3.2 Tourism Industry

The tourism industry of Siliguri is also flourishing day by day. As part of the tourism infrastructure, a large number of hotels are being established to cope with the demand of tourists. Tourists are attracted by the great variety of flora and fauna of Siliguri, its beautiful landscapes, and the magnificent Himalayan range – Siliguri is fast becoming a preferred destination for domestic and international tourists. The tourists going to Sikkim also pass through Siliguri and this is important component of the local economy. In the coming years tourism is expected to further contribute to Siliguri's development.

4.4.4 Informal Sector

Tourism industry of Siliguri is also flourishing. Tourists are attracted by the great variety of flora and fauna of Siliguri, its beautiful landscapes, and the magnificent Himalayan range – result, Siliguri is fast

becoming a preferred destination for domestic and international tourists. As part of tourism infrastructure, a large number of hotels are being established to cope with the demand of tourists.

4.4.5 Informal Sector

Several units of local self-help groups are engaged in making soft toys, envelopes, shola ornaments, bidis and other handicraft products. A list of various skills found in different zones of the municipality is furnished in the table below. All these indicate the importance of the various sectors that contribute to the local economic scenario.

Table 17: Employment Details of Informal Sector

Sl. No.	Sector	Persons employed	Average Daily Income (Rs.)
1.	Rickshaw puller	10,000	150-200
2.	Van pullers	2,000	200-300
3.	Auto (Rickshaw) driver	651	200-300
4.	Taxi / Car driver	5,325	300-400
5.	Mason	15,000	150-200
6	Construction labour	30,000	100-150
7.	Hawkers	4,000	150-200
8.	Plumber	1,500	150-200

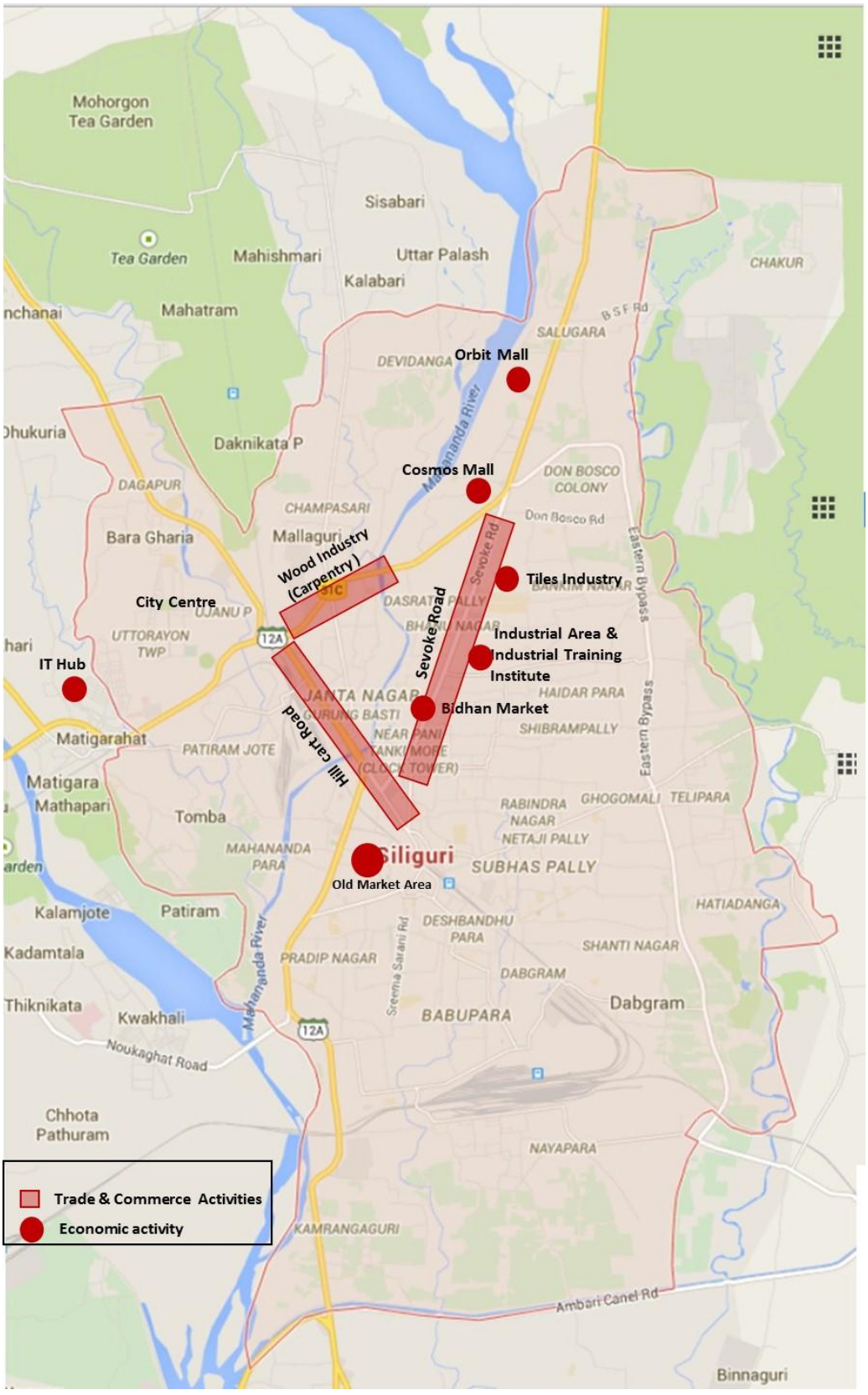
Source: Draft Development Plan 2008, SMC

4.4.5.1 Markets in Siliguri

Commercial establishments in the SMC area number 45,230; of these, 33% are registered and 67% unregistered and informal in nature. About 8% of the commercial establishments are wholesale shops. The important commercial centres in SMC are Bidhan market, Nivedita market, Khalpara and Mahabirstan market.

Most of the economic activities in Siliguri are found in the two streets of Sevoke Road and Hill Cart Road. Many traditional stores and hotels dot the former street while Sevoke Road flaunts sophisticated stores and most of the city's banks.

Figure 24: Major Economic activity areas of Siliguri



Source: Google (Image) and CRIS analysis

Positioned on the West Bengal and north-east border, Siliguri amalgamates the cultures of both places. The most preferred item in Siliguri is Darjeeling tea; the city is also well-known for its woollen garments, Tibetan paintings and wooden handicrafts that are sold a-plenty on Hill Cart Road and Sevoke Road. There is also another famous market for electronic goods, which goes by the name of Hong Kong Market. Most of the gadgets available are quite cheap and thus allure tourists.

Well-known automobile companies are coming into Siliguri with various showrooms. Some of the showrooms belong to Mahindra & Mahindra, General Motors, Hyundai, Ford, JCB, Tata, Toyota Kirloskar, Honda Siel, and Maruti Suzuki. Two-wheeler brands such as Honda Scooters, Bajaj, TVS Suzuki, Yamaha, Kinetic, Hero Honda, and LML have also clinched their positions in Siliguri's economy.

Bidhan market is in the heart of Siliguri city, bounded by Bidhan Road, Savoke Road and Hill Cart Road. Daily market, New Market and the Hong Kong Market are located within the Bidhan Market area. The Hong Kong Market is popular with locals as well as tourists who visit the city for cheap imported goods, usually from the Chinese market as well as from places like Nepal and Thailand. There are 550 shops in Hong Kong Market; these sell foreign goods like electronic items, cosmetics and clothes and employ as many as 1,500 persons. One peculiarity of the shops is that they have an average area of 2.0 sq.m.

Table 18: Prominent Markets in Siliguri and Work flow

S.No.	Market Name	Major Goods/articles	Category of Vendors	Number of Vendors (Approx.)
1	Hong Kong Market	watches, cosmetics, electronic goods, eateries, food courts, materials for women, bags,etc.	Stationary	550
2	The Seth Srilal market,	Dress material for women, artwork, handcrafted products and bags, eateries, food courts	Stationary	400

Source: Discussion with local vendors and SMC officials

Hong Kong Market deals especially in imported goods which are brought usually from Chinese market as well as from places like Nepal, Thailand, etc. Seth Srilal Market is another busy shopping area in the centre of the city, which gives tourists good deals and has also gained a name for selling momos.

Other than important commercial establishments, the city region shows vibrant trading. Informal trade contributes greatly to the city's economy. Hence, one cannot overlook the importance of informal economy in the city. The migrant population living in slums is mainly engaged in the informal sector and comprise rickshaw-pullers, vendors, and daily wage labourers. There are also small-scale shops in the markets of the city which sell some timber and bamboo handicrafts.

4.4.6 Informal commercial activity

Street vending is an indispensable economic activity in urban India. It is the largest informal sector which caters to the livelihood of the urban poor. Since the era of economic reforms in the country, the sector has faced many challenges. Street vendors count for about two percent of India's population and provide affordable as well as convenient services to a majority of the urban population.

Report on Conditions of Work and Promotion of Livelihoods in the Unorganized Sector, 2007 of the National Commission for Enterprises in the Unorganized Sector (NCEUS), suggests that vendors' earnings are very low although they vary from trade to trade and from location to location. Men's average daily income is around Rs. 70 in most cities and women earn considerably less – Rs. 40 per day.

Articles 39 (a) of the Constitution clearly mention that the State shall in particular direct its policy so that: (a) citizens, men and women equally, have the right to an adequate means of livelihood. To improve the condition of urban street vendors, the Government of India made numerous legislative attempts starting from the regulation of hawker trade in Bombay Municipal Corporation in 1980 to the promulgation of The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.

Of the major attempts made, The National Policy on Urban Street Vendors, 2009[6] was a comprehensive attempt that promoted spatial, legal and participative means to improve the conditions of urban street vendors. According to this policy, a street vendor is defined as 'a person who offers goods or services for sale to the public in a street without having a permanent built-up structure.' The policy was somewhat similar to its predecessor and elicited feeble responses from states; to overcome the shortcomings of this policy, a draft bill entitled Model Street Vendors (Protection of Livelihood and Regulation of Street Vending) Bill, 2009 was introduced. However, the Bill was critiqued to have ignored many pressing issues. The foremost problem that it overlooked was the issue of natural markets which sprang up in places where consumers found them useful. Further, it ignored the vending rights of those who were already selling on the street. Still the policy was somewhat able to recognize certain issues related to street vendors and has provided certain powers to ULBs to regulate, monitor and promote street vendors in towns/cities.

The policy recognized and explicated the positive role of street vendors in providing essential commodities to people at affordable prices and at convenient places. It also recognized the need for regulation of street vending by way of designated restriction-free vending, restricted vending and no-vending zones based on certain objective principles. Overall the policy meant to foster a congenial environment for urban street vendors to carry out their vocation and at the same time ensure that this did not lead to overcrowding or unsanitary conditions in public spaces and streets.

4.4.7 Specific norms for urban local bodies

I. **Spatial planning norms - Demarcation of vending zones**

- The demarcation of hawking zones should be city/town specific. The master plans, zonal plans etc. should take into account the natural propensity of street vendors to locate in certain places at certain times in response to patterns of demand for their goods/services.
- City authorities should provide sufficient spaces and designate these as vendors' markets in layout plans, at locations of natural markets. They should permit mobile vending in all areas even outside the designated markets, unless designated as no-vending zones, through a participatory process.
- Designation of vendors' markets / no-vending zones should not be left to the sole discretion of any civic or police authority but must be accomplished via a participatory process by a t**own vending committee** (which for large towns / cities may be constituted on the basis of wards) whose membership may be as follows: municipal authority, traffic and local police, public land-owning authority, associations, representatives from associations of street vendors, and representatives from lead nationalized banks / commercial banks.

[6] *In 2004, the National Urban Street Vendors Policy (NSVP) was announced. It was the first national level regulatory framework on street vending which was left to the States to adopt and implement. In 2009, the NSVP was revised and the Central government presented a Model Draft Bill on the subject. The States and Union Territories were to implement the National Policy for Urban Street Vendors of 2004, taking into account this Model Bill. However, it received a feeble response from the States and soon demands were made for a mandatory central legislation on the subject. (National University of Juridical Sciences, 2012)*

II. **Quantitative norms –** These refer to norms on amount of space and facilities to be provided for vendors' markets by civic authorities. At the town / city level, enough space should be designated for vendors' markets at least to the extent of 2–2.5% of the total city population. The facilities that are required to be provided at the vendor markets invariably include solid waste disposal facilities, public toilets to maintain cleanliness[7], aesthetic design of mobile stalls/ push carts, electricity and drinking water facilities, covers to protect vendors' wares as well as themselves from heat, rain and dust, and storage facilities including cold storage.

III. **Regulatory process:** The policy stresses on a system of registration of hawkers and non-discretionary regulation of access to public spaces in accordance with the planning standards and nature of trade/ service. The town vending committee[8] / ward vending committee has the power to register vendors[9]**.** All vendors in each city should be registered at a nominal fee and the registration should be renewed every three years. The town vending committee should issue identity cards to vendors and charge a monthly fee for access to various services. For better regulation, there should be direct linkage between urban local bodies and hawkers.

4.5 Workforce participation rate

As per the 2011 Census, the city has 1.88 lakh workers who account for 37%of the total city population. The Workforce Participation Rate (WPR) has increased from 33% in 2001 indicating a net increase of 29,874 workers. Trends in workforce participation have been captured in the table below. Main workers account for 88% of all workers, the remaining being marginal workers who are involved in employment for less than 6 months.

Table 19: Work force participation ratio

Year	Total Population	Total Workers	Work Force Participation Ratio (%)
1991	2,16,950	72,287	33.32
2001	4,72,374	1,58,058	33.46
2011	5,13,264	1,87,932	36.62

Source: Census 2001, 2011.

Female workforce participation

As per 2011 Census, female workers number 35,515 and account for 7% of the total population and 19% of the total workforce population. As indicated in the table below, the participation of the female workforce is relatively higher in household industries and as agricultural labourers.

Table 20: Female work participation

Category	Total Workers	Share	Female	Share
Cultivators	688	0.4%	251	0.7%
Agricultural labourers	1,186	0.6%	530	1.5%
Household workers	5,390	2.9%	2,078	5.9%
Others	1,80,668	96.1%	32,656	91.9%

[7] In spite of the government's fervent concern regarding public sanitation and safety, a number of public events, bazaars, religious festivals and other activities take place on our streets with the whole-hearted approval of government authorities.

[8] The committee has no fixed tenure and there is no removal mechanism mentioned.

[9] The National Policy on Urban Street Vendors, 2009. Under Provision 4.5.4 of this Policy, the Municipal Authority is under an obligation to undertake a comprehensive census of the existing vendors in consultation with the Town Vending Committee for the purpose of granting them lease to vend. Hence, we see that here the burden of registration is on the Municipality, which significantly smoothens the exercise of registration and to a large extent simplifies the process for street vendors.

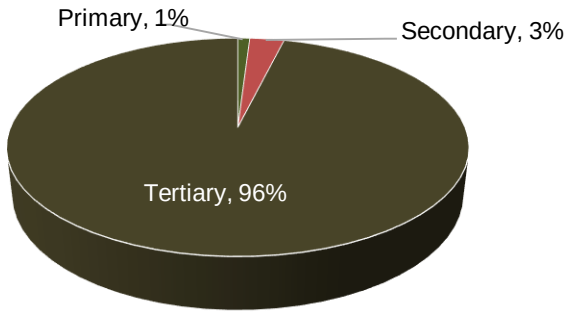
Category	Total Workers	Share	Female	Share
Total	**1,87,932**	**100.0%**	**35515**	**100.0%**

Source: Census 2011

4.5.1 Workers' Classification

Analysis of the sectoral share of workers shows that about 1% of the total workers in the city are engaged in primary sector activities, 3% in the secondary sector and about 96% – a phenomenal share – in the tertiary sector. As discussed in the city's economic profile, there is meagre scope for primary sector activities within the city limits. Tea processing, timber and other manufacturing units form sources of secondary sector employment. It is also observed that these industries employ regional workforce from nearby rural areas. The workforce within the city is predominantly occupied in tertiary sector activities which include trade, transport, hotels, real estate, etc.

Figure 25: Sectoral share of workers in Siliguri



Source: Census 2011

Trends in workforce participation

In 1991, 85.3% of the total workforce was engaged in the tertiary sector. Out of 158,058 workers in the SMC area, only 1.9% comprise cultivators and agricultural labourers. In 2001, the secondary sector accounted for 0.3% and tertiary as much as 97.9% of the total workforce. This indicates dominance of the tertiary sector in the economy and low industrial economy. .

4.5.2 Key Issues

- The informal economy in the city could be supported by creating infrastructure and amenities in the vending areas and registering the vendors.
- There is a need to diversify the economy by promoting tourism apart from trade and commerce.
- There is requirement of strict industrial enforcement for non-polluting industries in this region;
- Work force participation in the city is 37% and female workers account for 7% of the total population and 19% of the total workforce population.
- Poverty is on the rise with growing unemployment. (Though the share of unemployment has declined, the absolute size of BPL and vulnerable groups is substantial.)
- Opportunities for native population have waned due to increasing dominance of in-migrants in informal economic activities;
- The crime rate has gone up due to international illegal drug trafficking and infiltration from Bangladesh and Nepal.

5. Physical planning and growth management

This chapter presents a detailed assessment of the planning area, spatial growth trends and distribution of population, and critical appraisal of the development plan, master plan, and land use analysis (existing and proposed). The assessment of existing land and proposed land use has been compared with the Urban & Regional Development Plans Formulation and Implementation (URDPFI) guidelines. Also, the roles and responsibilities of urban local body (ULB) and Parastatals agencies in urban planning functions have been discussed in the chapter.

5.1 Background

Siliguri was a tiny village of less than 800 populations in 1901 and received its recognition as a municipal town with a population of 32,480 and an area of 15.54 sq.km, in 1951. The original town comprised the areas known as Hakim Para near Siliguri town railway station; it started expanding towards the north and north-east, towards Asami Para (literally meaning Assamese neighborhood). The town showed its vital potentiality as it grew as a centre part for trade between India, Sikkim, Bhutan, Nepal and Tibet. The Assam rail link in 1950s made this town a gateway to North-East India. NH-31 and other road networks ushered a new era in transport in entire North-East India.

The growth of the town received momentum just after independence of India with immigrants from Nepal, Southern Bhutan and adjacent Indian states apart from eastern Bengal coming in. There was also a major influx of business communities from other parts of the country. After 1981, some important State Government offices have been established in Siliguri.

In terms of development, Siliguri is a relatively newly-founded town whose geographic positioning which made it an international trade centre, earned it importance post-Independence and segregation of countries as India connects with northeastern Indian States plus Bangladesh, Bhutan and Nepal through Siliguri.

Till 1994, Siliguri Municipality had 30 wards. After the declaration of the Siliguri Municipal Corporation in 1994, 17 new wards were added to its jurisdiction. Siliguri is a unique city as 14 out of 47 wards of Siliguri Municipal Corporation falls in the neighboring Jalpaiguri district. The total area is 41.9 sq. km. Around 20.11 sq. km of SMC area falls in the Darjeeling district and the remaining 21.79 sq. km of SMC area is in the Jalpaiguri district.

As per the West Bengal Municipal Corporation (Amendment) Act 2009, Sec. 333, draft development plan (DDP) is prepared by the corporation in consultation with the DPC for five years.

Table 21: District wise share of SMC Area

Name	Area (sq. km)	Percentage of Area	Total Number of Wards
Siliguri Municipal Corporation (SMC)	41.9	100%	47
SMC Area in Darjeeling District	20.11	48%	33
SMC Area in Jalpaiguri District	21.79	52%	14

Source: Siliguri Municipal Corporation

5.2 Siliguri Jalpaiguri Development Authority

Siliguri Jalpaiguri Development Authority (SJDA) was set up by the 1979 Act of West Bengal Town and Country (Planning & Development) and has the responsibility of dealing with the works of planning and developing the Siliguri-Jalpaiguri planning area. With the means of this act, the development board came into being as the governor of West Bengal gave directions through notification no-1878 - T&CP/112-6/80 dtd. 17.3.1980 for the dissolution of Siliguri Planning Organisation which was functioning under the T&CP branch of the Dept. of Development & Planning of the West Bengal.

As per the DDP the total area under SMC is 41.9 sq.km. The master plan for Siliguri- Jalpaiguri planning area was prepared by SJDA. The urban planning cell under SMC and district planning committee (DPC) governs the urban planning for the corporation. In accordance with the DDP, the annual development plan (ADP) is also prepared by the corporation in consultation with the DPC for a period of one year. The ADP covers detailed development plan for the year.

5.3 Constituents of planning area

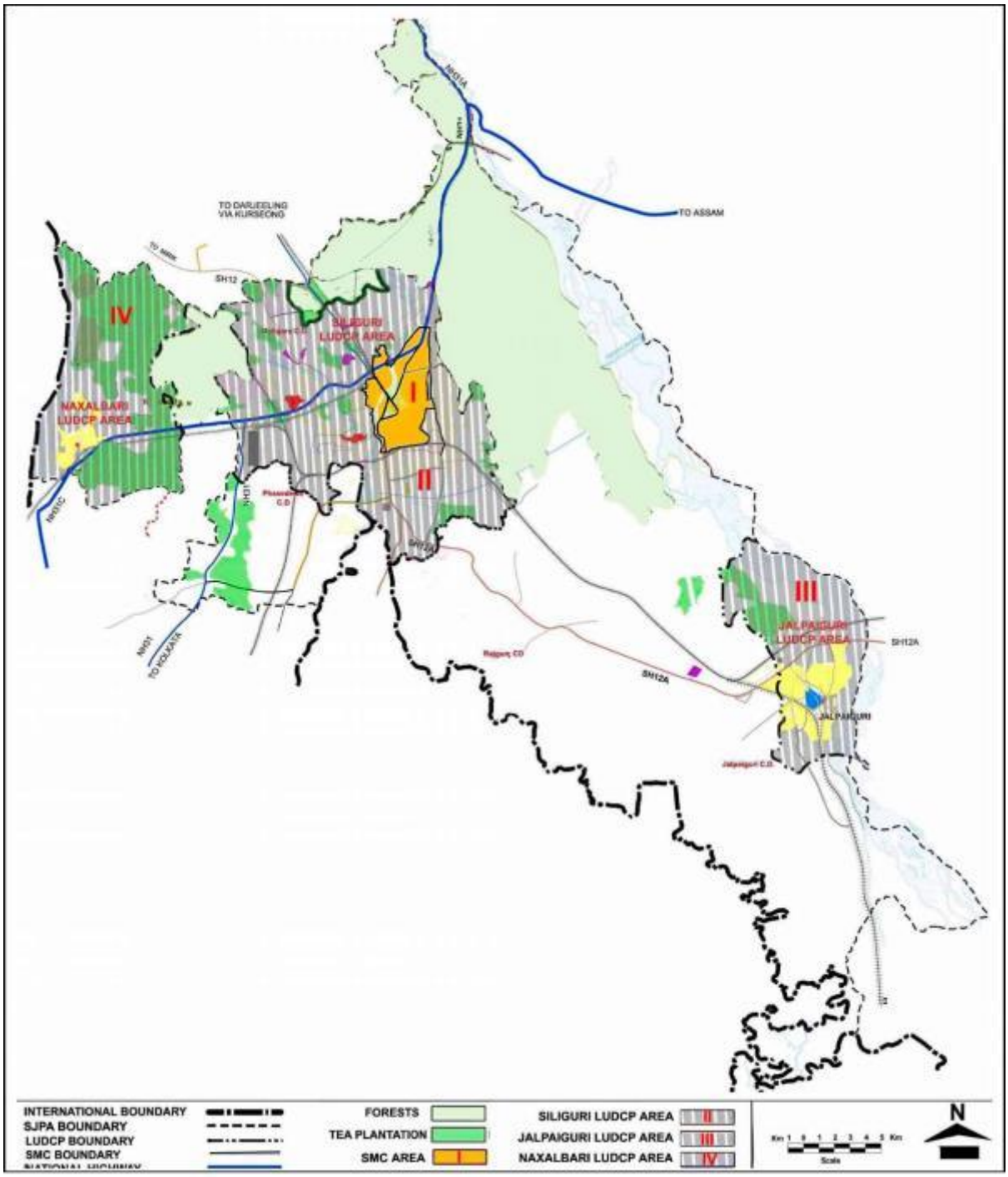
In 1931, Siliguri was made a non-municipal town and in 1950 it was upgraded to a municipal town. Siliguri municipality with an area of 15.54 sq.km was upgraded to a Municipal Corporation in 1994 and area was increased to 41.90 sq.km.

Figure 26: Siliguri Jalpaiguri Development Area

Source: Siliguri CMP, 2011

Due to rapid growth and urbanization experienced by Siliguri in the last two decades, a need was felt to ensure planned development of the region, and Siliguri Jalpaiguri Development Authority (SJDA) was formed.

Figure 27: Siliguri Jalpaiguri Planning Area



Source: City Development Strategy for Siliguri - 2011

All development in Siliguri Urban Area (SUA) which comprises Siliguri Municipal Corporation and adjacent urban areas are regulated by SJDA. SJDA has an area of 117.54 sq. km, out of which 68.90 sq. km falls under Jalpaiguri district and remaining 48.64 sq. km. falls under Darjeeling district.

Siliguri Municipal Corporation falls into two districts, Darjeeling and Jalpaiguri Districts. Siliguri City is situated under Siliguri Jalpaiguri Planning Area (SJPA) and the responsibility of planning and development of the city lies with Siliguri Jalpaiguri Development Authority (SJPA). The land area under the jurisdiction of Siliguri Jalpaguri Planning Area (SJPA) is 2327.12 sq. km. after the recent inclusion of a portion of Phansidewa. Six police stations viz. Siliguri, Matigara and Naxalbari and Jalpaiguri, Bhaktinagar and Rajganj fall under SJPA. The area has been divided into five Community Development blocks, namely – Matigara, Naxalbari and Phansidewa, in Darjeeling District and Jalpaiguri and Rajganj in Jalpaiguri District.

The Outline development planning area of Siliguri is spread over 260.0 sq. km., constituting makes up 22.47% of the SJDA region and is formed by the areas of Siliguri Municipal Corporation, Bagdogra urban area, Bagdogra (rural), Dabgram urban area and Binnaguri rural mouza.

Table 22: Summary of Constituents of Siliguri Planning Area

Name	Area (Sq.Km)
Siliguri Jalpaiguri Planning Area (SJPA)	1266.64
Outer Development Planning Area (ODPA)	260.0
Siliguri Jalpaiguri Development Area (SJDA)	117.54
Siliguri Municipal Corporation (SMC)	41.9

Source: Traffic & Transportation Master Plan, SJDA, 2013

5.4 Spatial growth trends

Siliguri's particular location on the narrowest part of Indian land naturally limits the scope of city's boundary. There are strips of land on both sides of Sevoke Road (north east of Siliguri) up to Manpong forest and of NH-31 (Siliguri to Bagdogra road on West of Siliguri) up to Nepal and Bihar. Hence the city is growing as a ribbon development along those lines. On two sides of NH-31 there exist many tea plantations, limiting the growth. On south Siliguri's expansion is thwarted at Bangladesh border and on east, by Baikunthapur reserve forest. As Jalpaiguri lies only 45 km south east of Siliguri, with proper connectivity, there is scope of development between these two cities.

Due to certain events, Siliguri developed in certain directions, hence, the rapid transition through which Siliguri has passed in a small period of time.

Up to 1960s Siliguri was an obscure village till the second decade of this century. Then the development of the tea gardens gave a start to the development of Siliguri. The first tea garden in the Terai area was the New Champta tea estate, which was opened in the year 1866. Then in this area first rail link was established in 1880.

This rail link impacted the administrative status of Siliguri:

- The District Revenue Office shifted from Phansidewa to Siliguri and Siliguri was detached from Jalpaiguri district to become a part of Darjeeling district.
- In 1907, sub divisional office for Siliguri was shifted from Kurseong to Siliguri itself. In 1931, Siliguri was recognized as a non- municipal town.
- Siliguri became a municipal town in 1950;
- Total area of the town was 15.5 sq.km;

Further some new links connected Siliguri to other area too:

- In 1934, the new coronation bridge across the Teesta river linked Siliguri to Assam, Cooch Behar and the Upper Dooars of Jalpaiguri led to the development along major arterial roads like Hill Cart road and SF road;

- The Assam rail link was established during 1950s;
- In spite of all these changes, Siliguri's importance was very limited. It was only recognized as an entry point for the trade between India and Sikkim, Bhutan, Eastern Nepal and Tibet apart from being recognized as a small junction station for the change- over to the narrow- gauge train bound for Darjeeling.

The Population increase also impacted the status of Siliguri. It was after partition in 1947, a continuous stream of migrants from East Pakistan (present Bangladesh) flowed into the town. It resulted into three fold increase in city's population from 1947 to 1961.

Further growth of Siliguri city:

- Siliguri town began to grow from the Khalpara and Naya Bazar area, which is a town railway station area with the construction of godowns (warehouses) for wholesale trade and residential-cum- commercial establishments by traders;
- This was followed by some retail shops and consumer goods industry which helped making this area as a core of the city.
- Subhash Pally is oldest settlement in the city located near town railway station;

Up to 1980s Siliguri city saw an impetus growth pattern:

- Siliguri gained strategic importance due to declared emergency in 1962. Since then importance of Siliguri kept on growing as a major focus in the commercial and transport lines between South Bengal, North Bihar, Assam, Sikkim and Bhutan.
- Roads and other infrastructure facilities were improved to prepare Siliguri city for the national games and Kanchanjangha stadium was built during this time for national games which was then used as a public space for various activities.

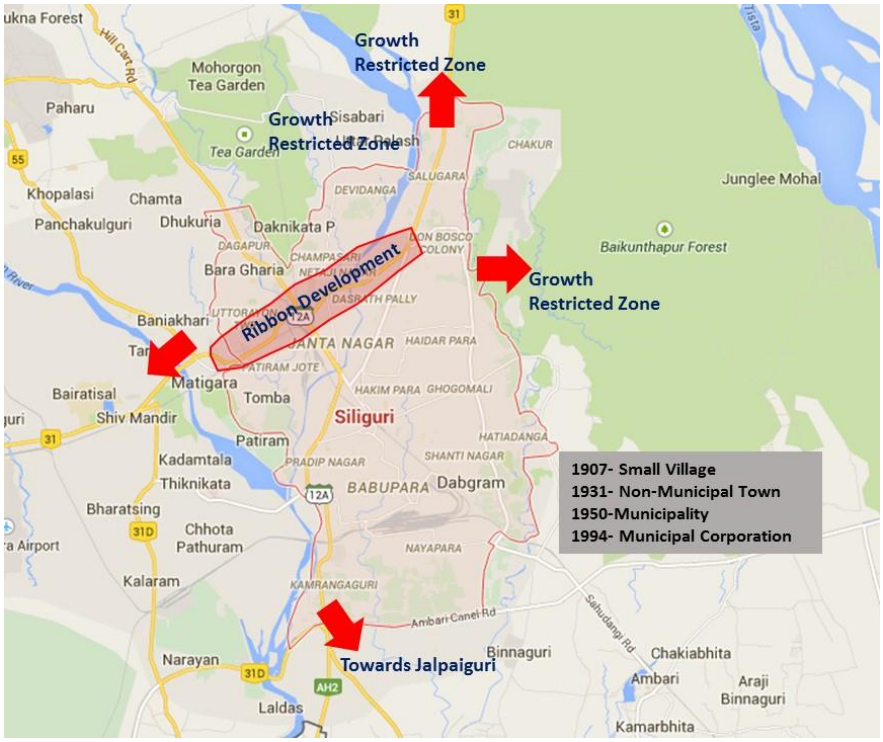
Afterwards growth of Siliguri city:

- After opening of second Mahananda bridge, scope for growing in the north- western side of Mahananda increased and city showed increasing growth in that direction.
- Commercial developments along Hill Cart road and SF road caught momentum and started along Savoke road.
- Opening of Third Mahananda Bridge linked city with the western part and opened new avenue for expansion of the city in western direction.
- In the Administrative point of view, Siliguri Municipal Corporation was formulated. Total administrative area became 41.9 sq. km.

Current growth corridors:

- New commercial developments increasingly coming up along Savoke road, and that area is having a characteristic of a newly developing area with new commercial and residential developments;
- Major relator players like Mayfair, Bengal Ambuja, Shanthinikethan, Vishwakarma builders and other local builders are developing new ventures along NH-31 and Sevoke road of Siliguri region;

Figure 28: Growth direction in Siliguri



Source: Google (Image), SMC & CRIS

Figure 29: Siliguri City Administrative Evolution

Source: Google (Image), SMC & CRIS

Siliguri city has an organic urban pattern in the old Siliguri region. The areas are characterized by narrow lanes, low-rise structures, and unorganized infrastructure services.

The areas around the railway station and bus terminus face the high densification, congestion, and stress on infrastructure services. This has paved the way for urban sprawl along the transport corridors specifically towards the highway, main road, etc. Also, over the years, the developmental pressure in the core city has adversely affected the area under green cover and open spaces.

The areas around the railway station which are considered as the central business district are characterized by high density. In contrast, as indicated in the satellite images below, areas in the core city in the periphery have also developed in an organic way with wide roads and mid-to-high-rise structures.

Many of the original wards have decongested (wards 9-12 and 17) and wards in added areas have seen population increase in range of 75% to 270%. Population of 10 wards was above 100%. The decongestion of older wards has continued whereas the population increase in the added areas grew in the decade of 2001-2011. Hence, the decadal population growth has reduced from 47.5% in 1991-2001 to 7.8% in 2001-2011. The areas surrounding NJP station and Hill Cart Road continue to be most congested parts of the city.

5.4.1 Land Rates

Land values in the LUDCP area are lower as compared to Siliguri city area. In LUDCP area, land values along national highway are higher in comparison to other areas of LUDCP. Land values are increasing due to the increased infrastructure facilities and transport network. Value gets affected by level of service and accessibility of the area. Land value near national highway 31 near transport nagar is 1 lakhs/ Kottah (1 Kottah = 66.96 square meters).

Within SMC area, there is a drastic difference in the prices of different areas in 1982 to 2004. At present, city core (Bidhan market area) and area around Savoke road having highest land values. Then second zone is all residential areas near periphery having land value around 20000- 25000 Rs./ ha. Third zone is around core area near SF road, Burdwan road etc. value of land in this zone is 12,000 to 20000 Rs./ ha. Value of land along eastern bypass has increased due to the connectivity provided by bypass.

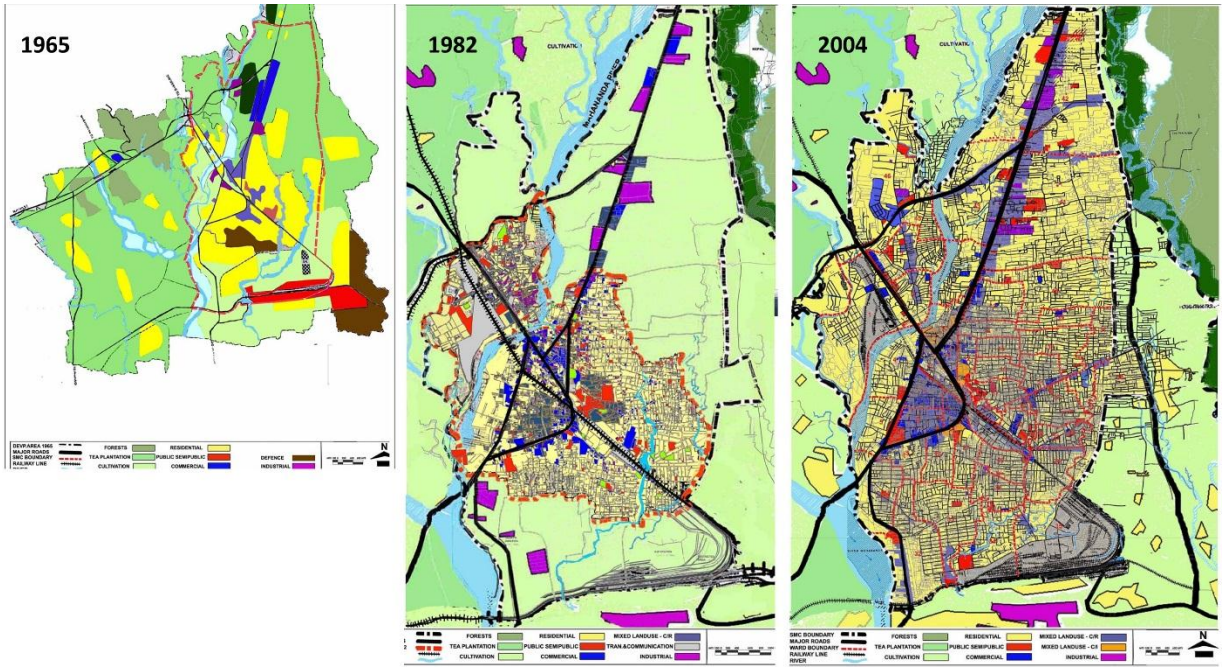
5.5 Land Use

Land is a vital resource and the most important natural resource in the Municipal. Due to increasing urban population pressure the urban local bodies are facing threat of overuse land and abuse of the land resource. The development plan provides necessary detail and intended action in the form of strategies and physical proposals for various policies depending upon the economic and social needs and aspiration of the people.

The existing land use in the SMC has been summed up by adding the land use of different wards. SMC wards being divided throughout two districts, 32 wards lie in the Darjeeling district and the remaining 15 wards lie in the Jalpaiguri District. Around 20.11 sq. km of SMC Area falls in the Darjeeling District and the remaining 21.79 sq. km of SMC area is in the Jalpaiguri District.

As per the land use Distribution in the SMC 50% of the total SMC area is residential land use. 7% of the total Land in the SMC region is of Commercial Use while Industrial Use is just 1%. Public & Semi Public as well as Recreational Land Use is 4% each. Transport and open land use including unused land are 13% each. Land in Agriculture & Water Bodies has a share of 8% in the total land use of the SMC.

Figure 30: Siliguri land use progression trend



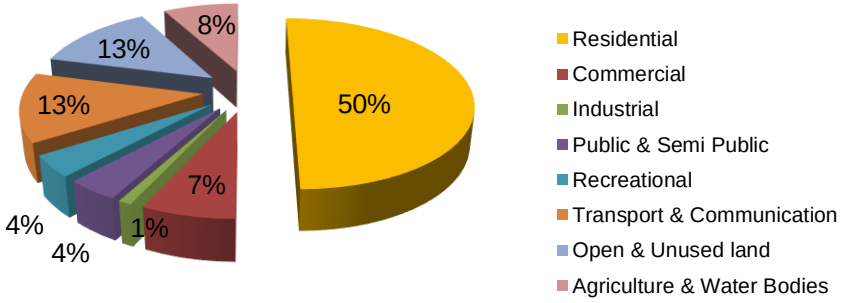
Source: Traffic & Transportation Master Plan for SJDA

Table 23: Land Use of the SMC region

Land use category	SMC Land use (Sq.Km)	Land Use (%)
Residential	20.66	50%
Commercial	2.93	7%
Industrial	0.42	1%
Public & Semi Public	1.68	4%
Recreational	1.68	4%
Transport & Communication	5.45	13%
Open & Unused land	5.45	13%
Agriculture & Water Bodies	3.35	8%
Total Developed Area	**41.92**	**100%**

Source: Draft Development Plan 2008-09 to 2012-13, SMC

Figure 31: Land use Breakup



Source: Draft Development Plan 2008-09 to 2012-13, SMC

5.5.1 Comparison with URDPFI guidelines

The existing land use has been compared with URDPFI guidelines to assess the adequacy of existing areas under various category/zones. As indicated in the table below, the city lacks adequate land use share under Industrial, Public and Semi-Public, and Recreational Categories. Residential, Commercial and Transportation use is meeting URDPFI guidelines.

Table 24: Land use Distribution

Land use category	URDPFI Guideline Percentage of Developed Area - Medium Town	Siliguri Municipal Corporation	Meets the benchmark
Residential	40-45	50%	Yes
Commercial	3-4	7%	Yes
Industrial	8-10	1%	No
Public & Semi Public	10-12	4%	No
Recreational	18-20	4%	No
Transport & Communication	12-14	13%	Yes
Open & Unused land	Balanced	13%	-
Agriculture & Water Bodies		8%	
Total Developed Area	**100**	**100%**	

Source: SMC, URDPFI guidelines, 2014

Residential land use

As per the existing land use, residential and mixed residential use comprises around 50% of the total land use. As indicated in the table above, the percentage of land use under residential is conformity with the URDPFI guidelines. The residential colonies include Pradhan nagar, Ghogomalli, Babupura, Sakthigarh, College para, Ashram para, Mahakal pally, and Punjabi para.

Commercial land use

The commercial use is spread over an area of 7% of the city land use. It is observed that the share of commercial land use is meeting the URDPFI requirement. This is due to the fact that the city is a major commercial centre in the North Bengal and Sikkim. The commercial areas are located in the core and northern part of the city such as Bidhan market, Hill cart road and Sevoke road. Further, new commercial establishments are coming up along the NH-31C.

Industrial land use

Presently, the industrial zone accounts for about 1% of the land use. As indicated in the table above, the area under industrial zone is inadequate when compared to URDPFI guidelines. Within the core city, limited industrial activities are distributed.

Public and Semi-public land use:

As indicated in the table above, the city lacks sufficient area under public and semi-public zones. The core city has 4% of land use under public and semi-public use. These comprise all the educational and health institutions, government offices, municipal offices, offices of other local authorities and other public institutions like temples, churches and mosques.

5.6 Critical Appraisal of the Land use in the DDP

Land use planning should meet the consumption needs of growing population by efficient utilization of the resource, by identifying the prospective uses of land, conservation and development of land and devising suitable regulatory control over development.

Development objectives set for the SMC for Land use development plan

- Siliguri Municipal Corporation will make endeavors to identify unutilized plots of land in different wards of the Corporation area with a view to intervene in the matter of its desired utilization either by Corporation itself or through private public partnership;
- Siliguri Municipal Corporation jointly with SJDA will review the regulatory control on development of land, control of building operation and regulations of building uses and make those supplementary to existing rules and regulations keeping in view the concerns over social needs and environment;

The overall scope of the plan entails:

Theme 1 – Making land available

- Making available adequate land at appropriate locations for all municipal services;
- Providing land for healthcare services, education and recreation according to the norms proposed in URDPFI guidelines and for requirement of all other sub component plans of the DDP;
- Making available adequate land for transport infrastructure such as roads, parking, bus depots, jetties, and modal interchanges;

Theme 2 – Redevelopment of congested areas for better living

- Enhance condition of living in the congested or densely populated areas of the Municipals Corporation through redevelopment of such areas.
- Planning new areas of human settlement through new development schemes.
- Regular maintenance of public squares, parks, garden or recreation areas.
- Improving the surrounding/environment of the Municipals Corporation by initiating projects for beautification and landscaping.
- Resettlement and rehabilitation of squatter settlements and providing basic amenities such that there is an overall improvement of the quality of life of the excluded and marginalized section of the population.

Theme 3 – Regulatory controls for unauthorized encroachments and buildings

- Provide adequate regulatory measures for unauthorized street encroachments and buildings which are unfit for human habitation.
- Take adequate measures for old, dilapidated buildings which are unsafe for human habitation and for the neighborhood.
- Providing regulatory framework for disaster prone areas, filling up of in-sanitary water courses, filling up of tanks etc.

5.7 Roles and responsibilities of ULB and parastatals

The function of town planning has not been transferred on real-time basis to SMC. As mentioned earlier, Siliguri Jalpaiguri Development Authority (SJDA) and SMC are responsible for the urban planning function within the region. The key roles and responsibilities of the planning agencies are indicated in the Table 25 below.

Table 25: Roles and Responsibility of the Institutions

Agency	Roles and Responsibility
SJDA	Under the city planning functions, urban planning and preparation of master and land use plans is the responsibility of the Parastatals agency, i.e., SJDA Post preparation of the plans, the plans would be handed over to SMC for enforcement as per the applicable state building byelaws.
SMC	SMC is responsible for the enforcement of the plans and regulation of development as per the state byelaws.

5.8 Issues of the present land use Distribution

The present land use distribution brings in certain issues which could be analyzed on the city level. The land use and the issues relating to it are discussed in the Table 26 below:

Table 26: Land use and relating issues

Sl. No.	Land Use	Issues/Problems
1	Open, unused land/undeveloped land	These types of lands are predominantly found in very few wards. Open/ undeveloped lands are mainly used for dumping of wastes.
2	Public parks, squares and garden, Playgrounds	There are couple of parks which can be renovated like the renowned Surya Sen park maintained by SMC. In rainy season the some of the playgrounds get water logged or mucky. These needs to be controlled.
3	Drainage network and outfalls.	The drainage network problem is acute in some wards. The problem of drain blockage is severe in almost all the wards
4	Disaster prone area (Flood, etc.)	Due to a good natural slope this is not a problem. But flash floods in the rivers may create problem of flooding.

6. Social infrastructure

This chapter presents a detailed assessment of the social and environment of the city, which includes health services, education status, and role of various agencies involved in the service provision. The key findings of the analysis indicate the status of Siliguri city in terms of health, education, and recreation service provision. The existing facility has been compared with URDPFI guidelines to arrive at the gap in service provisioning.

6.1 Background

Siliguri has always been the hub of health and education in the Terai and the Dooars region. Apart from the residents of West Bengal, students from neighboring states of Sikkim, Bihar and Assam and neighboring countries of Bhutan, Nepal and Bangladesh come here to pursue education. As discussed, the Siliguri hospitals offer good health care services to the entire districts in the state.

Further, the city has a wide range of education institutions like universities, science and management colleges, and research institutions established by the Government and private organisations. SMC is playing a major role in the provision of basic education facilities in the city.

6.2 Health care facilities

The district commissioner of health and family welfare is responsible for planning, implementation, facilitation, coordination, supervision and monitoring of all activities relating to health in the district. Further, it takes care of all matters relating to primary and secondary hospital services and their interface with the tertiary health system.

6.2.1 Existing situation

Healthcare facilities in the city are provided by many hospitals, which are supported by both the government and private institutions. The city has four major hospitals, viz., the Siliguri District Hospital (SDH), TB Hospital, NJP Railway Hospital, and North Bengal Medical Hospital, which offers affordable health care services to Siliguri and neighbouring districts in the state. SDH is run by the state government.

Further, SMC is maintaining a few Ayurvedic, Unani, and Homeopathic dispensaries within the city limits. In addition, the city has nearly 80 private hospitals, nursing homes, and dispensaries with specialised services.

Some of the health care facilities in Siliguri are as follows Table 27:

Table 27: List of Hospitals

S.NO.	Hospital
1	SD Hospital
2	TB Hospital
3	NJP Railway Hospital
4	Anandalok Hospital
5	Siliguri Lions Eye Hospital
6	Arogya Niketan
7	North Bengal Medical College
8	Veterinary Hospital
9	Malaria Office

S.NO.	Hospital
10	North Bengal Voluntary Blood Bank
11	Paramount Hospital Pvt. Ltd.
12	Shanti Swasthalaya & Anusandhan Kendra pvt. Ltd.
13	North Bengal Neuro Centre
14	Heritage Hospital and Helix Diagnostics
15	Navjeevan Hospital and Rural Health Center
16	Peerless Hospital
17	Ram Krishna Sewa Sadan
18	Siliguri Sadar Hospital

Source: SJDA, 2013

The Siliguri Sub-divisional (Sadar) Hospital has 250 beds and the Jalpaiguri Sadar Hospital has 550 beds. The North Bengal Medical College and the North Bengal Dental College are also situated within SJPA.

The IPP-VIII Extension Programme (India Population Programme) in Siliguri Municipality operates from 244 blocks, 61 health centres, 8 health posts, and 1 maternity home cum Extended Specialised Outpatient Department (ESOPD).

In the private sector of healthcare, Revision of Land Use Guidelines for Siliguri Jalpaiguri Development Area, 29 nursing homes and 68 diagnostic centres operate in Siliguri, accounting for about 159 beds. There is provision for about 125 beds in private nursing homes and diagnostics in Jalpaiguri.

Besides, the tea gardens and estates in SJPA have their own dispensaries and clinics, which may need to be incorporated into the mainstream healthcare system for administrative and logistic reasons.

6.2.2 Role of SMC in health care services

The function of Municipal in the area of Public Health is primarily of implementing Central and State Government Health programmes in the urban area. These services include preventive measures for checking the spread of dangerous disease (vector control), providing immunisation including public vaccination and inoculation, registering an event of birth and death, construction, maintenance and operation of dispensaries, ambulance services, issue of food licence, etc. SMC plays a vital role in organizing and facilitating the health programs in the area. Following health programs are operating within SMC:

a. Total 45 centres are run by the health section and NGOs together for the prevention of different diseases like TB, polio, diphtheria, pertussis, tetanus, measles, and hepatitis B.
b. Ward-wise health check-up programmes are organized by councilors and ward committee members, on different aliments like diabetes, heart diseases. For this, Rs. 15,000 per year per ward is allotted.
c. Awareness programs on vector-borne diseases like malaria, dengue, and encephalitis are organised ward wise.

6.2.3 Distribution of health care facilities

The total area of the city is served by the multi-tiered health management system supported by Central, State, Corporation and private level assistance. Improvement in health care delivery systems in all the sections of the citizens of the Siliguri particularly BPL populations in the slum based wards are being given the most priority. As per the survey conducted under the Draft Development Plan prepared by SMC, about 78% of the slum population seek health services from the government health facilities.

6.2.4 Comparison with URDPFI norms

The existing health care facility has been compared with the URDPFI guidelines to check the current status of health care infrastructure and further identify the gap in the health care facilities. The existing facilities are inadequate as compared to URDPFI guidelines.

As indicated in the table below, the city has only 30 diagnostic centres while the requirement is for about 38. Also, less than 50% of the requirement for nursing homes has been fulfilled. Similar is the case with the veterinary services in the city.

Table 28: Health care facilities in Siliguri

Health care facility	URDPFI Guidelines	Requirement as per guidelines	No. of hospitals	Met the Benchmark
Dispensary	1 for 15000 population	38	30	**Yes**
Nursing home, child welfare and maternity centre	45000 to 1 lakh population	13	29	**Yes**
Multi-speciality hospital	1 for 1 lakh population	6	3	**Yes**
Diagnostic centre	1 for 0.5 lakh population	11	68	No
Veterinary Hospital for pets and animals	1 for 5 lakh population	0	1	No
Dispensary for pet animals and birds	1 for 1 lakh population	0	6	No

Source: URDPFI guidelines and SMC

6.2.5 Key issues

- The city has good services in terms of overall healthcare facilities. However, in the area of public health care facilities, intermediate hospitals and speciality hospitals could be developed in view of the BPL population within the district.
- As per the discussions with SMC officials, the frequency of occurrence of malaria, diarrhoea, and yellow fever is high in the city, especially in the slum areas across the core city. This is attributed to unhygienic conditions and water stagnation for long periods. .
- Absence of scientific technology for biomedical waste disposal are affecting hygiene conditions in hospitals.

6.3 Educational facilities

The city is the regional education hub and pioneer in higher education and graduate programmes in the state. In 1981, the male and female literacy rate in the Siliguri city was 57.6% and 4.8%, respectively. The municipal area recorded a higher literacy rate compared to the other segments of the ODP area.

Due to the inherent importance of Siliguri as being a centrally located and the largest town in the Sikkim-Darjeeling region, a large number of students flock here for higher education. The city has two engineering colleges, viz., Siliguri Institute of Technology and Surendra Institute of Engineering & Management. Siliguri College, established in 1950, is the oldest higher education institution in the city. Other colleges are Siliguri College of Commerce, Siliguri Mahila Mahavidyalaya, Surya Sen Mahavidyalaya, St. Xaviers College, Bagdogra College, Naxalbari College, Salesian College, and Gyan Jyoti College.

The North Bengal Medical College, located in Sushrutanagar, is the sole medical college in the region and is connected to the main city through the 3rd Mahananda Bridge. The University of North Bengal was established in 1962, 10 km away from the main Siliguri city, in Raja Rammohanpur. Approximately 80 colleges are affiliated to the university, with approximately 36,000 and 1,500 students enrolled in graduate and post-graduate courses, respectively, every year.

6.3.1 Existing Situation

Overall, there are 123 schools in Siliguri which are run by the state government or private organizations, many of which are religious. Siliguri Boys High School (SBHS) is the oldest school of the city founded in 1918. Girls High School, Don Bosco School, St. Josephs' High School, and Hindi Balika Vidyapith School are the other old and famous schools of Siliguri. Details of the existing schools in SMC have been provided in table below.

Table 29: Types of Educational Institution (Government)

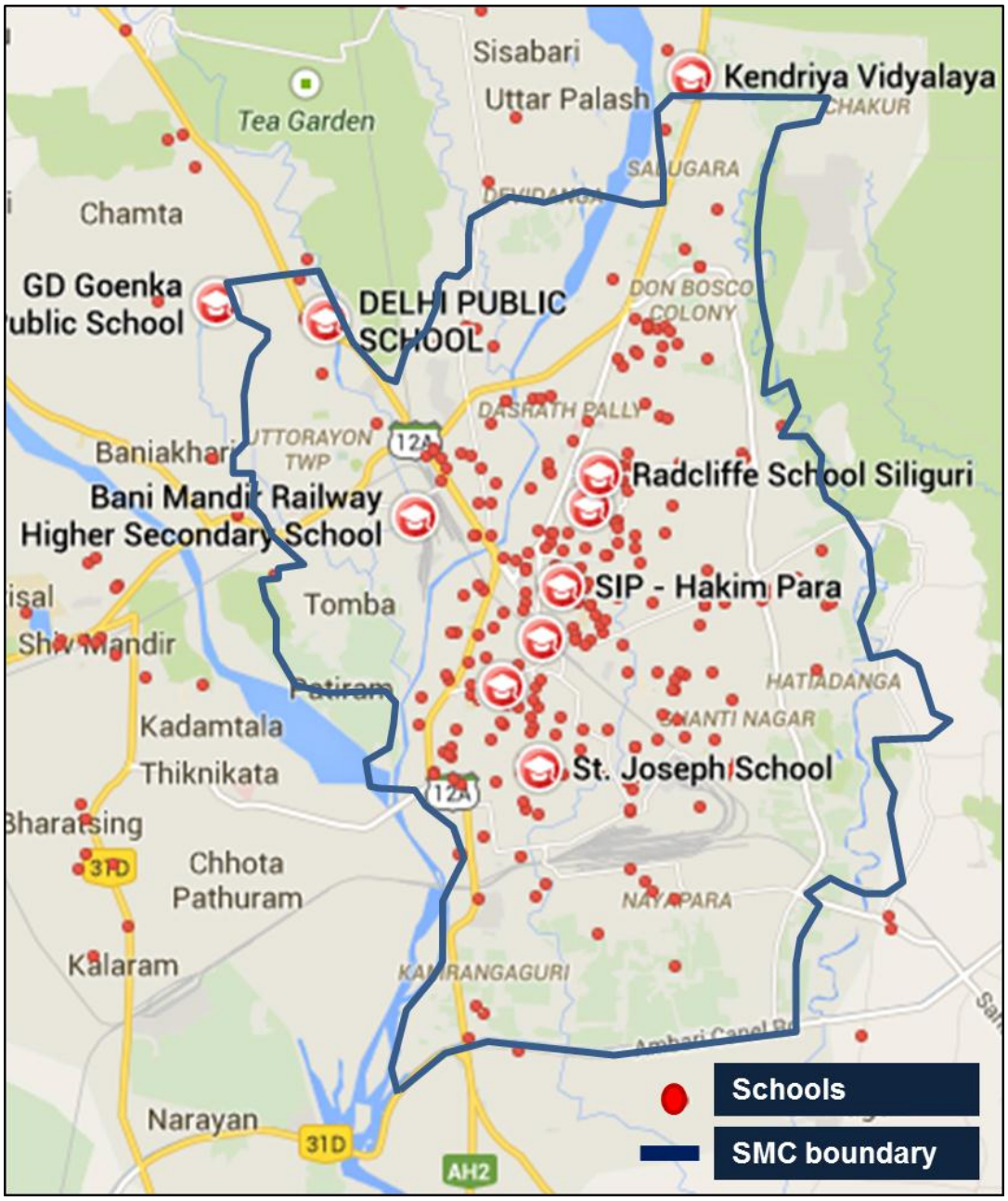
S. No.	Type of Educational Institution	Number
1	Municipal primary school	1
2	Primary Schools	78
3	Junior High School	1
4	Secondary Schools	12
5	Higher Secondary Schools	25
6	Colleges	6
	Total	**123**

Source: Draft Development Plan 2008-09 to 2012-13, SMC

6.3.2 Spatial distribution of schools

The concentration of educational facility is more towards the southern part of the town along the Sevoke road and Hill cart road. Wards to the east of railway station are devoid of basic education facilities. The spatial distribution of the schools in the city has been indicated in the map below:

Figure 32: Location of schools in Siliguri



Source: Google (Image) and CRIS analysis

6.3.3 Comparison with URDPFI norms

The existing education facilities have been compared with the URDPFI guidelines to check the current status of education facilities and further identify the gap in the services. It is observed that the city lacks adequate facilities at various level. As per the URDPFI norms, there is a deficit of 34 schools at the primary level, 63 schools at senior secondary school level. Further, the city lacks integrated schools with hostel facilities and schools for the physically and mentally challenged.

Table 30: Existing education facilities' comparison with URDPFI norms

Social infrastructure	URDPFI Guidelines	Actual requirement for 2014	Existing 2014	Met the Benchmark
Pre-primary to secondary education				
Primary school	1 for 5000 population	113	79	No
Senior secondary school	1 for 7500 population	76	13	No
Integrated school (with hostel facility)	1 for 90000 to 1 lakh	6	0	**No**
School for physically challenged	1 for 45000 population	13	0	**No**
School for mentally challenged	1 for 10 lakh population	1	0	**No**
Higher education				
College	1 for 1.25 lakh	8	5	**No**
Technical education	1 for 10 lakh population	1	1	**Yes**

Source: SMC and URDPFI guidelines

6.3.4 Key issues

- The city has adequate higher education facilities such as university, graduation, and technical education facilities. However, the city lacks adequate facilities in the primary and elementary school levels.
- There is a shortage of teachers at the primary school level. The student and teacher ratio at the primary school level is lower than the recommended norms.
- The maintenance of municipal school infrastructure is the responsibility of SMC. Majority of the schools are running in substandard buildings and lack basic facilities such as water supply, sanitation, and play areas.
- Very few municipal schools have adequate area to provide the desirable minimum amenities required for children.
- Maximum numbers of primary and secondary government-aided schools are located either in residential areas or beside national highways.
- Most of the schools have no boundary walls and guards.
- Because of the poor quality of sanitation, the surroundings of the school environment is polluted. Sometimes, there are no toilets for teachers and students.
- The drinking water is provided from tub well and well.
- They have no provision for special care of children.
- The pupil-teacher ratio (PTR) has been increasing day by day. Unbalanced PTR negatively affects the academic curriculum.
- The most alarming factor is that the teachers and parents have no communication or meeting for the future development of children. In some special cases, there is some provision of a guardian cell.
- Government schools have insufficient library materials, insufficient laboratory instruments.

6.4 Recreation

The city offers diverse recreational space including parks, clubs, cinemas and play grounds. The city has around 40 parks and 5 recreational areas which are distributed around the city.There are six auditoriums in the municipal area, of which two belong to the North East Frontier Railway.

In the SMC area, there are around 60 clubs of different types, including 3 exclusively for skill-development. At present, there are more than 10 libraries located within the municipal limits. Majority of these libraries are organised under the Rural Library Schemes of the State Government. Further, the city has 6 cinema houses in municipal corporation area.

Parks and play grounds

As per the existing land use of the city, about 1.68 Sq.km of area in the city is under recreational use**.** SMC is responsible for the development and maintenance of parks and recreational areas. Though Siliguri has a lush green environment, as it is covered by forest reserves on the north side, it has densely populated areas, which lack proper parks or open spaces which can uplift the environmental conditions. SMC maintains around 0.78 lakh sq.m of park area. The details of existing parks and playgrounds in SMC area has been provided in the table below.

Table 31: List of Park and Play Grounds Maintained by SMC

S. No.	Park & Play Ground	Area (sq.mt)
1	Children Park At Diseal Colony	225.00
2	Children Park At Bagha J Atin Colony	305.00
3	Adarsha Nagar Park At Adarsha Nagar	325.00
4	Children Park At Ganga Nagar	296.00
5	Sampriti Park At Mahananda Para	296.00
6	Surya Sen Park At Mahananda Para.	28112.45
7	Children Park At Ashrampara	269.00
8	Sishu Uddayan At College Para	4859.44
9	Children Park At Ward No. 17	269.08
10	Baghajatin Park At Ward No. 17	4859.44
11	Chotodar Asar At Ward No. 19	923.69
12	Azad Hind Park At Subhas Pally	428.00
13	Swami Chaitananda Sishu Uddyan At Ward No. 21	169.48
14	Pratik Sishu Uddayan At Ward No. 22	570.28
15	Park At Ward No. 22 At Ward No. 22	673.90
16	Nabin Sangha Park At Ward No. 22	248.00
17	Siliguri Park At Ward No. 23	6176.71
18	Milan Pally Park At Millan Pally	305.22
19	Babu Para Boys Club Park At Babu Para	348.00
20	Boot House Park At Deshbandhu Para	364.00
21	Swami Vivekananda Park At Ward No. 27	298.00
22	Tikia Para Park At Ward No. 28	348.00
23	Subrata Sishu Uddyan At Ward No. 30	248.00
24	Balaram Saha Smrity Sishu Uddyan At Shaktigarh	789.16
25	Park At Nouka Ghat At Nouka Gh At	19518.07
26	Park At Sreepally At Sreepally	839.36
27	Saktigarh Park At Shaktigarh	745.00
28	Park At Surya Sen Colony At Ward No. 34	425.00
29	Sahid Colony Park At Sahid Colony	368.00
30	Dakhin Santi Nagar Park At Shanti Nagar	328.00
31	Park At Amtala Colony	144.58
32	Park At Amtala, Shastrinagar	1096.39
33	Park At Shastrinagar	184.74
34	Park At Sahid Nagar At Sahind Nagar	348.00
35	Gandhi Nagar Park At Ward No. 43	305.22
36	Baghajatin Colony Park At Bagha J Atin Colony	424.00
37	Green Park At Ward No. 46	386.00
38	Ramkrishna Nagar Park At Ward No. 47	357.43
39	New Colony Park At Ward No. 47	228.92

S. No.	Park & Play Ground	Area (sq.mt)
	Total	**77,653.56**

Source: Draft Development Plan 2008-09 to 2012-13, SMC

The Kanchenjunga Stadium is the city's only outdoor stadium and have hosted national and international level matches. The total seating capacity in the stadium galleries is 35,000. The playing arena is about 14,300 sq. metre. There is a youth hostel of 96 bed capacity inside the stadium for accommodation of players etc. There is a Siliguri Stadium Committee to look after management of the stadium.

Siliguri has contributed the best of table tennis players to the country. Many of them have won national and international titles. Siliguri has a number of coaching centres for table tennis, but they are run by organisations or former paddlers. Players of repute like Mantu Ghosh and Subhajit Saha both Arjuna award winners are from Siliguri.

The Table Tennis Federation of India has submitted a proposal before the Centre to set up an academy for the game in Siliguri which has produced a large number of national and international paddlers.

There is an indoor stadium at Deshbandhupara in the southern part of the city. This new stadium has facilities for lawn tennis, badminton and table tennis as well as other indoor sports. However, the city is best known for being the training grounds for table tennis players.

SMC is very active in maintaining socio-cultural harmony of the multi-ligual, multi –cultural population of the area. Such events are held at Madhuban Park, Rabindra Mancha, Ratan Lal Brahman Mukto Mancha, Thakur Panchanan Barma Mukto Mancha, and Shakti Garh Mukto Mancha. All these facilities require regular maintenance and expansion considering the population growth.

Cemetery

There are two burning Ghats in the corporation area, of which the Kiranchandra Burning Ghat is operated by SMC in Ward No. 1, where cremation is done by electric furnace and also by using wood. There are two electric furnaces; the one is alright but the condition of the other furnace is bad, immediate repair or replacement is needed otherwise problem may arise. The existing disposal arrangements at the Mahananda river bank in the heart of the town should be immediately shifted to a convenient location and construction of the same electrification process.

6.4.1 Key issues

- The existing area under recreational area constitutes 4% of the overall land use which is on a lesser side in comparison to URDPFI standard of 18-20%.
- Majority of the open spaces in the city are not utilized and have turned into litter zones. These could be developed into organized green spaces;

7. Infrastructure and Services

This chapter presents the status of key urban services such as water supply and sanitation (which includes sewerage, solid waste management), storm water drainage, and street lighting in SMC jurisdiction. The chapter also elaborates on the key issues in the service delivery mechanism, service level gaps, and the interventions required for bridging the gaps and improving service delivery in SMC jurisdiction.

7.1 Water supply

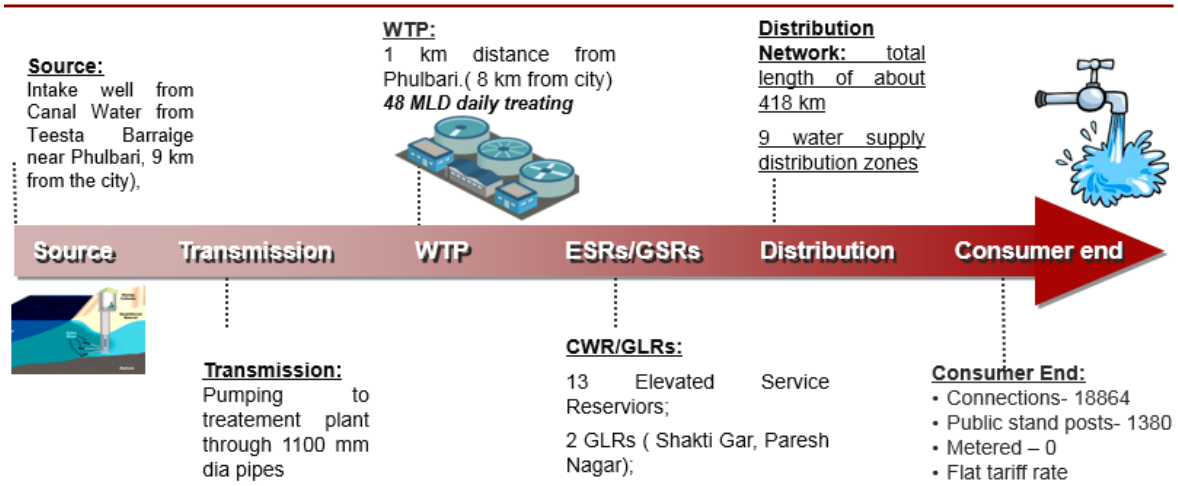
SMC is in-charge of water supply in SMC area. PHED is in charge of operation and maintenance of the system and execution of the ongoing projects. The water supply in the SMC area is administered by the PHE department along with SMC providing household connections and collecting water charges.

7.1.1 Existing Water Supply Situation

Water supply in SMC was first introduced in the year 1968. In the year 1994, the Comprehensive Water Supply project was taken up for execution to increase supply to the older wards (no. 1-30) and introduce household connections instead of exiting roadside taps, introduce piped water supply to households in the added area (wards 31 to 44 and nos. 45, 46 and 47 added later in).

During the time of preparation of Comprehensive Water Supply Project, not all the then existing problems were addressed. Those issues still exist and some has increased manifold even as the execution of the above mentioned project is going on, These details are discusses in the further subchapters.

Figure 33: Flow chart showing value chain of water supply services



Source: SMC and CRIS analysis

7.1.1.1 Source

Water supply in SMC was first introduced in the year 1968, with the setting up of infiltration well (now defunct) on the bank of river Mahananda and tube-wells in Ashrampara and Babupara as water source and street taps were the outlet at consumer level.

The existing intake well is located at Fulbari, 9 km away from the city on canal water from Teesta Barriage. The existing capacity of the intake well is 70 MLD. Due to unavailability of metering system the capacity utilization for the intake-well cannot be established. Raw water transmission loss is estimated at 1%.

7.1.1.2 Treatment

The water from the in-take well is pumped into the Water Treatment Plant (WTP) of design capacity 55.02 MLD, through 1100 mm diameter pipes. The WTP is 0.9 km away from the in-take well. The water supplied to the WTP is metered through bulk meters. The design capacity of WTP is for serving a population of 7.8-lacs, the treatment plant operates on partial capacity and final output is 48 MLD after deducting a loss at WTP at an estimated of 8% as per discussions with the officials.

7.1.1.3 Storage

The treated water is then stored at the Clear Water Reservoir (CWR), through 900mm dia, located at Fulbari and Jhankar. From the CWR, the water is then taken to GLR-I, at Shakti Garh, and GLR-II, behind the Anandalok nursing home. Water is pumped twice a day, every day.

The treated water from the GLR is then pumped to 13 Elevated Storage Reservoirs (ESR) and Ground Level Reservoirs. SMC is divided in to 11 administrative zones for water supply, which is catered by the service reservoirs for water supply. Each zone and sub-zone has their reservoir for domestic water supply. The total capacity of these reservoirs is about 18.2 ML.

Table 32: Water supply storage capacity in Siliguri

Sr. No	Reservoir	Storage capacity (ML)
1	Elevated service reservoir	11.2
2	Ground level service reservoir	7.0
Total storage capacity		**18.2**

Source: Water Supply Dept. PHED & Siliguri Municipal Corporation

7.1.1.4 Distribution

The total length of distribution network is about 418 km spread over in 9 zones. As per discussions with officials, the distribution network approximately provides water to about 80% of the households within its jurisdiction. About 210 km of distribution network is just 6 years old while the balance is more than 15 years old. The distribution network also contains AC pipes which are not recommended by CPHEEO due to health reasons. The status of present water supply network is summarized in the Table 33 below:

Table 33: Distribution Network details

Distribution System Details	Type		Zone-wise total length (m)	Average Age
	Material	Length (m)		
Zone 1 (Ashrampara)	AC DI	25406 2823	28229	All AC pipes were installed in 1964. UPVC, HD, DI pipes are of 1999.
Zone 2 (Jhanker)	AC DI	22500 2500	25000	
Zone 3 (Babupara)	AC DI	38883 4321	43204	
Zone 4	AC	39405	43783	

Distribution System Details	Type		Zone-wise total length (m)	Average Age
	Material	Length (m)		
(Collegepara)	DI	4378		
Zone 5 (Collegepara)	AC DI	32158 3573	35731	
Zone 6 (Pradhannagar)	AC DI	27993 3111	31104	
Zone 7A (Shaktigarh)	HDPE/UPVC DI	28105 12045	40150	06 Yrs
Zone 7B (Surya Sen College)	HDPE/UPVC DI	19523 8367	27890	06 Yrs
Zone 8A (Shibrampally)	HDPE/UPVC DI	31853 13651	45504	06 Yrs
Zone 8B (Ghugumali)	HDPE/UPVC DI AC	22482 11241 3747	37470	06 Yrs
Zone 9A (Eastern Bye Pass)	HDPE/UPVC DI AC	21210 10605 3535	35350	06 Yrs
Zone 9B (Don Bosco)	DPE/UPVC DI AC	14727 16363 2455	24545	06 Yrs
	Total Length in all zones		417960	

Source: Water Supply Division, PHED & SMC

The present water supply network was designed for the initial 30 wards under municipality to serve a population of 2 lakhs approximately and then the supply rate was 135 lpcd. However, no augmentation of the network was implemented, to serve the additional population of the added of 17 new wards. The water supplied only for 2 hrs twice a day and is insufficient for users.

Household connections are made with GI pipe from 15mm to 25 mm size. There are about 1380 public stand post in the city mainly for supply to slum areas. Free water connection has been provided to government educational institutes. The water demand for industrial and big housing societies are not catered by SMC water supply, though in the water supply guidelines, there is a provision for supplying upon application by the consumer. The details of the domestic and commercial water connection are given in the Table 34 below:

Table 34: Details of number of water connections in SMC

Sl.	Connections	2007-08	2008-09	2009-10	2010-11	2011-12	Total Connection till date
i	Domestic	1088	1796	2045	2358	3091	18,638
ii	Commercial	15	8	15	12	13	205
iii	Residential cum Commercial	1	0	2	3	3	21
	Total Connections	1104	1804	2062	2373	3107	18,864

Source: Water Supply Division, PHED, SMC

SMC also operates 10-11 water tankers which can be booked @ Rs. 300/- per tanker by any consumer. These are in demand by households during ceremonies.

7.1.1.5 Water charges

SMC has already implemented nominal water charges based on the no. of connections. The rates have remained same since initiation. The rates are as Table 35 below:

Table 35: Water connection charges

	Consumer	One-time connection charges
	For Domestic Consumer:-	
i)	Upto 3000 sq. ft. covered area	Rs.3,000.00
ii)	Above 3000 sq. ft. upto 4000 sq. ft.	Rs.4,000.00
iii)	Above 4000 sq. ft. upto 5000 sq. ft.	Rs.5,000.00
iv)	Above 5000 sq. ft. covered area	Rs.5,000.00 + Re.1.00 per sq. ft. additional area
	For commercial Consumer:-	
i)	Hotel upto 20 beds	Rs.15,000.00
ii)	Hotel above 20 beds	Rs.15,000.00 + Rs.1,000.00 per additional bed
iii)	Nursing Home 20 beds	Rs.10,000.00
	Nursing Home above 20 beds	Rs.10,000.00 + Rs.1,000.00 per additional bed
iv)	Guest House 20 beds	Rs.10,000.00
	Guest House above 20 beds	Rs.10,000.00 + Rs.500.00 per additional bed
v)	Hall used for social and commercial purpose	
	Upto 5000 sq. ft.	Rs.10,000.00
	Above 5000 sq. ft.	Rs.10,000.00 + Rs.2.00 per sq. ft for additional area
vi)	Restaurant upto 1000 sq. ft.	Rs.5,000.00
	Restaurant above 1000 sq. ft.	Rs.5,000.00 +@ Rs.2.00 per sq. ft for additional area
vii)	Private schools	Rs.5,000.00 upto 2,000 sq. ft. + Rs.2.00 per sq. ft for additional area
viii)	Shops, garage, TV, Medical area, Computer counter etc. & Rs.2.00 sq. ft. of additional area	
ix)	Clubs, Mandir, Masjid, Church etc.	Rs3,000.00 upto 1,000 sq. ft.& Rs2.00 per sq. ft. of additional area
x)	Beauty parlor, Saloon, Laundry Etc.	Rs.5,000.00 upto 2,000 sq.ft. and Rs2.00 per sq. ft. of additional area

Source: Water Supply Division, PHED & SMC

In addition to connection charges, domestic consumers pay @1% and commercial consumers pay @2% of connection charge as month charges to SMC. Residential flats having more than 5 nos. of tenements also pay 2% of connection charge as monthly service charge. Payment is due after each month end. Rebate for paying 6 months charges in advance is 5% Rebate for paying 12 months charges in advance is 8%. There is also a late payment fee of 10% for each month of delay. The applicable water charges are determined by the revenue inspector at the time of connection. The details of the total collection water connection charge and water tax are given in the Table 36 below.

Table 36: Total collection from water supply by SMC

Details (Rs. In Lakhs)	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Collection of water tax	38.66	44.41	52.21	51.43	63.62	56.91
Total water connection charges	58.13	101.97	117.25	137.21	167.92	168.50

Source: Water Supply, SMC

7.1.1.6 Operation and maintenance

The operation and maintenance ground work is executed by PHED while SMC pays the cost. There are 1324 nos. of connections per staff. The complaints are generally of leakage and low pressure and they are addressed in 24 hours in most cases. The complained are registered in the complaint register.

SMC needs to pay approximately Rs. 30-40 lakhs per month and electricity bill for O&M of the water supply system. In the financial year 2012-13 an amount of Rs. 4.24 cr has been paid to WBSEDCL. The age of the equipment increases the operating cost. The electricity consumption of the system is as in the Table 37 and Table 38 below.

Table 37: Electricity consumption at pumping station – raw water main

Consumption month	Raw Water Intake(Fulbari)	WTP(Fulbari)	Jhanker
April'13	204 KVA	595 KVA	527 KVA
May'13	213 KVA	595 KVA	529 KVA
June'13	213 KVA	595 KVA	527 KVA
July'13	212 KVA	595 KVA	527 KVA
August'13	200 KVA	595 KVA	527 KVA
Sep'13	199 KVA	1106 KVA	527 KVA
Oct'13	199 KVA	595 KVA	527 KVA

Source: Water Supply Division, PHED & SMC

Table 38: Electricity consumption at pumping station – Pumping Station

Consumption month	GLR 1(Shaktigarh)	GLR 2(Paresh Nagar)
April'13	136 KVA	305 KVA
May'13	136 KVA	311 KVA
June'13	136 KVA	312 KVA
July'13	150 KVA	313 KVA
August'13	136 KVA	310 KVA
Sep'13	136 KVA	306 KVA
Oct'13	136 KVA	312 KVA

Source: Water Supply Division, PHED & SMC

7.1.1.7 Finances

The details of the operating expenses and revenue generation from collection of the user charges are maintained by the Finance & Accounts department under SMC. The billing system is partially computerized. The involvement of the officials from the department in budget preparation is very limited. The funds are allocated by the Finance & Accounts department for all construction and maintenance works. The details of the total operating expenses of the Water Supply department are given in the Table 39 below:

Table 39: Details of operating expenses on water supply under SMC

Sr. No.	Heads	Amt. (Rs. In Lakhs)
1	Establishment	13.44
2	Maintenance	419.89
3	Misc.	0.53
	Grand Total	433.86

Source: Finance & Accounts Department, SMC

7.1.1.8 Service level indicators of water supply

As per the service level for the water supply coverage is 80%. Per capita supply of water is 95 LPCD which is less as compared to the standard of 135 LPCD. There is no metering being done in the city for the water connections, which is a major issue and city must look into it. Extent of NRW is not available. Further service level indicators are listed in the Table 40 below:

Table 40: Service level indicators: Water Supply

S. No	Indicator	Value
Water Supply		
1	Coverage of water supply connections (as per discussion)	80% approx
2	Per capita supply of water (48 MLD supply / 5.09 lakh population)	95 lpcd
3	Extent of metering of water connections	0%
4	Extent of Non-Revenue Water	NA
5	Continuity of water supply	2 Hour
6	Efficiency in redressal of customer complaints	NA
7	Quality of water supplied	NA
8	Cost recovery in water supply services (Rs 225 lakhs/ Rs 434 lakhs)	52%
9	Efficiency in collection of water supply related charges	NA

Source: SMC

7.1.1.9 Running and proposed projects

SMC has initiated the water supply augmentation project to improve the existing water supply network under the corporation. The initiatives taken by SMC are as follows:

Construction of two new OHR to serve the added zones of Zone-VIII A and Zone-X. The total project cost is estimated to be Rs. 13.14 Cr. The project is funded by the State Government and the Siliguri Municipal Corporation.

SMC in assistance with PHED, commissioned in 1999, a project to provide new household water supply connections in the newly added wards from ward no. 31 to 44. The total project cost is Rs. 32.97 Cr and is funded by USAID.

SMC is also in process to increase the amount of water supply. An alternative source has been identified at Gajaldoba, 28 km from the city. Rough cost estimation is Rs. 176 cr. with Ph-I cost as per DPR is Rs. 30 cr. The proposed capacity of the in-take well is 125 MGD. The proposal has already been sent to the State Government for approval and funding.

At present, there are 4 projects related to water supply in Siliguri including proposals:

- Comprehensive water supply scheme, phase I (in 2 stages in 2011 and 2021)
- It needs the Construction of 2 nos. CWR and Construction of 8 nos. OHR. Also it will include the Pipe-laying and house/holding connections. Implementing agency will be PHED.
- House to house connection at wards no. 45 and 47 is being done by direct pumping as OHR is yet to be commissioned. Rising main, distribution pipeline, inter-connection of rising main with OHR of zone-VI (Pradhan Nagar are all completed.
- Construction of 472.1 ML capacity (14 days of raw water demand) storage pond. At present a proposal for “manual excavation of proposed raw water storage pond” of capacity 231 ML at a cost of Rs. 1.47 cr..

7.1.1.10 Alternative raw water source

Alternative source was proposed due to high and fast siltation of the existing source, especially due to opening of barrage and during dry seasons and to reach the proposed 135 lpcd supply level as per DPR. An expert committee consisting of Municipal Affairs dep. GoWB and SMC was constituted and four options were presented. In July 2011, Option III, proposing an alternate source at Gajaldoba was selected with a rough cost estimate of Rs. 176.59 lacs. In August 2011, it was broken up into two phases, Ph-I for catering to the immediate need of water supply for SMC area including the en-route villages and Ph-II as a long term measure for inclusion in the Vision 2030 for catering to the ultimate water requirement in the SMC and adjoining areas. Accordingly, Ph-I DPR was prepared by PHE with a cost estimate of Rs. 303.9477 cr. including 2% contingency and submitted to the MA Dept. However, the project has not been initiated yet.

7.1.1.11 Water Supply Future Demand

The clear water demand has been calculated on the basis of per capita water supply demand (135 LPCD) and average water supply losses. As indicated in the Table 41 below, the water supply losses is assumed to decrease from 35% in 2013 to 20% in 2041. Accordingly the per capita water supply has been determined as 172 LPCD.

Table 41: Water Demand estimation

Indicator /year	2013	2021	2031	2041
Per capita Water Supply Demand	135	135	135	135
Water losses (%)	35%	30%	25%	20%
Per capita Water Demand – (LPCD+ losses)	182	176	169	162

Source: CRIS analysis

Based on the per capita water supply demand, clear water demand has been forecasted on basis of the population projections finalized in the demography section. Accordingly, the city would require around 166 MLD of clear water by 2021, 205 MLD by 2031 and 253 MLD by 2041. The detailed gap analysis has been discussed under the sector plans. The water supply demand projection for the design year has been presented in the Table 42 below.

Table 42: Water supply demand projections

Year	Water supply demand in MLD
2021	166
2031	205
2041	253

Source: CRIS analysis

7.1.1.12 Institutional Framework for Water Supply System

As discussed in previous chapter SMC is in charge of water supply in SMC area. PHED is in charge of execution of the running projects as well as operations and maintenance while SMC bears the cost for the same. There are 1326 nos. of connections per staff.

The water supply department of SMC consists of the following staffs (Refer Table 43):

Table 43: Institutional Framework

Post	Number of Employees	Job Type
Assistant Engineer	01 person	(Contractual)
Sub Assistant Engineer	01 person	(Permanent)
Lower Div Clerk	01 person	(Permanent)
Peon	01 nos	(Permanent)
Mandays workers	14 persons	(Temporary)

Source: SMC

7.1.2 Key Issues

- The per capita water supplied in the city limits is 95 lpcd as against the CPHEEO norm of 155 LPCD (including the fire demand and un accounted water).
- There is a current gap of 22 MLD in the quantity of water supplied in the city. This would further expand to 46 MLD by 2021 and 114 MLD by 2041 in view of the water demand requirement for these years.

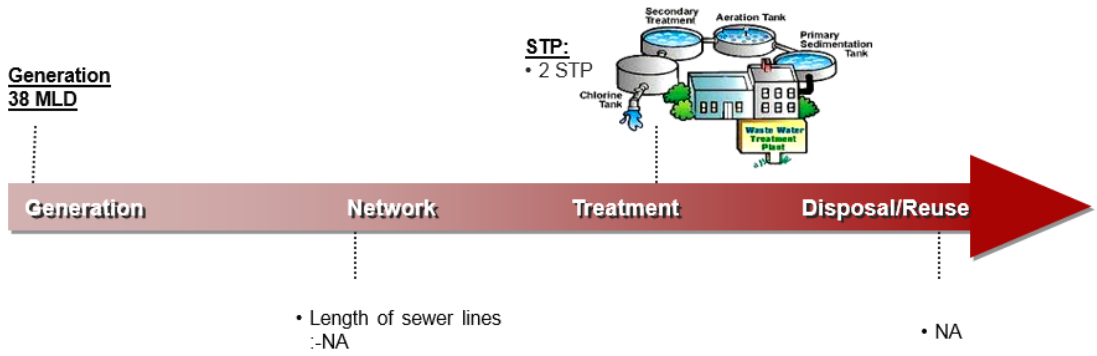
- The present water drawl source requires frequent de-siltation due to rapid sand accumulation on bed adding to the operational cost. In view of this, an alternative source is deemed as a urgent requirement for over a decade.
- Rain water harvesting is considered to be imperative in view of the dependence on ground water in the city.
- The existing treatment capacity is about 55 MLD while the desired treatment capacity is about 33 MLD in view of the present demand. Further, there is a need to augment 61 MLD of treatment capacity by 2021 and 129 MLD treatment capacity by 2041.
- About 208 km of distribution network is just 6 years old while the balance is more than 15 years old and needs to be refurbished.
- The cost recovery in water supply services is 52% due to high operating cost in water drawl and low collection efficiency on water tax.

7.2 Sewerage and Sanitation

The city does not have 100% coverage of sewer lines. Also, the existing system is not organized as the drainage flows into the Mahananda, Fuleshwari and Jorapani. Majority of the households lack connectivity to the network and dispose the sewage into septic tanks.

The conservancy department is in charge of overall sewerage management. The system is decentralized at ward level and each ward committee appoints safai karmachari or sanitary workers to provide door to door service. SMC also deploys these workers for any septic tank cleaning request from outside SMC for the same charge. The detailed assessment of the existing sewerage system includes sewerage generation, sewerage network, treatment facility and sanitation system in the city is discussed in the section below. Further, the section highlights the key issues in the sewerage and sanitation system.

Figure 34: Flow chart showing value chain of sewerage services



Existing Sewerage System The sewerage and solid waste management in the corporation area is governed under the Conservancy department. The five boroughs are in-charge for the provision and maintenance of the services, as mentioned in the Act 2009. The Safai Karmacharis, appointed under each ward committee provides the door-to door service for collection and maintenance of the sewerage and solid waste management.

At present the city doesn't have 100% sewerage network in place. Majority of the buildings have their own septic tanks/cess pools. As per the survey conducted in 2008 for GIS mapping of the city, there are total 87,000 septic tanks. The waste from the septic tanks is collected by the Safai Karmacharis within 48 hrs of intimation by the users. SMC has also introduced Tatkal service for the cleaning of septic tanks within 24 hrs of intimation. However, an extra change Rs. 1000 is collected from the user

for availing the tatkal service. The collected untreated waste is disposed in the dumping ground on Eastern By-pass, located 1 km away from the city. At present SMC owns 5 cesspools emptier and 2 emptier are taken on rent. The service charges for cleaning the septic tanks are given below:

- Rs. 700 per 3000 liters per trip
- Rs. 300 per 3000 liters per trip for low-cost latrine, inside corporation area
- Rs. 200 per 3000 liters per trip for low-cost latrines outside corporation area and community toilets.

The total cess pool collection by the borough for the year 2011-12 is given in the Table 44 below:

Table 44: Total Cess-pool collection for 2011-12

Borough	Collection (in Rs)	Total No. of trips
Borough I	6.04	909
Borough II	6.26	894
Borough III	12.92	965
Borough IV	8.11	1047
Borough V	9.76	1183
Total	**42.37**	**4998**

Source: Conservancy Department, SMC

7.2.1 Existing sanitation system

As per the present scenario 94% of the households have latrine facility within the premises. 61% of the Households have connection to the Septic tanks while only 10% use the piped sewerage system facility. To the households which do not have latrine within the premises, 2% use the public latrine facility while 4% go for open defecation which is a major concern. Kuchha Homes in “Slum” areas has common two-pit Toilets for every 4-5 Houses, Each house has a family of 5 persons, so total 20-25 people sharing the toilet. As shown in the figure below, tehse toilets are constructed along the water bodies and wet lands.

Figure 35: Toilets constructed in wet lands in Siliguri

7.2.1.1 Service level indicators for sewerage system in Siliguri

Table 45: Service level indicators: Sewerage

S. No	Indicator	Value
1	Coverage of toilets (87000 septic tanks, as per 2008 survey)	At present the city doesn't have any sewerage network in place. Each building has its own septic tank. As per the survey conducted in 2008 for GIS mapping of the city, there are total 87,000 septic tanks. The waste from the septic tanks is collected by the Safai Karmacharis within 48 hrs of intimation by the users. SMC has also introduced Tatkal service for the cleaning of septic tanks within 24 hrs of intimation.
2	Coverage of waste water network services	
3	Collection efficiency of waste water network	
4	Adequacy of waste water treatment capacity	
5	Quality of waste water treatment	
6	Extent of reuse and recycling of waste water	
7	Extent of cost recovery in waste water management Rs. 700 per 3000 liters per trip Rs. 300 per 3000 liters per trip for low-cost latrine, inside corporation area Rs. 200 per 3000 liters per trip for low-cost latrines outside corporation area and community toilets.	
8	Efficiency in redressal of customer complaints	
9	Efficiency in collection of sewerage related charges	

7.2.1.2 Future Sewage Generation

The sewage generation has been calculated with an assumption that 80% of the water supplied. Accordingly, the sewage generation has been projected as 133 MLD for 2021; 164 MLD for 2031 and 202 MLD by 2041. The sewage generation projected for various horizon years has been presented in the Table 46 below.

Table 46: Sewerage future generation

Year	Sewage generation in MLD
2021	133
2031	164
2041	202

Source: CRIS analysis

7.2.2 Key Issues

- The city does not have a sewage collection system. The households dispose the sewage into cesspools or septic tanks construted within their premises.
- The city has about 87,000 septic tanks posing a threat to contamination of ground water.
- The open drains in the city also carry night soil.The sewage collected in open drains is being disposed into Mahananda, Fuleshwari and Jorapani without being treated.

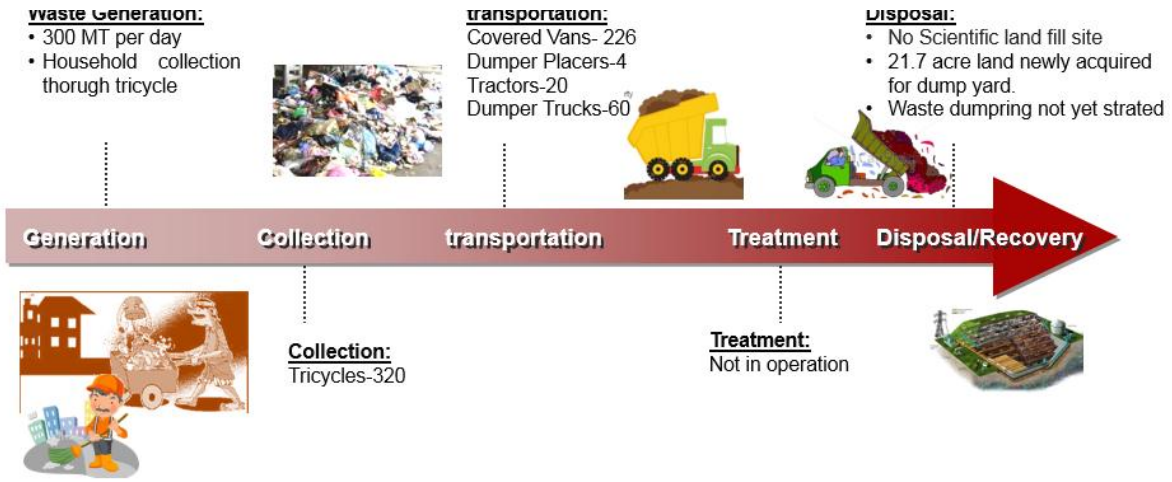
7.3 Solid Waste Management

Solid Waste Management is looked after by the Conservancy Department of SMC. It is executed in a decentralized manner where each ward has its own ward level SWM committee (different from the ward committee). This system was developed and made operational in 2005 by SMC after multiple case studies and ground level surveys once “The Municipal Solid Waste (Management &Handling) Rules, 2000” came into being. Generation of solid waste is curtailed by banning plastic from the city. On World Environment Day 2010, 5th June, SMC has banned plastic carry bags in Siliguri. Households and commercial establishments are charged a monthly fee for door to door collection and this fee is utilised for primary collection, street cleaning, transportation to and dumping at the disposal ground. At the beginning, compost and plastic selling from the dumped waste also generated some income

7.4 Existing SWM System

Solid Waste Management is overseen by the Conservancy Department of SMC. Households and commercial establishments are charged a monthly fee for door to door collection and this fee is utilized for primary collection, street cleaning, transportation and dumping at the disposal ground.

Figure 36: Flow chart showing value chain of services in SWM services



Source: SMC and CRIS analysis

7.4.1 Waste generation

Siliguri is a rapidly growing city with a strong trade and commerce based economy. It is a gateway to North East India and to Sikkim, Bhutan and Nepal. Every tourist to Sikkim needs to change mode of travel at Siliguri. In addition, Siliguri draws a significant floating population for business and trade activities. According to SMC, the daytime floating population is almost 2-3 lakhs every day, which is 40%-60% of Siliguri's resident population. The generation of waste due to this is enormous. From 2005, SMC has taken various steps to assess the ground level MSW scenario and measures to tackle it. The data is available for over a period of time and format, not necessarily all compatible with each other. The source of Municipal solid waste is detailed in the Table 47 below:

Table 47: Source of municipal solid waste except bio-medical waste in SMC

S. No.	Source of waste	MSW generated (TPD)
1	Domestic source	163
2	Marriage hall	18
3	Hotels	10
4	Markets	55
5	Commercial establishments	20
6	Street sweeping / drain silt	29
7	Hospital and nursing – all waste except bio-medical waste	5
	Total	300

Source: A Status report on various schemes and projects of Siliguri Municipal Corporation, 2013

In March-2006 an "Implementation plan for MSW Collection & transportation Strategy for Siliguri" was prepared SMC through IDFC with the funding of USAID-INDIA. This ground level study assessed the then existing SWM techniques and proposed micro level measures of improvement in terms to manpower distribution, length of street covered per sweeper with respect to the congestion and land use of the neighborhood. The studies referred to in this report estimated the combined per capita generation at 463gm/day. A subsequent report from around 2009 or 2010 from SMC estimates the solid waste generated at 400 TPD in normal time and 450 TPD in the season of cauliflower, pineapple and during festivals in this city of approx. 5 lakhs population. As per the discussion with SMC officials during

the time of preparation of CDP, this number was supported and was attributed to the additional daytime floating population of 3-4 lakhs from neighboring states, especially Sikkim. A status report by SMC (upto 30.09.2013) estimates the same volume at 300-350 TPD. This aspect can be further investigated.

7.4.2 Operational Mechanism

The system is decentralized at ward level to cover household and smaller shops. Each ward is meant to be self-sufficient in terms of solid waste management. The committees are to collect monthly collection fees and provide daily house level collection, street sweeping, drain cleaning and consumer complaint redressal services to the residents or shops of a certain ward. The transportation of solid waste to the dumping ground is directly done by the conservancy department of SMC. City level solid waste sources like markets, main roads, commercial establishment viz. hotels and eateries, hospitals and nursing homes are under the direct collection and cleaning activities of the conservancy department of SMC. As per the original mandate, waste was to be segregated at the household level and this was very well implemented. Due to the collection of well segregated waste at household level, the number of hired trucks was reduced from the initial 34 to 23.

7.4.3 Collection

The SWM mechanism of SMC is a completely decentralized method and the key to its success is the efficiency of the ward committee. Up to 2008, the board of SMC was active and the ward level SMC committees were highly motivated. At that stage, waste were segregated at almost all households and the composting and recycling processes could pick up pace. The SWM committees had active representatives as prescribed by the mandate. Presently, the committees comprise only of councilors in many wards and participation has reduced. The efficiency of collectors has also reduced over time. The monthly reporting from wards to boroughs to SMC is not followed regularly. Often a yearly report is submitted and this makes maintenance of updated data difficult at SMC level. The borough officers are only required for formalities with bank as they are joint holders of the account.

Garbage is collected from the following (Refer Table 48):

Table 48: SWM coverage area of Siliguri

S. No.	Source	Nos. as per 2009/2010 report	Nos. a Status report of SMC (2013)
1	Population	5,00,000 (approximately) + 1,00,000 (daily floating population)	5,15,000 (Approximately, as per census 2011) + 2,00,000 - 3,00,000 (daily floating population as per discussions)
2	Holdings	No data	83300 (approx.)
3	House-holdings	No data	114500
4	Markets (no separate charge received by Conservancy dept. Markets pay only the Market dept. of SMC)	11 (listed) (Bidhan Market and D I fund market is cleared by contract system regularly)	11(listed) But in effect 33 (SMC conservancy department estimates almost 100 markets)
5	Flats, Cinema Houses	8	No data
6	Bhavans (ceremony halls) and guest houses	No data	65
7	Hospitals	4 including TB hospitals	3 govt. hospitals

S. No.	Source	Nos. as per 2009/2010 report	Nos. a Status report of SMC (2013)
8	Nursing homes	33	35
9	Pathology labs	50-60	-
10	Bus terminus, regulated markets (fish, vegetable, fruit, potato, onion), hotels, restaurants	200	-
11	Community latrine	14 which has been constructed in Slums in different wards	-
12	Pay and use toilets	10 (upcoming)	-
13	Burning Ghat (as per discussion with SMC Conservancy Dept.)	No data	1 no. under SMC 1 no. operated by Marwari Yuba Sangha
14	Slaughter house	No data	none
15	Burial ground	No data	1

Source: Conservancy Department, SMC

For primary collection each block has one primary collector and one segregated tricycle that does primary collection from households and commercial establishments. This set-up can cover 250-300 households per day. Every 2 or 3 blocks have one covered van in which the tricycles empty their waste. Each cover van has two units joined together. Tractors carry 4 to 5 cover vans per day, carrying one cover van (i.e. two units) per trip to the dumping ground at Dabgram 1 (not to be confused with Dabgram near NJP station), near Don Bosco School (ref map). SMC has total 23 nos. tractors (7 owned and operated by SMC staff and 16 hired @ Rs. 1,000/- rent per tractor per day for vehicle, fuel, labour and maintenance) for this purpose. One collector per 2-3 block makes round during this primary collection and in addition to collecting monthly charges from households gathers feedback. Available Infrastructure for waste collection is as given in the Table 49 below:

Table 49: Infrastructure for waste collection

S. No	Particulars	Existing Number
1	Covered Vans	226
2	Dumper placers	4
3	Tricycles	320
4	Tractors	20
5	Dumper Trucks	60
	Total number of vehicles	630

Source: Conservancy Department, SMC

Each ward has 25-30 staff per ward for street sweeping and drain cleaning.

SMC has 45 nos. of dumper-placers on different main roads of the city which are cleared once a day. Some of these locations are Hill Cart Road, Sevoke Road, Barddhaman Road, Bidhan Road, Bidhan Market, Tenzing Norgay Bus Terminus area, D. I. Fund Market etc. In addition to ward level staff, SMC's conservancy department assigns 25-30 staff in each of these areas.

There are two cover vans (1 owned by SMC and another hired @ Rs. 1,800/- per day for similar services as the tractors) for collecting waste from restaurants and hotels.

One covered one is dedicated for collecting wastes (other than bio-medical wastes) from hospitals and nursing homes.

The waste collection in markets is not done at individual shop level. Similarly, for parks and other public places, the maintenance team of the place dumps the waste at dumper-placers or at roadside and the conservancy staff collects it from there.

7.4.4 Bio medical waste handling

Bio-medical waste is not handled by SMC. Entire operation from primary collection to treatment and disposal is given to Greenzen Bio Pvt. Ltd. since 2008. The Common Bio-medical Waste Treatment Facility is located at Mouza Binnaguri, the same Mouza where the new dumping ground of SMC is located. However, following non-compliance of environmental regulations, WBPCB had fined the operator September-2009 has renewed the license to operate after payment of penalty fees and promise of compliance by the operator. The Assistant Environmental Engineer in charge of the Siliguri Regional Office of PCB is in charge of monitoring of the operation.

Table 50: Increased monthly charges w.e.f January 2012

Use	Details	Increased monthly charges w.e.f January 2012 (3-4 times hike)
Hotel	Up to 10 rooms	Rs. 500
	Up to 20 rooms	Rs. 1000
	More than 20 rooms	Rs 1500
Nursing home	Up to 20 beds	Rs. 2000
	Up to 40 beds	Rs. 3000
	More than 40 beds	Rs 5000
Pathology Labs	Small	Rs. 300
	Large	Rs. 500
Marriage Hall	1 floor	Rs. 1500
	2 floors and above	Rs. 2000
Small restaurants, eating junctions	on main road	Rs. 1000
	Other than main road	Rs. 300
Sweet factory	-	Rs. 800
Stadia	-	Rs 1000
Social Events	-	Rs 30 per stall per day.

Source: SMC

7.4.5 Night conservancy

This has been introduced in congested areas viz. Hill Cart Road, Bidhan Road, Sevoke Road, Bidhan Market area and is to be introduced at other congested places, viz. Naya Bajar, Khalpara, Vivekananda Road, S. F. Road Bus terminus area and few other commercials areas.

7.4.6 Dumping and processing

Solid waste was never treated in SMC except in the period from 2008-2011 as mentioned above. At present, the dumping ground capacity is almost full and it is under litigation due to health hazards to neighboring areas. A new dumping ground of has been purchased by SMC at Putimari in Binnaguri Mouja. The area of the dumping ground is 21.7 acres. The approach road and boundary wall has been constructed but no dumping has started. This area is 12km by road from SMC office. (ref map). Selection process for the operator of the solid waste processing plant in underway.

7.4.7 Cost Recovery

To mobilize this system, SMC had provided the wards with plastic buckets and the wards collected funds by selling them to households. In addition SMC provided and provides cost of campaigns and awareness programs (@ Rs. 5,000/- per programme) and health checkup camps. The regular operating cost of the mechanism is borne by the wards as the wards are meant to be financially self-sufficient to carry on this process.

SMC's conservancy department provides them buckets i.e. dust bins (green and black for each household) which are sold @ Rs. 25/- per pair and each household is required to purchase a pair. The money from this sale is saved as fixed deposit in the ward level SWM committee's bank account. The cost of manpower, storage of tricycles, vans and cleaning equipment's, periodical health checkup of workers are recovered at the ward level from the collection fee. Each household irrespective of income and commercial establishment (shop/office) pays a monthly fee of Rs. 10/-. Initially BPL households were to pay Rs. 5/- but now a uniform fee is collected. There is no payment slab depending on the size of the commercial establishment. Each ward is to send a monthly list of stock in hand for buckets and financial statement to its Borough officer which is in turn submitted to SMC's conservancy department for a central data bank. Upon application, each ward receives a Rs. 1,000/- assistance from SMC as rent of godowns. There is also a Rs. 300/- subsidy available per general block and Rs. 400/- per block containing slum. These charges were earlier Rs. 200/- and Rs. 300/- respectively.

The city level areas likes markets etc. directly send their request for equipment to the borough offices as and when needed.

The present dumping ground is located at Dabgram 1, between Don Bosco School and Eastern Bye-Pass at the north of the city. Is site has been in use since 1949, when this locality was not inhabited but now the locality is populated. At present the original 28 acre land has effectively reduced to 22 acres due to encroachments and it is almost full. SMC charges Rs. 500/- per truck for dumping of waste at the dumping ground.

At the beginning, revenue was earned from composting of waste at the dumping ground and resale of plastic. In a PPP model, Hindustan Jiban Rasayan Organisation (HJRO) of Kanchrapara was given a contract to produce manure from composting the segregated wasted in windrow method in a shed on the same dumping ground. For the first three years no capital cost, electricity bill, water and labour charges were to be borne by HJRO. After three years, electricity bill, rent for shed and a portion of proceeds from sale of manure were to be given to SMC. This practice generated Rs. 147,300/- revenue between 21.01.2008 and 18.11.2010. A balance sum of Rs. 174,600/- is due up to 08.02.2013. this manure found an enthusiastic market in Siliguri with tea estates offering to purchase the entire produce provided a test report of the manure were procured from Kalyani University. However, the manure production has stopped in 2011 before this proposal materialised.

In addition to the Conservancy Department, the Environment Department of SMC carries out raids to fine plastic bag users. The fine for consumer (shopper) is Rs. 50/- and for shopkeeper Rs. 500/-.

The renewal/issuance of trade licenses of commercial establishments and the license to operate for hospitals and nursing homes are available only upon clearance of conservancy charges. These establishments can receive a 5% discount (can be increased up to 10% upon application and subsequent approval of the Mayor) upon submitting the charges for a year in advance.

7.4.8 Future Solid Waste Generation

For the purpose of SWM projection, the waste generated per capita for the current year has been considered as 377 grams. Accordingly the average per day waste generation has been estimated as 300 tons and annual waste general as 1.09 lakh tons.

The per capita waste generation has been projected at 2.2% till 2021; further it has been projected at 1.9% till 2031 and 1.6% in the year 2041(Refer Table 51). Accordingly, the annual solid waste generation has been calculated till 2041. Based on the solid waste generation estimates, the infrastructure requirement for primary and secondary collection, transportation, landfill, and treatment capacity has been estimated and the same has been discussed in the sector plans.

Table 51: Projected Solid Waste Generation

Year	Projected population (Figures in lakhs) A	Per capita Waste generation (in grams) B	Average per day waste generation (in tons) A*B	Annual SW generation (in Metric Tons) A*B*365
2013	7.96	377	300	1,09,500
2021	9.38	384	360	1,33,806
2031	11.64	391	455	1,68,791
2041	14.43	397	573	2,12,596

Source: CRIS analysis

7.4.9 Institutional Framework for SWM

Solid Waste Management is overseen by the Conservancy Department of SMC. It is executed in a decentralised manner where each ward has its own ward level SWM committee (different from the ward committee). Each ward level SWM committee is a 10-member committee headed by the president who is also the ward councilor. The other posts are secretaries, cashier and other members coming from all the 4-5 blocks that comprise the ward. A bank account is opened and operated by the borough officer, secretary and president or the borough officer, president and cashier.

The sweepers drain cleaners, primary collectors and collectors are employed by the SWM ward committee. In addition to it, SMC's conservancy department directly employs one supervisor per ward who supervises all the primary collectors, street sweepers and drain cleaners.

SMC has prepared committee construction formats, monthly report of distribution of buckets, monthly report on income and expenditures etc. as and when needed for this operation.

7.4.10 Key Issues

- The complete ward level control makes it impossible for SMC to interfere in wards which are not performing well.
- The ward level performance needs to be improved. It has been declining in the last few years.
- The motivation and awareness of households to segregate waste needs to be increased. Incentives and recognitions can be introduced.
- No penalty system is practiced other than that for violating plastic ban. There is no penalty or separate incentive depending on the level of performance by wards. Penalty for littering and non-payment of fees may be introduced.
- SMC can benefit from better awareness programmes, capacity building and better exposure and experience sharing with other ULBs.

- Currently, solid waste is dumped in the dumping ground without any treatment creating environmental nuisance in the near-by residential areas.
- There are no dustbins in the SMC area. The garbage is thrown on the streets and the drains, chocking the drainage system resulting water logging problem especially in the monsoon.
- The number of covered vans for the collection and transportation of the solid waste is very less. Uncovered Tri-cycle vans with bins are mostly used for carrying the solid waste, spilling the solid waste on the roads while moving.

	
Image 1 Collection from roadside vat	Image 2 SMC staff cleaning road at 10am in front of Surya Sen Park
	
Image 3 Newly built boundary wall at present dumping ground	Image 4 Upcoming residential flats next to present dumping ground

	
Image 5 General condition of roads in SMC area – interior roads at Babupara	Image 6 General condition of roads in SMC area – interior roads at Babupara – Pradhan Nagar
	
Image 7 Drain – interior roads at Babupara	Image 8 Garbage accumulated at an empty lowland/water body – near Surya Sen Park

Image 9

Clean road but riverbank littered with garbage – below Mahananda bridge, Hill Cart Road

Image 10

Garbage accumulated at an empty lowland/water body – near Surya Sen Park

7.4.11 Proposals

The discussion with SMC officials revealed that a comprehensive collection to treatment service on PPP mode is being considered by SMC. The status report proposes the following proposals given in the Table 52 below:

Table 52: Interventions Identified By SMC

S. No.	Proposal	Nos.	Cost (approx.) Rs. Lacs
1	Public Awareness regarding segregation of domestic waste at the source by different NGOs		-
2	Night conservancy service to be introduced at main roads and commercial areas by modernized mechanical equipment	Not applicable	8.35
3	Hydraulic tippers 5 nos. (small) for the disposal of garbage	5	52.82
4	Hydraulic tippers 5 nos. (big) for the disposal of garbage	5	58.75
5	Pay loader (JCB) 5 nos. for the collection of garbage mechanically	5	100
6	Sewer Suction cum Jetting machine for the clearance of H/drain & Culvert	N.D.	35
7	Refuse garbage collector (compactor)/Skip loader	10	138
8	Wheel barrow	250	14.5
9	Tri-cycle with Bin	100	40
10	Tri-cycle without bin	100	
11	Uniform, Identity card and Mask / gloves for conservancy staff	Not applicable	10
12	Cesspool (3000 l)	3	43.5

Source: Various status reports and discussion with SMC officials

7.5 Storm Water Drainage

The monsoon season in Siliguri starts from mid-June and lasts up to September. A large variation of rainfall can be observed in the climate of Siliguri. The annual rainfall ranges from 2600mm to 4000 mm. The average annual rainfall is 3274 mm. This is higher compared to West Bengal average as Siliguri is located at the foothills of the Himalayas. Heavy rainfall occurs in the month of July and August; intense rainfall up to 200 mm per day has been recorded in these periods in the past.

7.5.1 Existing Drainage System

The highest elevation in the city is 644m (2,113 ft) and the lowest elevation being 122m (400 ft). The City topography divides the land area into two major parts. One part of the City drains into the Mahananda River and other half into Jorapani & Fuleshwari Rivers. There are some low lying areas within the watershed of Mahananda, Jorapani and Fuleshwari Rivers. The Fuleswari river acts as main drainage canal of vast areas of Siliguri Municipal Areas and this has 4.5 K.M of length through Siliguri Municipal area.

There are about 687 km of drains in SMC area, most of the drains run on both sides of the road and only 2% are closed drains. Among the 687 km of drains, 87 km was constructed under Drainage Scheme under UIDSSMT program. Only the last drain is yet to be completed. Due the construction of new drains in SMC, earlier issues of long duration of water logging has mostly resolved. The water accumulated after heavy rains usually drains within half an hour. The drains are discharged into the river. The general slope of the region is towards south and south east with a varying height from 75m to 300 m above sea level. Average slope is 3m per kms.

Coverage of drainage network

The drains run on both the side of the road and discharged into the river. Most of the drains are open. Only 2% of the total drainage network is closed drains. The SMC has taken an initiative to increase the number of drains within the corporation boundary as Drainage Scheme under UIDSSMT program. The construction of 86,766 meter drains length in 42 wards has already been completed. However, the proposed drain length was only 80,775 meters.

The service level indicators are as given in the Table 53 below

Table 53: Service level indicators: Storm water drainage

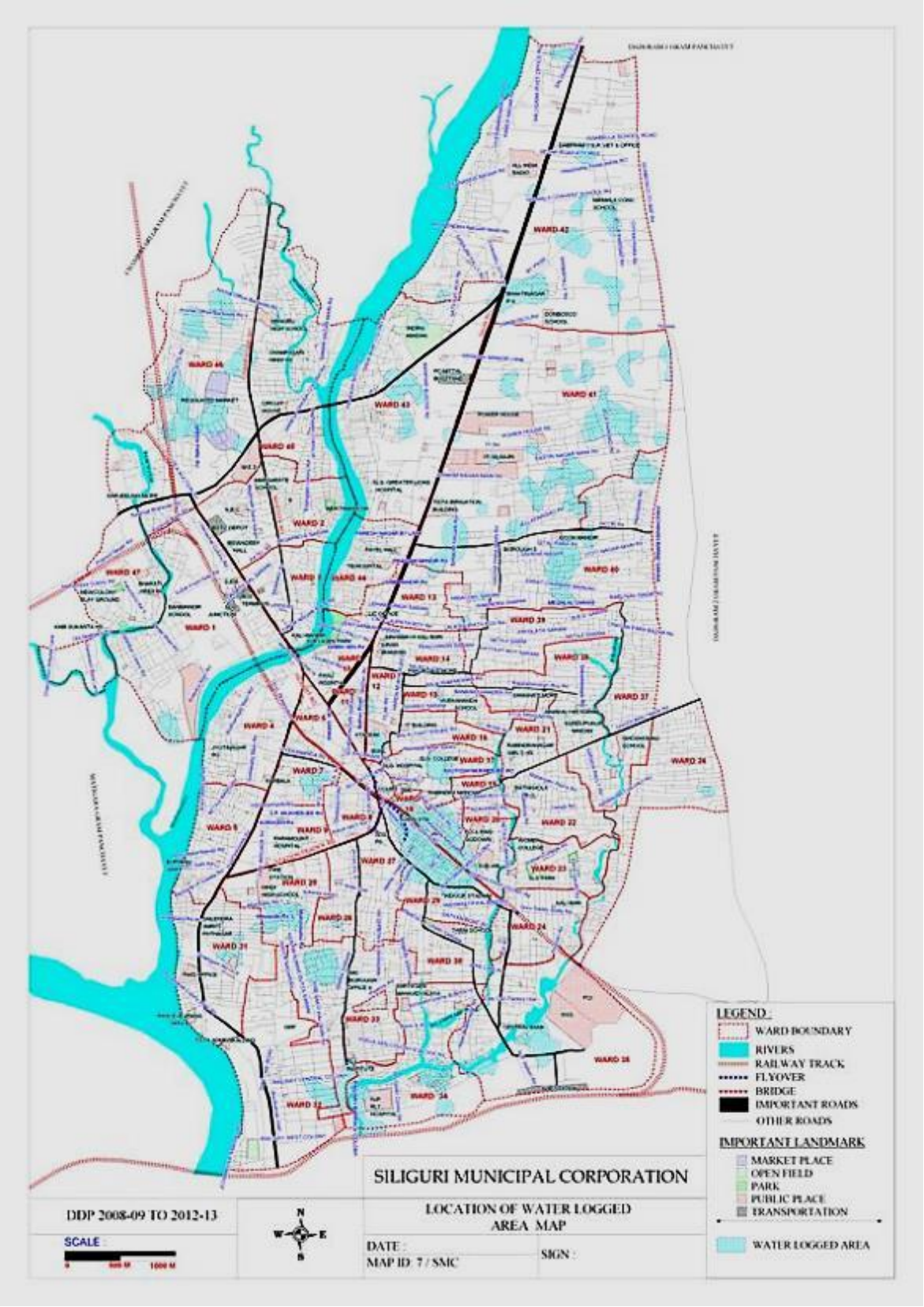
Storm Water Drainage	Value
Coverage of storm water drainage network (Total length of drains – 687 km; Road length –825 km)	83%
Incidence of water logging/flooding	Many places in the city. Exact details not available

Source: SMC

Water logging areas

Central areas like Ashram Para, Punjabi Para, Hakim Para, Jantanagar etc. are some of the region where water logging problem has occurred. Some areas in the northern region like Don Bosco Colony, Jyoti Nagar are also some areas which experiences some problem during the monsoon season. The water logging areas have been indicated in the map below.

Figure 37: Map – Water Logging Areas



Source: SMC

7.5.2 Key Issues

- Siliguri city does not have a separate storm water drainage network
- Water logging due to encroachment. Obstruction to the natural flow by encroaching sides of the drains by construction of houses
- Encroachments both by poor and often other sections resulted not only constriction of waterway but also problems of access for repair and maintenance activities
- Dumping of garbage, particularly plastics, causes serious reduction in waterways of main drainage channels
- Open storm water drains, often blocked due garbage.
- Due to cutting of forests and depletion of green cover the top soil of the surrounding hills is being eroded causing accumulation of silt in the rivers causing over flow and back flow of water in residential and commercial areas.
- Increasing urbanization levels and absence of proper sewerage system is also leading to disposal of waste water in drainage system
- Decrease in green areas i.e., parks and gardens and increase in built up areas has increased the runoff inside the town.
- There is shortage of staff, engineers not been appointed.
- In the old city areas, space for construction of roadside drains is a major problem as 60% to 70% of the houses which do not have a sewer connection or a Septic tank are discharging their toilet waste in to the existing drains, causing series environmental problems.

7.6 Street Light

Street lighting is required for two purposes. Firstly, street lights are regarded as important for personal security – particularly by women who may be involved in shift work etc. Secondly street lighting is intended to enable the road users (motorists, cyclists and pedestrians) to see accurately and easily the carriageway and the immediate surroundings in the darkness. In city streets, therefore, there is a need to illuminate the carriageway and its immediate surroundings so that the use of head- lights can be avoided or minimized. A large no. of road accidents are caused in the night due to poor and unsatisfactory street lighting.

- Improved visibility at night by means of artificial lighting improved personal safely and lessens the strain on driving and ensures comfort and also speed of traffic improves with better lighting and hence improve traffic flow conditions. Favorable headway and lateral placements vastly improve the traffic movements and reduce accidents.
- The mounting height of the street light in general is 7.5 – 12.0 m for traffic routes. In general, the spacing of street lightings should not exceed 55m and should preferably be 35-45 m on important traffic routes. Generally it is 3 to 5 times the mounting height of light.

The street lighting within the corporation boundary is governed by the Electricity Department under SMC. At present 767 km of road is served with street lighting. The monitoring of the street lights is done by the ward supervisors, under the ward committee. The present status of the street-light in the corporation area is given in the table below. As per the data provided by SMC the spacing between the light poles is around 25 meters in the SMC area.

Table 54: Status of Street lighting in SMC

Sr.No.	Description	Street Lights
1.	High Mast Lamps	75 (8 poles)

Sr.No.	Description	Street Lights
2.	Mini high mast	273 (78 poles)
3.	Metal halide	1206
4.	LED	82
5.	Sodium Vapour Lamps	718
6.	Tube lights	16719
7.	Others	5622
	Total	**24695**
8.	Total road length (km)	790
9.	Road length served with street lights (km)	767
10.	Installed automatic power on/off switches (no.)	130
11.	Maintenance frequency of street lights	Maintenance based on complaints received within 48 Hrs

Source: SMC

8. Traffic and transportation system

This section presents the assessment of the existing roads, traffic and transportation system in the city. Further, the section provides the key observations, key issues and the institutional responsibility for delivery of the services.

Siliguri city is strategically located in terms of connectivity of rest of to its North-Eastern states and to the neighboring countries of Bhutan, Nepal and Bangladesh. The National Highways NH-31, NH-31A, NH-31C and NH-55, and the State Highways SH-12 and SH-12A are the regional road connectors that pass through the area. Broad gauge railway lines connect rest of India to Assam in the northeast region and a meter gauge railway line connects Bihar to Assam and a narrow gauge heritage railway line connecting Siliguri to Darjeeling traverse through the area.

8.1 Existing road infrastructure

Siliguri is the major urban center and there is convergence of all major modes of transport coming from rest of India and going towards North-East, Sikkim and hills of Darjeeling. The National Highway 31 passes through the city and connects it to Delhi in the West and Guwahati in the East. District headquarters like Darjeeling in the North, Jalpaiguri in the East and other district headquarters and State capital Calcutta in the South are connected to Siliguri through State Highways. NH 31C connects Gangtok in the North to the main highway and SH-12 connects Siliguri to Cooch-Behar.

Siliguri is an organically growing and unplanned city. The absence of road hierarchy is pronounced. Siliguri's particular location on the narrowest part of Indian land naturally limits the scope of city's boundary. There are strips of land on both sides of Sevoke road (north Siliguri) up to Manpong forest and of NH-31 (Siliguri to Bagdogra road on West of Siliguri) up to Nepal and Bihar. Hence the city is growing as a ribbon development along those lines.

8.1.1 Road hierarchy

The urban structure of Siliguri reflects a linear form, which has been formed by its road network. The road network of the city is unorganized with more of intercity and local roads. Moreover, there is no definite hierarchy of the road system with most of the city roads also serving the intercity traffic.

The road network of Siliguri is mostly North-South oriented, Hill Cart road being the most important corridor along this direction followed by Burdwan road. The other important roads are Sevoke road and Bidhan road in the city. NH 31 also passes through the city.

As per Siliguri CMP, about 4.4% of the road network consists of arterial roads, 3.2% sub-arterial roads and 8.1% inter-city and additional highway corridors. Other roads comprise 84.3 % of the total road network.

The carriageway classifications of road network shows that the maximum percentage (64%) of road network is 1-2 lane undivided and the road surface condition of most of the network (51.3%) has been observed to be poor.

Table 55: Length of Roads by Hierarchy

Type	Length (km)	%
Arterial	28.68	4.4
Sub arterial	20.85	3.2

Type	Length (km)	%
Sub arterial Collector	52.64	8.1
Local	547.81	84.3
Total	**650**	**100**

Source: Siliguri Comprehensive Mobility Plan, 2011

8.1.2 Important Junctions

Major junctions in Siliguri are Pani tanki more, Air view more, Sevoke more, Venus more, Thana more, Check-post and Jalpai more. The traffic at certain junctions along Vivekananda road, Hill Cart road and Station feeder road shows high percentage of slow moving traffic. The junction characteristics of some of the major intersections in the city have been presented in the table below:

Table 56: Intersection No. of Arms & Its Control: Siliguri Municipal Area

Name of Junction	No. of Arms	Control	Entry Road	V/C of the Major Arm
Darjeeling More	3	Signalized	Kurseong Road	1.03
Mallaguri Crossing	1	Non Signalized /Grade separated	Darjeeling Road	0.08
Champasari More	4	Signalized	Darjeeling More	1.09
Check Post More	4	Signalized	Sevoke Road	0.77
Mahananda Bridge HC Road	3	Signalized	Air View Road	1.13
Wall Ford Road-Sevoke Road	3	Signalized	Pani Tanki More	0.48
Hyderpara Main Road	3	Non Signalized	Wall Ford Road	0.75
Wall Ford Road - Bypass Crossing	2	Non Signalized	New Jalpaiguri	0.69
Pani Tanki More	4	Signalized	Gangtok Road	0.81
Air View More	3	Signalized	Nabin Sen Road	0.6
Sevoke More	2	Signalized	Venus More	0.41
Venus More	1	Signalized	Flyover	0.39
Jhankaar More	3	Signalized	Vivekananda Road	0.75
Jalpai More	2	Non Signalized	Jalpaiguri Road	1.14
Thana More	4	Signalized	Indoor Stadium	0.52
Ashighar More	1	Non Signalized	Thakur Nagar	0.38

Source: CMP, Siliguri, 2011

8.2 Traffic characteristics

Traffic volume data has been taken from CMP report to understand the city networks and major intersections. It is evident that Hill Cart road, carries relatively maximum volume, i.e., the average daily traffic (ADT) between 47,639 PCUs and 83,828 PCUs and followed by Sevoke road which carries volume between 42,937 and 54,150 PCUs.

The intensity of traffic volume varies from 83,828 PCUs (ADT) on Hill cart road to 16,900 PCUs at Deshbandhupara road. The variation in traffic volume of various locations clearly establishes the

primary role of Hill Cart road, Sevoke road and Bidhan road as most of inter and intra city traffic tends to converge on these roads from all other collector /local roads. The traffic intensity on various locations indicates that the arterial road network of Siliguri comprises the above three roads along with Burdwan road, Station Feeder road and DBC road.

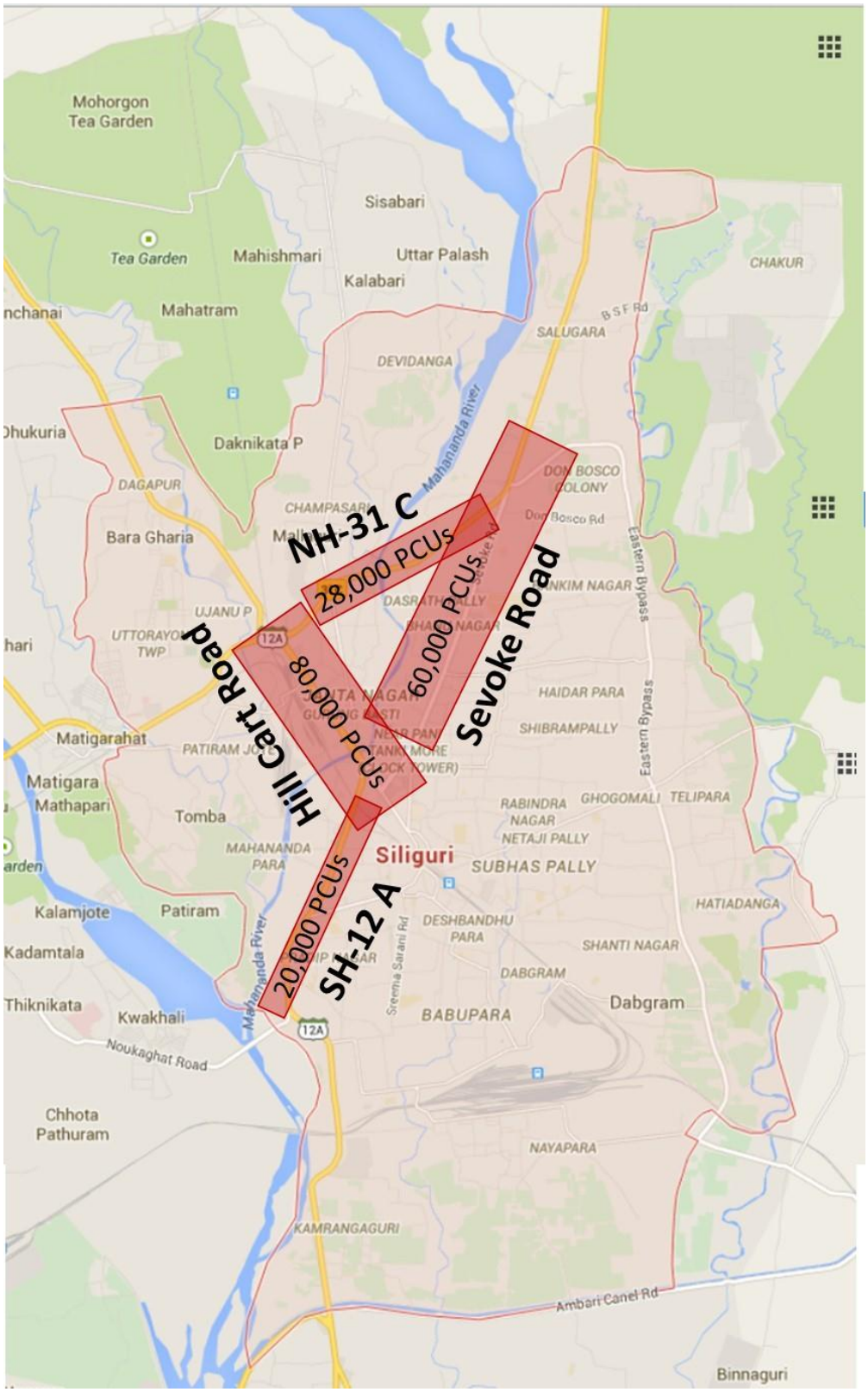
Table 57: traffic volume on major roads of Siliguri

Road	Section	Total (PCU)	Peak hour (PCU)
H.C. Road	Bw Venus intersection and Sevoke Intersection	47,639	5105
H.C. Road	Bw Sevoke intersection & Airview intersection	63,222	8738
H.C. Road	Bw Air view intersection & Junction intersection	70,072	8226
H.C. Road	Bw Darjeeling intersection & Junction intersection	83,828	5478
Sevoke Road	Bw Sevoke Intersection & Panitanki intersection	54,150	4671
Sevoke Road	Bw Panitank intersection & Baktinagar intersection	42,937	3647
NH 31		28,640	3427
Burdwan Road		34,500	2758
Bidhan Road		16,981	2549
H. C. Road	Bw Venus intersection to Mahabirsthan intersection	38,256	6219
S F Road		33,560	2907
Katchari Road		31,442	3882
SH 12	Bw Jalpai intersection and Tinbatti intersection	23,471	3163
Deshbandhupara		16,946	3028

Source: City Development Strategy for Siliguri, 2011

The peak hour traffic intensity pattern has also been observed to be similar to the traffic intensity pattern for the day. The peak hour traffic ranges from nearly 9000 PCUs on hill cart road to 2700 PCUs at Burdwan road. However, the proportion of peak hour traffic is observed to vary from 6.5% to 17.9%. The peak hour on most of the locations was observed to be during morning hours. This can be attributed to the external traffic which moves into Siliguri from neighboring areas during the morning hours in order to reach around office hours and then moves out of the city as and when their work is finished.

Figure 38: Indicative traffic volume on major roads of Siliguri



Source: Siliguri CMP & CRIS

8.3 Composition of traffic

The composition of traffic shows that slow moving vehicles formed the maximum proportion of traffic on almost all the locations. The composition of slow modes varied from as high as 85% on Station feeder road to 31.5 % on NH-31C. The percentage of slow moving traffic is observed to be high on local and collector roads indicating that they are the major modes of transport from the home end. The highest volume of slow moving traffic was registered on Hill Cart road – 54,000 PCUs, which is 60% of its total volume whereas the NH-31C carries a very high volume of goods vehicles. The percentage of fast and goods traffic increases on the arterial network comprising Hill Cart road, Sevoke road and Bidhan road.

It is evident that many of the road stretches were over-utilized to the extent and carrying the traffic more than capacity.

8.4 Growth of vehicles

Siliguri has shown high rate of population growth in the past six decades. Siliguri is the fastest growing town of West Bengal with a decadal growth rate of 46 %.

However, as compared to its population growth rate, the growth rate of vehicles in Siliguri has been even more stupendous. The registered number of vehicles in Siliguri over the period of 1996, 2004 and 2014 are shown in the table below. Over the period 1990-91 to 1995-96 the total vehicles have increased at the rate of 188.4 % per annum. Similarly, the total vehicles in Siliguri has doubled from 42,482 in 1996 to 86,526 in 2004 showing a high growth of 194% per annum, while 2004 to 2014 it was found to be 169% . However, the highest growth is seen in LMV and 2 wheelers which is 107% and 97.2% respectively.

Table 58: Number of Registered Vehicles

Year	Total Number of Registered Vehicles
1996	42,482
2004	86,526
2014	1,46,261

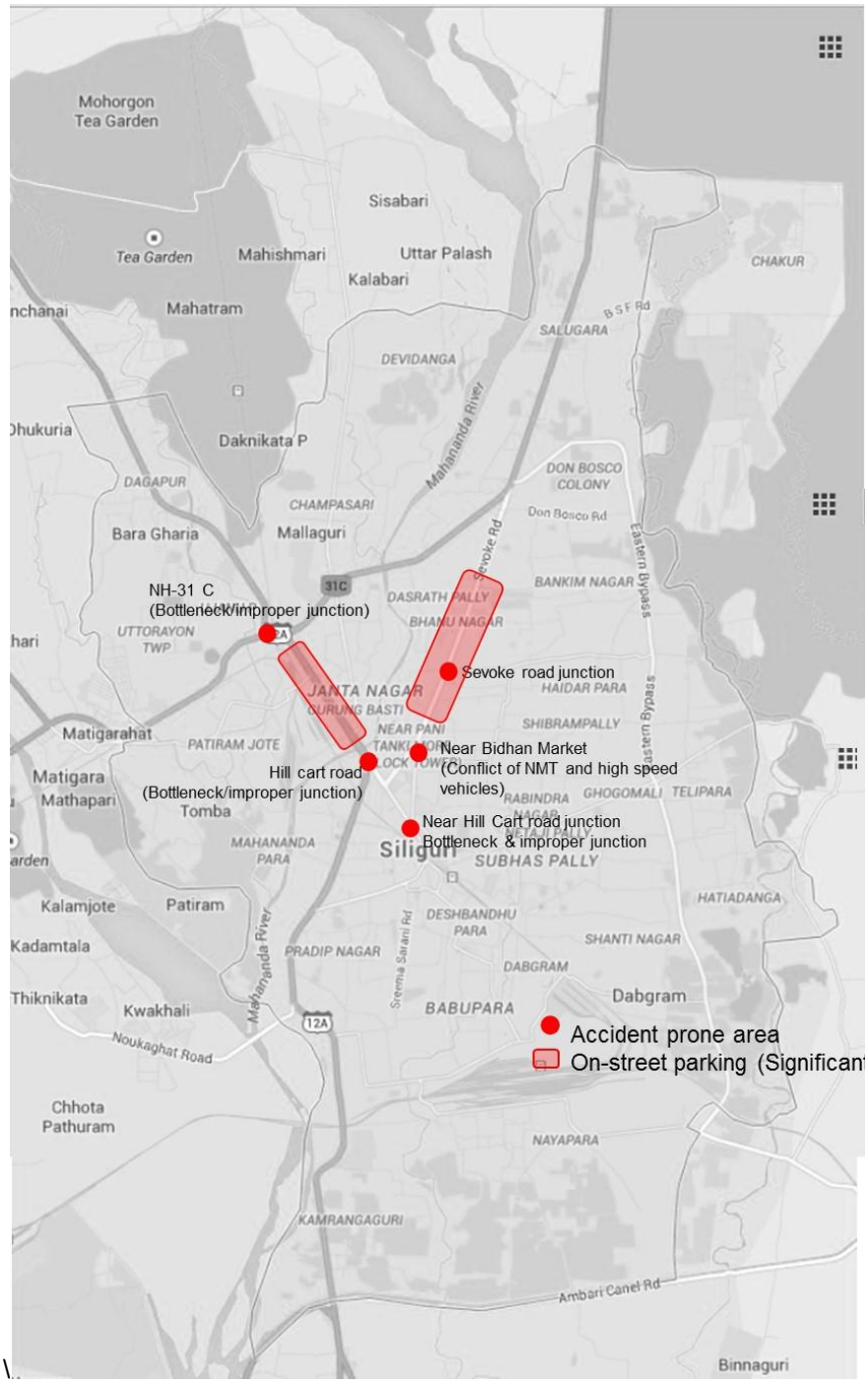
Source: Siliguri CMP 2011

A comparison of population and vehicular growth rates clearly brings out the disparity in their growth. In other words vehicles in Siliguri are growing at a much faster rate than the population. This trend is expected to continue in the future as well.

8.5 Parking

According to the study done by RITES, the peak parking accumulation takes place between 10AM to 2PM in the morning/afternoon. This can be attributed to the large percentage of external traffic coming to Siliguri from neighboring areas and gets parked on the major stretches. Also the traffic from Siliguri, especially the tourist traffic moves out of the city during this period by taking various types of hired modes parked on these roads.

Figure 39: Accident prone areas and on-street parking locations in Siliguri



Source: Google (Image), Siliguri CMP and CRIS analysis

The peak parking accumulation of buses takes place during the morning/afternoon hours from 10AM to 1PM. The two bus terminals on Bidhan road and Katchari road also generate a lot of demand for bus parking and due to non-availability of proper parking facilities; they park on the road itself. There are no dedicated parking places available in the city and most of the shop owners are parking their cars along the road.

There is huge demand for truck parking in Siliguri city as trucks and other goods vehicles are parked in discriminately along the arterial and local roads all over the city. The main concentration of truck parking

is in Khalpara area and along the Burdwan road. The peak parking accumulation of trucks generally takes place during the afternoon period between 10 a.m. to 5 p.m. There is huge shortfall in the parking supply, especially in the Khalpara area where trucks are parked on the road for long duration leading to congestion on the road. Parking status is given in the table below:

Table 59: Parking Status of Siliguri

Parking	Percentage
On- Street	70 %
Off- Street	30 %

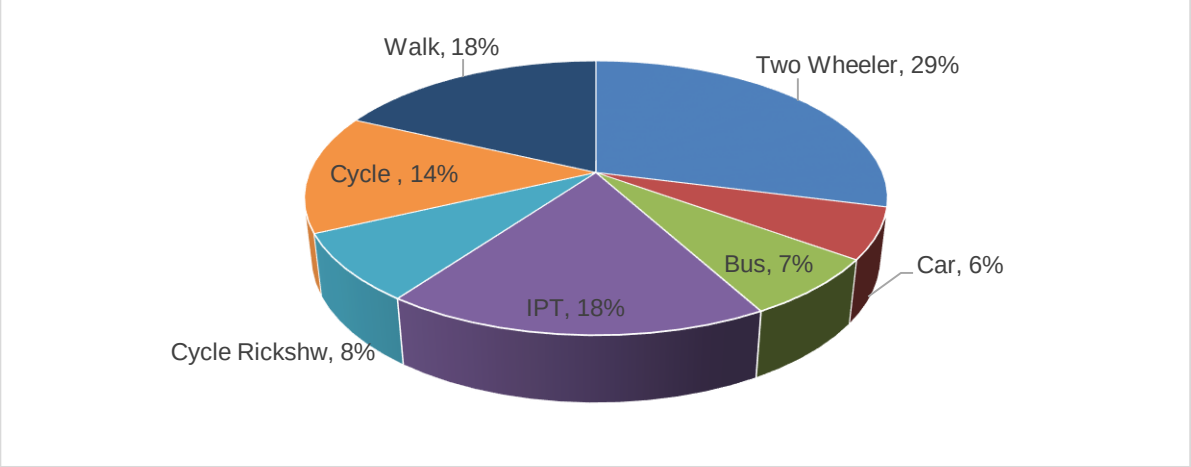
Source: Draft Development Plan 2008-09 to 2012-13, SMC

8.6 Public Transport System

Public transportation system in Siliguri comprises of Mofusil buses as well as the city services. However, other Intermediate Public Transport (IPT) modes (para transit) remain an important mode of transport apart from the privately owned vehicles. There are limited city services plying on Siliguri roads. It is also observed that Intermediate Public Transport (IPT) system plays a dominant role in meeting the need of public transport. Auto rickshaws are negligible in the city. However, there is a dependence on cycle rickshaws and minidors are also gaining popularity. This is due to less travel distances, easy availability of cycle rickshaws and low fares. There are about 10,000 cycle rickshaws in SMC, out of which only 6000 is registered. And the number of minidors is also increasing and the present fleet size is around 600. The large fleet sizes of IPT modes has further declined the use of city buses and in some cases intercity buses.

Modal Shares in Siliguri: The maximum number of trips is made by two-wheeler with mode share of 29% followed by IPT with 18%. Non motorized transport (cycle and Cycle riecksaw) share exlcuing walk is 22%. Due to liner city the walking share is still nominal i.e. 18%. The graphical representation of modal share presented in below figure.

Figure 40: Modal shares in Siliguri



Source: Gangtok CMP,2012

According to MoUD urban transport benchmarking, Siliguri lacks efficient and accessible public transport system throughout the area. The infrastructure available is inadequate and is inefficiently

operated. There is lack of route rationalization. Poor accessibility to bus stands, infrastructure facility like regulated parking for cycle rickshaws, auto rickshaws, pedestrian footpath add to the problem. Frequencies, condition of buses, travel time and level of comfort are also a concern for the system.

There are 4 major authorized bus terminals (Intercity) within the SMC limits which are listed below:

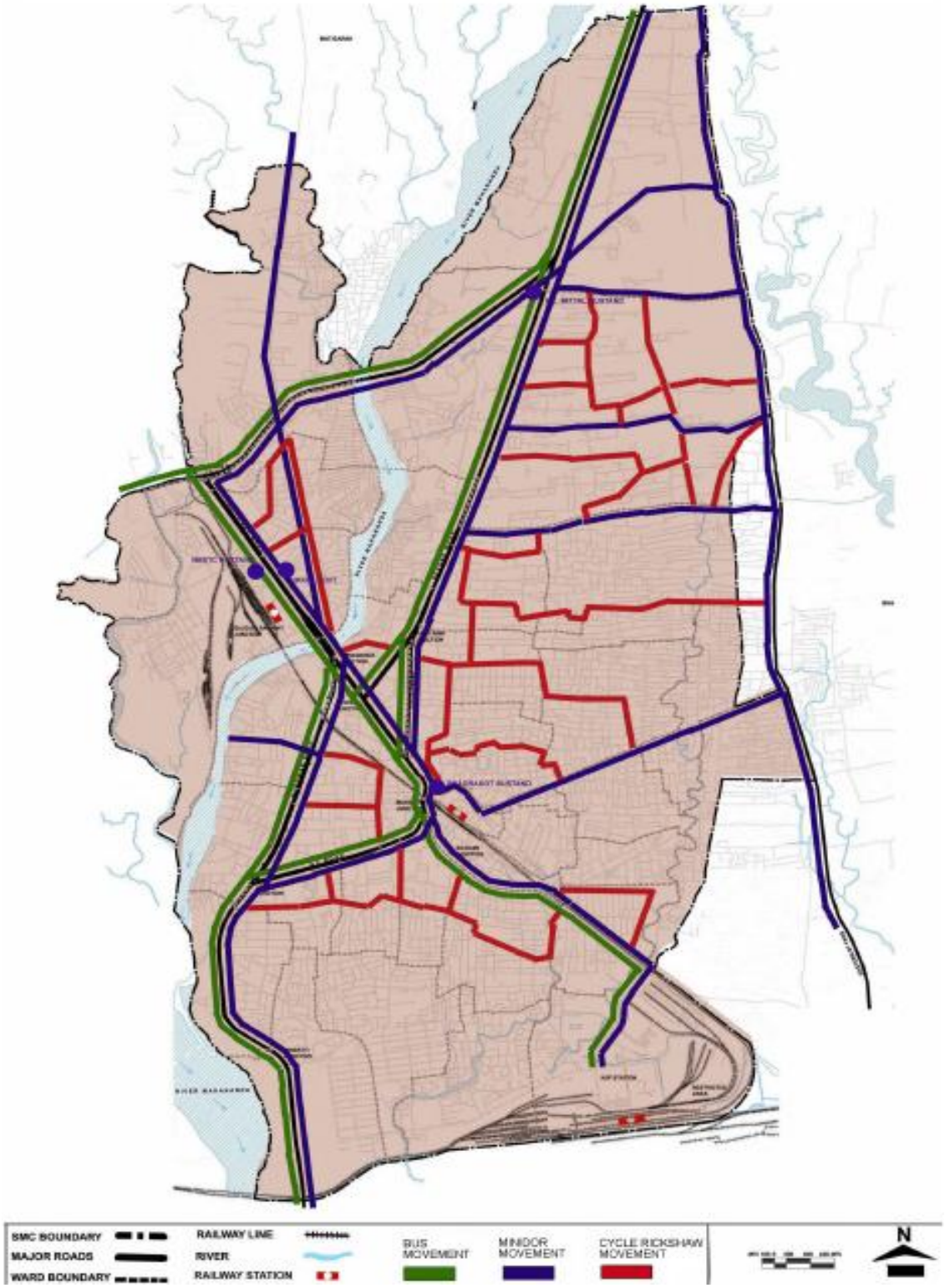
Table 60: Details of bus terminals in Siliguri

Bus terminal	Details
Tenzing Norgey Bus Terminus, SMC	Tenzing Norgey Bus Terminus is the most important bus terminus of the town. The bus stand has parking capacity for 209 buses across various bus operators. Buses from this bus stand are destined for areas outside SJPA – Kolkata, Guwahati (Assam), Bihar and Jharkhand. The terminus is adjacent to the Siliguri Junction railway station and accessible by Hill Cart Road. Bus parking capacity has been found to be inadequate during the peak hour period.
P. C. Mittal Bus Terminus, SMC	This is a new bus terminus and is located at the outskirts of the main Siliguri town. The Terminus is accessible by Sevoke road and NH- 31. Buses from this terminus are mainly destined towards the Doars. The bus stand has parking capacity for only 40 buses and it is found to be adequate. No parking facility around the terminus is provided for other modes. Parking of two wheelers and IPTs is done near the adjoining commercial complex area creating congestion on Sevoke road.
Sikkim National Transport Bus Terminus, SMC	Sikkim Nationalized Transport or SNT has its own small terminus close to the Tenzing Norgay Bus Terminus and Siliguri Junction Railway Station on Hill Cart road. Buses of SNT ply form SMC to Gangtok at regular intervals. There are no other public convenience facilities at the terminus.
North Bengal State Transport Corporation (NBSTC) Bus Terminal, SMC	NBSTC bus terminal is used by government buses going towards Kolkata, Mirik, Kalimpong, Guwahati, Darjeeling, Berhampore and Malda. The bus terminal is located on the Hill Cart Road with a close proximity to Tenzing Norgay Bus Terminus and Sikkim National Transport Terminus. Other private buses also ply form this bus stand.

The other authorized bus stands in Siliguri are Court More Bus Stand, Panitanki More, Air View Bus Stand and Town Station Bus Terminus. Court More Bus Stand is the local bus stand of Siliguri. The buses to Bagdogra, Naxalbari, Kharibari, Panitanki, Batasi and other places located to the west of the Siliguri town are covered form this bus stand. The bus stand is located at Court More at the heart of Siliguri Town leading to frequent congestion in the area.

There are about 550 (intercity) buses which are operated from thebus stands to different locations in SJDA, in North Bengal, in West Bengal state and in surrounding states. However, the existing routing pattern of city buses and the location of the city bus stand create serious traffic problems in the central area of the town. About 800- 900 buses ply on Hill Cart Road everyday with an average of 8-9 buses per minute. In addition, there is no different stand for mofusil buses and they operate from all the Bus stands in the city. Also,the infrastructural facilities in the Bus terminals are also very poor. The prominent IPT and Public Transportation (PT) routes have been marked in the figure below:

Figure 41: PT and IPT routes in Siliguri



Source: Siliguri CMP, 2011

8.7 Transit Oriented Development

Transit Oriented Development (TOD) is a recent trend in creating vibrant, livable, compact, walk-able communities around or along transit (rail/bus) systems to achieve a higher quality life by reducing car dependency. TOD is defined as a high density, mixed use type of development close to transit services.

TOD is compact, mixed use development near new or existing public transportation infrastructure that provides housing, employment, entertainment and civic functions within walking distance of transit. The pedestrian-oriented design features of TODs encourage residents and workers to drive their cars less and ride public transit more. A 500 m area around the transit station is considered a 5-minute walking distance near transit stations.

Indian cities traditionally have high density and mixed use type of development. In such a context, TOD might already be a reality in some form in Indian Cities.

8.7.1 Combination of Public Transport and Land use:

TOD is an integrated approach to land use and transport planning. The primary goal of transit-oriented development is to shift the auto-centric realm of urban living to a transit-centric realm of urban living.

TOD is ideal for high capacity systems such as metro rail, monorail, high speed rail, regional rail systems or high capacity bus based mass transit systems. The systems can be selected depending on the current and future needs, geographical factors, funds availability, etc. Unfortunately, most of the Indian cities Master Plans have not integrated the transport system plans into them.

8.7.2 TOD in India

TOD was implemented in most developing countries since the 80"s but this emerging trend is slowly catching up in India, with the advent of the Mass Rapid Transit System (MRTS) in the form of metro rail services and high speed transit corridors.

In India, as of now Delhi has started looking towards TOD as a solution to its mobility and air quality issues. The city recently prepared a TOD policy document regarding the development of Delhi metro stations.

Cities such as Delhi, Mumbai, Ahmedabad and Surat are already looking towards TOD. Medium size cities like Visakhapatnam, Pimpri Chinchwad are also planning their transit (bus based) systems taking into considerations of TOD.

8.7.3 Advantages

TOD has the potential to boost transit ridership and minimize the traffic impacts of the new transit infrastructure by providing trip end land uses. The pedestrian oriented environment offers greater mobility.

Transit helps in mitigating sprawl by increasing densities near the stations. It enables corridor development in a city, making it easier to provide infrastructure. Also, transit investments are economically viable as they have greater economic benefits in comparison to highway investments

8.7.4 Challenges

The availability of land is a crucial requisite for TOD development or redevelopment. In a green field development, the volatile land market poses challenges of acquisition, land valuation, rehabilitation, and compensation along with many other deterring factors. In a brownfield TOD, it is crucial to integrate

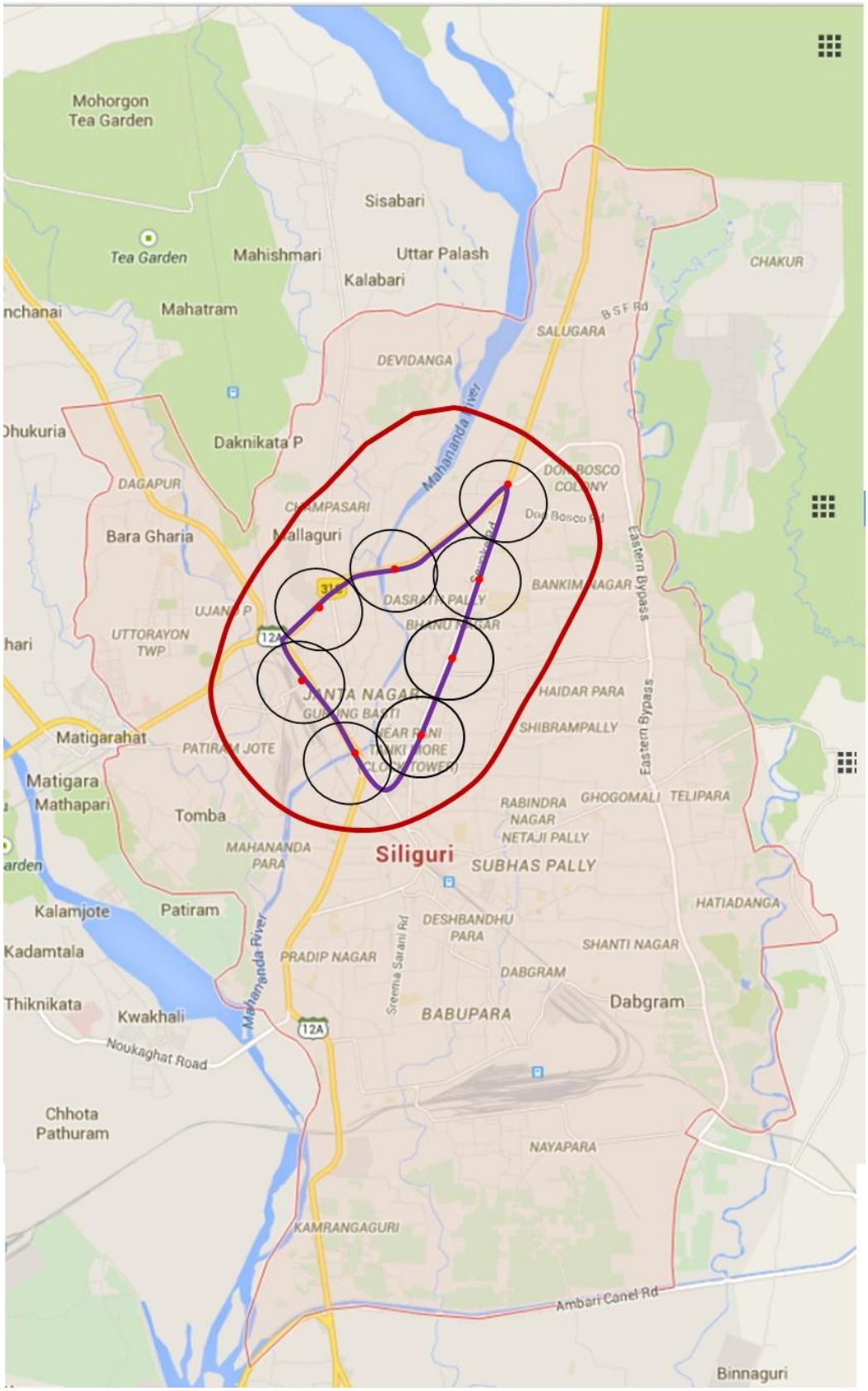
the existing structures, land use and road network. The R & R issues are more complex and number of stakeholders is much more.

8.7.5 TOD possibilities in Siliguri city

The CMP of Siliguri has not much discussed about the Transit oriented development. The city aims at developing a TOD policy to regulate and facilitate development. Location of various urban activities and introduction of transport links has significant impact on the current urban form of the city. The urban forms of Siliguri have been dictated by the developments along the major roads growing in Siliguri. The planning of transport infrastructure would incorporate direction-oriented travel. New locations, which can be focused for transit-oriented development, are NH-31, Sevoke and Hill cart road.

The success of TOD will depend on efficiency of public transportation and its connectivity with dedicated corridors, conducive local conditions, development control regulations and proper coordination between various stakeholders (transport authorities, urban development authorities and various Parastatals agencies).

Figure 42: Thematic Transit Oriented Development for Siliguri



Source: CRIS

8.7.6 Freight terminals

There is huge demand for truck parking in Siliguri Municipal Area as trucks and other goods vehicles are parked indiscriminately along the arterial and local roads all over the city. The main concentration of truck parking is in Khalpara area and along the Burdwan road (along SH-12 A).

The Comprehensive Mobility Plan carried out Primary surveys to analyze the freight volume and its share in total volume at peak hour at different turn count locations. As indicated in the table below, It has been observed that Mallaguri crossing has the maximum share (63.4%) of freight traffic during peak hours. It is expected that freight and passenger movement by road is going to rapidly increase in the coming years. In particular, freight movement by road transport is expected to show robust growth over the medium term due to a number of factors like substantial investment in improvement of existing national highway which would facilitate speedy, reliable, door to door services, etc.

Turn Count Name	Total PCU @ Peak Hr	Freight PCU	Percentage
Darjeeling More	5,693	1,209	21.2
Mallaguri Crossing	**243**	**154**	**63.4**
Champasari More	4,560	1,107	24.3
Check Post More	4,250	1,359	32.0
Mahananda Bridge HC Rd	3,628	782	21.5
Wall Ford Rd-Sevoke Rd	3,188	625	21.2
Hyderpara Main Road	2,422	353	63.4
Wall Ford Rd - Bypass Crossing	1,600	489	24.3
Pani Tanki More	5,326	737	32.0
Air View More	4,895	797	21.6
Jhankaar More	3,580	1,155	30.6
Total	49,333	10,642	21.6

Source: Comprehensive Mobility Plan, Siliguri

There is huge shortfall in the organized truck parking in the form of integrated Freight terminals, etc. in the city to streamline truck movement and associated activities. Particularly, in the Khalpara area, the trucks are parked on the road for long duration leading to congestion on the road and delay in speeds. Space management on the major roads by discontinuing irregular road-side parking and enforcement of traffic regulations needs to be done at all places in Siliguri.

8.8 Key Issues

- Inadequate level of road network due to presence of activity location in the city core. (land use transportation incompatibility)
  - All the major arterial and sub arterial roads face congestion of traffic.
  - A large number of road sections have v/c ratio exceeding 2.0, which will further increase in future hence requiring network Improvement.
  - Most of the intersections in the city are characterised by poor geometrics and ‘y shape’ which increases conflicts and is not conducive to smooth traffic movement.

- Inadequate infrastructure leads to limiting intracity travel mobility between east and west of railway line
  - There is a major problem of congestion and delay at Mahabirsthan junction when the train passes.
  - Wards 1 and 47 are isolated from the main city due to passing of railway line.
- In-efficient management of traffic for meeting the need of increasing number of slow moving traffic particularly cycle rickshaws.
  - The mixing of fast and slow moving vehicles causes congestion, reduces average journey speeds and increases delay.
  - The restriction of use of cycle rickshaws on main roads during peak hours is not being followed.
  - Traffic signalisation becomes largely ineffective due to large number of slow moving vehicles.
- Inadequate parking facilities for increasing concentration of commercial establishments.
  - There are no authorised parking plots or demarcated parking areas catering to commercial areas.
  - Haphazard parking all along the main roads increases congestion
- Lack of organized intracity public transport system.
  - The buses (800-900 daily) plying on hill cart road contributes highly to causing congestion.
  - An ineffective management of public transport modes and their routes result into an inefficient system and contributes to traffic problems in the city.

9. Housing and urban poverty

This section provides a detailed overview of the existing housing scenario in the city in terms of housing stock availability, housing quality, and housing requirement for the projected population. The future housing growth scenario has been forecasted based on discussions with officials and stakeholders. The section also explains the demographics, social profile, and coverage of key infrastructure services in the urban poor area of the city, and the status of projects related to the urban poor.

9.1 Housing scenario in the city

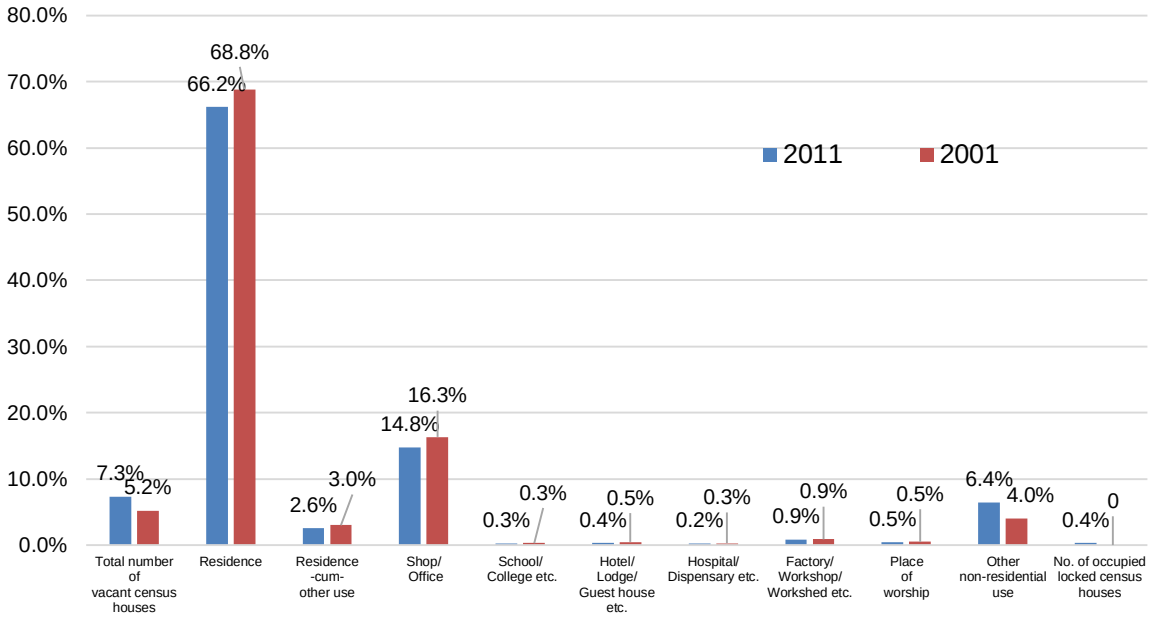
The city is characterized by medium-rise and high-density housing in the core city and low-rise moderate-density housing in the peripheral areas. The last decade has witnessed the development of multi-rise residential and commercial structures along the Sevoke Road and organised layouts in the northern and western parts of the city.

9.1.1 Present availability of housing stock

As per Census 2011, the city had 1.69 lakh census houses. Residential houses account for 66% of the total houses in the city, followed by shops/offices with 19%. Factories/workshops/work sheds account for 1% of the total houses, and remaining use accounts for 14% of the total houses.

A comparison of Census 2011 and Census 2001 data (refer Figure 43) shows that the number of houses has increased by 0.72 lakhs at a rate of 42% in 2001-2011.

Figure 43: Housing stock growth



Source: Census 2001 & 2011

9.1.2 Quality of housing stock

As per Census 2011, the city had nearly 1.69 lakh census houses under residential and residential cum other use categories. Of this, nearly 0.75 lakh houses (65%) were in a good condition, and around 0.35 lakh houses (30%) were in a liveable condition. Only 0.06 lakh houses (5%) were in a dilapidated condition.

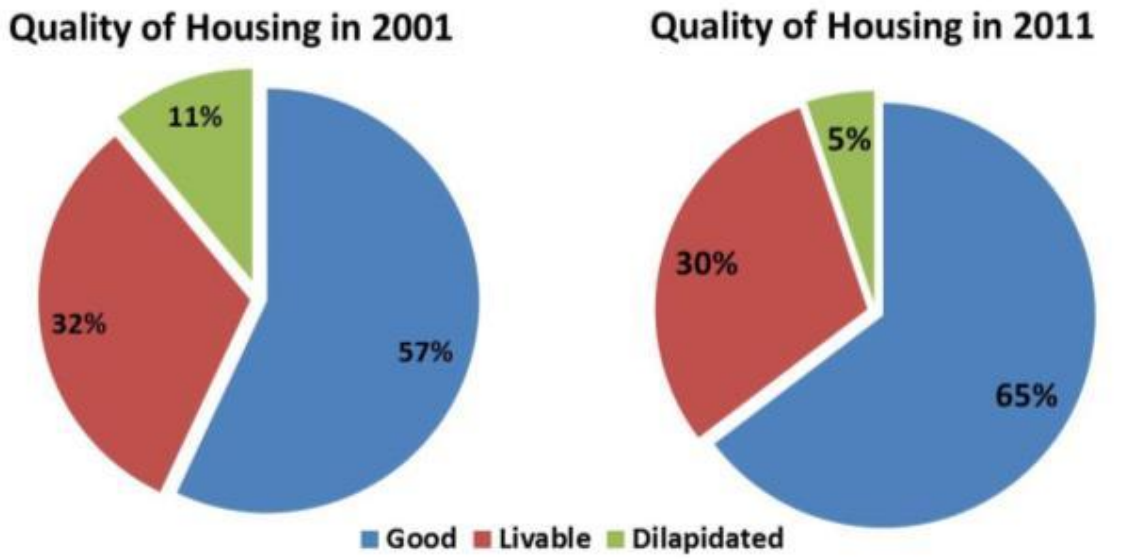
Table 61: Quality of housing in the city

Good			Liveable			Dilapidated			Total		
2001	2011	Change	2001	2011	Change	2001	2011	Change	2001	2011	Change
0.48	0.75	55%	0.38	0.35	-7%	0.11	0.06	-45%	0.97	1.16	19%

Source: Census 2001 & 2011

Thus, the number of dilapidated houses has decreased over the last decade, which indicates the focus on housing sector over the last decade by respective departments.

Figure 44: Quality of housing



Source: Census 2001 & 2011

9.1.3 Future housing demand

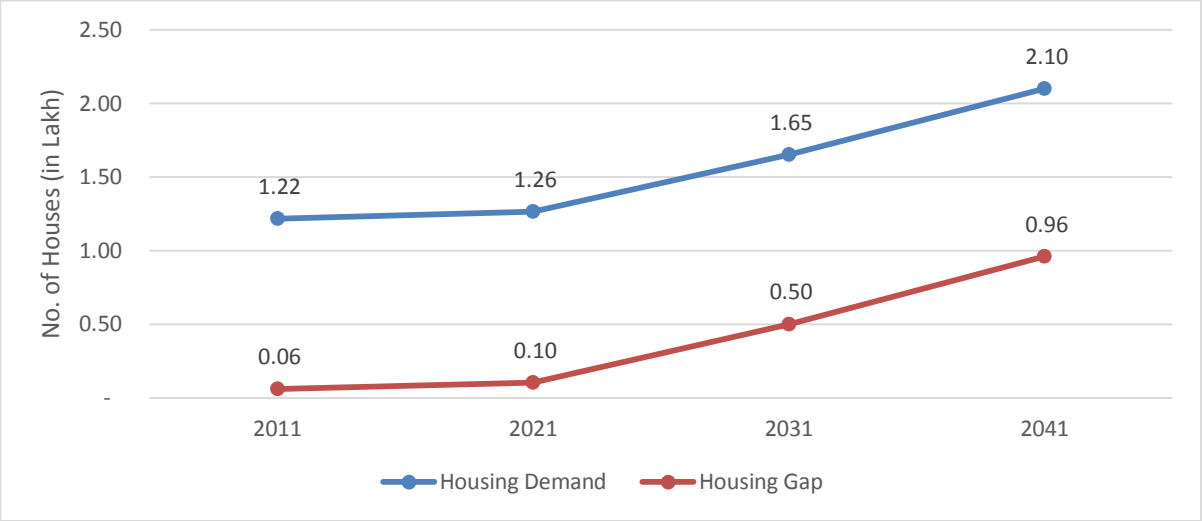
To estimate the housing stock requirement for the next three decades, the following assumptions have been made:

- Population projections as finalized in the demography section
- Household size is considered as 4.2 for the subsequent decades from 2021 to 2041;
- Residential and mix use would increase by 2% over the next three decades, and number of dilapidated houses would reduce by 10%.

As indicated in the graph below, the total housing demand has been estimated as 1.26 lakhs for 2021, 1.65 lakhs for 203, and 2.10 lakhs for 2041. Taking into consideration the existing dilapidated housing,

the net demand or the overall housing gap has been assessed as 0.1 lakh for 2021; 0.5 lakh for 2031, and 0.96 lakh for 2041.

Figure 45: Housing demand for future years



Source: CRIS analysis

Following table presents the housing demand gap assessment requirement in the city for the next three decades.

Table 62: Housing demand assessment in Siliguri

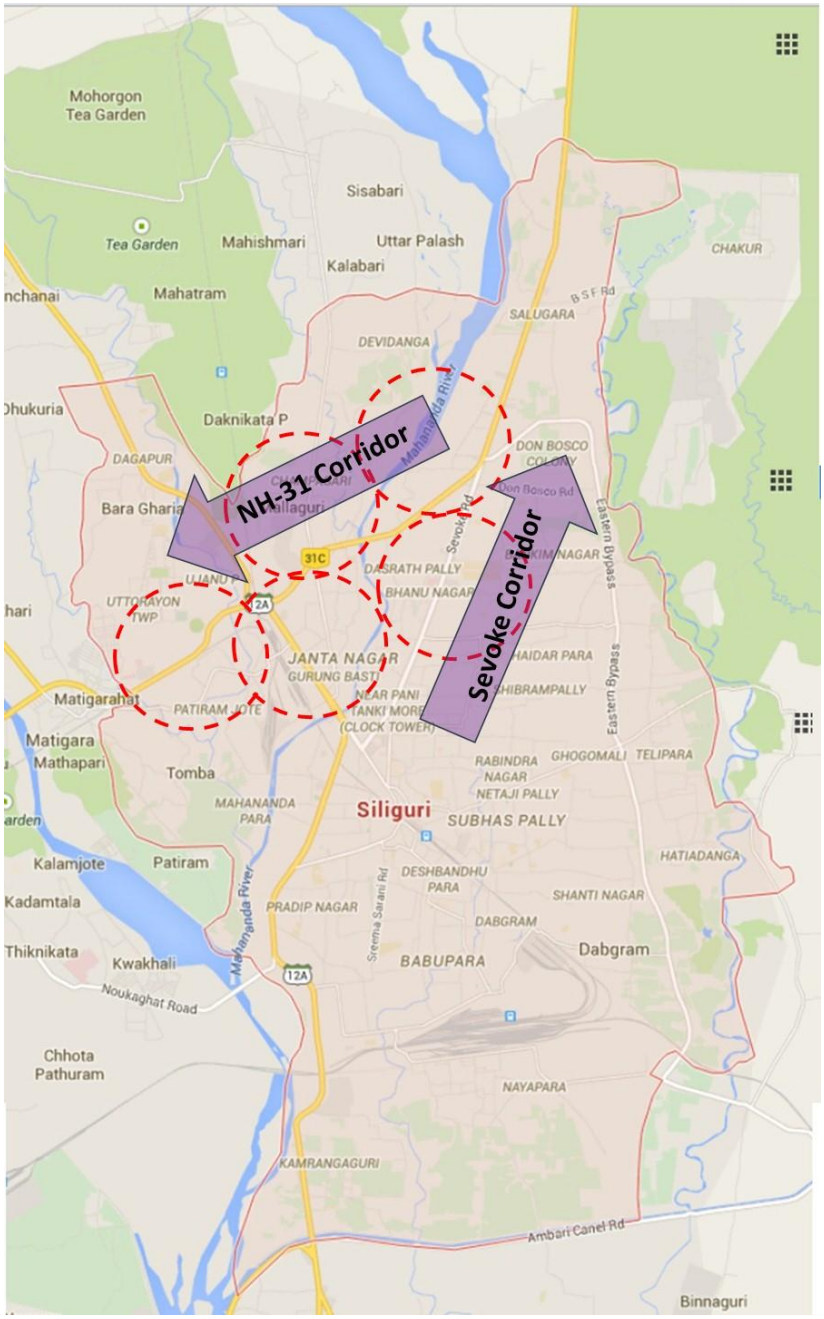
Year	2011	2021	2031	2041
Population (in lakhs)	5.13	7.17	9.12	11.31
Household size	4.43	4.20	4.20	4.20
Total census houses (in lakhs)	1.69	1.71	2.17	2.69
Residential and mixed land use %				
Residential housing stock (in lakhs) - Demand	1.22	1.26	1.65	2.10
Residential housing stock (in lakhs) – Gap		0.05	0.43	0.88
Dilapidated houses (%)	5.00	4.50	4.05	3.65
Residential housing stock - Dilapidated buildings (in lakhs)	0.06	0.06	0.07	0.08
Residential housing stock - Total (in lakhs) - Gap	0.06	0.10	0.50	0.96

Source: CRIS analysis

9.1.4 Overview of housing sector in the town

As per discussions with officials of the town planning section[10], majority of the new housing layouts are at the Sevoke Road and in NH-31 area. The connectivity and commercial development along the road led to the development of housing projects in these areas. Potential areas for development of new housing in the city are Uttarayan, Matigara (outside SMC area) and Prakash Nagar (along NH-31).

Figure 46: Future housing scenario in SMC area



Source: Google (Image) and CRIS

[10] The data on HIG, MIG, and LIG housing is not available. Hence, a broad overview of the housing scenario has been developed based on discussions with city officials.

9.2 Urban poverty and slums

As of 2013, 154 notified and 31 non-notified slums have been identified within the corporation boundary. Due to absence of latest data, slums population has been considered from Census 2011. The household size, compared to the 5 to 7 in general slums and 4.5 in SMC area.

9.2.1 Slum profile

Slums are located along the Mahananda, Fuleshwari, and Jorapani rivers, on railway lands, and in the heart of the city near the railway station. Ineffective development control regulations have led to the development of slums.

80% of the slum dwellers are migrants from Bihar, Assam, West Bengal, Bangladesh, and Nepal, and 69% of them have been staying in the city for more than 10 years in the city. Except for some slums on railway land, all other slums are notified slums. 76% of the households live in kutcha houses, and 18.3% live in semi-pucca houses.

Slum dwellers are mainly non-agricultural labourers, auto rickshaw drivers, rickshaw and van pullers, vendors, and other informal sector workers, contributing significantly to the informal economy and making the city competitive in the labour market. Generally, in slums, more than one person in the family works in to meet daily requirements.

In Siliguri, the average earning persons per household is 1.3, and in 10% of the households, women are the only earning member in the family. In spite of employment generation programmes, 20% of the slum population is unemployed and 34% is underemployed.

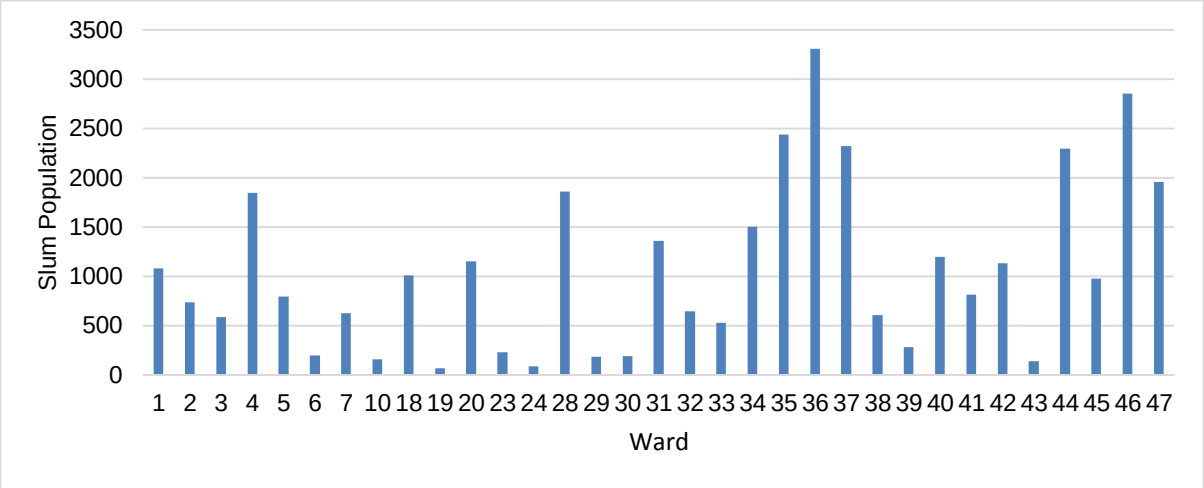
A slum survey (as part of socio-economic survey) conducted by SMC revealed that the slum population of SMC is 32% of the total population of 513,264 (as per Census 2011).

Table 63: Details of slums in Siliguri

Sr. No.	Attribute	Value
1	Total slums	185
2	Notified slums	154
3	Non-notified slums	31
4	Slum population	161,876
5	Share of slum population against total population	32%
6	Slum households	35,134
7	BPL households	22,898

Source: Urban Poverty Eradication cell, SJDA, Siliguri

Figure 47: Ward-wise slum population



Ward number 36 accounts for 9% (highest) of the total slum population in the city, while ward number 19, with 65 slum households, has the lowest slum population in the city.

9.2.2 Slum improvement (UPE cell)

SMC has a UPE cell, which overlooks the entire urban poverty alleviation programs other than IHSDP projects. IHSDP activities were removed from the scope of the UPE cell 10 years ago and put under the Public Works Department (PWD) of SMC. The cell oversees and implements mainly socio-economic empowerment activities and some infrastructure building activities and covers all slum development activities including RAY. The IHSDP cell executes corresponding projects as per the JNNURM schemes.

Three centrally sponsored and state sponsored programmes including the National Slum Development Programme (NSDP), Integrated Low Cost Sanitation Scheme (ILCS), and Valmiki Ambedkar Awas Yojna (VAMBAY) are in operation for slum improvement in Siliguri city. These programmes are taken up by the Urban Poverty Eradication Cell in SMC and implemented by community development societies (CDS) in different wards. The details are as follows:

- ILCS is a very successful programme. Total 12,547 low-cost sanitation units have been constructed under this scheme, and 80% of the slum dwellers have access to safe mode of sanitation due to this programme;
- Total 881 families have benefited under the Shelter for Shelter less Scheme of NSDP;
- There is a discrepancy in the amount given and the number of beneficiaries under the Shelter for Shelter less Scheme, which shows inappropriate distribution of funds and improper implementation of the scheme.

Table 64: Details of slum improvement programmes

Sr. no.	Attribute	Value
1	Total no. of slums	154
2	Total slum population	161,876

Sr. no.	Attribute	Value
3	Total no. of CDSs formed (registered under Society Act)	15
4	Total no. of resident community volunteers	1216
5	Total no. of slum women who underwent skill development training	2164
6	Total no. of women earning after training (Rs. 1500 to 3000 per month)	1650

Source: Draft Development Plan 2008-09 to 2012-13, SMC

The USHA report on slums has been incorporated in the slum study. At present the surveys under RAY are ongoing, and some data were updated in 2013.

The provision for formation of a poverty alleviation cell (UPE cell) and separate fund allocation for the urban poor, has been inserted in the West Bengal Municipal Corporation (Amendment) Act, 2009. The UPE cell conducts various vocational trainings in the slum areas. Currently, there are 15 CDSs for 33 wards in the city (as per the UPE cell, only 33 wards have slums). The projects are implemented through SJDA by the UPE cell. The major initiatives taken are:

- Formation of SHGs under Swarna Jayanti Sahari Rojgar Yojana (SJSRY): At present, there are 955 SHGs, with 13 BPL women in each group. After 1 year of the formation of such groups, Rs. 25,000 is assigned to each group as a revolving fund. Rs. 2,000 is given to each person as a loan.
- STEP-UP: 6 months' vocational training for women from BPL households. At present, 1,500 beneficiaries are being trained and 5500 more beneficiaries are approved for training. Training is provided in computer operations, tailoring, beautician, paper bag (thonga) making, BPO call centre training, etc. The beneficiaries are identified through CDS selection.
- Innovative Challenge Fund (ICF): This project has been implemented through KUSP. 35% of the project cost for manufacturing spices and brooms is funded under the Urban Women Self-Help Programme - SJSRY, to a group of 20 members.
- Urban Self-Employment Programme: Individual loans are disbursed and 25% subsidy is provided on the total project cost.

Other than the above mentioned projects, the UPE cell has undertaken some engineering and construction work in the slum areas. From 2009, 340 projects of approximately Rs. 10 crores have been executed. These are mainly creation and repair of roads, drains, community structure, etc.

Table 65: Slum improvement programmes under different schemes

Name of programme	Period/total
No. of thrift & credit groups formed	1008
Urban Self-Employment Programmes (No.)	18
Urban Women Self-Help Programme (No.)	1

Name of programme	Period/total
Vocational training (STEP-UP) completed (men + women)-No.	2563
Vocational training (STEP-UP) to be started (No.)	2045

Source: Draft Development Plan 2008-09 to 2012-13, SMC

9.2.3 IHSDP

SMC has taken a major initiative for the up-gradation of basic infrastructural facilities in slums under IHSDP funded by JNNURM. The total project cost is estimated to be Rs. 4314.46 lakhs. The funds will be utilized for the construction of EWS housing and infrastructure such as roads, drains, toilets, water supply, street lights, etc. The total number of beneficiaries under this project is 22,898 households (BPL). The project is being implemented by the PWD (for the construction work), UPE cell, and urban planning cell of SMC. The status of the project till 2013 is given in Table 66.

Table 66: Status of 3 pro-poor reforms till 2013, IHSDP Phase-I

Sr. no.	Pro-poor reforms	Target year of completion (as per MoA)	Status (Rs. lakh)					
1	a) Internal earmarking of funds for urban poor	2011-12	Financial year	Total ULB fund - Own source	Amount earmarked	% earmarked	Amount utilized	% utilized
			2008-09	2,090.21	525.06	25.12	371	71%
			2009-10	2,144.06	583.40	27.21	426	73%
			2010-11	2,555.08	643.37	25.18	437	68%
			2011-12	2,371.73	593.90	25.04	534	90%
			2012-13	3,037.51	776.05	25.55	-	
2	Basic services to urban poor	2011 -12	Name of the service		Status (achievement)			
					Nos.	%		
			Housing		5063	83%		
			Water Supply		17600	77%		
			Sanitation		14380	63%		
			Solid Waste Management		16485	72%		
			Primary education for 6-14 yrs. (SSK, municipal school, ICDS, GSFP, etc.)		18550	81%		
			Healthcare		17586	77%		
				1. NOAPS				

Sr. no.	Pro-poor reforms	Target year of completion (as per MoA)	Status (Rs. lakh)		
			Social security (Insurance)	2. NFBS	Universal coverage of eligible beneficiaries
				3. JSY	
				4. IGNDOS	
				5. IGNWPS	
3	Earmarking of at least 20-25% of developed land in housing projects	2011-12	For all public sector as well as joint venture housing projects, construction of EWS/LIG category houses has been made compulsory. For private sector, a suitable legislation would be enacted by the state government after due consultation with all stakeholders in the government as well as private sector after due examination of the economic and commercial impact of such legislation. ULBs follow the state policy.		

Source: IHSDP cell, SMC

9.2.4 Self-help groups

Self-help groups formed under SJSRY are aimed at empowering women hailing from BPL families, by providing those loans for income generation activities. SMC has taken several steps for the successful implementation of the SJSRY scheme. Some of the self-help groups in Siliguri are involved in following economic activities

- Tea leaves processing units;
- Poultry farm, dairy products, etc; and
- Cane works

9.2.5 Livelihood development and poverty alleviation plan

The ultimate objective of the poverty alleviation and livelihood development plan is to significantly reduce urban poverty on a sustainable basis. The plan promotes sustainable human development and elimination of human poverty and inequalities.

The plan is aimed at improving the quality of life, human wellbeing, and access to basic social services of the poor people residing in SMC. Due to overcrowding and sharing of limited resource and space available, slums are often viewed as pockets of misery.

The urban poor face problem of shelter, lack access to essential basic services, and lack of opportunities to improve their lives. It is imperative to look at trends in urbanization and its effect on these issues. Apart from ward-level stakeholder consultations, detailed discussions were conducted at the zonal level with all formal groups residing/working in the area and informal groups residing in the area.

The livelihood development and poverty alleviation plan was prepared under the guidance of the UPE cell, DPG, and DTG with active support from the Ward Committee, councillors, resident community volunteers, CDSs, and officials of SMC.

Objectives of livelihood development and poverty alleviation plan:

The livelihood development and poverty alleviation plan of SMC, a component of the DDP, refers to the organisational, operational, coverage, and delivery aspect of all the existing government schemes in

the corporation area which address poverty and livelihood issues. It also refers to the issue of exclusion which the migrant, marginalized, and informal settlers have to face, on a day-to-day basis.

Development objectives that SMC seeks to achieve through the livelihood development and poverty alleviation plan, are as follows:

- Make sustained efforts in conformity with the desired goal to achieve 'growth with service' towards rationalising inequalities of income distribution and attain a social structure free from exploitation;
- Strengthen the existing institutional and community infrastructure, such as CDS, NHC, and NHG, under the centrally sponsored SJSRY scheme and combat poverty by prioritizing development of women and welfare of children and other socially disadvantaged and distressed people, with the overriding priority being child labourers struggling for their existence;
- Fully utilize employment generation schemes and schemes for minorities

Government Plans/Schemes

- Strengthening existing institutional structures in the ULB created by various government plans and programmes such as SJSRY, Prime Minister Employment Generation Programme (PMEGP), youth welfare schemes, and schemes for minority communities
- Strengthening the existing community structures, viz., CDS, NHC, NHG, etc., and increasing the coverage, reach, and network of these structures
- Providing sustainable livelihood opportunities for the urban poor by identifying innovative micro enterprise opportunities for self-help groups in the ULB
- Improving operational transparency of all schemes for poverty alleviation
- Non Plan/Other Initiatives:
- Planning livelihood programmes for the homeless, shelter-less squatters, and informal settlers who do not receive benefits from the existing government schemes/programmes
- Participatory planning for managing livelihood development initiatives in slums/squatters and informal groups
- Partnering with organisations to facilitate growth in wage employment in the ULB

9.2.6 Key concerns

- 32% of the houses are in a poor condition (wards 1-4, 10, 44, and 45 along the River Mahananda, wards 6 and 15–19 in the core area, and wards 21, 25, 26, and 36-38) threat to health & hygiene in turn provoking attack of epidemics (93% of the slum population has no access to safe garbage disposal and 83% has no access to safe drinking water);
- Due to unaffordable housing and rents, most of the migrants prefer to squat (35% of the total population live in slums);
- People living in wards 1, 4, and 5 along the River Mahananda, wards 6 and 8 in the core area and in the added wards 31-47, lack access to basic services.
- Slum dwellers are not having much awareness regarding health and hygiene
- The corporation does not document slum-specific information on access to infrastructural services.
- Though SMC has institutionalised UPE cell, its effectiveness in slum up-gradation initiatives is uncertain.
- There is a common two-pit toilet for every 4-5 houses in the slum areas. Each house has a family of 5 persons, so total 20-25 people share a toilet.
- A few toilets are built on top ofopen sewer lines and discharge waste directly into the river.
- Cesspools in slums are not maintained and often overflow into open drains.

10. Baseline environment: urban environment and disaster management

The chapter would describe the major sources of pollution in the city. Further, the chapter shall describe the various inherent issues of the urban environment. The detailed overview of the existing water bodies, green cover has been provided. Moreover, the vulnerability of the city has been discussed.

10.1 Pollution level in the city

Siliguri city is the most urbanised city in the district and witnessed huge volume of traffic. Traffic is one of the major contributors to the pollution in the city. Further, the city lacks safe disposal facility of the sewage and municipal solid waste. This is affecting the ground and surface water quality in the city.

10.1.1 Ambient air quality

The major cause for the air pollution is the heavy vehicular traffic movement, especially along the major roads in Siliguri. Hill cart road, Sevoke road, Bidhan road and Bardhaman road are the corridors with more air pollution. The air monitoring data given, shows a high value of SPM near TN Bus stand and SNT Bus Stand, this is due to the fact that the average speed of the vehicles is very low due to frequent congestion and waiting passenger vehicles producing high quantity of hydrocarbons. The SO2 emission values can be attributed to the use of high Sulphur fuel by the industries. Traces of air pollution are also high near the truck terminal along the Vivekananda road and near the Bagdogra market due to heavy vehicular traffic. The Air Quality is as in the Table 67 below

Table 67 : Air quality in SIliguri

Region/Year	SO_2 Emissions ($\mu g/m^3$)	Oxides of Nitrogen Emissions ($\mu g/m^3$)	SPM ($\mu g/m^3$)	RSPM ($\mu g/m^3$)
Siliguri	28	59	47	24
National Standard (CPCB)	90	91	180-360	200

Source: Weste Bengal Pollution Control Board report, 2008

10.1.2 Noise Pollution

Noise is notified as pollutant under the Air (Prevention and Control of Pollution) Act. Although stringent permissible noise level regulation norms have been set by the CPCB, noise levels exceed these limits almost everywhere in the city.

The noise levels, along the heavy vehicular traffic roads such as Hill cart Road, Sevoke Road, Bidhan road and Bardhaman road are significantly higher than the residential and other areas. The areas of high noise pollution significant quantum of high frequency noise is contributed by a large number of rickshaw honking the horns, the sound level ranging between 70 - 80 dBA, in the SMC area. The sound level along the major roads varies between 80 to 90 dBA, whereas in the residential area it is within the recommended limits of 65 dBA. The noise pollution increases by a large amount during the Puja festival due to loudspeakers in the Puja Pandols.

The coming up of industries within SMC area is also a major cause for Pollution.The WBPCB in 2001 has classified Industrial and other establishments in to Red, Orange and Green categories on the basis of the type of industries and the type of pollution they create. Out of total 264 industries 30 % of the total industries are red category industries. It is evident that pollution risks in the CBD area are high because of preponderance of red and orange units in its close vicinity such as Bidhan market, Subashpally and Burdwan Road. The high pollution zone extends north-westward across the Mahananda through Pradhan Nagar and the Champasari area, and also northeastward towards Salugara along Sevoke Road, passing through Wards 44, 43, 41 and 42. All liquid effluents from these extreme ward locations are presently rechanneled by the Mahananda back into the main city and further below it to the Fulbari waterworks from where the city now draws its main water supply.

10.1.3 Water Pollution

Water pollution is one of the major threat to the Siliguri city Mahananda, Jorapani and Fuleshwari rivers are the major water bodies of the Siliguri city and is in degraded state. The status of the DO, BOD and Fecal Colifor is as given in the Table 68 below:

Table 68: DO,BOD and Fecal Colifor Presence in Water

Rivers/Streams	Dissolved Oxygen Mg/L	Bio Chemical Oxygen Demand (30mg/L) At 270 C	Fecal Colifor (M Count Mpn) Desirable =1000 Permissible= 1000
Mahanada	4.2-3.2	10-25	10427
Jorapani	2.25	60	-
Fuleshwari	4.3-3.0	0.9-70	1050

Source: Report on quality of water in Siliguri, 2008

10.1.3.1 Sources of pollution

The sources of pollution of Mahananda River and other major streams in the city are as given below.

- Domestic sewage generated from residential areas, commercial areas, hotels discharging into the river;
- Small scale industries of various types i.e. tea processing and packaging, saw mills, small tanneries, motor repairing shops, etc. generating waste water and discharged into the common drains;
- Solid waste disposed to the river bank and river bed;
- Effluent and solid waste from hospital, nursing home, pathological laboratories and Doctor's private chambers;
- Cattle excreta from the cattle sheds along the Mahananda river bank (Gurung Basti) and discharged into the river through drain from the cattle pound at Bappupar, Salbari and Jyoti Nagar;
- Open burning of dead bodies on the bank of river at Ramghat;
- Open outdoor defecation on river bank and river bed at slum areas along the river and streams ; and
- Soil erosion at upper stretches and bank erosion at stretches passes across Siliguri Municipal Corporation area.

- One of the major causes for the water pollution is the direct discharge of untreated waste effluents to these rivers.

Figure 48: Untreated waste directly discharged into the river.

10.2 Disaster proneness assessment of the City

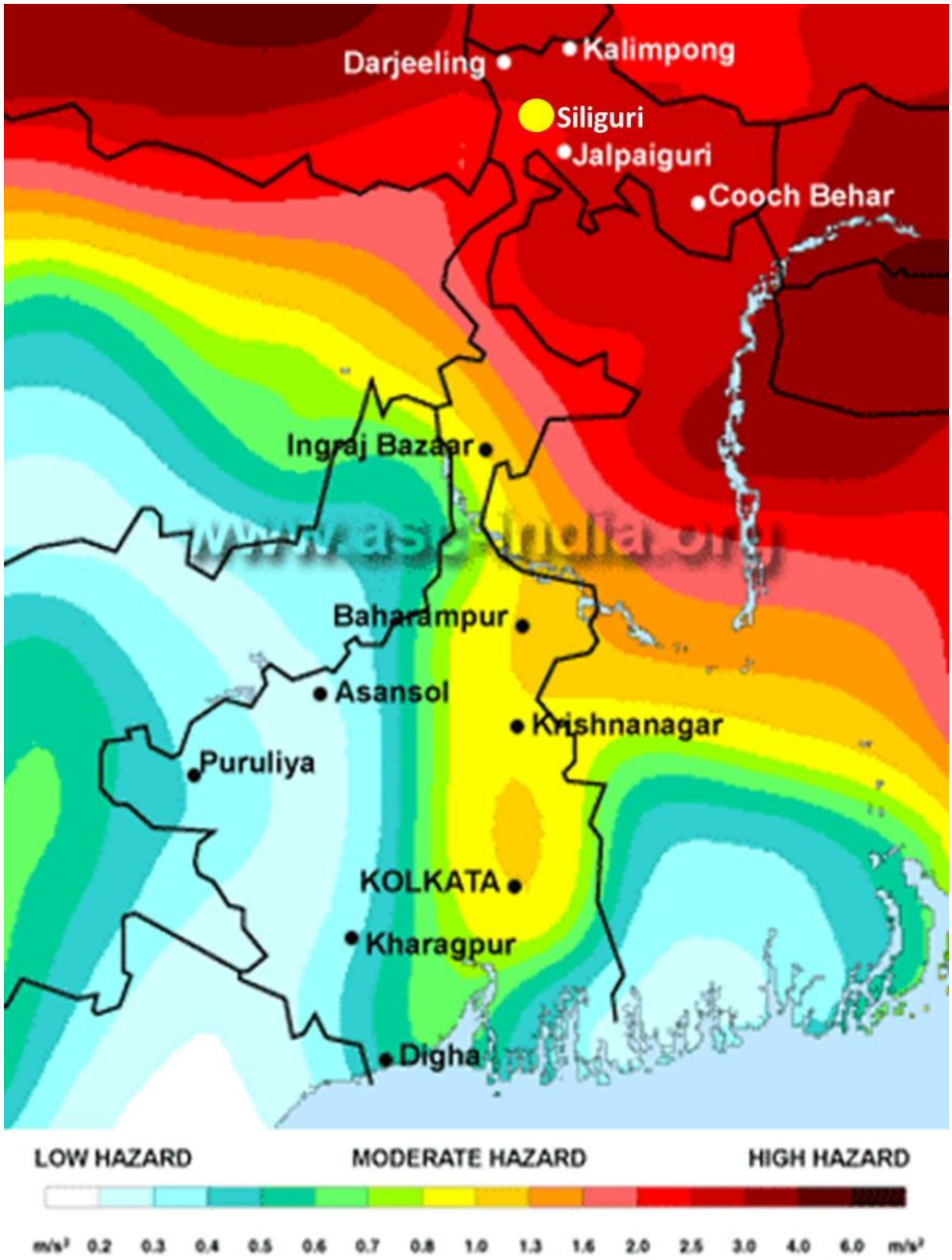
Siliguri falls under seismic zone-IV. It is prone to earthquakes and tremor between 6.5 -7.0 on Rector Scale. This is evident from past events of earthquake and the local perception. The other aspects like epidemics and floods are secondary in the city.

According to Global Seismic Hazard Assessment Programme (GSHAP) data, the state of Siliguri falls in a region of high seismic hazard (seismic zone IV). Historically, this region has experienced seismic activity in the magnitude 4.0-6.0 range.The history of earth quakes in Siliguri has been presented in the table below:

S.No	Date of occurance	Location of epicenter	Description
1	19th November, 1980	Gangtok area, Sikkim	Magnitude 6.1; tremors felt in Siliguri.
2	18th September, 2011	Kanchenjunga Conservation Area, Sikkim	Magnitude 6.1, Siliguri experienced strongest tremors resuting in power outages and human casuality.
3	25th April, 2015	Area between the capital, Kathmandu, and the city of Pokhara	Magnitude 4.9, experience tremors, partial damage to structure and one human casuality reported.

Source: National Disaster Risk Reduction Portal, West Bengal

Figure 49: Seismic zonation map of West Bengal



Source: West Bengal Disaster Management Department, 2014

10.3 Disaster mitigation and management in Siliguri

Disaster Management is a collective term encompassing all aspects of planning for and responding to disaster including both pre and post disaster activities, it may refer to the management of both the risks and consequence of disaster (Ministry of Agriculture, Govt. of India, 2001)

Among the various natural hazards, earthquakes are considered to be the most catastrophic one and reducing its disastrous impact is most difficult due to its unpredictability and its severity. The impact of earthquake hazards becomes more severe in urban areas as compared to rural areas due to population concentration, varying built-up environment and concentrated economies.

Experiences reveal that till now, in India, the efforts to mitigate the disasters relies only on structural and engineering measures. As far as town planning is concerned, till now, its main role is recognized only in the post disaster situation in terms of reconstruction and rehabilitation. Its role in a pre-disaster situation i.e. for disaster mitigation is not realized.

Disaster mitigation measures:

The Disaster Management Act (DMA) 2005 provides the legal and institutional framework for disaster management in India at the national, state and district levels. In like with the DMA – 2005, the West Bengal state government prepared the Disaster Management Plan in 2014 with state and district level measures. The earth quake specific disaster mitigation measures as stipulated in the state disaster management plan have been indicated in the table below:

Table 69: Disaster mitigation measures

Task	Activity	Responsibility
Microzonation	• To undertake micro zonation study according to priority area • To provide or make available seismic micro zonation	• Department of Disaster • Management/West Bengal State Disaster Management Authority (WBSDMA); • Science & Technology Department and IIT Kharagpur
Strengthening of infrastructure	• Construction of missing roads and bridges in cyclone prone years • Strengthening/repair of existing roads and bridges in cyclone prone years. • Strengthening of dams and canals.	• Department of Disaster Management; • Relief Commissioner; • Department of Forest; • Department of Environment; and • Irrigation Department.
Forecasting and Warning	• Strengthening and up gradation of forecasting system • Establishment of dissemination system and infrastructure	• Indian Meteorological Department; • Department of Disaster Management; • Relief Commissioner; • Department of Fishery and • Coast Guard
Capacity Building	• Develop multi-hazard IEC (Information, education and communication)material for Publication & Distribution • Media campaign for • awareness generation in general public • Organize training programmes, seminars and workshops • Include disaster related topics in curriculum • Encourage disaster insurance	• Department of Disaster Management; • Relief Commissioner; • Department of Fire & Emergency Services; • Department of Civil Defense; • Department of Information & Cultural Affairs; • Department of Education; • Department of Finance and Municipality & Urban Development Department.

Task	Activity	Responsibility
	• Encourage favorable taxation / incentive	
Land-use Planning and Zoning regulations	• Legal framework for Land-use planning and zoning regulations to be reviewed. • Zoning regulations to be enforced.	• Departments of Urban Development, Municipal Affairs, Panchayat & Rural development, Disaster Management Urban Development , Municipal Affairs, Panchayat & Rural development, Disaster Management.

Source: West Bengal Disaster Management Plan, 2014

Key issues

- Increasing informal settlement along ecologically sensitive areas such as River fronts of Mahananda, Jorapani and Fuleshwari rivers with inadequate urban basic services including Solid waste lead to water pollution;
- Increasing noise levels and ambient air quality levels within city limits due to presence of polluting industries and vehicular growth; and
- Lack of adequate provisioning in Development Control Regulations for ensuring earthquake resistant buildings.

11. Climate change and sustainable development

For centuries, human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere. The majority of greenhouse gases come from burning fossil fuels to produce energy, heating houses, and transportation purpose. Deforestation, industrial processes, and some agricultural practices also emit gases into the atmosphere. This has led to Climate change which is refers to any significant change in the measures of climate lasting for an extended period of time.[11] In other words, the climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer. Various evident impacts of the ongoing climate change at broad level are as follows;

- Rise in global average temperature near Earth's surface.
- Change in the monsoon pattern.
- Change in the pattern of wind.
- Increase in incidents of natural calamities such as floods, droughts, earthquake, severe heat waves, cyclones, etc.
- Effect on agriculture yields
- Melting of ice and rise in sea level, etc.

The impacts of the climate change are evident from the past incidents around the countries and presents challenges for the societies and environment. Thus, planning to mitigate the impact of climate change and reduce the emission of greenhouse gases is becoming more important for sustenance of our present societies and to save for future generation. This is possible by adopting sustainable and low carbon emission development measures.

11.1 Climate change and cities

As per the International Panel for Climate Change (IPCC) 5th assessment report, the cities across the world, due to their rapid population growth and large-scale developmental and economic investments, are at high risk to the impacts of climate change. Most of the rapid growth will take place in the urban areas of Asia and Africa. In view of this, the cities should focus on developing adaptation capacity towards the climate variability.

India's cities are characterized by high density of population, housing stock, and poor infrastructure, which make them all the more vulnerable to climate change. Given that the most valued infrastructure is usually located in cities, the economic and social costs of climate change will be much higher in cities.

For example, cities house valuable communications infrastructure as they do physical infrastructure such as buildings, roads, bridges, and flyovers. Hence, any climate change impacts in the form of damage will be quite expensive. Climate change impacts the physical assets used within cities for economic production, the costs of raw materials and inputs to economic production, the subsequent costs to businesses, and thus output and competitiveness.

[11] *Definition of Climate change is adapted as described by United states Environmental Protection Agency (EPA). Web link – "http://www.epa.gov/climate change/basics/"*

11.2 Learning from the past

Extreme climate events are expected to become more frequent as a result of climate change. The climate extremes can have devastating effects on human societies. The effects of climate change are expected to have substantial impacts on our human settlements and our development trajectory. Priority health research areas for different risk factors resulting from climate change are presented in the following Table 70.

Table 70: Risk factors

Risk factors	Health effects	Priority focus areas
Temperature, humidity, precipitation	Vector borne diseases	Climate related diseases transmission dynamics, improved surveillance
Precipitation, water Temperature	Water borne diseases	Climate and water related diseases
Local air pollution and stagnant air masses	Air pollution related health effects	Combined effects of climate factors and air pollution, weather related allergens
Extreme heat or cold	Temperature related illness	Improved prediction, warming and response

Source: Climate change and human health, WHO

Also, Climate conditions affect the water availability and quality, the timings and intensity of rainfall can affect the transport of the disease causing organisms into the water supply, particularly in lower income areas and slum pockets.

As per the IRAD[12] Siliguri is prone to hazards like Heavy Rain, cold wave and flash flood and in the vulnerability matrix it marks Siliguri with Landslides too in the natural hazard section.

11.3 Twelfth five year plan and climate change

The Twelfth Five Year Plan of India which analysis the past growth trends and builds the foundation for the upcoming goals that needs to be achieved in various important growth sectors, visualises the impacts of the Climate Change and emphasis on bringing in a sustainable approach in development in various sectors in all the ways possible.

It emphasises that “The Plan must also focus on other priorities such as resource-use efficiency and technology to ensure sustainability of natural resources, adaptation to climate change and improvements in total factor productivity.” [13]

In major challenges and priorities during the Twelfth Five Year Plan it has been mentioned that apart from major challenges like shrinking land base, dwindling water resources, shortage of farm labour and increasing cost of uncertainties associated with volatility in international markets, the adverse impact of Climate Change will be one of the major challenges that nation has to fight with.

Due to the Climate Change the uncertainty in the Farm Income will get broaden up as the last 2 years of the eleventh five year plan has noticed warmest temperature than ever.

[12] Report on Climate Resilient Urban Development: Vulnerability Profiles of 20 Indian Cities.
[13] Twelfth Five Year Plan

It says that "there must be plans to demonstrate site-specific technology packages on farmers' fields for adapting to current climate risks and to enhance the capacity of scientists and other stakeholders in climate resilient agricultural research and its application."

Sectors like livestock, fisheries, horticulture, food grains & oil seeds have to follow up the specific plans and programmes proposed to fight the adverse effects of climate change.

A major new mission that will be launched during the Twelfth Plan is the National Mission for Sustainable Agriculture (NMSA). Conceived originally as part of the National Action Plan on Climate Change (NAPCC), this aims at transforming Indian Agriculture into a climate-resilient production system through adoption and mitigation of appropriate measures in the domains of both crops and animal husbandry.

It also denotes that in order to reduce the climate change impacts India must not only reduce import dependency but also cut short its fossil fuel utilization and should fetch more option in generating power from clean and renewable sources.

The plan adds that the inclusion of favourable technology in E-Governance, E-Learning, E-Security and E-Industries can help us cutting the demand of energy and help India in adding to the adverse effects of climate change.

11.4 National action plan on climate change

On June 30, 2008, the plan identifies eight core "national missions" running through 2017 and directs ministries to submit detailed implementation plans to the Prime Minister's Council on Climate Change by December 2008.

Emphasizing the overriding priority of maintaining high economic growth rates to raise living standards, the plan "identifies measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively." *It says these national measures would be more successful with assistance from developed countries, and pledges that India's per capita greenhouse gas emissions "will at no point exceed that of developed countries even as we pursue our development objectives"* [14]

National Missions

National Solar Mission: National action plan on climate change (NAPCC) aims to promote the development and use of solar energy for power generation and other uses with the ultimate objective of making solar competitive with fossil-based energy options. The plan includes:

- Specific goals for increasing use of solar thermal technologies in urban areas, industry, and commercial establishments;
- A goal of increasing production of photovoltaic to 1000 MW/year; and
- A goal of deploying at least 1000 MW of solar thermal power generation. Other objectives include the establishment of a solar research centre, increased international collaboration on technology development, strengthening of domestic manufacturing capacity, and increased government funding and international support.

National Mission for Enhanced Energy Efficiency: Current initiatives are expected to yield savings of 10,000 MW by 2012. Building on the Energy Conservation Act 2001, the plan recommends:

[14] *National Action Plan for Climate Change Document.*

- Mandating specific energy consumption decreases in large energy-consuming industries, with a system for companies to trade energy-savings certificates;
- Energy incentives, including reduced taxes on energy-efficient appliances; and
- Financing for public-private partnerships to reduce energy consumption through demand-side management programs in the municipal, buildings and agricultural sectors.

National Mission on Sustainable Habitat: To promote energy efficiency as a core component of urban planning, the plan calls for:

- Extending the existing Energy Conservation Building Code;
- A greater emphasis on urban waste management and recycling, including power production from waste;
- Strengthening the enforcement of automotive fuel economy standards and using pricing measures to encourage the purchase of efficient vehicles; and
- Incentives for the use of public transportation.

National Water Mission: With water scarcity projected to worsen as a result of climate change, the plan sets a goal of a 20% improvement in water use efficiency through pricing and other measures.

National Mission for Sustaining the Himalayan Ecosystem: The plan aims to conserve biodiversity, forest cover, and other ecological values in the Himalayan region, where glaciers that are a major source of India's water supply are projected to recede as a result of global warming.

National Mission for a "Green India": Goals include the afforestation of 6 million hectares of degraded forest lands and expanding forest cover from 23% to 33% of India's territory.

National Mission for Sustainable Agriculture: The plan aims to support climate adaptation in agriculture through the development of climate-resilient crops, expansion of weather insurance mechanisms, and agricultural practices.

National Mission on Strategic Knowledge for Climate Change: To gain a better understanding of climate science, impacts and challenges, the plan envisions a new Climate Science Research Fund, improved climate modelling, and increased international collaboration. It also encourage private sector initiatives to develop adaptation and mitigation technologies through venture capital funds.

Other Programs

- The NAPCC also describes other on-going initiatives, including:
- Power Generation: The government is mandating the retirement of inefficient coal-fired power plants and supporting the research and development of IGCC and supercritical technologies.
- Renewable Energy: Under the Electricity Act 2003 and the National Tariff Policy 2006, the central and the state electricity regulatory commissions must purchase a certain percentage of grid-based power from renewable sources.
- Energy Efficiency: Under the Energy Conservation Act 2001, large energy-consuming industries are required to undertake energy audits and an energy labeling program for appliances has been introduced.

Implementation

Ministries with lead responsibility for each of the missions are directed to develop objectives, implementation strategies, timelines, and monitoring and evaluation criteria, to be submitted to the Prime Minister's Council on Climate Change. The Council will also be responsible for periodically reviewing and reporting on each mission's progress. To be able to quantify progress, appropriate indicators and methodologies will be developed to assess both avoided emissions and adaptation benefits.

11.5 Urban heat island analysis for Siliguri

The urban heat island (UHI) is a phenomenon due to which the pattern of temperatures is higher in urban areas than in the surrounding areas. The major concern related to the UHI is air pollution. Higher temperatures increase ozone (O_3) pollution, because elevated temperatures can trigger the chemical reactions that form ozone.

As per the existing land cover analysis of SMC, 74% of land is under developed area and 26% of land is under undeveloped area (green cover and water bodies) in the core city. Similarly, 37% of land is under developed area and 63% of land is under undeveloped area in the newly merged areas.

Although a detailed study on micro temperatures has not been carried out, broadly, the central Siliguri area experiences relatively more temperature due to high dense developments. This is followed by medium dense zone with water bodies and green cover. The peripheral areas have low density and experience relatively lesser temperatures.

11.6 Siliguri's climate change resilience

Siliguri has a strong physical resilience in terms of good connectivity of roads and availability of water and electricity. Social resilience can be measured in terms of the availability of the health and educational services. Economic resilience is analyzed on the basics of the employment pattern and affordability of the citizens.

Figure 50: Siliguri Climate Resilience

Parameter	Raking	Description
Physical resilience	Low	▪ Except for parts of Old Siliguri, urban slum pockets and newly merged areas, the city has good connectivity with other towns as well. ▪ Siliguri city lacks a good public transport system as a result the Para transit modes are used by public on the shared basics. ▪ All the citizens have access to the electricity which is available for the most part of the day. However, break up for emergency services is not made. ▪ Due to the horizontal growth pattern of the city, the city is growing in a linear pattern. This could be a drawback as the important agricultural and forest land gets engulfed in this process. ▪ Hygienic conditions provided to most of the citizens ▪ Fair solid waste collection system with about half of the waste collected. City needs to revive in terms of door to door collection system and segregation at source. ▪ Various parts of the city are vulnerable to the natural disaster like the Flood and Land Slides.
Social resilience	Medium	▪ The city has fairly good literacy rate of 74% which is almost equal to the national's average. ▪ 36% of the city's population is living in urban slums. ▪ In whole district there are total 200 various medical facility centers are available.

Parameter	Raking	Description
Economic resilience	Medium	▪ 56% of the population is engaged in tertiary sector activities. ▪ Job opportunities have grown. This is attracting the population of the educated class in the city. ▪ The presence of water throughout the year makes it a fairly good area for crops production.
Institutional resilience	Low	▪ The disaster management policies are made at state and district level. ▪ ULB is dependent on external support in times of disaster for mitigating the impact post event. ▪ Further, the city lacks contingency planning framework for unforeseen events.
Natural Resilience	Low	▪ Natural hazards like floods, flash floods, landslides etc are occasional. ▪ State Policy to Mitigate the Climatic Changes and its ill effects has been built as West Bengal Action Plan for Climate Change. ▪ ULB lacks a Disaster Management Cell.

Source: CRIS

11.7 Recommended adaptation strategies

- The City lacks a good Public Transport System which acts as a backbone for the Sustainable Development Strategies for any city. Due to the lack of good and efficient Public Transport System the dependency on private modes increases which can be very dangerous as the city has limited available road space. Hence an efficient public transport system should be installed in the city.
- Being a tourist city and economic centre of the region, there are many autos and taxis plying in the city. So introduction of CNG would reduce the carbon emissions.
- Internalize climate change and disaster management in the strategies and processes of resource and asset management and their maintenance, and in general development planning in order that these may become sustainable, equitable and inclusive.
- Conservation and protection of resources like air, land, water, forests, energy and biodiversity, combined with a planned shift to a low or no-carbon economy; maximize uses of renewables for energy production and improving of energy efficiencies at all levels - generation, transmission, distribution and end uses.
- Capacity building for meeting new challenges of climate change and disasters which would, among other things, imply training of manpower (governmental and non- governmental), launching broad-based awareness programmes, sensitizing all sections of people including students, taking on board communities, institutions, youth groups, women, voluntary organizations and media, and raising both preparedness and response levels.
- The city must incorporate the National Action Plan on Climate Change (NAPCC) in its development strategies.
- Stress should be given on energy conservation in building construction industries and for governmental and Hotel buildings so that the energy could be saved.
- Climate resilient agriculture should be followed to deviate the harmful effects of the climate change.

12. Cultural resources, heritage and tourism

Cultural resources mean historic and cultural significance of the city. The cultural resources include the tangible heritage in terms of built environment including the monuments, public buildings, and historic areas, and open spaces of social, ecological, and historical importance. Integrated tourism and culture development would benefit the local economy as well. The chapter presents an overview of the built heritage, fairs and festivals, and tourism scenario in the city.

12.1 Historical importance of the city

Siliguri is described as the gateway to the North East of India. The strategic location of the city makes it a base for essential supplies to the region. Siliguri has gradually developed as a profitable centre for a variety of businesses. As a central hub, many national companies and organizations have set up their offices in Siliguri. 4 "T" s – tea, timber, tourism, and transport – are the main businesses of Siliguri.

The original village of Siliguri was to the south of Saktigarh Colony. The area is under Jalpaiguri district and Rajganj police station. Much more important was Phansidawa bandor (port). The government activity was mostly conducted from the area where the Haskhoa Tea Estate is located now.

The Siliguri settlement started initially with the tea plantation and a junction station to change over to the Toy train for Darjeeling on 14th July 1881. It was in the year 1878 that Mr Franklin Prestage (at that time Agent of the Eastern Bengal Railway Company) put up a proposal with a detailed scheme to the Government of Bengal for laying a train line from Siliguri to Darjeeling. Sir Ashley Eden, the Lieutenant Governor, appointed a committee to examine the project. This committee reported that the project was feasible and would be of great advantage to the government and public and was accepted in 1879.

The construction started that very year, and by 1880, the railway line had reached Tindharia. Later that year, the line was completed until Kurseong. By July 1881, it was opened for traffic right through to Darjeeling. The name given to the railway line was "Darjeeling Himalayan Railway Company."

The area was covered with deep forests, inhabited by tiger, leopard, elephant, deer, reptiles, and birds. The names of the places like Bagdogra, Hatighisha in the region are the testimony of the same.

12.2 Existing tourist locations

Tourism industry of Siliguri is flourishing day by day. Darjeeling, the "Queen of Hill Stations," receives a large number of domestic and foreign tourists. The tourists going to Sikkim also pass through Siliguri, and this is an important component of the local economy. In the coming years, tourism is expected to further contribute to Siliguri's development.

Siliguri's greatest power is the beauty of its nature. The town is surrounded by natural resources – river, hills, and forests – which enhance the scenic beauty of the town. Apart from that the city has surrounded with few tourist attractions including Coronation bridge, Mahananda wildlife sanctuary, ISKCON temple, Hong Kong market, etc. Some of the tourist destinations in and around Siliguri are:

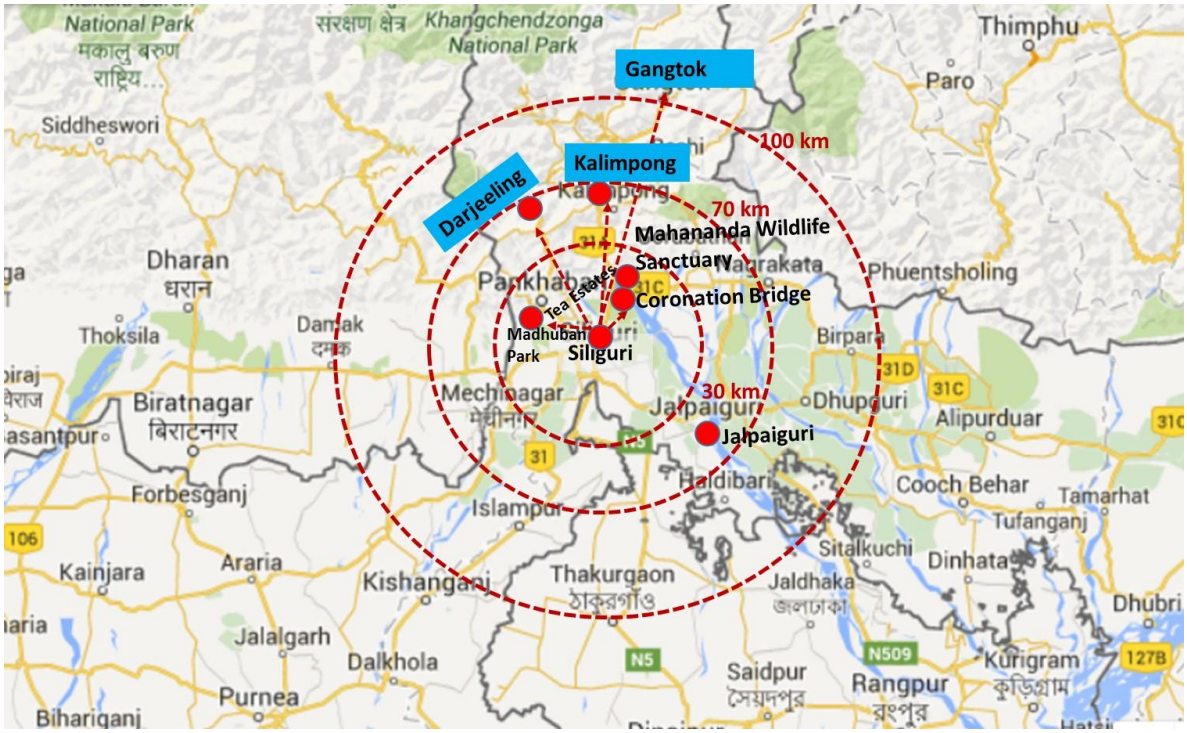
12.2.1 Coronation bridge

Coronation Bridge was constructed in 1930. Coronation Bridge is still considered among the best architectural wonders in the country. The bridge was built by the British to link West Bengal to North East India. The bridge is built over the River Teesta and extends from Salugara till Kalihora. The bridge is located about 20 km from Siliguri and gives us magnificent views of the River Teesta below and high green mountains on both sides.

Figure 51: Coronation Bridge

Source: CRIS, 2015

Figure 52: Tourist locations nearby Siliguri



Source: Google (Image) and CRIS analysis

12.2.2 Madhuban Park

Madhuban Park is located northern outskirts of the city of Siliguri. The park is about 10 km from the town center, and on the road that leads to the hill station of Darjeeling. The park hosts animals such as rabbits, deer and peacocks.

Figure 53: Madhuban Park

12.2.3 Mahananda wild life reserve

Mahananda Wildlife Sanctuary is located in the Darjeeling district of West Bengal, India. It comes under the Darjeeling Wildlife division and can be reached from Siliguri in 30 minutes. Sukna, the gateway to the sanctuary, is only 13 km from Siliguri and 28 km from the Bagdogra airport. The sanctuary is spread over an area of 159 sq.km of reserve forest and was started as a game sanctuary in 1955. In 1959, it was given the status of a sanctuary to protect the Indian bison and royal Bengal tiger, which were facing the threat of extinction.

12.2.4 Kali Mandir

Kali Mandir of Siliguri is a prominent temple for Hindus, which is located near Sevoke. The temple is said to be the abode of Goddess Kali. The temple is visited not only by the locals but also by pilgrims from adjacent areas as well. However, it is most famous among newlyweds, who come here to attain blessings of Goddess Kali for happy married life.

12.2.5 ISKCON Temple

The International Society for Krishna Consciousness temple, more popularly known as ISKCON Temple, is one of the important places of interest in Siliguri. Located at Gital Para, ISKCON Temple Road, the temple is characterized by purity, calmness, and magnificent beauty. Also known as Hare Krishna Movement, ISKCON temple in the city is the biggest Krishna centre in the whole of the Northeast India. Completely dedicated to Lord Krishna, the temple attracts thousands of devotees from all over the country. An embodiment of peace and beauty, the temple enshrines Radha Madhav idol and an image of Lord Krishna with Radha.

Figure 54: ISKCON Temple, Siliguri

12.2.6 Salugara Monastery

The Great International Tashi Gomang Stupa in Salugara Monastery is about 6 km from Siliguri, West Bengal, India. It comprises a one hundred foot stupa, which was founded by Kalu Rinpoche, a Tibetan Lama. It contains five types of artefacts, and is maintained by the Drodon Kunchab Chodey Buddhist Association.

12.2.7 Mirik

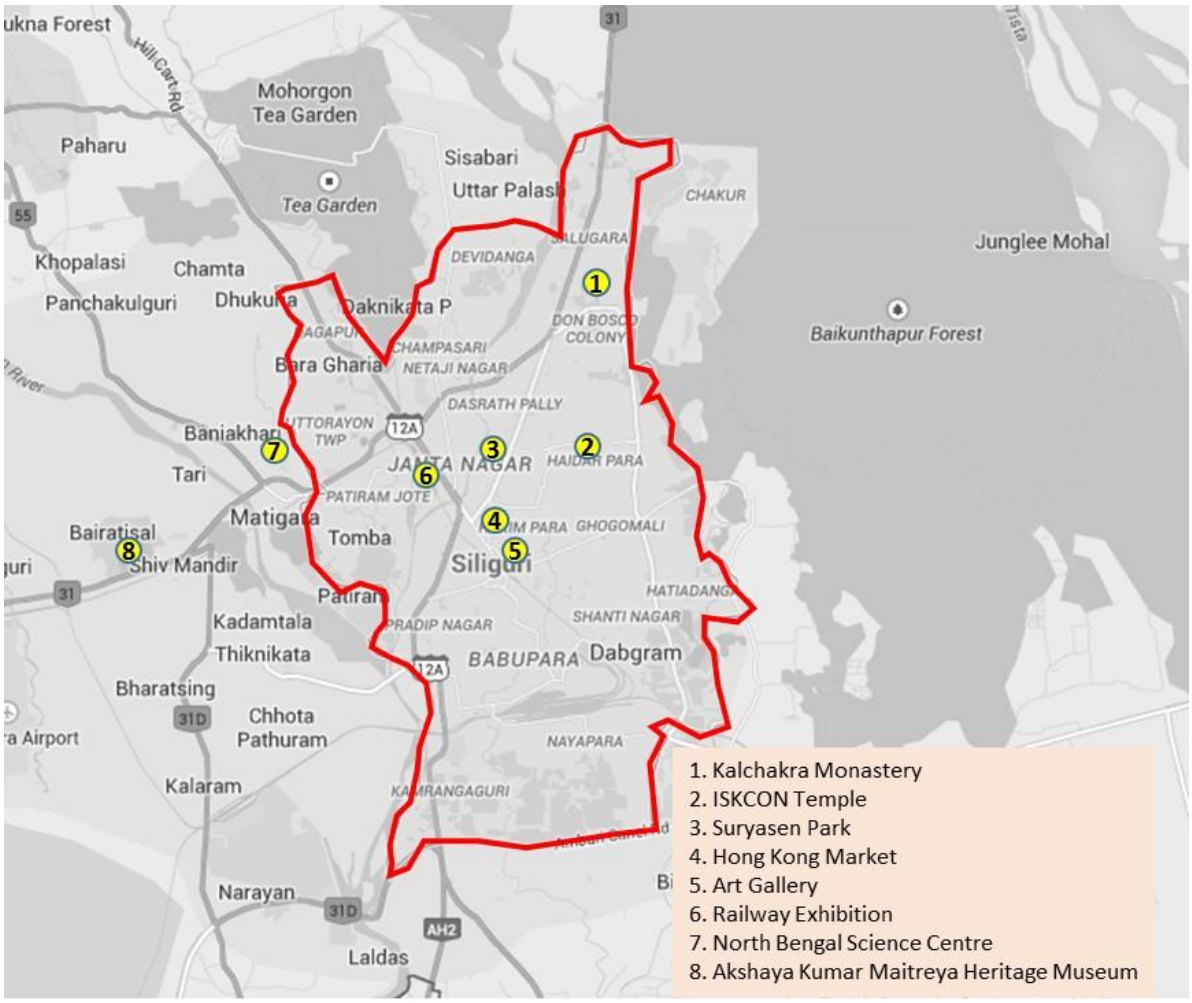
Mirik is a scenic hill station, which has in the recent years, has become a known destination in West Bengal. Mirik is located about 55 Km from Siliguri. The main attraction of this charming hill station is a centrally located natural lake called Sumendu Lake. Tourists can indulge in boating and fishing in the lake, which is about 1 km long. While boating, the tourists can enjoy the views of wonderful green hills that surround the lake from all sides. Mirik is an important pilgrimage destination with the honoured Hindu temple of Sangla Devi on the western side of the lake. This hill station is dotted with many apple orchards and tea gardens.

12.2.8 Surya Sen Park

The Surya Sen Park is a park in Mahakal Pally, Siliguri. The park is positioned in the midst of well-laid green lawns and beautiful fountains. During evening and night, colourful lights all along the park grab

attention. Besides, a statue of the renowned freedom fighter, Surya Sen is erected in the middle of the park, after whom the park is named. The park also provides awareness about alternative energy sources to the visitors with the help of an exhibition.

Figure 55: Local attractions in and around Siliguri city



Source: Google (Image), CRIS

12.2.9 Bidhan and Hong Kong Market

Bidhan market is in the heart of the Siliguri city bounded by Bidhan road, Savok road, and Hillcart road. Daily market, new market, and Hong Kong market are located within the Bidhan market. Hong Kong market holds importance for local people as well as for the tourists who visit the city for its cheaper foreign goods. The total number of shops in the market is 550. These shops sell foreign goods like electronics, cosmetics, and clothes and give employment to 1,375 persons. Hong Kong Market, on Hill Cart Road, deals especially in imported goods, which are brought usually from the Chinese market as well as from places like Nepal and Thailand.

12.3 Eco-Tourism around Siliguri

The state government planning to set up an eco-tourism board to project the state as a major tourist destination. As part of the proposal, few eco-tourism spots have been identified around Siliguri region.

Sylee, situated around 62 km from Siliguri, is adjacent to Sylee tea garden and surrounded by hills, a river and greenery, making it an excellent tourist spot. Activities like trekking, bird watching and jungle safari can be an added attraction for the tourists.

At Kunjanagar, around 105 km from Siliguri and close to the Jaldapara wildlife sanctuary, visitors can get a panoramic view of the area's natural beauty.

12.4 Tourist arrival

Tourism is an important economic activity of hill areas of Darjeeling District generating incomes and employment for the local population. Darjeeling receives around 3.5 lakhs domestic tourists[15] and 50,000 foreign tourists per year that generates near 30% of total tourism business of the region worth around Rs 350 crore per annum.

Darjeeling district is famous for its beautiful Tea Gardens spread far and wide having immense potential for tourism. The concept of 'Tea Tourism' should be explored for tourism purposes

12.5 Fairs and Festivals

Durga puja in Siliguri is the main festival, the celebration of which is done with great enthusiasm and excitement all over the city, which falls in the month of September-October. This festival is held for about 4-5 days during which a lot of attraction is towards the idols of Goddess Durga. The Baishaki Mela in Siliguri is among the melas held since a long time. During the winter seasons, fashion shows lasting for a week are held. Musical shows and concerts are common from mid-October to mid-December which local clubs organize.

12.6 Key Issues relating to Heritage and Tourism

Several complexities are associated with conservation of heritage structures in Siliguri. Based on field studies, public consultations and discussions, the following issues have been identified:

- Untapped tourism potential: More than 90% tourists visit Siliguri for recreation. Siliguri has untapped tourism potential in the sectors of ecotourism, cultural tourism, health tourism and adventure tourism;
- Lack of initiatives for high-end tourism**:** The tourism infrastructure in Siliguri is addressed largely to middle and lower income groups which is justified. As Siliguri is also emerging as a destination for cultural, nature and adventure tourism and with the new tourism policy of GoWB, there is a need to develop accommodation facilities for high-end tourists;
- Lack of private sector investment**:** Although there has been a steep rise in the number of hotels and other public facilities in the last two decades, there is an immense scope for undertaking projects with PPP to develop accommodation facilities, especially high-end tourism facilities, specialized transport facilities during fairs, sanitation facilities, etc.;
- Lack of adequate sanitation facilities**:** The system needs to be upgraded to support a sudden increase in pilgrims during special occasions. Siliguri requires more public toilets and effective mechanisms for waste collection and disposal;
- Lack of public interface to guide the tourists**:** There is no central authorized information centre that can provide information on various tourist attractions and facilities to the tourists. Also, such a centre could be entrusted with the responsibility of registration of tourists, thus providing for an authentic database on the number of tourists.

[15] *Darjeeling District Information Sheet, 2013*

13. Assessment of institutions, systems and capacities

This chapter would briefly elaborate on the urban governance status in SMC, role of SMC and parastatals in service delivery, status of human resources along with the trainings and requirements, and key issues in the urban governance.

13.1 Existing Status

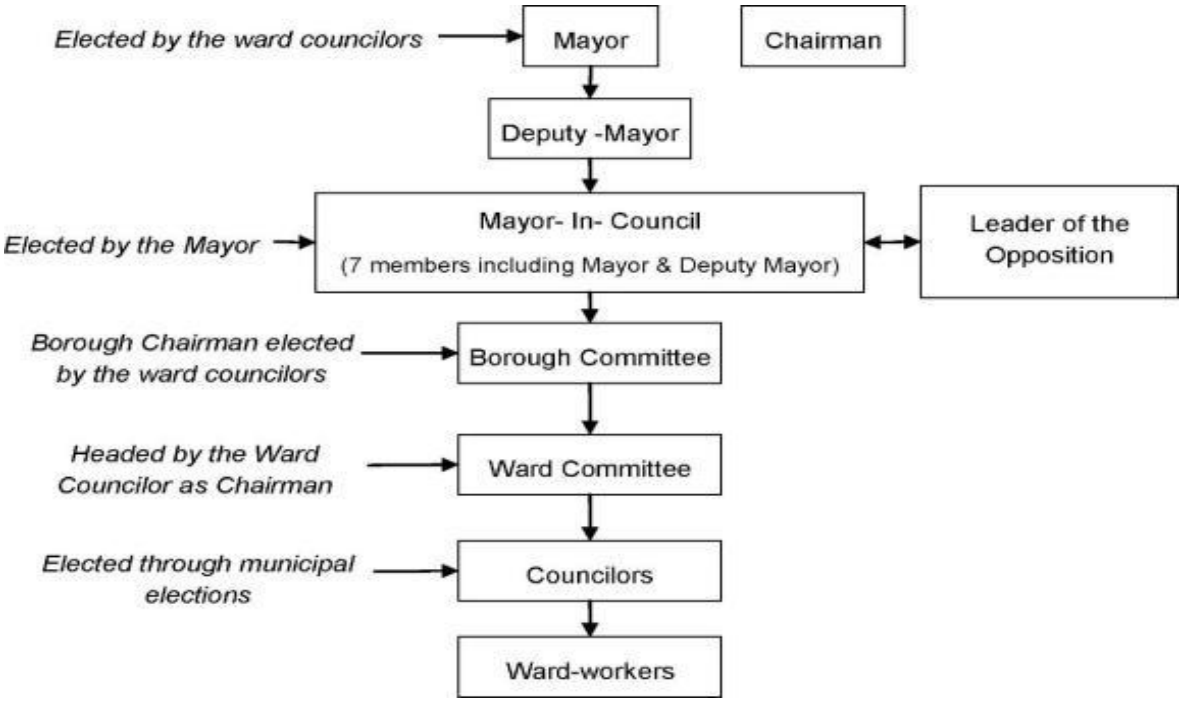
The Siliguri Municipality was established in 1949. Till 1994 Siliguri Municipality had 30 wards under it. After the declaration of Siliguri Municipal Corporation in 1994, 17 new wards are added under its Jurisdiction. Siliguri is a unique city as 14 out of 47 wards of Siliguri Municipal Corporation falls in neighboring Jalpaiguri district.

Siliguri Municipal Corporation follows the West Bengal Municipal Corporation (Amendment) Act 2009 for the functioning of the corporation.

As per the West Bengal Municipal Corporation (Amendment) Act 2009, the municipal authority consists of the Corporation, the Mayor-In-Council (MIC) and the Mayor. The elected wing governs the planning of the area, whereas the administrative wing is responsible for implementation of the plans.

Unlike other ULBs in the country, in West Bengal, the administrative wing in the state is governed by the elected wing of the corporation. As per Section 10 (1) of the Act, the Board of Councilors, selected by the Mayor from the elected members, are charged with the authority of the Municipal Government of the Corporation. The political structure of the corporation is given below:

Figure 56: Political Wing of SMC



Source: SMC

As per the West Bengal Municipal Corporation (Amendment) Act 2009, a group of wards are administered by the Borough Committee. Each borough consists of minimum 6 contiguous wards. The chairman of the borough is elected by the ward councilors, of the wards under that borough. The borough governs the civic services to their respective wards. In Siliguri Municipal Corporation, 47 wards are divided in to 5 Borough as follows:

Table 71: Borough-wise ward distribution details

BOROUGH	WARDS	TOTAL
NO. – I	1, 2, 3 ,4, 5, 45, 46, 47	08 WARDS
NO. – II	6, 7, 8, 9, 10, 11, 12, 13, 14, 15	10 WARDS
NO. – III	16, 17, 18, 19, 20, 21, 22, 23, 24, 28	10 WARDS
NO. – IV	25, 26, 27, 29, 30, 31, 32, 33, 34,35	10 W ARDS
NO. – V	36, 37, 38, 39, 40, 41, 42, 43, 44	09 WARDS

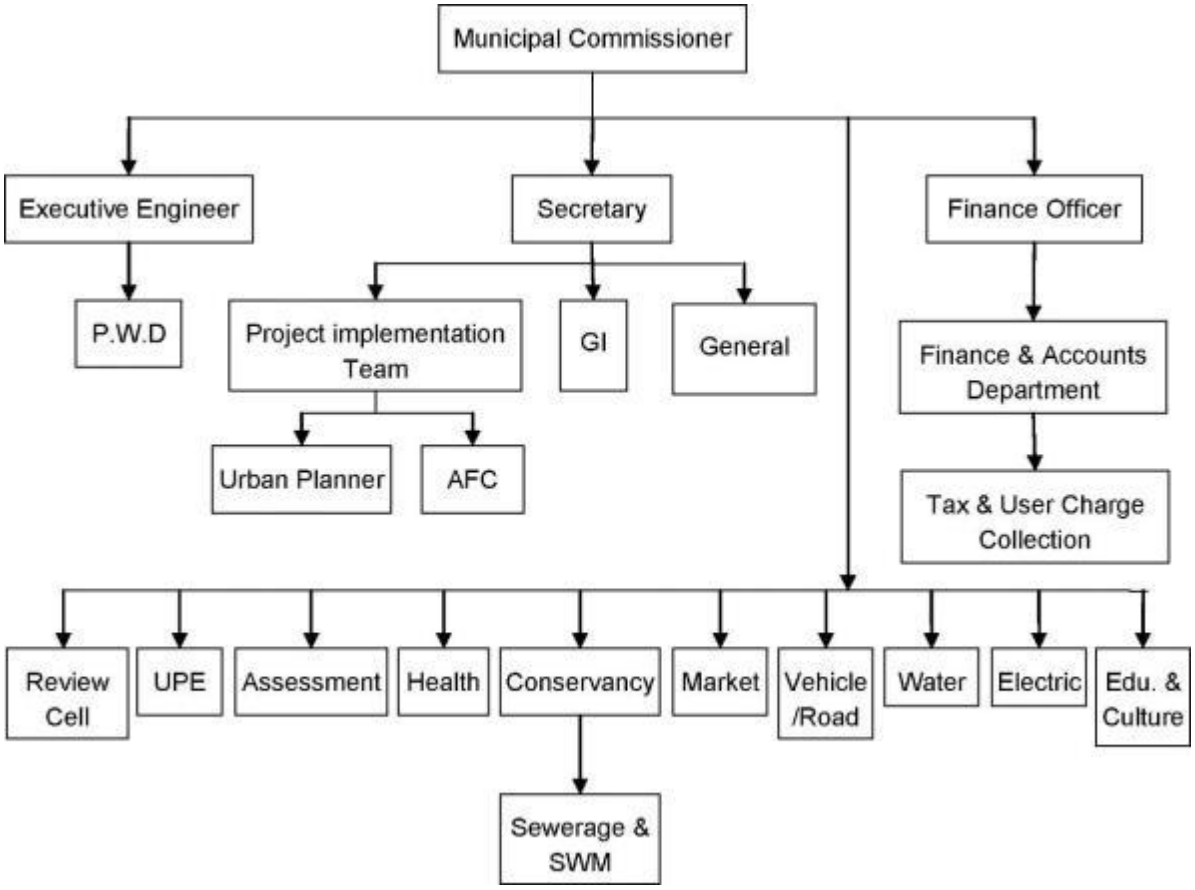
Source: SMC

Each ward is further governed by the ward committees, with the ward councilor as the Chairman of the committee. Other than the above mentioned committee, functioning of the corporation is also supervised by the Leader of Opposition, Municipal Accounts Committee and Standing Committees. Each ward councilors can be member of maximum two standing committees. The following Standing Committees has been proposed in the Act 2009:

a) Finance & resource Mobilization Standing Committee
b) Solid Waste Management Standing Committee
c) Water Supply, Public Health and Sanitation Standing Committee
d) Public Works Standing Committee
e) Health Education and Urban Poverty Alleviation Standing Committee

The Municipal Commissioner acts as the principal Executive officer of the corporation under the supervision of the Mayor. The administrative wing of the corporation is given below:

Figure 57: Administrative Wing of SMC



Source: SMC

13.2 Functions of ULB

The 18 functionaries listed under 12th Schedule of the 74th CAA and the responsible authority structure is described below:

Table 72: Functions of Different Authorities

S. No	Functionary	Authority
1	Urban Planning including town planning	Town Planning Cell, SMC
2	Regulation of land-use and construction of buildings	Building Department, SMC
3	Planning for economic and social development	SMC
4	Roads and Bridges	PWD & SJDA
5	Water supply- domestic, industrial and commercial	City Water Supply Department, SMC
6	Public health, sanitation, conservancy and SWM	Conservancy Environment SMC
7	Fire Services	Conservancy Environment SMC (Partly)

S. No	Functionary	Authority
8	Urban Forestry, protection of environment and ecology	Conservancy Environment SMC (Partly)
9	Safeguarding the interests of weaker sections society including the handicaps and mentally retarded	UPE Cell, SMC
10	Slum improvement and up gradation	UPE Cell, SMC
11	Urban Poverty alleviation	UPE Cell, SMC
12	Provision of urban amenities and facilities- Parks, gardens and playgrounds	PWD
13	Promotion of cultural, educational and esthetic aspects	Education & Culture, SMC
14	Burials and Burial Grounds, cremations and cremation grounds and electric crematoriums	Not Available
15	Cattle pounds, prevention of cruelty to animals	Not available
16	Vital statistics including registration of birth and deaths	Birth & Death, SMC
17	Public amenities including street lighting, parking lots, bus stops and public conveyances	Electricity Department, PWD
18	Regulation of slaughter houses and tanneries	Not available

Source: SMC

13.3 Assessment of Human Resource

As per the Draft Development Plan prepared by SMC, there are 622 staffs working against 685 posts sanctioned for the SMC.

Table 73: Detailed Sanctioned cadre in SMC

Department	Total No. of Staff	Designation	Responsibility
General Administration	**108**	P. A to Mayor, Head Clerk, Addl. Head Clerk, P. A. to Commissioner, OSD (Legal), Clerk, Clerk-cum-Typist, Urban Planner, IT coordinator, Store Keeper, Guard, Care-Taker, Law Assistant, Daftari & peon, Attendant	Various general administration work of SMC. Guest House, Store & Staff welfare, Pension etc.
Finance & Accounts Dept.	**8**	Finance Officer (Deputed by the State Govt.), Finance & Accounts coordinator, Accountant, Cashier, Dy. Accountant, Sr. Clerk, Clerk & Peon	All kind of receipt & payments, salary disbursement and Cash book entry through the double entry system

Department	Total No. of Staff	Designation	Responsibility
Assessment Dept.	**3**	Assessment In-Charge, Assessor & Asst. Assessment Inspector	New holding numbers, interim assessment and assess the annual valuation for the property tax through the central valuation board etc.
Collection	**16**	Tax Collector In-Charge, Astt. Tax Collector & Collecting Sarkar	Collection of Property Tax
Conservancy & Sanitary	**334**	Sanitary Inspector, Conservancy Inspector, Asst. Conservancy Inspector, Mate, Ward Supervisor & Sweeper, Driver	Various sanitation, conservancy work & sweeping work in the municipal area
Health	**3**	Doctor (Appointed by the State Govt.), Vaccinator, Health Assistant & Health worker, Driver	to act in the Matri Sadan Health centre and other health centre in the slum area & performing the immunization work
License	**2**	License Inspector, Asst. License Inspector	Issue of Trade License (Provisional Certificate)
Light	**13**	SAE (Elec), Electrician, Light Sarkar, Electric Helper & peon	Maintenance of Street Light, All municipal Buildings and electrical work of Rabindra Mancha & Park and Gardens in the SMC area and maintenance of Electric Crematorium
Market	**3**	Superintendent of Market, Guard, Peon	Toll fees collection of all municipal markets.
PWD	**98**	Exe. Engineer (Govt. Deputed), Asst. Engineer, SAE (civil), Surveyor, Work Supervisor, Work Assistant, Driver, Mazdoor & Labourer	Construction and maintenance work of Roads, Drains, Buildings, demolish the illegal construction and passed the residential & commercial plans in the municipal area. & various project work
Vehicles	**18**	SAE (Mech), Driver, Cleaner, Peon	Maintenance of all kind of departmental vehicles
Urban Poverty Elevation cell	**16**	Community Organiser, TPO	Various project work in the slam area & Urban area under the SMC
Total	**622**		

Source: Administration and Establishment Department, SMC

The corporation lacks technical staffs, especially in departments such as water supply conservancy-sewerage and solid waste management department. It has also been observed during discussion with ULB officials that the level of coordination between zonal and main office needs to be strengthened. The collection of taxes and user charges are administers under the Finance and Accounts section. The concerned departments responsible for civic service delivery are unaware of the revenue collections and available funds for the development works.

13.4 Role and Responsibility of Various Institutions

In accordance with the provisions of 74th CAA, GoWB has transferred limited functions to SMC. Functions like urban planning have been partially transferred to SMC. In terms of urban planning, preparation of master and land use plans responsibility with SJDA, whereas SMC's role is limited to the implementation of the plans and regulation of the building plan approvals within its jurisdiction. Further, in certain areas/functions, the state government has considerable role in delivery of the services. Following sections outline the key functions, roles, and responsibilities of SMC and other agencies.

SMC

- Providing the key services such as water supply, sewerage, sanitation, SWM, storm water drainage, roads, street lighting, housing for the poor, health and education, birth and death registrations, parking facilities, and the basic services for the urban poor people within the SMC limits
- Planning, designing, construction of basic services are with SMC, however, the operation and maintenance of key services with PHED;
- Enforcing the plans and regulating development activities as per the state byelaws;
- Levying and collecting various taxes, charges, and fees as per the applicable municipal corporation act;
- Receiving grants from state and central governments to implement various projects in SMC limits;
- Disclosing the status of the services and various activities as per the applicable public disclosure law;

SJDA:

- Preparation of master plans, perspective plans, and land use plans for the SJDA region;
- Framing polices and plans for sustainable development in the region;
- Post preparation of the plans, the plans would be handed over to SMC for enforcement as per the applicable state building rules

Table 74: Functional mapping for urban services

S. No.	Key Infrastructure Services	Planning and design	Construction/ Implementation	O&M
1	Water Supply	SMC	SMC	PHED
2	Sewerage	SMC	SMC	PHED
3	Storm Water Drains	SMC	SMC	PHED
4	Solid Waste Management	SMC	SMC	SMC
5	Urban Transport –Bus Service	NBSTC	NBSTC	NBSTC
6	Street Lighting	SMC	SMC	SMC
7	Preparation of Master Plan/ Development Plan	SJDA	SJDA	SJDA
8	Housing for Urban Poor	SMC (UPE)	SMC(UPE)	SMC (UPE)

Source: SMC and SJDA

13.5 Training & Capacity Building

SMC has not conducted any training & capacity building program for the officials except basic training on computer operations for General Administration and Finance & Accounts Departments. Most of the officials lack knowledge and hence interest in performing the assigned roles. The officials are also unaware of the government schemes and missions launched for the development of the urban areas.

It was also observed that majority of the officials are reluctant to use the computers for data management and day to day work. Though basic computer operation training was conducted for senior and middle cadre staffs by SIT, the effectiveness of the training is insignificant.

The corporation should also take initiative to mandate the use of computers and also ensure the availability of computers to the officials for use.

The corporation should take initiatives to conduct training programs to improve the skills, knowledge and exposure for the staffs, required to perform the assigned responsibilities.

13.6 Status of e-Governance

SMC has initiated the process of implementation of e-governance. The E-governance project in SMC is monitored by CMU- KUSP, funded by DIFD. Presently on Birth & Death and Trade License has been implemented. A person has been deputed under the corporation for proving the hand-holding required for the implementation of e-governance.

13.7 Key issues

- SMC has not conducted any training & Capacity Building program for the officials except basic training on computer operations for General Administration and Finance & Accounts Departments.
- The town planning functions have not been transferred to SMC in totality. SMC has limited role in preparation of master plan and limited role in the approval of building plans; some of the plans have to be referred to SJDA for approval which is resulting in delays in approval process.
- Most of the officials lack knowledge and hence interest in performing the assigned roles.
- The officials are also unaware of the government schemes and missions launched for the development of the urban areas.
- Lack of technically qualified staff across all the departments
- No robust system to update the database of employees.

14. Municipal Financial Management

Financial management and accounts are the principal functions of the accounts department headed by the examiner of accounts. The accounts section also monitors grants and state government transfers and devolution, and manages debt servicing, provident fund accounts, pensions, salaries, advances, etc.

Budgeting is an annual process at SMC. The process of preparation of budget is initiated in the month of November every financial year. The heads of all sections/departments primarily submit all the receipts and expenditures of the section along with a tentative budget for each of the sections to the accounts department.

The examiner of accounts then works on these estimates so that the total of all the receipts match the payments. The department-wise budget is consolidated and compiled into a single budget for SMC by the accounts department and placed before the Commissioner for discussion and approval.

Since there was no council in place. Hence, the budget was submitted to the special officer (who is appointed by the state government) for approval. Post approval of the budget by the special officer, the budget would be forwarded to the state government for approval and consideration. If the council is in place, the budget would be discussed at standing committee and then general body. Accordingly, the budget would be approved and further forwarded to the state government for approval and consideration. SMC is not following the budget schedule given by the state government for the preparation and submission of the budget as per the applicable act since the past three years.

14.1 Existing Status – Financial Management

Financial Planning: The financial planning for the corporation is done by the finance & accounts department. As per the West Bengal Municipal Corporation (Amendment) Act 2009, municipal accounts committee is formed annually. The committee is headed by the member of opposition in the Corporation as Chairman. The other members (minimum 3 and maximum 5 members) are selected by the Board of Councilors from amongst themselves. Maximum 2 officials or employees of the corporation, selected by the Board of Council are also a member of this committee. It is the responsibility of the Municipal Accounts Committee to supervise the accounting and its mechanism of the corporation.

The corporation prepares the annual budget estimate based on the income and expenditure incurred by the corporation. The budgets for public works are not included in the corporation budget. The Mayor presents the budget to the Board of Councilors for its approval by 15th day of February every year. The zero-base budgeting has been adopted by the corporation for preparation of its financial planning. Due to internal issues among the present Board of Councilors, the budget for 2011-12 has not been approved.

Table 75: Variation in Planned and Actual Budget

Financial Year	Budget (Rs in crore)	Actual (Rs in crore)	% of achievement
2008-09	115	71	61%
2009-10	163	89	55%
2010-11	181	79	43%

Financial Year	Budget (Rs in crore)	Actual (Rs in crore)	% of achievement
2011-12	144	93	64%
2012-13	147	103	71%

Source: Finance & Accounts Department, SMC

Accounting System: The Corporation has initiated the process of implementation of double accounting system for maintaining the accounts as per the manual developed by the state government. However, the department faces technical issues while using the accounting program. The development of improved accounting program has already been initiated by the state.

The valuation and listing of has been completed.

Auditing: The audit for the corporation is conducted by external audit agency, appointed by the state government. The corporation follows post-audit mechanism for auditing purpose. The audit reports are scrutinized by the leader from the opposition as per the West Bengal Municipal Corporation (Amendment) Act, 2009.

14.2 Existing Status - Municipal Finances

Table 76: Financial Status

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Balance	**3,415**	**2,414**	**4,055**	**3,497**	**4,989**
Revenue Receipts	2,771	3,575	4,019	5,361	6,033
Revenue Expenditure	2,620	3,408	4,314	4,797	5,723
Capital Receipts	3,267	5,331	3,301	3,944	4,447
Capital Expenditure	4,418	3,858	3,564	3,015	4,070
Closing Balance	2,415	4,054	3,497	4,989	5,675

Source: Finance & Accounts Department, SMC (Amount in Lakhs)

Revenue Income of SMC increased from Rs. 2,771 lakh in 2008-09 to Rs. 6,033 lakh in 2012-13.

Table 77: Planned vs Actual for last 5 Years

Rs. In Cr)	Budget Provision	Actual Received	Total
2008-09	18.93	13.23	70%
2009-10	21.44	12.09	56%
2010-11	25.54	16.87	66%
2011-12	23.72	21.54	91%

Rs. In Cr)	Budget Provision	Actual Received	Total
2012-13	30.38	27.44	90%

Source: Finance & Accounts Department, SMC

Source of revenue

The major source of income for the Corporation is tax revenue and revenue from fees and user charges. Market rent and water tax are the main source of income for the corporation. The Revenue grants, contributions and subsides are also major source of income for the corporation. The expense on establishment is highest incurred by the corporation. From the detailed revenue and expenditure balance sheet, it is evident that corporation is running under deficit. The details of the revenue and expenditure are given below:

Table 78: Detailed revenue and expenditure SMC

Major Account Head	2006-07	2007-08	2008-09	2009-10	2010-11
REVENUE RECEIPTS (Rs. In Lakhs)					
Tax Revenue	477	523	541	524	631
Assigned Revenues and Compensation	139	254	248	321	273
Rental Income - Municipal Properties	16	25	29	30	35
Fees and User Charges	906	495	746	650	1,025
Sale and Hire Charges	3	12	7	5	0
Revenue Grants, Contributions and Subsidies	766	1,161	958	1,878	1,874
Income from Investments	16	78	86	78	-
Interest Earned	-	-	-	-	-
Other Income	73	24	157	90	180
Total	2,397	2,573	2,771	3,575	4,019
REVENUE EXPENDITURE (Rs. In Lakhs)					
Establishment Expenses	1,059	1,165	1,356	1,991	2,292
Administrative Expenses (General Maintn)	127	310	241	340	393
Operations and Maintenance	709	796	903	860	1,352
Interest and Finance Charges	-	-	-	-	-
Program Expenses(Maint of Cultural deptt)	53	79	79	185	257
Revenue Grants, Contributions and Subsidies	-	-	-	-	-
Miscellaneous Expenses	23	36	41	33	21
-	-	-	-	-	
Total	1,971	2,385	2,620	3,408	4,314
Revenue Surplus/ (Deficit)	426	188	150	168	-295

Major Account Head	2006-07	2007-08	2008-09	2009-10	2010-11
CAPITAL RECEIPTS (Rs. In Lakhs)					
Grants, Contributions for Specific purposes	831	4,564	2,861	4,737	3,082
Secured Loans	-	-	-	-	-
Unsecured Loans	-	8	-	-	-
Deposits Received	-	-	-	-	-
Deposit Works	196	78	194	470	214
Others Sources(BSNL/Rel)	91	254	211	124	5
Total	**1,118**	**4,903**	**3,267**	**5,331**	**3,301**
CAPITAL EXPENDITURE (Rs. In Lakhs)					
Fixed Assets	1,135	3,220	4,321	3,847	3,563
Investments – General Fund	-	-	-	-	-
Investments – Other Funds	-	-	-	-	-
Stock in hand	-	-	-	-	-
Loans, advances and deposits	-	-	-	-	-
Other Assets	168	103	97	11	1
Total	**1,303**	**3,323**	**4,418**	**3,858**	**3,564**
Capital Surplus/ (Deficit)	**-184**	**1,579**	**-1,151**	**1,473**	**-263**
Total Surplus/ (Deficit)	**242**	**1,767**	**-1,000**	**1,641**	**-558**

Source: Finance & Accounts Department, SMC

Table 79: Collection of Own Funds for last 5 Years

Years	Tax Revenue	Non- Tax Revenue	Total
2008-09	5.41	7.82	13.23
2009-10	5.24	6.85	12.09
2010-11	6.25	10.62	16.87
2011-12	7.10	14.44	21.54
2012-13	7.34	20.10	27.44

Table 80: Details of the Government Grants received by SMC

HEAD OF RECEIPTS	Actual Receipt (Rs. In Lakhs)					
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Plan Grant	1,973	6,159	4,467	7,377	5,803	6,892
Non-Plan Grant	-	-	-	100	-	580
Capital Grand						
Central Govt.	589	4,297	2,443	4,643	2,813	3,753

HEAD OF RECEIPTS	Actual Receipt (Rs. In Lakhs)					
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
State Govt.	1,145	1,683	1,609	2,292	2,446	2,868
Others Govt.	269	167	483	676	663	418
Own Fund Collection/ GSLI Claim	110	266	179	87	154	93
Loan Taken	-	8	1,051	-	-	10
Encashment of FD/ Bank Deposit	-	-	-	-	115	-
Sub Total of Capital Receipt	2,112	6,421	5,766	7,697	6,191	7,142
Revenue Grand						
Tax Revenue	477	523	541	524	625	710
Other Tax Revenue	926	532	782	685	1,062	1,444
Sub Total of Revenue Receipt	**1,403**	**1,055**	**1,323**	**1,209**	**1,687**	**2,154**
Grand Total Receipt	**3,515**	**7,476**	**7,088**	**8,906**	**7,878**	**9,296**

Property Tax

The corporation has already implemented property tax in the corporation area. The property tax is fixed on the 'base unit area value' as per the West Bengal Municipal Corporation (Amendment) Act, 2009, by the State Valuation agency and is subjected to revision after every 5 years. The property tax in the state has not been revised for last 10 years. However, the revision of the tax has already been initiated by the valuation agency. As per draft valuation list by West Bengal Valuation Board, total Assessed properties are 96,000 approx. However, till date only 80,307 properties has been taxed. The total number of assessed properties for the year 2012-13, does not include the number of new mutation properties. The details of the total number of assessed properties under the corporation area for last three years are given below:

Table 81: Assessment Details

Description	2010-11	2011-12	2012-13
Total number of assessed properties	67874	77529	80307

Source: Assessment Department, SMC

The property tax bill is sent to individual property owners and the bills are collected by the ward tax collectors appointed by the corporation. As per the Act 2009, Sec.116, corporation has authority to reduce the property tax under special circumstances. The exact number of properties under the corporation area has not been listed and documented. Hence, it is difficult to estimate the total revenue that can be generated from the property tax collection. The property tax collection details for last three year by SMC are given below:

Table 82: Collection Details (Rs in Lakhs)

Particular	2010-11	2011-12	2012-13
Demand			
Arrears	443.75	435.66	413.81
Current	355.28	397.67	428.70
Total Demand	**799.02**	**833.34**	**842.51**
Disputed Demand			
Arrears	246.62	381.57	416.69
Current	10.70	10.70	0.00
Total Disputed Demand	**257.33**	**392.27**	**416.69**
Recoverable Demand			
Arrears	100.09	112.18	197.70
Current	263.27	307.34	312.21
Total Recoverable Demand	363.36	419.52	509.91

Source: Assessment Department and Finance & Accounts Department, SMC

Table 83: Key municipal financial indicators

Indicators	Value
Own revenues as a proportion of total revenue receipts *(Rs 18.72 cr/ Rs 40.19 cr)*	47%
Per capita own revenues *(Rs 18.72 cr/ 5.09 lakhs)*	Rs 367
Non-tax revenues as a proportion of own revenues *(Rs 12.4 cr/ Rs 18.72 cr)*	66%
Per capita property tax demand *(Rs 4.2 cr/ 5.09 lakhs)*	Rs 84
Coverage for property tax net	80% approx.
Property tax collection performance *(Rs 3.1 cr/ Rs 4.2 cr)*	73%
Water charges collection performance	NA
Operating ratio (revenue expenditure/ revenue receipts) *(Rs 43 cr/ Rs 40 cr) FY 2012-13*	1.07
Per capita O&M expenditure *(Rs 1765 lakhs/ 5.09 lakhs)*	Rs 346
Salary as percentage of Revenue Income *(Rs 22.9 cr/ Rs 40 cr)*	57%

Indicators	Value
Salary as percentage of Revenue Expenditure *(Rs 22.9 cr/ Rs 43 cr)*	53%
Staff per 1000 population *(622/ 5.09 lakhs x 1000)*	1.2
Debt Servicing Coverage Ratio (<=1.50) - (O.S+D.S / D.S)	NA
Debt Service Ratio (Max 25%) - (Debt/ Revenue income)	NA

14.3 Key Issues

- Operating ratio beyond 1 indicating revenue deficit;
- Salary expenditure as % age of revenue income is comparatively on higher side;
- Decent coverage of properties; however per capita demand is low when compared to other cities;
- The corporation has not undertaken any survey to map and enlist the exact number of properties (residential and non-residential) under the corporation area; and
- As per the West Bengal Municipal Corporation (Amendment) Act, 2009, the ward committee and the corporation has the authority to exempt property tax under certain circumstances. However, validation or monitoring of such exemptions is not been done and documented; and
- The number of defaulters is very high in the corporation. Majority of such properties are under government holding.

15. SWOT analysis

The SWOT analysis gives a cursory snapshot of existing potentials that favour growth in the city. Further, issues curbing the city development are discussed. The ranking of importance in a scale of high to medium has been developed through interactions with stakeholders and officials. In case of opportunities and threats, the possibility of occurrence has also been identified.

Siliguri being one of the urbanized city of the state offers huge potential for employment opportunities. However, in spite of the conducive environment for tourism, trade and commerce, the city is yet to grow. The Table 84 below presents the strength and weakness in the city.

Table 84: Strength and weakness in the city

Strengths	Importance
Siliguri is situated at strategic location which is 'Chicken neck' or Gateway to North east'.	**High**
It is regional transport node and trading center for the whole north east region	**High**
Municipal decentralisation and peculiar borough committee setup.	**High**
Presence of educational institutions like north Bengal university, medical and engineering colleges provide better educational facilities.	**High**
Weakness	**Importance**
No planned development & city growing in unorganised way in a ribbon pattern	**High**
Poor tourism supporting infrastructure	**High**
Low Work Force Participation Ratio (37%) and Lack of industrial investment in-spite of liberal policies.	**High**
Inadequate infrastructure facilities to cater to existing and future projected population.	**High**
Low Public Transport Facility leading to use of more private vehicles and hence congestion.	**High**

The location of the city is at the "chicken neck" position of India. This area is like a gateway to the other north eastern states. With good connectivity through Road (National and State Highways), Rail and Air, the city is linked to the major areas and vice versa. Tourism is one of the major economic drivers but due to poor tourism infrastructure and no planned development of the tourism circuit, the city lacks the holding capacity of the tourists. Tea being another economic driver, therefore focused attention on its production and on its distribution market could bring positive effects on the city.

On the other hand, the city suffers from lack of proper disposal facilities for sewerage and solid waste generated. The current practice of disposal could create environmental hazard at a regional scale. Also, the growing number of slums in the city is emerging as a major concern. The following Table 85 presents the ranking of identified opportunities and threats in terms of impact on the city and the possibility of occurrence.

Table 85: Opportunities and threats in the city

Opportunities	Possibility of occurrence	Impact on city
Has Good Location and Connectivity through Road, Rail and Air hence has opportunity to become a potential market for the North East Region.	**High**	**High**
Good Literacy Rate with institutes providing technical education hence could attract more job opportunities in tertiary sectors eg. IT Industry.	**High**	**High**
Potential for development of trade and commerce due to existing socio economic base and locational advantage, specially for "Tea production, processing and distribution"	**High**	**Medium**
Up gradation of Bagdogra airport as an international airport.	**High**	**Medium**
Could be a Tourism hub, supported by the development of tourism circuit of the neighboring areas	**High**	**High**
Threats	**Importance**	**Impact on city**
High proximity to international boarders and increasing securing threats.	**High**	**High**
High vulnerable for Disaster (Natural and Man Made) and ineffective enforcement of building bye laws and regulations.	**High**	**High**
Infrastructure deficiencies (City lacks Sewerage and storm water drainage system)	**High**	**High**
Darjeeling a big competitor with Siliguri in "Tea" production, processing and distribution	**Medium**	**High**
Migration of population into the city from neighboring areas (even neighboring countries) which is one of the major factor for the development of Slums.	**Medium**	**High**

Table 86: SWOT Summarized

Strength	Weakness
• Siliguri is situated at strategic location which is 'Chicken neck' or Gateway to North east'. • It is regional transport node and trading center for the whole north east region • Municipal decentralisation and peculiar borough committee setup.	• No planned development & city growing in unorganised way in a ribbon pattern • Poor tourism supporting infrastructure • Low work force participation ratio (37%) and lack of industrial investment in-spite of liberal policies.

• Presence of educational institutions like north Bengal university, medical and engineering colleges provide better educational facilities;	• Inadequate infrastructure facilities to cater to existing and future projected population. • Low public transport facility leading to use of more private vehicles and hence congestion.
Opportunities	**Threats**
• Has good location and connectivity through road, rail and air, hence has opportunity to become a potential market for the North East region. • Good literacy rate with institutes providing technical education hence could attract more job opportunities in tertiary sectors eg. IT Industry. • Potential for development of trade and commerce due to existing socio economic base and locational advantage, specially for "Tea production, processing and distribution" • Up gradation of Bagdogra airport as an international airport. • Could be a Tourism hub, supported by the development of tourism circuit of the neighboring areas	• High proximity to international boarders and increasing securing threats; • High vulnerable for Disaster (Natural and Man Made) and ineffective enforcement of building bye laws and regulations; • Infrastructure deficiencies (City lacks sewerage and storm water drainage system) • Darjeeling a big competitor with Siliguri in "Tea" production, processing and distribution • Migration of population into the city from neighboring areas (even neighboring countries) which is one of the major factor for the development of slums.

Source: CRIS

16. City vision, development goal and strategies

Stakeholder consultation is the most important part of city planning, as citizens' views and suggestions are instrumental in shaping the future of the city. The CDP inspires citizens to discuss and create a vision and direction for future growth of the city. Vision in the context of the CDP is a vivid and idealized description of a desired outcome that inspires, energizes, and helps stakeholders in creating a future picture of the city with positive changes. It can also be defined as the position that the city aspires to reach in the medium to long term (beyond 10 years but within 20-30 years). It is important that the vision for a city is defined in simple terms, which all citizens can share and identify with.

In Siliguri, CDP is being prepared for the first time. Earlier, the corporation used to prepare DDP, which was limited to the investment required, in a piecemeal manner and did not look at the overall vision and comprehensive infrastructure planning for the city.

The CDP guidelines lay special emphasis on undertaking stakeholder consultations at various stages of CDP preparation. In that context, consultations both in the form of workshops and individual focus group discussions were carried out during the preparation of Siliguri CDP. First, stakeholders were identified, which comprised SMC itself (Mayor, Chairman, Councillors, all officials); all other key institutions in the city which play a major role in planning, implementation, and management; market associations; institutions working in social areas; other associations; and media. Following is the list of consultations undertaken:

- First city-level stakeholder consultation - 27 December 2013
- Focus group discussion with various institutions, groups, and individuals- 9th June to 24th June,2014, 14th October,2014
- Second city-level stakeholder consultation – 12 September 2014
- Third city-level stakeholder consultation - 16 February 2015
- Fourth city-level stakeholder consultation - 12 March 2015.

Details of stakeholder consultations are given below.

16.1 Stakeholder consultations

The Government of India has envisaged the revision of CDP through a consultative and participatory approach. This requires the involvement of various stakeholders at the ULB, regional, and state level. In view of this, CRIS team conducted consultative meetings with citywide stakeholders to discuss the status and performance of the service delivery mechanism, understand the aspirations of citizens on city development, and to ensure a participatory and inclusive development process.

Further, CRIS team carried out a prioritization exercise during the consultations, to identify priority sectors for service improvement.

Table 87: Priority sectors

Sector	Requirement	Priority
Sewerage and sanitation	Underground drainage system, sewerage treatment facility and safe discharge of drainage	1
Urban transportation	Multilevel car parking, improvement of junctions, road widening, removal of encroachments, pedestrian friendly facilities, provision of public transport	2
Strom water drainage	Refurbishment of existing system with lining and appropriate covering	3

Sector	Requirement	Priority
Solid waste management	Scientific landfill at the dumping yard and waste recovery mechanisms	4
Environment management	Conservation of ponds, rainwater harvesting systems along roads, river front development	5
Water supply	Augmentation of existing system, expansion of water supply network to uncovered areas	6
Urban poverty	Effective implementation of UPA programmes, basic infrastructure facilities in all slum pockets	7
Promotion of local economy	Creation of local market infrastructure, development of integrated facilities for informal sector economic activities	8
IEC and outreach	Awareness programmes on solid waste segregation, traffic management, e-governance	9

16.2 Consultative meetings & focus group discussions

The team conducted stakeholder consultations with SMC officials, parastatal agencies, borough officials, and business and trade organisations like City Auto Association, Siliguri Minibus Syndicate, Hotel Owners Association, and Eastern Himalayan Travel & Tour Operators. The team also sought views of academicians and city-level NGOs.

Table 88: List of consultations with SMC officials

Sr. no.	Stakeholder
1	Mr. Sonam W. Bhutia, Commissioner SMC
2	Mr. Saptarshi Nag, Secretary, SMC
3	Mr. Paritosh Mridha, Executive Engineer, SMC
4	Mr. Sandeep Bose, Finance Officer, SMC
5	Mr. Souranshu Roy, SMC
6	Mr. Juyol Sarkar, SMC
7	Ms. Joyeeta Dey, Asst. Town Planner, SMC

Table 89: List of consultations with parastatal agencies

Sr. no.	Stakeholder
1	Ms. R. Vimala, IAS, CEO, Siliguri Jalpaiguri Development Authority
2	SDO official from SJDA
3	Mr.Tushar Kanti Ray, Associate Planner, SJDA

Table 90: List of consultations with business organisations

Sr. no.	Stakeholder
1	Mr. Biswajit Das, Hon. Secretary, FOCIN
2	Mr. Jayant Sarkar, Mr. Swapan Dutta, City Auto Association
3	Mr. K.C. Ghosh, Hotel Owners Association
4	Mr. Mrinal Kanti Sarkar, Siliguri Mini Bus Syndicate
5	Mr. Milan Bose, Eastern Himalaya Travel & Tour Operators' Association

Table 91: List of consultations with NGOs

Sr. No.	Stakeholder
1	Representative from Siliguri Anindita Society
2	Representative from Social Infrastructure For Proper Living And Educational Society

The team also conducted focus group discussions with various associations. The key emerging points from the discussion are presented below.

a) FOCIN – Trade and commerce

The discussion revealed that Siliguri is a major trading hub in the north-eastern region and with neighbouring countries of Bangladesh, Bhutan and Nepal. To promote trade and commerce in the region, following infrastructure should be put in place or should be strengthened:

- Strengthen railway connectivity - Many places near Siliguri like Haldibari have good agriculture produce, but lack proper infrastructure to transport vegetables to the city. Several issues of theft and damage during transportation have been reported;
- Development of cold storage system for perishable goods; and
- To attract major industries in the city, tax exemption should be provided to promote large scale industrialisation

b) Hotel Association

Siliguri is a transit point for various tourist destinations in the northeast. Tourists check into Siliguri hotels only for overnight stay. Tourist destinations in the city need to be improved such that tourists would stay and spend more time in the city.

For this, good tourist spots should come up within 20 km radius of the city or the existing ones should be improved and beautified. If Saudangi Ram Krishna Mission Ashram, Coronation Bridge, Sevoke, Teesta Canal Area, Salagura Gumpha (Buddhist monastery), and Mahananda could be turned into tourist spots, tourists will stay in Siliguri for a couple of days, generating good business for hotels.

c) Eastern Himalaya Travel & Tour Operators' Association

About 30,000 tourists visited Siliguri in May 2014; without any intervention to develop tourist spots and facilities in and around Siliguri, tourists will not spend more than half a day in Siliguri. The association suggested for the following:

- Construction of Sulabh complexes in important parts of the city (proposals already under consideration by local authorities, some have been constructed, but are not yet operational);
- Development of a proper taxi stand. There are stands on the Hill cart Road, Sevoke Road and near NJP, none of these having adequate parking space during peak hours;
- Introduction of rate charts for taxis;
- Introduction of flights between Siliguri and Kolkata during the night from Bagdogra Airport;
- Introduction of a proper signage system;
- Setting up of information kiosks at different parts of the city to provide proper information to tourists

d) City Auto Association

The association demanded auto rickshaw stands and parking facilities at various places in the city. Since autos are the major source of transport in the city. They also look forward to the revision of fare charts. The current travel fare rates are not in line with the increase in insurance charges, fuel prices, and spare parts price, resulting in almost no profit.

e) Siliguri Minibus Syndicate

About 100 minibuses and 200 buses ply around the Siliguri sub-divisional area. The association is looking forward to better infrastructure facilities and timely investment in the transportation sector. They also look forward to a fair tariff revision policy to operate the business and provide quality service.

f) Councillors and borough officers

Following were the key suggestions for the development of the city:

- Address the growing traffic issue in the city;
- Develop car parking systems near Mahananda River bank and Suryasen Park area;
- Develop a manure biogas plant near Don Bosco;
- Underground conduits for cables;
- Develop a government hospital;
- Ensure proper disposal of waste;
- Undertake slum rehabilitation and ensure adequate water supply and sanitation facilities in slum areas;
- Construct a drainage system; and
- Undertake river cleaning.

The details of focus group discussions are presented in **Annex-3.**

16.3 First stakeholder consultation

As part of the CDP preparation, consultants have conducted four workshops with the support of SMC officials. The first workshop was scheduled on 27th December 2013 at 1.00 pm at the Indoor Stadium of SMC. The workshop had a limited turnout of about 50 participants.

Since this was the first stakeholder workshop at city level, the key objectives were to:

- Apprise stakeholders about the support extended by the Ministry of Urban Development, Government of India, under the Capacity Building for Urban Development (CBUD) project
- Apprise stakeholders on the key principles and background of CDP preparation
- Emphasize on vision planning for the city
- Apprise stakeholders on the current situation and challenges across various aspects of city development, based on a reconnaissance study
- Understand aspirations of citizens on city development and key issues and challenges they perceive.

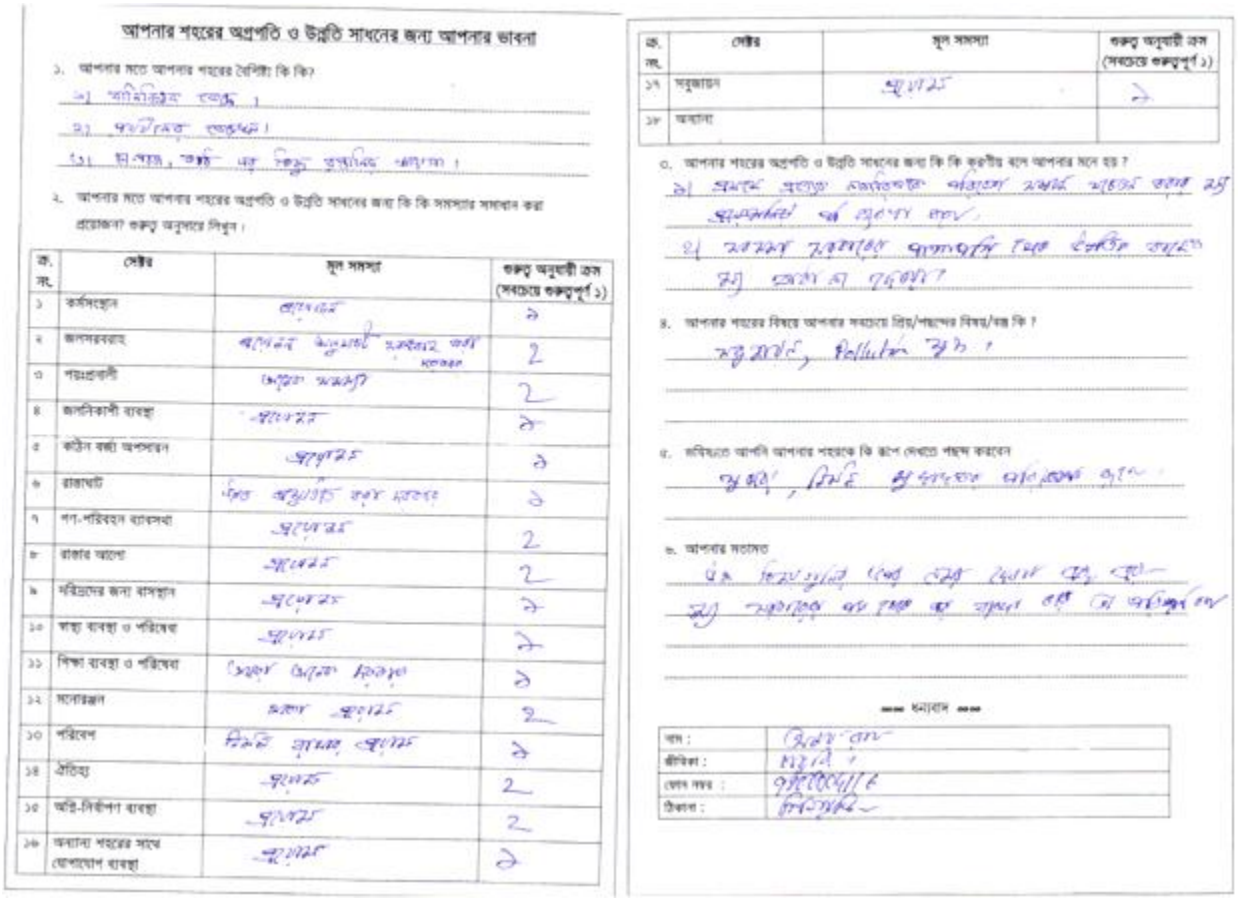
To make the consultation more interactive, a PowerPoint presentation was prepared. A questionnaire was prepared and circulated amongst the stakeholders to capture their views on various aspects of city development. The welcome address was given by the Mayor and Commissioner.

Thereafter, the CBUD, PMU official Mr. Mahtab Alam introduced in detail the CBUD programme and its coverage, objectives, and key interventions. Further, CRIS team made a detailed presentation to the stakeholders explaining the CDP, visioning, CDP preparation, guidelines, and coverage of various aspects under CDP. The team also presented the key initial findings and challenges in planning and development of Siliguri.

Figure 58: Stakeholder consultation

Post the presentation, the stakeholders interacted with each other and the CRIS team and CBUD officials and provided their views on key challenges and opportunities for development of Siliguri.

Figure 59: Sample questionnaire filled by a stakeholder



আপনার শহরের অগ্রগতি ও উন্নতি সাধনের জন্য আপনার ভাবনা

১. আপনার মতে আপনার শহরের বৈশিষ্ট্য কি কি?

২. আপনার মতে আপনার শহরের অগ্রগতি ও উন্নতি সাধনের জন্য কি কি সমস্যার সমাধান করা প্রয়োজন? গুরুত্ব অনুসারে লিখুন।

ক্র. নং.	সেক্টর	মূল সমস্যা	গুরুত্ব অনুযায়ী ক্রম (সবচেয়ে গুরুত্বপূর্ণ ১)
১	কর্মসংস্থান		
২	জলসরবরাহ		
৩	পয়ঃপ্রণালী		
৪	জলনিকাশী ব্যবস্থা		
৫	কঠিন বর্জ্য অপসারণ		
৬	রাস্তাঘাট		
৭	গণ-পরিবহন ব্যবস্থা		
৮	রাস্তার আলো		
৯	গরিবদের জন্য বাসস্থান		
১০	স্বাস্থ্য ব্যবস্থা ও পরিষেবা		
১১	শিক্ষা ব্যবস্থা ও পরিষেবা		
১২	সংরক্ষণ		
১৩	পরিবেশ		
১৪	ঐতিহ্য		
১৫	অগ্নি-নির্বাপণ ব্যবস্থা		
১৬	অন্যান্য শহরের সাথে যোগাযোগ ব্যবস্থা		

ক্র. নং.	সেক্টর	মূল সমস্যা	গুরুত্ব অনুযায়ী ক্রম (সবচেয়ে গুরুত্বপূর্ণ ১)
১৭	যানজটন		
১৮	অন্যান্য		

৩. আপনার শহরের অগ্রগতি ও উন্নতি সাধনের জন্য কি কি কুফলীয় বলে আপনার মনে হয়?

৪. আপনার শহরের বিষয়ে আপনার সবচাইতে প্রিয়/পছন্দের বিষয়/বস্তু কি?

৫. ভবিষ্যতে আপনি আপনার শহরকে কি রূপে দেখতে পছন্দ করবেন

৬. আপনার মতামত

--- ধন্যবাদ ---

নাম :	
ঠিকানা :	
ফোন নম্বর :	
ইমেল :	

16.4 Second city-level stakeholder consultation

The second city-level stakeholder consultation (interim stage) was held on 12 September 2014 at the office of the municipal corporation. Various institutions attended the workshop. The workshop lasted for about three hours.

Figure 60: Stakeholder consultations at interim level



During the consultation, stakeholders were apprised of the CDP preparation process, sector-wise findings, and challenges in infrastructure development and management, and their opinion and suggestions on the key focus areas and strategies for infrastructure improvement, were sought. Following were the key points emerging out of the discussion:

- Economy
  - Tourism - The city should be transformed from a transit hub into a tourist city by undertaking a) river front development, b) developing the old railway station as a heritage structure, c) developing large-scale theme parks, d) developing leisure tourism, etc. Various supportive amenities for need to be developed for tourists, such as information system, good public sanitation facilities, signage system, and good transportation infrastructure. Such tourism will facilitate economic development of the city.
  - Trade and commerce – The city economy depends majorly on trade and commerce. For sustained economic growth of the city, trade and commerce activities including hawker activities need to be re-planned in a better manner, especially large-scale trade activities in the old city area, which faces significant traffic congestion and does not have space for future expansion.

    The new planned areas should have designated hawking zones. The corporation is already in discussion with hawkers' association, on various aspects mentioned in the recent hawking policy.
- Infrastructure
  - Traffic and transportation - The traffic and transportation issue was discussed at length by the stakeholders. The traffic police department officials were also present during the

meeting. The major interventions in Traffic &Transportation as suggested by the stakeholders are as follows:

- Involving the traffic police department in preparation of traffic and transportation plan for the city, sanction of building plan approvals and granting permissions for motor garage facility in the city;
- Developing parking facilities at various places in the city, including designated parking areas on roadside;
- Developing designated parking areas for auto rickshaws;
- The railway corridor passing through the city to be also used for local train for intra public transport. This will reduce load on the city roads.; and
- Light Rail Transit (LRT) system for the city.

- Sewerage and sanitation – The city requires a sound underground sewerage system, and a detail project report has already been submitted to the state government regarding this for further support and action. The stakeholders also stressed on good public sanitation facilities across the city for tourists as well as citizens of Siliguri.
- Waste disposal – Sanitation in the city has improved in the past many years. The administration has also been effective in banning the use of plastic bags. A waste processing facility needs to be set up for scientific processing and disposal of waste. It was also discussed on e-waste.

  At the end of the session, the stakeholders also discussed the emerging “smart city” concept and suggested that Siliguri should be developed along these lines.

16.5 Potential, challenges, and aspirations

The stakeholders also shared their views on the key potential areas of the city, the challenges, and their aspirations for Siliguri.

Table 92: Potential, challenges, & aspirations

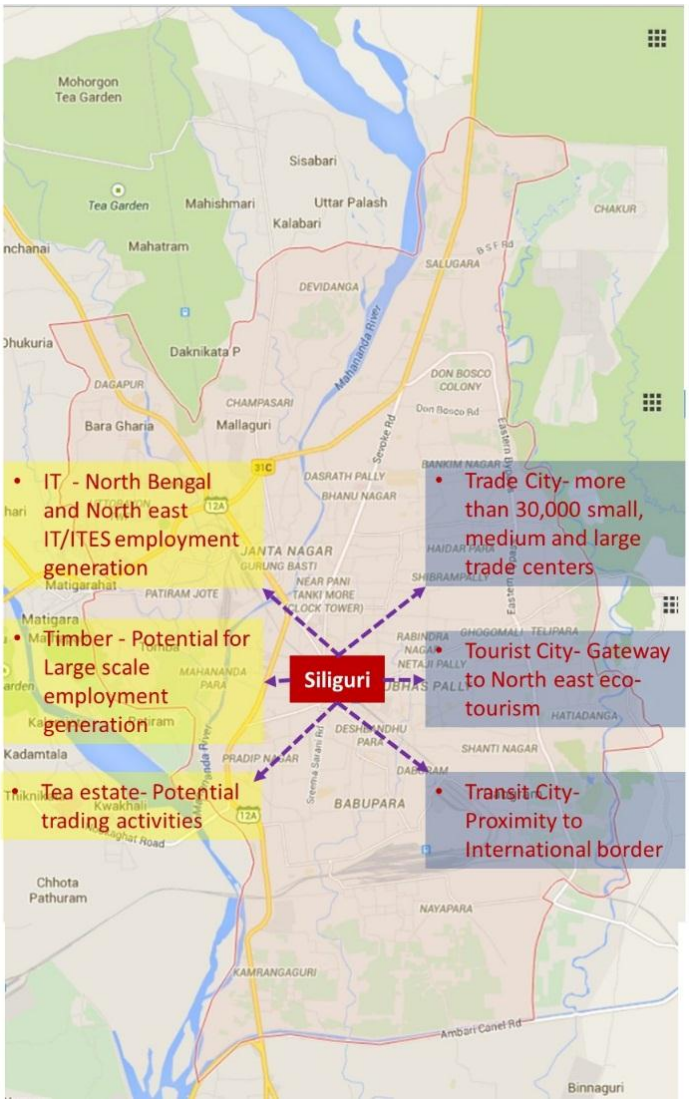
Potential, challenges & aspirations	Views
Special features of Siliguri	▪ Connectivity, transit point ▪ Tourism, scenic beauty in and around Siliguri, weather ▪ Business opportunities – tea, timber, and tourism
Key suggestions for development of Siliguri	▪ Transit and tourist city ▪ Exploring opportunities for medical and education hub for the northeast region ▪ Employment, industries, infrastructure and financial support ▪ Infrastructure development key areas 1) Traffic and transportation 2) Drainage 3) Waste Disposal 4). Improvement of rivers, 5) More and better public facilities needed ▪ Proper planning, building regulations and implementation ▪ Widening of roads,, housing for poor, health facilities, educational facilities ▪ Environmental awareness programme to safe River Mahananda

Potential, challenges & aspirations	Views
	▪ Comprehensive planning for addressing all problems
Aspirations	▪ City providing every possible modern facility to citizens and tourists ▪ Best metro city with all facilities ▪ Most beautiful city and ahead of all ▪ Beautiful, clean, and healthy environment ▪ Developed and modern

16.6 Vision statement

The city vision has been framed based on the consensus reached during the workshop. The vision statement has been framed to balance the competing demands from the various sectors as well as different stakeholders in the city.

The goal is to achieve multi-dimensional development of the basic infrastructure to keep pace with the unprecedented growth of the city; an efficient and sustainable service delivery mechanism; and amelioration of the living conditions



The gateway of north east region, Siliguri is being considered as an economic centre which is growing among the fastest cities, with borders of four countries meeting at around this region. It is because of the position of Siliguri that the North Bengal has come to be a hub for trade and commerce. Countries of Bangladesh and Nepal are using the corridor through Siliguri to help in transporting rice and other important commodities of urgency. The 4 'T"s that are important trade businesses in Siliguri are Timber, Tea, Transport and Tourism.

In Siliguri, the processing and production of tea allows a number of workers to be engage in the business. The Siliguri tea industry has grown tremendously over the years at a very high rate. High demand among the tourists for Siliguri as a vacation destination has helped flourish of many hotels. Tourists come to Siliguri for seeing the large variety of fauna and flora in the region and are attracted towards the large elongating landscapes and over the years, this beautiful range of the Himalayan Mountains is becoming preferable for the international as well as the domestic tourists.

Large numbers of shopping malls and well known automobile companies exist in the city. Plenty of handicrafts and furniture works and also cane work have come up to become famous in the town. Growth in the demand for handicraft items of cane, wood, bamboo and jute has also been seen which are made by the artisans of the local region. The town of Siliguri has become a prominent and preferred destination for investments. Rapidly growth, with the blink of the eye, especially in the tourism sector has given an impetus.

Develop a clean, green and planned city by emphasizing on tourism, transit and trade by 2021

Keeping in the view various economic activities in the city, regional setting with the neighbouring north-eastern cities, and the existing infrastructure in the city, the vision for Siliguri city has been framed as follows:

16.7 Development goals

The wish list of the citizens has been translated into development goals, which covers sectors such as water supply, sewerage and sanitation, solid water management, storm water drainage, traffic and transportation, urban poverty and slum improvement, local economic development, urban environment, social infrastructure, and heritage management. The development goals have been framed on the basis of priority areas, to achieve the common goals for the city and to meet the desired sector-specific service-level benchmarks and indicators.

Table 93: Sector-wise development goals

Sector	Vision	Development goals	Action points
Local economic development	To develop the city as an international hub for trade and commerce, industries	• Development of special industrial zones within the SMC jurisdiction • Development of infrastructure to facilitate IT/business parks and SEZ	• Identify areas for food export zones and industries • Identify areas for multipurpose markets, whole sale vegetable and fruit markets outside the city • Develop exhibition cum convention centres in the city
Social infrastructure	To develop the city as a centre for health and educational facilities	• Development of health and education infrastructure to meet the URDPFI guidelines for the horizon year	• Identify areas for development of new schools and hospitals • Develop schools with hostel facilities and schools for specially abled children • Develop ward-level community centres and anganwadis • Develop night shelters and old age homes in the city
Tourism development	To develop the city as a tourism cum transit hub	• Siliguri city to act as a transit hub for regional tourist activity	• Develop local tourist points and information centres in the city

Sector	Vision	Development goals	Action points
Water supply	To provide water supply to all and 24 × 7 water supply with adequate pressure and quality	• Provide 24 × 7 water supply • Ensure that water meets the CPHEEO standards • Undertake tariff revision and reduction to achieve 100% O&M cost recovery • Minimize energy consumption during water supply operations	• Augment the existing source/identify new sources to meet the future water demand for the city • Increase the coverage under water supply and ensure equitable water supply distribution in core areas and newly merged areas. • Introduce flow meters and bulk meters to measure water losses in the system • Introduce domestic meters to ensure judicious usage of water • Undertake water quality checks at different levels of the water supply system • Introduce water monitoring systems like SCADA to monitor the water supply flow and curb water losses • Carry out water and energy audit
Sewerage	To provide safe and reliable collection, treatment, and reuse/disposal of wastewater	• Develop decentralised sewerage collection, treatment, and disposal system within SMC limits • Ensure 100% treatment of sewerage water and safe discharge into the rivers • Explore reuse and recycling of wastewater • Maximize cost recovery and collection efficiency	• Undertake mapping of septic tanks for effective sludge management in Siliguri • Ensure the every property is connected with the sewerage network • Rehabilitate the existing UGD system • Develop decentralised sewerage system and sewerage treatment plants across the city • Explore the recycling technologies for the better use of treated water for potable use
Strom water drainage	To provide effective	• Improve storm water collection efficiency with	• Rehabilitate the surface drain network in city

Sector	Vision	Development goals	Action points
	drainage system	proper drainage system • Rejuvenate the existing natural drainage course in the city • Minimize incidences of water logging and flooding in the city	• Map the entire water regime of the city and changes in natural course • Channelize and desilt the major natural drainage course in the city and develop green belt along the natural courses • Ensure effective implementation of the building bye-laws and development control regulations to avoid constructions along ponds/natural drainage system • Make rainwater harvesting system mandatory for upcoming developments in the city
Solid waste management	To introduce efficient integrated solid waste management system complying with the municipal solid waste (MSW)2000 rules	• Ensure 100% door-to-door collection and segregation of waste at source • Maximize recycling and reuse capacity and minimize disposal at landfill • Follow scientific waste disposal mechanism as per the CPHEEO norms	• Ensure effective implementation of outreach mechanisms to improve door-to-door collection and segregation at source • Improve the infrastructure related to treatment of waste for recovery of 50% waste collected • Develop the dumping yard as a regional landfill site with scientific closure mechanism • Define the new solid waste management user charges
Urban roads, traffic and transportation	To make city a transportation node for the region with efficient road network and safe, reliable public transport system	• Maximize the share of public transport and minimize traffic congestion • Minimize road accidents and improve the pedestrian related infrastructure • Improve parking facilities across the city	• Develop intelligent traffic management system in the city • Improve traffic management systems by diverting traffic and creating one-way traffic system in congested roads • Undertake junction improvement and road re-sectioning to curb fatal accidents • Ensure that 50% of the roads have 1.5 m wide footpath

Sector	Vision	Development goals	Action points
			• Widen the existing rail over bridges to increase the travel time and avoid congestion • Develop bus shelters with toilet facilities • Develop multi-storied parking and paid parking at busy and congested areas
Urban poverty	To become a slum-free city by 2041	• Improve the access to physical and social infrastructure to slum dwellers • Develop livelihood strategies to improve work force participation	• Provide affordable housing for slum dwellers residing in non-tenable areas • Undertake *in situ* up-gradation in incremental manner in the existing slums • Ensure 100% coverage of piped water supply, public toilets, sewerage network, and door-to-door waste collection • Improve hygiene conditions in slums by providing basic infrastructure facilities • Ensure that government/municipal schools are accessible to slum dwellers • Develop community centres, senior citizen clubs, and welfare clubs in each ward
Urban environment	To provide a pollution-free and sustainable living environment to the citizens	• Frame a policy to reduce pollution and ensure effective use of natural resources in the city • Develop green zones/breathing spaces in the city to improve the quality of life • Utilize the potential for ecosystem service to improve resilience, subsistence, and livelihoods in the city	• Develop walking tracks around water bodies/Mahananda River banks on priority basis • Construct rainwater harvesting pits to increase ground water levels in the city • Increase the surface area under green cover

16.8 Third city-level stakeholder consultation

The third city-level stakeholder workshop (draft stage) was conducted on 16th February 2015 at SMC. The workshop was attended by 45 participants including officials from SMC and parastatal agencies, and other stakeholders.

The Commissioner of SMC and CEO of SJDA chaired the workshop. The agenda for the workshop is provided below.

Table 94: Agenda for stakeholder workshop at draft stage

Agenda	From	To	Speaker
Presentation on draft CDP	2:00 PM	2:45 PM	Key expert, CRISIL
Interaction with the stakeholders	2:45 PM	3:00 PM	Open discussion
Final remarks	3:00 PM	03:10 PM	SMC commissioner, CEO, SJDA
Vote of thanks	3:10 PM	3:20 PM	SMC commissioner

CRIS team made a presentation on city-level assessment, sector-wise demand-gap analysis, projects identified, and capital investment plan for the city. Further, the team discussed the financial sustainability of SMC to take up the projects under various scenarios.

CRIS team requested the stakeholders to provide inputs/suggestions on the proposed projects for the city. The SMC commissioner stressed on the river front development project.

The stakeholders have presented following suggestions and areas of concerns

Suggestions on city development
• Improvement of roads (widening/flyovers) and intersections to reduce the traffic congestions; • Multilevel car parking facilities Hill cart and Sevoke roads; • Underground drainage system development and Sewerage treatment plan; • River front development plan for River Mahananda • There is a need to conduct awareness campaigns on door to door collection. • Solid waste management could be successful only with community participation. Hence self-help groups could be engaged in IEC campaigns. • SMC should strictly enforce and implement the plastic waste rules of 2011 which regulate the use, collection, segregation and disposal of plastic bags. • Strict implementation of building byelaws to reduce risk levels of disasters (earth quake)

16.9 Fourth city-level stakeholder consultation

The fourth city-level stakeholder workshop (final stage) was conducted on 12th March 2015 at SMC. The workshop had about 40 participants including officials from SMC and parastatal agencies and other stakeholders.

The commissioner of SMC chaired the workshop. The agenda for the workshop is provided below.

Table 95: Agenda for stakeholder workshop at final stage

Agenda	From	To	Speaker
Presentation on draft CDP	2:00 PM	2:30 PM	Key expert, CRISIL

Interaction with the stakeholders	2:30 PM	3:00 PM	Open discussion
Final remarks	3:00 PM	03:10 PM	SMC commissioner
Vote of thanks	3:10 PM	3:20 PM	SMC commissioner

CRIS team made a presentation on the sector-wise demand-gap analysis, projects identified, and capital investment plan for the city. Further, the team discussed the financial sustainability of SMC to take up the projects under various scenarios.

CRIS team requested the stakeholder to provide their inputs/suggestions on the proposed projects for the city.

The stakeholders have presented following suggestions and areas of concerns

Suggestions on city development
• Development of Tea museum in city; • Development of another sport complex/playground for the city; and • Walkways along the River banks of Mahananda

17. Sector Plan, Strategies and Investment Plan

Sector plans in line with the identified vision for the city has been prepared through a comprehensive process of gap assessment and through stakeholder consultation. This assessment has also led to the identification of sector specific strategies, implementation actions, and associated reforms with specific inputs from stakeholders too.

The strategies adopted primarily have three dimensions: improving the service delivery by efficiency measures, improving service delivery by creating infrastructure assets: and improving the governance aspects. This section summarises the sector plans and capital investments required for creating infrastructure assets and various strategic interventions required in the implementation of such projects.

The phasing of the identified projects and investments is based on the following principles:

- Priority needs, with developed areas receiving priority over future development area
- Inter and intra-service linkages, viz. water supply investments shall be complemented by corresponding sewerage/sanitation improvements
- Size and duration of the requirements, including preparation and implementation period
- Project-linked revenue implications

The need for the CIP is on account of:

- Assessment of city growth and infrastructure needs
- Scheduling of investments for on-going projects
- Assigning of priorities within the constraints of available financial resources

The CIP is the multi-year scheduling of identified and prioritized investments. The scheduling or phasing of the plan is based on:

- Studies of fiscal resource availability (for new investments and O&M),
- Technical capacity for construction and O&M, and
- The choice of specific improvements to be carried out for a period of four to five years.

17.1 Institutionalizing CIP

The CIP is an important element and is significant in terms of the city's management process and sustainability with regard to the delivery of basic services. The CIP also provides a framework for the annual budget cycle for the future 6-10 year period. The CIP identifies the roles and responsibilities of various stakeholders in the implementation of identified projects. The CIP involved the identification of public capital facilities to cater to the demand of the city population for the medium and long term infrastructure needs.

The project identification has been carried out through a demand-gap analysis and the stakeholder consultation. Further, project prioritisation and strategising of the investments/phasing of investment are based on the strategies listed out under each service sector as identified through stakeholder consultations. The projects derived are aimed at ensuring the optimal and efficient utilisation of existing infrastructure systems and enhancing the capacity of the systems/services to cater to the demands of future population additions. Certain projects have been identified in consultation with the stakeholders.

The CIP and forecasted future needs for provision of capital facilities under each identified sector are presented below. These assets will help to universalise services for the current population as well as accommodate the expected increase in population.

In sectors where long-term planning is required (for example, source development for water supply, sewerage, etc.), a 25-year planning horizon is considered. Assets created in such sectors consider the projected population in this horizon. These infrastructure assets would not only guarantee services to the citizens but also signal a proactive commitment to potential investors considering the region.

17.2 Water supply sector plan

As discussed in the water supply section, the key challenges in water supply sector are dependence of multiple systems of water supply, losses in the distribution system due to old distribution network and uneven water supply distribution across the city. Further, the new areas have not been covered with the water supply network. In order to estimate the investment priorities in this sector, the gap analysis has been carried out to analyse the current deficit in the system and future requirement for the design year 2041. The sector plan for water supply improvement in the city has been presented in the table below.

Table 96: Water supply sector plan

<table>
<tr><th colspan="8">Water Supply Sector</th></tr>
<tr><td>Sector goals</td><td colspan="7">• Provide 24 X 7 water supply
• The quality of the water should meet the CPHEEO standards.
• Undertake tariff revision and reduction to achieve 100% O&M cost recovery
• Minimize the energy consumption during water supply operations</td></tr>
<tr><td>Design parameters</td><td colspan="7">• Base year as 2013 and design year as 2041
• Demand estimation based on the projected population for SMC and additional 25,000 population per day (floating population)
• Daily water supply demand (162 LPCD) calculated on the basis of daily per capita water supply norm (135 LPCD +20% Un accounted for Water)
• Quality of water as per CPHEEO standards
• 100% treatment capacity
• 33% of water supplied as storage capacity
• Distribution network coverage – 80% of road network
• Cost recovery through user charges (100% O&M expenses)</td></tr>
<tr><td rowspan="5">Demand gap assessment</td><td rowspan="2">Component</td><td rowspan="2">2014</td><td rowspan="2">Current gap</td><td colspan="2">2021 (Short term)</td><td colspan="2">2041 (long term)</td></tr>
<tr><td>Demand</td><td>Gap</td><td>Demand</td><td>Gap</td></tr>
<tr><td>Source (Daily Supply in MLD)</td><td>70</td><td>22</td><td>116</td><td>46</td><td>184</td><td>114</td></tr>
<tr><td>Distribution network coverage (km)</td><td>418</td><td>407</td><td>898</td><td>480</td><td>898</td><td>480</td></tr>
<tr><td>Elevated Storage capacity (MLD)</td><td>18</td><td>12</td><td>38</td><td>20</td><td>61</td><td>43</td></tr>
<tr><td>Treatment capacity (% of Water Supply)</td><td>55</td><td>33</td><td>116</td><td>61</td><td>184</td><td>129</td></tr>
<tr><td rowspan="6">Desired outcomes</td><td></td><td>2014</td><td>2017</td><td>2019</td><td>2021</td><td colspan="2">Remarks</td></tr>
<tr><td>Network coverage to households</td><td>33%</td><td>60%</td><td>100%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Per capita supply (LPCD)</td><td>123</td><td>129</td><td>135</td><td>135</td><td colspan="2">-</td></tr>
<tr><td>24x7 water supply</td><td>0%</td><td>50%</td><td>70%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Quality of water</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Non-revenue water</td><td>55%</td><td>30%</td><td>30%</td><td>30%</td><td colspan="2">-</td></tr>
</table>

	Consumer metering	0%	50%	70%	100%	-
	Cost recovery	34%	100%	100%	100%	-

Action Plans	Activities
Increase the household level coverage	• Increase water supply coverage through individual service connections. • Provide water supply to newly developed/developing areas and uncovered areas.
Water Supply System Rehabilitation Plan	• This focuses on partial or complete refurbishing of the existing water distribution pipeline. • The old, defunct, and inadequate piping system needs to be replaced by a proper distribution network.
Comprehensive Water Supply Plan	• This focuses on source augmentation, adequate storage, and distribution network and treatment facilities for future requirement.
Operation and Maintenance Plan	• This focuses on development of the asset inventory. • Conducting workshops on water supply and other services to educate the citizens. • Preparation of training calendar to impart training to all the staff members throughout the year on O&M of assets • Trainings for expenditure control and reduction of O&M cost on key services.

Unit Rates	Component	Unit	Unit Cost (Rs in Lakhs)
	New Raw water mains	Kms	40
	Treatment Gap -New WTP requirement	MLD	50
	New CWM	Kms	30
	Replacement of ESR (capacity)	MLD	80
	New ESRs Capacity	No.s	100
	New network	KM	25
	Domestic Meters	No.	0.02
	Bulk Flow meters	No.	5
	SCADA	Lump Sum	500
	Water Audit	Lump Sum	200
	Water quality monitoring	Lump Sum	200

17.2.1 Capital Investment Plan

Based on the above key requirements in the water supply sector, the capital investment plan for water supply project is presented in the below table.

Table 97: Water supply capital investment plan

Project	Sub project	Estimated cost in Rs. Crores
A) Augmentation of Water supply source and construction of raw water mains for the city	1. Augmentation of additional 114 MLD water supply system of Siliguri.	80
B)Treatment capacity and clear water mains	1. Construction of Water Treatment Plants (WTPs) with a capacity of 129 MLD for Siliguri city for 2041 demand	58
c) Elevated storage capacity	1. Construction of ESRs with a storage capacity of 20 MLD and refurbishment of old ESRs (number) across the city.	68

Project	Sub project	Estimated cost in Rs. Crores
D) Distribution network	1. Laying of new distribution network of 480 kms	172
	2. Replacement of old distribution network (80% of existing network)	
E) Metering and leak detection and installation of SCADA system	1) Installation of domestic water meters across the city	11
	2) Installation of bulk flow meters	
	3) Installation of SCADA system to monitor the water supply losses in the distribution	
Total investment identified		**389**
Total investment required for 2041[16]		**337**

17.2.2 Project details

The key projects and project details in water supply sector is presented in the below table.

Table 98: Water supply project details

Project	Project details
A) Augmentation of Water supply source and construction of raw water mains for the city	• There is a current gap of 45 MLD in the existing water supply demand. Further, in order to meet the future requirement for the ultimate population of 2041, the city requires around 114 MLD of additional water. However, the existing water supply sources could not compensate the same. Hence new source augmentation has been envisaged. • It has been identified that the new water supply source would be river Balason and from Mahananda intake.
B)Treatment capacity and clear water mains	• The current treatment capacity is adequate to meet the treated water requirement in the core SMC area. However, most of the new areas are dependent on ground water source and lack conventional treatment capacity. • In order to meet the water quality issues in new areas and future population growth, additional 129 MLD of treatment capacity has been estimated for the year 2041.
c) Elevated storage capacity	• The future requirement for storage capacity for the design year 2041 has been forecasted to cater to the desired water supply. • The capital investment has been envisaged for developing new ESR (43 MLD for 2041) capacity and refurbishment of old ESRs in the core city.
D) Distribution network	• The distribution network is the most critical component in the water supply system for Siliguri city. • It is recommended that the network in new areas be laid in an incremental manner in the dense settlements. • The system may be integrated with the existing transmission and distribution system in the city by laying clear water mains. • The investment has been envisaged for laying of new distribution network requirement and replacement of the old network.

[16] *The investment identified for 2041 is towards additional components which are not covered in the WBDMA.*

Project	Project details
E) Metering and leak detection and installation of SCADA system	• One of the key strategies suggested by the stakeholders is to develop the existing water supply system to 24x7 water supply system. • This suggested system would be sustainable only if 100% metering is achieved at intake and outflow points and at the consumer end. • Further, in order to prevent transmission and distribution losses, regular water monitoring and SCADA system has been proposed.

17.2.3 Phasing of investment

It may be noted that SMC is already implementing the water supply improvement. Hence, as indicated in the table below, no additional investment has been identified in water supply sector for the year 2021-22.

Table 99: Water Supply Phasing

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
				(Rs. In Crores)						
A	Augmentation of Water supply source and construction of raw water mains for the city	SMC	80	8	32	40	0	0	0	0
B	Treatment capacity and clear water mains	SMC	42	4	25	13	0	0	0	0
C	Elevated storage capacity	SMC	32	3	13	16	0	0	0	0
D	Distribution network	SMC	172	17	57	62	36	0	0	0
E	Metering of connections	SMC	11	2	7	2	0	0	0	0
Total			**337**	**34**	**134**	**133**	**36**	**0**	**0**	**0**

17.2.4 Possibility of PPP

The entire project from source augmentation to metering of water connections can be developed on the public-private partnership mode.

Under PPP, SMC would undertake implementation of O&M of water supply system which involves the following steps:

- SMC shall fix the tariff for water user charges.
- Handover the assets to the operator for operation and maintenance
- Billing and collection of the water charges should be done by the private operator.
- The assets would be maintained by the private operator, and SMC shall pay revenues to the private operator.

Under the PPP model, the developer would have the following responsibilities

- The entire project can be awarded for a period of 30 years
- Developers can bid on either tariff required to operate and maintain the project or annuity support from SMC

Key service level parameters

SMC need to set performance parameters for the private developer to be obliged during the contract period. The performance parameters would in the area of;

- daily hours of supply

- supply levels as stipulated by SMC
- quality of water as per CPHEEO norms
- Improvement in coverage of water supply connections
- Reduction in non-revenue water
- Improvement in collection efficiency
- Frequency of billing of water bills
- No. of complaints received

Key note:
SMC would require to appoint a transaction advisor to undertake a detailed feasibility assessment, preparation of bid documents (request for qualification – RFQ, request for proposal – RFP), and bid process management leading to award of contract to private developer.

17.3 Sewerage and Sanitation sector plan

As mentioned in the sewerage assessment section, the properties in SMC are not connected to the Under Ground Sewerage (UGD) network. There is no UGD system in the area and the whole system is dependent on the Private Septic Tanks. Therefore, SMC should develop comprehensive sewerage system in the city. As per the gap analysis, the city requires 147 MLD capacity of sewerage treatment plan by the end of 2041. Also, for the short term requirement (2021), the city requires 93 MLD STPs and 898 km of branch sewer lines. The sector plan for sewerage and sanitation system in the city has been presented in the table below.

Table 100: Sewerage sector plan

<table>
<tr><th colspan="8">Sewerage and Sanitation Sector</th></tr>
<tr><td>Sector goals</td><td colspan="7">• Develop decentralized sewerage collection, treatment, and disposal system within SMC limits
• Ensure 100% treatment of sewerage water and safe discharge into the rivers
• Explore the reuse and recycled of wastewater
• Maximize the cost recovery and collection efficiency</td></tr>
<tr><td>Design parameters</td><td colspan="7">• Base year as 2013 and design year as 2041
• Treatment capacity – 80% of water supply
• Sewerage pumping systems – as per the system design and topography of the city
• Sewer network would cover 75% of road network in the city
• Household level coverage – Sewerage connections as percentage of water supply connections (80-90%)</td></tr>
<tr><td rowspan="4">Demand gap assessment</td><td rowspan="2">Component</td><td rowspan="2">2014</td><td rowspan="2">Current gap</td><td colspan="2">2021 (Short term)</td><td colspan="2">2041 (long term)</td></tr>
<tr><td>Demand</td><td>Gap</td><td>Demand</td><td>Gap</td></tr>
<tr><td>UGD network (km)</td><td>0</td><td>825</td><td>898</td><td>898</td><td>898</td><td>898</td></tr>
<tr><td>Sewerage Treatment Plant (MLD)</td><td>0</td><td>56</td><td>93</td><td>93</td><td>147</td><td>147</td></tr>
<tr><td rowspan="5">Desired outcomes</td><td></td><td>2014</td><td>2017</td><td>2019</td><td>2021</td><td colspan="2">Remarks</td></tr>
<tr><td>Households covered with UGD</td><td>0%</td><td>60%</td><td>80%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Treatment capacity</td><td>0%</td><td>60%</td><td>80%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Reuse and recycling of wastewater</td><td>0%</td><td>5%</td><td>10%</td><td>20%</td><td colspan="2">-</td></tr>
<tr><td>Cost recovery on sewerage services</td><td>0%</td><td>60%</td><td>80%</td><td>100%</td><td colspan="2">-</td></tr>
</table>

	Sewerage user charges -collection efficiency	0%	60%	70%	80%	-

Action Plans	Activities
Comprehensive sewerage plan	• Achieve 100% coverage of sewerage network within SMC limits • Replace the existing out-dated sewerage network • Explore cost effective STPs to meet the present and future demand • Decentralised STPs within the zones • Explore treatment technologies such as sequential batch reactor which consumes less area
Institutional strengthening and capacity building	• To develop sludge management in initial phase and phase out onsite sewage disposal mechanisms. • Increase the sewerage user charges to meet the O&M expenses for new infrastructure to be developed
Operation and maintenance plan	• Develop the asset inventory • Conduct the workshops on sewerage sector to educate the citizens • Prepare the training calendar and provide trainings to all the staff members throughout the year on O&M of assets
Faecal sludge management	• Carry out mapping of onsite sanitary disposal systems in the city • Faecal sludge management to be carried out at regular intervals

Unit Rates	Component	Unit	Unit Cost (Rs in Lakhs)
	New Branch sewerage lines	Km	40
	Sewage Treatment Plant	MLD	40

17.3.1 Capital Investment Plan

Based on the above key requirements in the sewerage and sanitation sector, the capital investment plan for 2021 and 2041 has been estimated and presented in the below table.

Table 101: Projects identified and phasing – Sewerage and sanitation

Project	Sub project	Investment estimated in Rs. crores
A. Construction of Under Ground Sewerage network for 2041 for Siliguri	1. Construction of Under Ground Drainage of 898 kms for 2041 for Siliguri city	**359**
B. Construction of Sewerage Treatment Plant	1. Construction of 147 MLD Sewerage Treatment Plant for 2041	**59**
C. Construction of public toilets	1. Constrcution of 10 public toilets b 2041	**1**
D. Sewerage cleaning equipment	1. Purchase of sewerage cleaning equipment	**2**
Total investment required for 2021		**421**
Total investment required for 2041		**408**

17.3.2 Project details

The key projects and project details in sewerage sector have been presented in the below table.

Table 102: Projects Details – Sewerage and sanitation

Project	Project Details
A. Construction of Under Ground Sewerage network for 2041 for Siliguri	• It has been estimated that a network of 898 km of branch/house sewers would be required by 2041.
B. Construction of Sewerage Treatment Plant	• For a city like Siliguri, where availability of land is a major constraint, a technology like sequential batch reactor would substantially reduce the area required per ML. • It is assumed that the city requires about 147 MLD of STP by the end of 2041.
C. Construction of public toilets	• The project involves construction of public toilets in public places, near bus terminals and slums.
D. Sewerage cleaning equipment	• Sewerage equipment purchase to details the drains at regular intervals.

17.3.3 Phasing of investment

The phasing of investment has been carried out for short term horizon (2021). The sewerage project components have been divided into various components and timelines have been proposed for implementation purpose. The phasing of investment and implementing agency for sewerage and sanitation sector for 2021 has been presented in the table below.

Table 103: Project Phasing – Sewerage and sanitation

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crore)							
A	Construction of Under Ground Sewerage network for 2041 for Siliguri	SMC	359.1	0.0	35.9	107.7	107.7	107.7	0.0	0.0
B	Construction of Sewerage Treatment Plant	SMC	47.4	0.0	4.7	28.4	14.2	0.0	0.0	0.0
C	Construction of public toilets	SMC	0.5	0.0	0.3	0.3	0.0	0.0	0.0	0.0
D	Sewerage cleaning equipment	SMC	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Total			**408.0**	**0.0**	**41.9**	**136.4**	**122.0**	**107.7**	**0.0**	**0.0**

17.3.4 Possibility of PPP

SMC could undertake Construction, Operation, and maintenance of STPs under PPP model:

- Invest SMC's financial contribution and take care of any additional cost under the project
- The project can be awarded for a period of 30 years

Under the PPP model, the developer would have the following responsibilities

- SMC shall handover the land for construction of STPs.
- O&M of STPs has to be carried out by private operator as per the contract period.

- The operator would be responsible for the O&M of STPs and further selling of the treated sewerage water to potential users.
- The revenue sharing between SMC and the private operator can be explored.
- SMC can ask private developer to consider selling of treated water as part of contract
- SMC need to set performance parameters for the private developer to be obliged during the contract period.
- The annuity payment should be a factor of performance parameters achieved by the developer

Key service level parameters

- The performance parameters would in the area of
  - Quality of treated water
  - Number of closure days of STP

Key note

The above model is indicative. SMC would require to appoint a transaction advisor to undertake a detailed feasibility assessment, preparation of bid documents (request for qualification – RFQ, request for proposal – RFP), and bid process management leading to award of contract to a private developer.

17.4 Solid Waste Management sector plan

As mentioned in the Solid Waste Management sector assessment, the coverage of door-to-door waste collection in the city is about 82%. However there is no waste recovery mechanism and scientific landfill site. The current gap in fleet requirement is 450 MT, and the demand for 2041 has been estimated as 630 MT. The sector plan for Solid Waste Management in SMC has been presented in the table below.

Table 104: Solid Waste Management sector plan

<table>
<tr><th colspan="8">Solid Waste Management Sector</th></tr>
<tr><td>Sector goals</td><td colspan="7">• Effective implementation of outreach mechanisms to improve door-to-door collection and segregation at source
• Improve the infrastructure related to treatment of waste (to ensure recovery of at least 50% waste collected)
• Develop dumping yard as a regional landfill site with scientific closure mechanism
• Introduce new solid waste management user charges.</td></tr>
<tr><td>Design parameters</td><td colspan="7">• All the households should be covered with the door-to-door waste collection system.
• Segregation of waste at source – (ensure 70 % of waste would be segregated at the source)
• Optimum fleet utilization (No. of trips/ vehicle/ day - average minimum of 2)
• Desired SWM treatment capacity – 50% of generated waste
• Desired landfill site– 50% of the waste generated</td></tr>
<tr><td rowspan="5">Demand gap assessment</td><td rowspan="2">Component</td><td rowspan="2">2014</td><td rowspan="2">Current gap</td><td colspan="2">2021 (Short term)</td><td colspan="2">2041 (long term)</td></tr>
<tr><td>Demand</td><td>Gap</td><td>Demand</td><td>Gap</td></tr>
<tr><td>Vehicles for transportation of waste (capacity in MT)</td><td>617</td><td>450</td><td>964</td><td>348</td><td>1576</td><td>959</td></tr>
<tr><td>Construction of Waste Processing facility (In MT)</td><td>0</td><td></td><td>231</td><td>231</td><td>378</td><td>378</td></tr>
<tr><td>Development of scientific landfill facility (in Acres)</td><td>0</td><td>280</td><td>24</td><td>24</td><td>107</td><td>107</td></tr>
<tr><td></td><td></td><td>2013</td><td>2017</td><td>2019</td><td>2021</td><td colspan="2">Remarks</td></tr>
</table>

Desired outcomes	Door-to-door waste collection	82%	100%	100%	100%	-
	Segregation at source	0%	60%	80%	100%	-
	Mechanised waste handling	20%	60%	80%	100%	-
	Waste treatment capacity	0%	10%	30%	50%	-
	Scientific waste disposal	0%	75%	80%	100%	-
	Cost recovery of O&M	0%	80%	100%	100%	-
	Private sector participation	0%	50% primary waste collection	100% primary waste collection	Complete collection, transport, treatment, and disposal	-

Action Plans	Activities
Door-to-door waste collection	• Door-to-door waste collection should be implemented across SMC. The taskforce should be appointed for the effective implementation of the programme and further to achieve the desired goals.
Source segregation and collection of commercial waste	• The segregation of biodegradable and non-biodegradable wastes should be done at the source level. • This segregation of waste would improve the recovery from waste collected since the calorific value of the dry waste is not affected.
Composting of organic waste	• About 50% of the waste generated in the city is organic in nature. • Hence, the technology and treatment plant should be in line with the waste generated in the city.
Scientific landfill	• A regional landfill site with closure mechanism for inorganic wastes is to be developed in accordance with the CPHEEO norms.
IEC	• For effective solid waste management in the city, regular awareness campaigns have to be conducted in the city on 4R strategy (reduces, reuse, recycle, and recover).

Unit rates	Component	Unit	Unit Cost (Rs in Lakhs)
	Waste processing & Compost Plant	MT/day	25
	Landfill site	Per acre	30

17.4.1 Capital Investment Plan

Based on the above key requirements in the SWM sector, the capital investment plan for Solid waste management is presented in the below table.

Table 105: Projects identified – Solid waste management

Project	Sub project	Investment estimated in Rs. crores
A. Vehicles for transportation of waste (capacity in MT)	1. Arranging Vehicles and development of scientific resource management and IEC	24
B. Construction of Waste Processing facility	1. Construction of 231 MT waste processing and compost plant for 2021 for Siliguri city	57
C. Development of scientific landfill facility	1. Construction of 24 acres landfill facility for 2021 for Siliguri	27
D. Construction of Biogas plant		5
E. Primary collection	1. Purchase of equipment for primary collection 2. IEC and awareness campaigns	4
Total investment required for 2021		**117**
Total investment required for 2041		**76**

17.4.2 Project details

The key projects and project details in SWM sector is presented in the below table:

Table 106: Projects Details – Solid waste management

Project	Details
A. Vehicles for transportation of waste (capacity in MT)	• The components envisaged under collection system are push carts (1 push cart for 350 Household), tippers, tractors etc and community bins along the main roads. • Information and education campaigns (IEC) are recommended for effective primary collection and segregation at source.
B. Construction of Waste Processing facility	• Investment envisaged towards development of compost plant cum waste processing plant & RDF plant. • Windrow composting plant: The method involves construction of compost plant for a controlled aerobic decomposition of organic waste in a windrow composting process to avoid methane emissions from anaerobic decomposition of municipal solid waste (MSW).The aerated composting process not only avoids methane emissions but also results in compost as a product that can be utilized as organic fertilizer.
C. Development of scientific landfill facility	• The area required for scientific landfill has been projected in view of accumulated waste and future waste generation. • It is assumed that on development of treatment facility, about 50% of waste would be sent for landfilling.

Project	Details
	• Accordingly, the investment has been envisaged for the development of a landfill of 24 acres with required infrastructure.
D. Construction of Biogas plant	• Investment envisaged towards development of compost plant cum waste processing plant, RDF plant and Bio gas plant.
E. Primary collection	• The components envisaged under primary collection are push carts and community bins along the main roads. • Information and education campaigns (IEC) are recommended for effective primary collection and segregation at source.

17.4.3 Phasing of investment

The SWM project components have been divided into various components for implementation purpose. Further, the timeliness and implementing agency have been proposed for each component, and the same have been presented in the table below.

Table 107: Phasing of investment – Solid waste management

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20
			(Rs. In Crores)					
A	Vehicles for transportation of waste (capacity in MT)	SMC	8.7	0.0	1.7	7.0	0.0	0.0
B	Construction of Waste Processing facility	SMC	15.2	0.0	1.5	3.0	10.6	0.0
C	Development of scientific landfill facility	SMC	45.0	0.0	4.5	9.0	31.5	0.0
D	Construction of Biogas plant	SMC	5.0	0.0	2.5	2.5	0.0	0.0
E	Primary collection	SMC	2.0	0.0	1.0	1.0	0.0	0.0
		Total	**75.9**	**0.0**	**11.3**	**22.5**	**42.2**	**0.0**

17.4.4 Possible PPP interventions

- **PPPs in SWM are in accordance to nature of work, viz.,**
  - Collection and transportation of waste
  - Landfilling
  - Composting
- **SMC can explore PPP in collection and transportation of waste under which**
  - SMC would procure the vehicles or can ask a private developer to deploy vehicles and manpower
  - Undertake door to door collection of waste from all residential and commercial premises
  - Such contracts can be awarded for 1 or 2 years and can be renewed based on performance
  - The private operator can bid on the tipping fee per ton of waste collected
  - SMC need to set performance parameters for the private developer to be obliged during the contract period. The tipping fee should be a factor of performance parameters achieved by the developer
  - The performance parameters would in the area of
    - Coverage of door to door collection of waste
    - Amount of waste collected
    - Complaints received

- **Landfilling** – This can be developed on BOT basis. SMC would provide the land to the developer, and the developer shall be responsible for the construction and O&M of the facility. The private developer can bid on annuity support required to construct and operate and maintain the project.
- **Composting** – SMC may create market by floating tenders wherein the developer can be asked to set up a composting facility, and the maximum contribution from the revenues bid by the developer shall be the winning bid.

SMC would require to appoint a transaction advisor to undertake detailed feasibility and preparation of bid documents (request for qualification – RFQ, request for proposal – RFP) and bid process management leading to award of contract to private developer.

17.5 Storm Water Drainage Sector Plan

As discussed in the sector assessment, about 83% of road network is covered with the open drainage system. There is about 10-15 water logging areas and the water logging has been reported during the monsoons.

Table 108: Strom Water Drainage sector plan

<table>
<tr><th colspan="8">Strom Water Drainage sector</th></tr>
<tr><td>Sector goals</td><td colspan="7">• Improve the storm water collection efficiency with proper drainage system
• Rejuvenate the existing natural drainage course in the city
• Minimize the water logging areas and flooding incidence in the city</td></tr>
<tr><td>Design parameters</td><td colspan="7">• Storm water network on all roads and link to major channels.
• Storm water drains as percentage of road length is considered as 130%.
• Roads with dividers should have drains on either side of the road.
• 90% of the storm water drains as pucca closed
• Size of drains to be designed according to the rainfall and runoff.</td></tr>
<tr><td rowspan="3">Demand gap assessment</td><td rowspan="2">Component</td><td rowspan="2">2014</td><td rowspan="2">Current gap</td><td colspan="2">2021 (Short term)</td><td colspan="2">2041 (long term)</td></tr>
<tr><td>Demand</td><td>Gap</td><td>Demand</td><td>Gap</td></tr>
<tr><td>Closed Pukka drains (km)</td><td>13</td><td>792</td><td>861</td><td>848</td><td>861</td><td>848</td></tr>
<tr><td rowspan="4">Desired outcomes</td><td></td><td>2013</td><td>2017</td><td>2019</td><td>2021</td><td colspan="2">Remarks</td></tr>
<tr><td>Storm water drainage network coverage</td><td>84%</td><td>100%</td><td>100%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Rehabilitation of existing pucca drains</td><td>20%</td><td>50%</td><td>80%</td><td>100%</td><td colspan="2">-</td></tr>
<tr><td>Rehabilitation of existing primary nallahs and primary drains</td><td>-</td><td>40%</td><td>60%</td><td>80%</td><td colspan="2">-</td></tr>
<tr><th>Action Plans</th><th colspan="7">Activities</th></tr>
<tr><td>Storm water drainage rehabilitation plan</td><td colspan="7">• Assessment of percentage of pucca and kutcha surface drains within SMC limits
• Identification of water logging areas, contour survey of areas
• Development of pre-monsoon maintenance plan to include cleaning and desilting of the surface drains</td></tr>
<tr><td>Rehabilitation and strengthening of nallahs</td><td colspan="7">• Unregulated constructions and siltation along these channels hamper the drainage system during the monsoon.
• Hence, it is important that these nallahs to be mapped and developed with retaining walls.</td></tr>
</table>

Strom Water Drainage sector			
Up-gradation of roadside storm water drains	• Upgrade and extend the road side surface drains across the city.		
Unit Rates	Component	Unit	Unit Cost (Rs in Lakhs)
	Rehabilitation of Vagus /Nallahs - Primary SWD		
	Earthen portion	Per km	80
	Semi pucca nallahs	Per km	100
	Up gradation of SWD network	Per km	35

17.5.1 Capital Investment Plan

Based on the above key requirements in the storm water drainage sector, the capital investment plan for storm water drainage is presented in the below table.

Table 109: Projects identified – Storm water drainage

Project	Sub Project	Estimated cost in Rs. Crores
A. Construction of new Pukka Closed Drains	Construction of 848 kms of Pucca drains by 2021 for Siliguri city	**424**
Total investment required for 2021		**424**
Total investment required for 2041		**424**

17.5.2 Project details

The key projects and project details in storm water drainage is presented in the below table.

Table 110: Projects Details – Storm water drainage

Projects	Project Details
A. Construction of new Pukka Closed Drains	• Development 848 km of pucca drains for the design year 2021.

17.5.3 Phasing of investment

The storm water drainage project components have been divided into various components for implementation purpose. Further, the timeliness and implementing agency have been proposed for each component, and the same have been presented in the table below.

Table 111: Phasing of Investment – Storm water drainage

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
B	Construction of new Pukka Closed Drains	SMC	424	0	42	85	254	43	0	0
		Total	**424**	**0**	**42**	**85**	**254**	**43**	**0**	**0**

17.6 Urban roads, traffic and transportation sector plan

The city does not have 100% coverage of Cement Concrete /Bitumen Tar surface roads. Pedestrian safety and increasing accident rate are the other major concerns. Lack of foot over bridges and zebra crossing on major congested roads is an issue in the city. The city doesn't have a proper public transport system. All the major roads have on-street parking, which reduces the effective right of way.

Table 112: Urban Roads and Traffic and Transportation

Urban Roads and Traffic and Transportation							
Sector goals	• Maximize the share of public transport and reduce traffic congestion • Minimize road accidents and improve the pedestrian related infrastructure • Improve parking facilities across the city • Develop green buffers along NH, SH and major arteries						
Design parameters	• At least 60% of the roads must have footpaths (i.e., roads of 20 feet and above). • As per Development Plan, 13% of land use to be under roads. • All roads have to be surfaced with about 15% being concrete roads. • All major roads should have utility corridors for laying of telecom, gas, and electrical infrastructure in future. • Streetlight spacing – should be 30 m between the poles						
Demand gap assessment	**Component**	**2014**	**Current gap**	**2021 (Short term)**		**2041 (long term)**	
				Demand	**Gap**	**Demand**	**Gap**
	Up-gradation of road network BT to CC (km)	80	3	90	10	90	10
	Up-gradation of road network WBM & Earthen to BT (km)	95	95	-	-	-	-
	New Black Top Roads	650	92.5	808	158	808	158
	High Power Lamp	2197	25575	27834	25637	27834	25637
	High Mast Lamp	75	550	599	524	599	524
Desired outcomes		**2013**	**2017**	**2019**	**2021**	**Remarks**	
	% of surfaced roads	85%	100%	100%	100%	-	
	Reduction in travel time	-	80%	100%	100%	-	
	Transport safety	-	60%	80%	100%	-	
Action Plans	**Activities**						
Integrated transport plan for Siliguri	• Ensuring good roads by extension of road network system has been proposed in hierarchical manner comprising arterial, sub arterial, collector and local roads within a radial ring system. • Encouraging public transport by developing Public transport network and development of bus bays, bus stands/shelters • Regularisation of hawking zones and parking management • Encouraging Non-motorised traffic including development of cycle tracks, pedestrian crossings, walkways in the city. • Prohibition of truck traffic in the city during day time by developing logistic parks						
Development of Transport Infrastructure	• Widening and upgrading the arterial, sub arterial and collector roads as well as improving the residential streets • Development of skywalks/subways, pathways, cycle tracks • Development of logistics park/truck terminals at outskirts of the city						

Urban Roads and Traffic and Transportation	
	• Development of transit centres for changing the modes inside city and at the new TOD centres • Development of elevated road corridor in the city • Development of outer Ring Road

	Component	Unit	Unit Cost (Rs in Lakhs)
Unit Rates	Up gradation BT to CC	Km	60
	Up gradation WBM & Earthen to BT	Km	15
	New Black Top Roads	Km	25

17.6.1 Capital Investment Plan

Based on the above key requirements in the traffic and transportation sector, the capital investment plan for traffic and transportation is presented in the below table.

Table 113: Projects identified – Traffic and transportation

Project	Sub project	Estimated cost in Rs. Crores
A. Up-gradation of road network WBM & Earthen to BT (km)	1. Upgrade BT to CC 2. Upgrade from WBM & Earthen to BT	20
B. New Black Top Road	1. Laying of 150 Kms of new black top roads	40
C. Widening and up gradation of roads in core city	1. Widening and up gradation of Hill Cart Road. 2. Widening and up gradation of Bidhan Road. 3. Widening and up gradation of Sevoke Road. 4. Widening and up gradation of Wall Fort Road. 5. Widening and up gradation of Nivedita Road. 6. Widening and up gradation of Station Feeder Road. 7. Widening and up gradation of Road between Jalpai More to matigara	100
D. Road network system	1. Connectivity to Medical College on the western bank of Mahananda near Jalpai More 2. Widening of Road between Jalpai More to matigara	20
E. Flyover or Underpasses	**1.** Check Post More 2. Mallaguri Intersection 3. Between Nivedita road and Hill Cart road near Gurung Basti.	231
F. Junction improvements	1. Sevoke More 2. Pani Tanki More 3. Venus More 4. Air View More 5. Champasari More 6. Darjeeling More 7. Tinbatti More 8. Jalpai More	34

Project	Sub project	Estimated cost in Rs. Crores
G. Transit Oriented Development (ToD)	1. Ambari Falakata 2. Paribahan Nagar	100
H. Development of new bus stand	1. Paribahan Nagar to the south of the NJP Railway Station	50
I. Relocation of existing bus stand	1. Relocation of Sikkim Bus Stand to Paribahan Nagar 2. Relocation of T.Norgey Bus Terminus to Paribahan Nagar. 3. Relocation of P.C.Mittal Bus Terminal to Paribahan Nagar.	20
J. Multi level parking	1. Near Sikkim Bus Stand 2. T.Norgey Bust Stand (After Relocation) 3. P.C.Mittal Bus Stand (After Relocation)	6
K. Development of road safety facilities in Siliguri city	1. Development of Pedestrian Facilities (1-2m wide) along Hill Cart Road 2. Development of Pedestrian Facilities (1-2m wide) along Bidhan Road 3. Development of Pedestrian Facilities (1-2m wide) along Sevoke Road 4. Development of Pedestrian Facilities (1-2m wide) along Nivideta and Station Feeder Road	3
L. Street Light	1. Installation of high power lamps by 2021	26
	2. Installation of high mast lamps by 2021	
Total investment required for 2021		**650**
Total investment required for 2041		**407**

17.6.2 Project details

The key projects and project details in traffic and transportation is presented in the below table.

Table 114: Projects Details– Traffic and transportation

Project	Project Details
A. Up-gradation of road network	• Upgrade the present BT roads to CC roads • Upgrade the present WBM & Earthen roads to BT roads
B. New Black Top Road	• Laying of 150 Kms of new black top roads
C. Widening and up gradation of roads in core city	• The 7 stretches identified in comprehensive mobility plan have been proposed for widening and up gradation.
D. Road network system	• Constrctuion of road connecting to Medical College on the western bank of Mahananda near Jalpai More and widening of Road between Jalpai More to matigara
E. Flyover or Underpasses.	• To improve the accessibility within the City following flyovers have been proposed. ○ Check Post More ○ Mallaguri Intersection ○ Between Nivedita road and Hill Cart road near Gurung Basti.
F. Junction improvements	• The 8 prime junctions identified by the traffic police department have been considered for improvement. • The junction improvement involves design and construction of islands, installation of automated signalling systems.

Project	Project Details
G. Transit Oriented Development (ToD)	• The project involves transit oriented development at Ambari Falakata and Paribahan Nagar with transit centre and logistic park.
H. Development of new bus stand	• Inorder to address the growing congestion in the existing bus terminals in the city a new bus station with all the necessary amenities and workshop has been proposed at Paribahan Nagar to the south of the NJP Railway Station.
I. Relocation of existing bus stand	•
J. Multi-level parking	• Multi-level car parking has been proposed in major commercial areas near Sikkim Bus Stand, T.Norgey Bust Stand (After Relocation) and P.C.Mittal Bus Stand (After Relocation).
K. Development of road safety facilities in Siliguri city	• Development of foot patchs along the identified road network and improvising the Lane and Zebra Markings within SMC limits have been proposed.
L. Street Light	• The project involves installation of 25637 high power lamps and 524 high mast lamps by 2041.

17.6.3 Phasing of investment

The traffic and transportation project components have been divided into various components for implementation purpose. Further, the timeliness and implementing agency have been proposed for each component, and the same have been presented in the table below.

Table 115: Phasing of investment– Traffic and transportation

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
A	Up-gradation of road network	SMC	20.1	0.0	0.0	0.0	4.0	12.1	4.0	0.0
B	New Black Top Road	SMC	39.5	0.0	0.0	0.0	7.9	23.7	7.9	0.0
C	Widening and up gradation of roads in core city	SMC	50.0	0.0	0.0	0.0	10.0	30.0	10.0	0.0
D	Road network system	SMC	9.8	0.0	0.0	0.0	2.0	5.9	2.0	0.0
E	Flyover or Underpasses	SMC	115.7	0.0	11.6	46.3	46.3	11.6	0.0	0.0
F	Junction improvements	SMC	16.8	0.0	1.7	6.7	6.7	1.7	0.0	0.0
G	Transit Oriented Development (ToD)	SJDA	50.0	0.0	5.0	20.0	20.0	5.0	0.0	0.0

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
H	Development of new bus stand	State RTC	50.0	0.0	15.0	20.0	15.0	0.0	0.0	0.0
I	Relocation of existing bus stand	State RTC	20.0	0.0	10.0	10.0	0.0	0.0	0.0	0.0
J	Multi level parking	SMC	6.0	0.0	0.6	2.4	2.4	0.6	0.0	0.0
K	Development of road safety facilities in Siliguri city	SMC	3.0	0.0	0.3	1.2	1.2	0.3	0.0	0.0
	Street Light	SMC	26.4	0.0	5.3	21.1	0.0	0.0	0.0	0.0
		Total	**407.4**	**0.0**	**49.4**	**127.8**	**115.5**	**90.8**	**23.9**	**0.0**

17.7 Basic Services for Urban Poor Sector Plan

With respect to housing and basic services for the urban poor, the key challenges are dilapidated housing and lack of service coverage in terms of individual toilets and social infrastructure facilities. The sector plan for basic services for urban poor has been presented in the table below.

Table 116: Basic Services for Urban Poor sector plan

Basic Services for Urban Poor						
Sector goals	• Improve the access to physical and social infrastructure to slum dwellers • Develop livelihood strategies to improve the work force participation					
Design parameters	• New houses to households living in kutcha houses and dilapidated structures in merged areas • Water Supply – Individual house service connections to all the slum households or group connections • Sewerage - Individual house service connections • Sanitation – Community toilets • Solid Waste Management - Coverage of all slum households under door-to-door collection and awareness campaigns on source segregation					
Desired outcomes		2013	2017	2019	2021	Remarks
	Pucca housing for the urban poor	48%	60%	100%	100%	-
	Adequate access to water supply	66%	80%	100%	100%	-
	Access to open drains	59%	80%	100%	100%	-
	Access to sanitation	70%	80%	100%	100%	-
	% of CC roads	73%	90%	100%	100%	-
	Access to UGD	0%	40%	80%	100%	-
	Access to health and education facilities	60%	80%	100%	100%	-

	(based on discussions with Municipal public health officer)					

Action Plans	Activities		
Categorization of slums	• There are 154 declared and 31 undeclared slums.		
Integrated development of slums	• Slum networking strategies to be adopted to improve the services in the slums. • This would help in building the low cost service in the slums (especially in water supply, sewerage, and SWM sector).		
Rehabilitation of slums	• Pucca housing with infrastructure facilities to be developed in feasible locations.		
Construction of housing	• The slums in low lying areas and along the natural drains could be proposed for relocation. • A suitable financing strategy could be developed to minimize the burden on the beneficiaries. • The beneficiaries could be provided access to banks for availing the long-term housing loans.		
Access to health and education	• The health action plan should control the prevalent diseases and reduce the infant mortality rate. • Access to emergency medical services should be provided to the BPL population. • The education action plan should involve renovation of existing municipal schools and regular awareness campaigns to limit the dropout rates.		
Livelihood restoration	• Activity centres to be established for skill development programmes		
Unit Rates	**Component**	**Unit**	**Unit Cost (Rs in Lakhs)**
	Slum Housing (16188 Units)	LS	486

17.7.1 Capital Investment Plan

Based on the above key requirements in the basic services to urban poor sector, the capital investment plan for basic services for urban poor is presented in the below table.

Table 117: Urban poverty alleviation – Projects identified

Project	Estimated cost in Rs. Crores
A. Slum Housing (16,188 Units)	486
B. Insitu development of slums	154
C. Livelihood development	11
Total investment required for 2021	**651**
Total investment required for 2041	**568**

17.7.2 Project Details

The key projects and project details in basic services to urban poor is presented in the below table.

Table 118: Urban poverty alleviation – Projects Details

Projects	Project Details
A. Affordable Housing (16188 Units)	• New housing and infrastructure requirement for the year 2041.

Projects	Project Details
B. Insitu development of slums	• It is recommended that in slums where relocation is possible, *in-situ* up-gradation may be taken up.
C. Livelihood development	• The project involves development of vocational training for employment generation and development of social security mechanisms

17.7.3 Phasing of investment

The basic services to urban poor project components have been divided into various components for implementation purpose. Further, the timeliness been proposed for each component, and the same have been presented in the table below.

Table 119: Urban poverty alleviation – Phasing of investment

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
A	Affordable Housing (16188 Units)	SMC	486	49	97	146	194	0	0	0
B	Insitu development of slums	SMC	77	0	8	15	23	31	0	0
C	Livelihood development	SMC	5	0	1	1	2	2	0	0
Total			**568**	**0**	**57**	**114**	**170**	**227**	**0**	**0**

17.8 Social infrastructure Sector Plan

As discussed in the assessment chapter, the key challenges are lack of adequate education infrastructure for pre-primary, primary, and higher secondary education. There is a need for health care infrastructure at both neighbourhood and city level. Socio-cultural infrastructure like community centres are to be developed in identified wards. Further, as discussed in the cultural resources section, integrated heritage linked city development strategies are also proposed to preserve and reuse the identified heritage structures in the city.

Table 120: Social infrastructure sector plan

Social Infrastructure						
Design parameters	• Schools, hospitals, socio cultural and parks and playground requirements assessed as per URDPFI guidelines					
Demand gap assessment for education infrastructure	Component	Existing	2021		2041	
			Demand	Gap	Demand	Gap
	Primary school	79	145	64	226	147
	Senior secondary school	13	96	83	151	138
Demand gap assessment for healthcare infrastructure	Component	Existing	2021		2041	
			Demand	Gap	Demand	Gap
	Dispensary	30	48	18	75	45
	Nursing home, child welfare and maternity centre	29	16	0	25	0
	Multi-Specialty Hospital (NBC)	3	7	4	11	8
	Diagnostic centre	68	14	0	23	0

Social Infrastructure						
Demand gap assessment for veterinary services	Veterinary Hospital for pets and animals	0	14	14	8	14
	Dispensary for pet animals and birds	0	7	14	9	9
Demand gap assessment for Socio cultural infrastructure	**Component**	**Existing**	**2021**		**2041**	
			Demand	**Gap**	**Demand**	**Gap**
	Community hall, mangal karyayala, barat ghar/ library	31	48	17	75	44
	Music, dance and drama centre	11	7	0	11	0
	Recreational Club	74	7	0	11	0
Demand gap assessment for Parks and play grounds	**Component**	**Existing**	**2021**		**2041**	
			Demand	**Gap**	**Demand**	**Gap**
	Play grounds (in hectares)	7.77	263	255	334	415
Action Plans	• Identification of areas for development of new schools and hospitals. • Development of schools with hostel facilities and schools for specially abled children. • Development of ward level community centers and Anganwadi. • Development of night shelters, old age home in the city limits. • Mapping of health care facilities in the city					
Unit Rates	**Component**		**Unit**		**Unit Cost (Rs in Lakhs)**	
	Primary school		LS		6	
	Senior secondary school		LS		10	
	Multi-Specialty Hospital (NBC)		LS		600	
	Diagnostic center		LS		75	
	Community halls		LS		8	
	Music, dance and drama center		LS		8	
	Recreational Club		LS		8	
	Play grounds		Per Sq.meter		0.0005	

17.8.1 Capital Investment Plan

Based on the above key requirements in the social infrastructure sector, the capital investment plan for sociocultural infrastructure is presented in the below table.

Table 121: Socio cultural infrastructure – Projects identified

Project	Sub Project	Estimated cost in Rs. Crores
A. Education Sector	1. Development of school infrastructure	50
B. Health Sector	1. Development of hospital infrastructure	192
C. Socio cultural infrastructure	1. Development of socio cultural infrastructure	6
D. Parks and play grounds	1. Development of parks and play grounds	28
Total investment required for 2021		**276**
Total investment required for 2041		**210**

17.8.2 Project Details

The key projects and project details in social infrastructure is presented in the below table.

Table 122: Socio cultural infrastructure – Projects Details

Project	Details
A. Education Sector	• Renovation of existing dilapidated schools and construction of new schools in the newly added areas.
B. Health Sector	• Development of urban health centres, intermediate hospitals, and one super speciality hospital within the SMC limits
C. Socio cultural infrastructure	• Construction of ward level community centres, meditation and spiritual centres, libraries as per the URDPFI guidelines.
D. Parks and play grounds	• Up gradation of existing parks and development of new parks at neighbourhood, community and city level as per the URDPFI guidelines.

17.8.3 Phasing of projects

The social infrastructure project components have been divided into various components for implementation purpose. Further, the timeliness been proposed for each component, and the same have been presented in the table below.

Table 123: Socio cultural infrastructure – Phasing of projects

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
A	Development of school infrastructure	SMC & State Government departments	25.9	0.0	0.0	2.6	5.2	7.8	7.8	2.6
B	Development of hospital infrastructure	SMC & State Government departments	163.7	0.0	0.0	16.4	32.7	49.1	49.1	16.4
C	Development of socio cultural infrastructure	SMC & State Government department	2.1	0.0	0.0	0.2	0.4	0.6	0.6	0.2
D	Development of parks and play grounds	SMC	17.8	0.0	0.0	1.8	3.6	5.4	5.4	1.8
Total			**209.5**	**0.0**	**0.0**	**21.0**	**41.9**	**62.9**	**62.9**	**21.0**

Note: it has been assumed that about 30% of the investment in health and education sector would be borne by SMC alone. The rest of the investment would be taken up by respective state Government departments.

17.9 Urban Environment Sector Plan

The two major interventions identified under urban environment are rejuvenation of water bodies and pollution mitigation strategies. Under pollution mitigation, augmentation of pollution control check devices, installation of sprinklers at identified corridors, and plantation activity have been identified. A disaster management cell at SMC has been proposed to disseminate information on natural disasters. Further, solar street lighting and rooftop solar projects have been proposed.

Table 124: Urban environment sector strategy

Urban Environment						
Sector goals	• Improve the access to physical and social infrastructure to slum dwellers • SMC to frame a policy to mitigate the various pollutions and effective use of natural resources in the city • Develop green zones/breathing spaces in the city to improve the quality of the life • Utilize the potential for ecosystem service to improve resilience, subsistence and livelihoods in the city					
Desired outcomes		2013	2017	2019	2021	Remarks
	Preservation of water bodies	40%	60%	80%	100%	
	Ground water recharge	Nil	60%	80%	100%	
	Beautification at the water bodies	Nil	60%	80%	100%	
Action Plans	**Activities**					
Mapping of water bodies	• Mapping of water bodies to be carried out to assess the physical extent, cultural, natural and social values					
Eviction of encroachments	• Participatory approach for resettlement of encroachments around the water bodies					
Pollution mitigation strategies	• Increasing the green cover and buffer zones in the city to mitigate air pollution in the city					
Energy conservation	• SMC in collaboration with WBREDA may take up energy conservation measures such as solar signalling and street lighting system					
Impact assessment and monitoring	• Regular monitoring of air quality, water quality (surface and ground), and noise pollution • Carrying out environmental impact assessment prior to implementation of infrastructure projects					
Disaster Management	• Developing Siliguri as disaster resilient city • Development of control room or city level service center • Development of emergency control responsive system • Mapping of water inundation areas in the city					
Climate Change	• Energy efficient Street Lighting to be introduced in SMC limits • Retrofit tube lighting system for 40 watt streetlights • Energy auditing at building level in Government and institutional buildings • Decentralized Solar Photovoltaic paneling on Government and institutional buildings • Creating awareness amongst citizens on suitable renewable energy and energy efficiency technologies • Awareness activities for school children on renewable energy and energy efficiency measures					
Unit Cost	**Component**		**Unit**		**Unit Cost (Rs in Lakhs)**	

Urban Environment			
	Walking track and landscape around water bodies	Lump Sum per water body	21
	Rooftop solar panel	Per MW	6.5

17.9.1 Capital Investment Plan

Based on the above key requirements in the urban environment sector, the capital investment plan for urban environment is presented in the below table.

Table 125: Urban environment– Projects identified

Project	Sub project	Estimated cost in Rs. Crores
A. Rejuvenation of water bodies	1. Construction of walking tracks around water bodies	21
B. Tree Plantation	1. Tree Plantation in various parts of the city	7
C. Urban pollution mitigation	2. Pollution control check devices, installation of sprinklers at identified corridors, and plantation activity	1
D. Disaster management cell	1. Establishment of Disaster management cell at SMC with Emergency response system.	14
E. Solar street lighting	1. Solar street lighting along major arteries	28
F. Rooftop Photovoltaic paneling	1. Installation Rooftop Photovoltaic paneling on Government and institutional buildings	56
G.	1. River Front Development	100
Total investment required for 2021		**227**
Total investment required for 2041		**114**

17.9.2 Project Details

The key projects and project details in urban environment is presented in the below table.

Table 126: Urban environment– Projects Details

Project	Project Details
A. Rejuvenation of water bodies	• Water bodies in SMC limits to control eutrophication. • Construction of walking tracks around water bodies. (Participatory approach to be adopted for resettlement of encroachments around the water bodies).
B. Tree Plantation in the City	• To increase the green cover in the city, tree plantation along the road medians, institutional buildings and open spaces has been proposed.
C. Urban pollution mitigation	• Installation of Pollution control check devices along highways and major arteries.

Project	Project Details
D. Disaster management cell	• Disaster management cell to be established at SMC to act as the nodal point for all emergency related activities in the city. • Installation of communication devices to facilitate information dissemination on natural disasters.
E. Solar street lighting	• Installation of streetlights with solar panels along the major arteries in the city.
F. Rooftop Photovoltaic paneling	• Identification of Government and institutional buildings for installation of decentralized rooftop solar capacity.
G. River Front Development	• Identifying the stretch of water to develop the river front development

17.9.3 Phasing of investment

The urban environment project components have been divided into various components for implementation purpose. Further, the timeliness been proposed for each component, and the same have been presented in the table below.

Table 127: Urban Environment– Phasing of investment

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
A	Rejuvenation of water bodies	SMC	11	0	1	2	7	0	0	0
B	Tree Plantation in the City	SMC	4	0	1	3	0	0	0	0
B	Urban pollution mitigation	SMC & Pollution Control board	1	0	0	0	0	0	0	0
C	Establishment of Disaster management cell at SMC with Emergency response system	SMC and District committee	7	0	0	7	0	0	0	0
D	Solar street lighting along major arteries	SMC and WBREDA	14	0	3	11	0	0	0	0
E	Rooftop Photovoltaic paneling on Government and institutional buildings	SMC and WBREDA	28	0	6	22	0	0	0	0
F	River Front Development	SMC	50	0	0	5	10	15	15	5
Total			**114**	**0**	**10**	**51**	**17**	**15**	**15**	**5**

17.10 Local Economic Development Sector Plan

The projects under Local Economy Development have been identified in view of the vision formulated for the city development. As the vision suggests, the city could be developed as a Tourist, Transit and Trading hub by 2041. In view of the expanded SMC jurisdiction, Tea museum and timber production areas could be developed within the city limits.

Table 128: Local Economic Development sector strategy

Local Economic Development	
Sector goals	• Development of special industrial zones within the SMC jurisdiction. • Development of infrastructure to facilitate IT/Business parks and SEZ
Action Plans	**Activities**
Development of Food based industries	• Development of auction centre like for Pineapple & Tea. • Construction of Various markets like Flower market
Redevelopment of markets in the city	• Relocation of markets from congested areas and structural strengthening of old market areas.
Development of new markets	• Areas to be identified in the new areas for development of wholesale vegetable and fruit markets.
Development of supporting infrastructure for Special Economic Zones	• Feasibility studies to be carried out for identification of land for development of special economic zones • The proposed land use in the land identified for SEZ is to be revisited to ensure delays in NA conversions could be curbed.
Regularising street vending in line with Protection of Livelihood and Regulation of Street Vending Act, 2014	• Survey and identification of hawkers in the city • Development of infrastructure for regularised street vending activity • Establishment of common facility Centre for Small & cottage industries.

17.10.1 Capital Investment Plan

Based on the above key requirements in the local economic development sector, the capital investment plan for local economic development is presented in the below table.

Table 129: Local Economic Development – Projects

Project	Estimated cost in Rs. Crores
A. Development of Market, Small Trade Industry & Bazar.	35
B. Vocational Training for unemployed youth.	1
C. Establishment of common facility Centre for Small & cottage industries.	7
D. Rest shed or temporary housing facility for industrial workers.	7
E. Setting up of a permanent fairground (for formal industries and informal manufacturing sector / cottage industries).	21
F. Construction of Flower market cum car parking space at ground floor at Kumartuli Siliguri added areas ward 45,46 & 47	7
G. Pineapple & Tea auction centre	10
H. New Market Complexes.	14
Total investment required till 2041	**102**
Total investment required for 2021	**95**

17.10.2 Project Details

The key projects and project details in local economic development is presented in the below table.

Table 130: Local Economic Development – Project Details

Project	Details
A. Development of Market, Small Trade Industry & Bazar.	• The project involves development of Market, Small Trade Industry & Bazar.
B. Vocational Training for unemployed youth.	• Training program for the unemployed youth.
C. Establishment of common facility Centre for Small & cottage industries.	• The project involves development of Market, Small Trade Industry & Bazar for small cottage industries.
D. Rest shed or temporary housing facility for industrial workers.	• To develop Rest sheds on temporary basics for providing housing facilities for the workers working in various industries at Siliguri
E. Setting up of a permanent fairground (for formal industries and informal manufacturing sector / cottage industries).	• Construction of Fairground for display and marketing of the products from the local craftsman.
F. Construction of Flower market cum car parking space at ground floor at Kumartuli Siliguri added areas ward 45,46 & 47	• Construction of the Flower market with proper Parking facilities at the Kumartuli Area
G. Pineapple & Tea auction centre	• Construction of Pineapple and Tea Auction Centre at Siliguri
H. New Market Complexes.	• Construction of New Market Complexes at Siliguri

17.10.3 Phasing of investment

The local economic development project components have been divided into various components for implementation purpose. Further, the timeliness been proposed for each component, and the same have been presented in the table below.

Table 131: Local Economic Development – Phasing of investment

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
A	Development of Market, Small Trade Industry & Bazar.	SMC & SJDA	35.1	0.0	0.0	14.0	21.0	0.0	0.0	0.0
B	Vocational Training for unemployed youth.	Dept. of youth advancement.	0.7	0.0	0.0	0.3	0.4	0.0	0.0	0.0
C	Establishment of common facility Centre for Small & cottage industries.	SMC & WBIDC	7.0	0.0	0.0	2.8	4.2	0.0	0.0	0.0
D	Rest shed or temporary housing facility for industrial workers.	SMC & WBIDC	7.0	0.0	0.0	2.8	4.2	0.0	0.0	0.0

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
E	Setting up of a permanent fairground (for formal industries and informal manufacturing sector / cottage industries).	SMC & WBIDC	21.0	0.0	0.0	8.4	12.6	0.0	0.0	0.0
F	Construction of Flower market cum car parking space at ground floor at Kumartuli Siliguri added areas ward 45,46 & 47	SMC & SJDA	7.0	0.0	0.0	0.7	3.5	2.8	0.0	0.0
G	Pineapple & Tea auction centre	SMC & SJDA	9.8	0.0	0.0	3.9	5.9	0.0	0.0	0.0
H	New Market Complexes.	SMC & SJDA	7.0	0.0	0.0	2.8	4.2	0.0	0.0	0.0
Total			**94.7**	**0.0**	**0.0**	**35.8**	**56.1**	**2.8**	**0.0**	**0.0**

17.11 Tourism Sector Plan

The city has potential to be developed as a transit bub for tourist activity in view of the potential tourist locations within 100 km radius. The tourism hub development strategies include development of tourist amenities and accommodation facilities. These projects could be taken up by state tourism development. Further, development of tourist information kiosks bus stand, railway station could be taken up by the SMC.

Table 132: Tourism Development sector strategy

Tourism Sector	
Sector goals	• Siliguri city to act as transit hub for regional tourist activity • Development of local tourist points in the city
Action Plans	Activities
Development of tourist interpretation center	• Creation of kiosks near railway stations, Intercity and nodal bus terminals • Identification and listing of tourist spots within 100 to 200 kms distance from the city • Preparation of information brochures on the tourist spots
Development of tourist points in the city	• The water bodies in the new areas could be developed with land scape and amenities center. • Awareness on prominence of local religious structures to be disseminated
Conservation of Mahananda wild life reserve	• Creation of buffer zone around the Conservation of Mahananda wild life reserve and restrict access of local villagers and tourists to the lake. • Creation of amenities center for bird watchers with elevated kiosks located away from the buffer zone. • The state tourism department to keep a check on the number of tourists visiting the wild life reserve.

17.11.1 Capital Investment Plan

Based on the above key requirements in the tourism sector, the capital investment plan is presented in the below table.

Table 133: Tourism Development sector – Project detail

Project	Sub project	Estimated cost in Rs. Crores
A. Development of Tourist point	1. Development of amenities centers	14
	2. Landscaping and creation of bunds around Tourism Spots	
B. Tourist information kiosk at bus stand and Railway station	1. Construction of tourist kiosk with infrastructure	7
	2. Preparation of information broachers and Audio visual documentation	
C. Development of Convention Cum Tourist Centre.	1. Development of Convention Cum Tourist Centre.	7
D. Tea museum	2. Construction of tea museum	10
Total investment required till 2041		**38**
Total investment required for 2021		**38**

17.11.2 Project Details

The key projects and project details in tourism sector is presented in the below table.

Table 134: Tourism Development sector – Project detail

Project	Project Details
A. Development of Tourist points	• Construction of bund along the water body, walk ways, landscape, play areas, boating activity • Construction of amenities like drinking water, public toilets, food courts.
B. Tourist information kiosk at bus stand and Railway station	• Development of infrastructure for information kiosk, listing and identification of prominent tourist locations and preparation of Audio visual documentation for information dissemination.
C. Development of Convention Cum Tourist Centre.	• Develop Convention cum Tourist centre at Siliguri.

17.11.3 Phasing of investment

The tourism sector project components have been divided into various components for implementation purpose. Further, the timeliness been proposed for each component, and the same have been presented in the table below.

Table 135: Tourism Development sector – Phasing of investment

Sector/Component		Implementing agency	Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
			(Rs. In Crores)							
A	Development of Tourist point	State tourism department	14	0	10	4	0	0	0	0
C	Tourist information kiosk at bus stand and Railway station	State tourism department	7	0	7	0	0	0	0	0
D	Development of Convention Cum Tourist Centre.	State tourism department	7	1	2	4	0	0	0	0
E	Tea museum	State tourism department	10	0	5	5	0	0	0	0
Total			**38**	**0**	**8**	**20**	**11**	**0**	**0**	**0**

17.12 Urban Governance

Under Urban Governance, migration to Double Entry Accounting System (DEAS), property tax survey reforms, E – governance reforms, capacity building and training have been considered. The investment required for property tax survey and reforms implementation has been calculated at Rs.1000 per property and the no. of assessments has been assumed to grow at 1.75% per annum. Accordingly, it has been estimated that SMC would have 0.9 lakh assessed properties by 2021.

Table 136: Urban governance sector strategy

Urban Governance	
Action Plans	**Activities**
Property tax survey and reforms implementation	• Reassess the property valuation and levy of property tax based on best practices. Trainings to both technical and non-technical staff is required on basic accounting principles, DEAS, GIS and other software modules. • Detailed study to be carried on property tax to identify the grey areas and further improve the coverage and collection efficiency
E-Governance reforms implementation	• Development of e-governance modules like personal management system, Procurement and monitoring of projects and E – procurement.

17.12.1 Capital Investment Plan

Based on the above key requirements in the tourism sector, the capital investment plan is presented in the below table.

Table 137: Urban Governance sector – Project detail

Project	Estimated cost in Rs. Crores
A. Migration to DEAS, accounting reforms and Budgetary reforms	14
B. Property tax survey and reforms implementation	25

Project	Estimated cost in Rs. Crores
C. E-Governance reforms implementation	14
D. Capacity building and training	14
Total investment required till 2041	**67**
Total investment required for 2021	**34**

17.12.2 Phasing of investment

Table 138: Urban governance sector – Phasing of investment

Urban Governance		Total	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
		(Rs. In Crores)							
1	Migration to DEAS, accounting reforms and Budgetary reforms	7.0	0.0	2.8	4.2	0.0	0.0	0.0	0.0
2	Property tax survey and reforms implementation	12.6	0.0	3.8	3.8	5.0	0.0	0.0	0.0
3	E-Governance reforms implementation	7.0	0.0	2.8	4.2	0.0	0.0	0.0	0.0
4	Capacity building and training	7.0	0.0	2.8	4.2	0.0	0.0	0.0	0.0
	Total	**33.7**	**0.0**	**12.2**	**16.4**	**5.0**	**0.0**	**0.0**	**0.0**

17.13 Summary of Capital Investment

The total estimated capital investment required for providing efficient services to the present population and future population of the city by the year 2041 is Rs. 3,357 crores. A total of Rs. 2,710 crores are proposed for investment by 2020-21 to cater to infrastructure requirement. The table below presents the summary of sector-wise total investment need and investments.

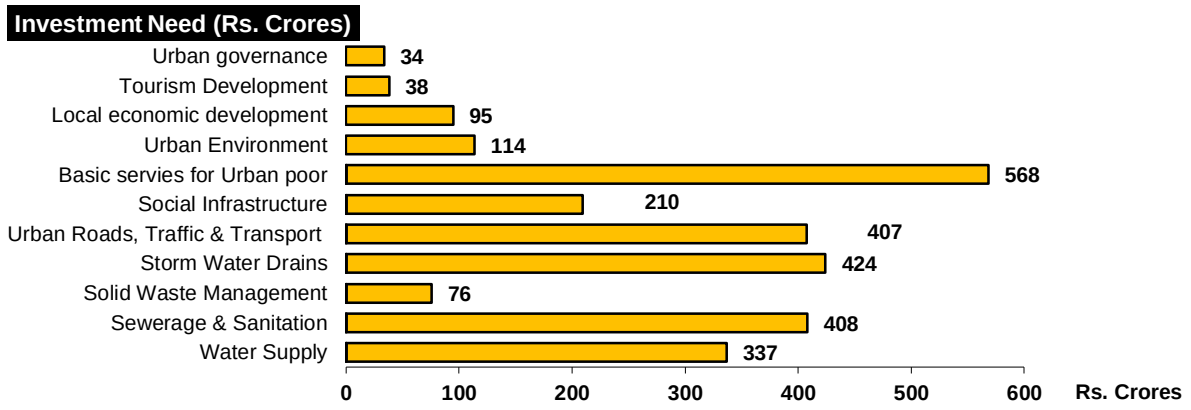
Table 139: Summary of capital investment

Sr.No	Sector	Short Term 2021	Long Term 2021-41	Total investment (Rs. Crores)
		(investment in Rs. Crores)		
1	Water Supply	337	52	389
2	Sewerage & Sanitation	408	13	421
3	Urban Roads, Traffic & Transport	76	41	117
4	Storm Water Drains	424	0	424
5	Housing & basic services for urban poor	407	242	650
6	Solid Waste Management	210	67	276
7	Urban Environment	568	83	651
8	Social Infrastructure, Heritage and Socio Culture	114	114	227
9	Local Economic Development	95	7	102
10	Tourism Development	38	0	38
11	Urban Governance	34	34	67
	Total Investment Estimated	**2710**	**647**	**3362**

About 19% of the investment has been identified towards urban roads, traffic and transportation sector; 19% of the investment has been identified towards housing and basic services for urban poor; 13% of the investment is towards sewerage and sanitation; 1% of the investment has been identified towards social infrastructure ;13% of the investment has been identified towards storm water drains; 4% of the investment has been identified towards local economic development; 3% of the investment is towards Solid Waste management. The project-wise costing presented in **Annex-9.**

The investment towards urban environment is about 7%. The rest of the investment is towards tourism development and urban governance. The sector-wise breakup of investment identified for 2021 is presented in the graph below.

Figure 61: Capital investment for 2021 (figures in Rs. crore)



17.14 Summary of Investment Phasing

The phasing of projects has been made in consultation with SMC officials. While doing the phasing, the timeline for preparation of detailed project reports and necessary approvals has been considered. The project prioritization and detailed project phasing have been discussed in the table below.

Table 140: Summary of investment phasing

Sr. No	Sector	Total investment	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
		(Figures in Rs. Crores)							
1	Water Supply	337	34	134	133	36	0	0	0
2	Sewerage & Sanitation	408	0	42	136	122	108	0	0
3	Solid Waste Management	76	0	11	22	42	0	0	0
4	Storm Water Drains	424	0	42	85	254	43	0	0
5	Urban Roads, Traffic & Transport	407	0	49	128	116	91	24	0
6	Housing & basic services for urban poor	568	0	57	114	170	227	0	0
7	Urban Environment	114	0	10	51	17	15	15	5
8	Social Infrastructure	210	0	0	21	42	63	63	21
9	Local Economic Development	95	0	0	36	56	3	0	0

Sr. No	Sector	Total investment	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
		(Figures in Rs. Crores)							
10	Tourism Development	38	0	8	20	11	0	0	0
11	Urban Governance	34	0	12	16	5	0	0	0
	Total	2710	34	365	762	871	550	102	26

Source: CRIS Analysis

17.15 Composition of investment

The following agency would be responsible for implementing the projects identified in the CDP.

7. **SMC:** SMC would be responsible for design, construction, operation, and maintenance of water supply, sewerage system, SWM, SWD, housing and basic services for the urban poor, municipal roads, parks, and playgrounds. SMC would be the implementing agency for the projects identified in the above mentioned sectors. In the overall investment, SMC has to contribute 83% of total investment.
8. **SJDA:** SJDA would be responsible revision of master plans and land use conversions. Hence SJDA would be the implementing agency for the proposed Transit Oriented Development in the city. Also, the regional transport projects like construction of logistic hub, transport nagar and truck terminals would be the responsibility of SJDA. In the overall investment, SJDA has to contribute 5% of the total investment.
9. **West Bengal Industrial Development Corporation Ltd. (WBIDC):** The WBIDC is responsible for development of common infrastructure facilities in industrial zones like access roads, internal roads, water supply network, drains and effluent channels. Hence WBIDC would be the implementing agency for development of SEZs in the city. In the overall investment, WBIDC has to contribute 1% of the total investment.
10. **West Bengal Tourism Development Corporation (WBTDC):** WBTDC would be responsible for construction, operation and maintenance of tourist points within the state. Hence WBTDC has been identified as responsible agency for the tourism development projects identified in the CDP. In the overall investment, WBTDC has to contribute 1% of the total investment.
11. **West Bengal Renewable Energy Development Agency (WBREDA**): WBREDA would be responsible for provision of technical assistance to projects under non-conventional energy sector. Further, the department also implements small scale projects with fund support from Ministry of New and Renewable Energy. Hence WBREDA has been identified as responsible agency for the renewable energy projects in the city. In the overall investment, WBREDA has to 3% of the total investment.
12. **Department of youth advancement, tourism and culture:** The department would be responsible for development of the proposed business cum convention center and cultural hub in the city. In the overall investment, the department has to contribute 0.8 % of the total investment.

13. **Department of Education and health:** The state department for education and health would be responsible for development of the education and health facilities identified as per the URDPFI guidelines. In the overall investment, the education department has to contribute 1% of the total investment and health department has to contribute 4% of the total investment.

Table 141: Implementing agency wise breakup of investment

Sr.No	Name of Agency	2021			
		Investment Estimated	%		
1	SMC	2282	84%	2798	83%
2	SJDA	109	4%	166	5%
3	WBIDC	35	1%	35	1%
4	State RTC	70	3%	70	2%
5	WBTDC	38	1%	38	1%
8	WBREDA	42	2%	84	3%
9	Department of Education	18	1%	35	1%
10	Department of Health	115	4%	135	4%
11	Dept of youth advancement	1	0%	1	0.8%
Total investment		**2710**	**100%**	**3362**	**100%**

Source: CRIS analysis

17.16 SMC investment

The overall the investment required for the year 2041 is Rs 3,362 crores. However, SMC would be responsible to take-up the projects worth Rs 2,282crores by 2021 and the remaining investment to be taken-up by the Parastatals/state government departments. The sector wise breakup of SMC's investment for 2021 has been presented in the table below:

Table 142: Sector wise breakup of SMC investment

Sector	2021 (Investment estimated in Rs. Crores	2041 (Investment estimated in Rs. Crores
Water Supply	337	389
Sewerage & Sanitation	408	421
Solid Waste Management	76	117
Storm Water Drains	424	424
Urban Roads, Traffic & Transport	287	480
Housing & basic services for urban poor	77	107

Sector	2021 (Investment estimated in Rs. Crores	2041 (Investment estimated in Rs. Crores
Urban Environment	568	651
Social Infrastructure	72	143
Local Economic Development	0	0
Tourism Development	0	0
Urban Governance	34	67
Total investment	**2282**	**2798**

Source: CRIS analysis

17.17 Priority Projects

Based on the stakeholder consultations and demand and gap assessment, following are the priority projects for Siliguri city.

Table 143: Priority projects

Sector	Projects
Sewerage	• Underground drainage system and treatment capacity for the city for the next 30 years
Solid waste management	• Implementation of door-to-door collection system and segregation of waste • Augmentation of fleet and compaction capacity. Development of transfer stations with recycling facility • Development of landfill site with scientific closure mechanism
Traffic and Transportation	• Upgrade and Widening of Roads. • Flyover and Junction Improvements.
Slum development	• New housing development for untenable slums and in situ development of projects identified under IHSDP & RAY
Economic opportunities	• Creation of various markets and vending zones for various Trades to boost the local economy
Urban environment	• Development of walking tracks around water bodies in merged areas • Tree Plantation • River Front Development

18. Financial Operating Plan

The investment capacity of SMC is assessed through a financial operating plan (FOP), which gives a multi-year forecast of finances for the medium term. In line with the phasing of identified in the capital investment (CIP), the FOP has been generated for the same period for SMC. A salient feature of the FOP is that all outstanding dues, including debt and non-debt liabilities if any, are also taken into account.

18.1 Financial Plan for the City

ULB: SMC is the sole responsible for provision of basic services such as water supply, sewerage, solid waste management, storm water drainage, roads and basic services for urban poor within its jurisdictions. Therefore, SMC accounts have been reviewed and further the accounts have been forecasted to prepare the financial plan for the city.

Accordingly, the annual accounts of SMC for the period between the financial years 2008-09 and 2012-13 are used to determine past trends for both revenue and expenditure items and to arrive at appropriate growth assumptions for each of the income and expense items. After forecasting the revenue account, the CIP has been loaded on to cash flow. The FOP is generated to assess the investment sustaining capacity of SMC.

18.2 Methodology

For the preparation of FoP for SMC, we have adopted the following methodology as provided in the revised CDP toolkit. The stage wise methodology and the key references has been presented in the below table.

Table 144: Methodology for City Financial Plan

Task	Step	Key Stages	Description	Remarks
Task1	**Step 1**	Defining Objectives	The key objectives have been defined for following key areas. • Revenue enhancement initiatives • Expenditure management initiatives • Asset management initiatives • Financial Management initiatives Further, it has been discussed in detailed in the subsequent sections.	The sub sections 18.9 to 18.12 has provided the details.
Task2	**Step 1**	Data Collection	• The annual accounts, balance sheets, debt schedules, DCB statements for water and sewerage have been collected from SMC for the past five years. • The recasting and trend analysis has been carried and the findings have been presented in the financial assessment chapter above.	Chapter 14 has detailed out the recasting and trend analysis.
	Step 2	Business-As-Usual scenario --- CFP Version I	• As a first step in preparation of FoP for the city, we have prepared the Business-As-Usual scenario and provided the overall capacity of SMC to take-up the infrastructure projects.	The sub section 18.6 has provided the details.

Task	Step	Key Stages	Description	Remarks
			• The scenario has been discussed in the section FOP scenario considered	
	Step 3	Analysis / Interpretation of the results	• Post finalization of Business-As-Usual scenario, we have carried out the analysis on the revenue and expenditure to check the performance of key items.	
Task 3	**Step 1**	Identification of areas of improvement / reforms	• We have identified the property tax and water charges are the key revenue source where the reforms can be explored to improve the coverage and collection efficiency and the same has been detailed out in the Revenue enhancement initiatives	The sub sections 18.7 and 18.9 have provided the details.
	Step 2	Select / priorities areas of improvement / reforms	• Under the revenue enhancement initiatives, we have identified the key reforms to be implemented in the property tax and user charges.	The sub section 18.9 has provided the details.
Task 4	**Step 1**	Finalizing basic assumptions for resource mobilization forecast	• Key assumptions for the income and expenditure side have been presented in the key assumptions section.	The sub section 18.4.1 has provided the details.
	Step 2	Ascertain investible surplus for ULB / Parastatals / Development authority	• Ascertain investible surplus for SMC has been discussed in the investible surplus section.	The sub section 18.5 has provided the details.
Task 5	**Step 1**	Ascertain combined investible surplus CFP Version II	• Not Applicable	Not Applicable
	Step 2	Component-wise allocation of combined investible surplus	• Not Applicable	Not Applicable
Task 6	**Step 1**	Listing of Project Proposals – linkage to CDP	• The priority project as identified in the CIP section has been linked with the FOP. Further, SMC investment capacity has been tested on various scenarios.	Chapter 17 has detailed out the CIP for SMC.
	Step 2	Priorities Project Investments	• The priority project investment has been finalized in the CIP section further it has been linked with the financial model for the city.	
Task 7	**Step 1**	Preparation of draft CFP --- CFP	• The current chapter has detailed out the overall financial plan for the city under various scenarios.	Chapter 18 has detailed out the FoP for SMC.

Task	Step	Key Stages	Description	Remarks
		Version III & Financial Plan report (prioritized project investment loaded on combined investible surplus)		
Task 8	**Step 1**	Ascertain source and amount of funding, external borrowing, debt servicing mechanism, etc.	• Under the Improved investment capacity with grant plus debt support, we have tested the capacity of SMC to go for debt and external borrowing.	The sub section 18.8 has provided the details.
Task 9	**Step 1**	CFP Appraisal and Public Verification	• We shall present the findings to the stakeholder during the final city level workshop and accordingly we shall take the suggestions on the overall financial plan for the city.	• Annual revision of CFP discussed in section 19.
Task 10	**Step 1**	Finalization of CFP report	• Post completion of final city level workshop, we shall discuss with SMC officials and finalize the financial plan for the city	
Task 11	**Step 1**	Annual revision of CFP (linkage to annual capital investment and improvements achieved)	• We will suggest this step in the way forward section in the final CDP.	

18.3 Financing Strategies for CIP

The project funding structure comprises grants under the New Urban Development Mission[17] (accounting for 90% of the funding as per JNNURM structure has been assumed); internal surplus and debt are considered to meet the balance fund requirement. The level of investment that SMC can sustain is determined by studying the overall surpluses/year-to-year opening balance and debt-service coverage ratio (DSCR).

If DSCR (amount of surplus available to pay interest and to repay principal that is due) falls below 1.25 (i.e., less than 25% cushion), then the investments are reduced gradually till DSCR exceeds 1.25 in all

[17] *Based on the past trends, it is assumed the funding structure would remain same as it was in the JNNURM; the revised funding structure is yet to be announced by the ministry.*

the years in the forecast period. The main items of income and expenditure, classified into the revenue account and the capital account, are projected in the FOP under the following categories. Categories of FOP Projections are as follows.

Revenue Account Receipts:

- Taxes, Non-Tax Sources, and
- Grants, Contribution, and Subsidies

Revenue Account Expenditure:

- Establishment
- Operation and Maintenance
- Debt Servicing - Existing and New Loans
- Phasing of Non-debt Liabilities, and
- Additional O&M for New Assets Created

Capital Income

- New Urban Renewal Mission Capital Grants
- Regular State or Central Grants
- Debt

Capital Expenditure

In determining a long-term financial strategy, SMC plans to raise resources and fund the CIP through:

- Grants available under the New Urban Renewal Mission framework (as percentage of investment proposed in urban infrastructure sectors – (50% Central Government Grants and 20 % State Governments Grants)
- Available internal resources and improving the same through
  - ✓ Revision of the property taxation at certain levels by SMC and also improving the coverage and collection
  - ✓ Revision of water and sewerage charges at specific defined intervals and also improving the coverage and collection
  - ✓ Maintenance of the collection performance of taxes and charges at certain minimum levels for current and for arrears
  - ✓ Borrowings

18.3.1 Financial Projections

Current revenue sources are projected under built-in growth assumptions for income and expenditure items, to assess the impact of each such revenue enhancement measure being suggested. The projections also aim at estimating the surplus that will be available for servicing new debt. Part of the surplus, after meeting the additional O&M expenses on newly created assets and infrastructure, is translated into debt size and project size (grant component plus debt component) based on certain assumptions regarding interest rate, repayment method, and loan-grant mix.

A spread sheet FOP model has been customized to depict the financial position of SMC. The investment sustaining capacity of SMC is assessed based on the FOP assumptions. The model was used to calculate the overall surpluses under various scenarios involving combinations of internal revenue improvement, state support, financing terms, etc.

The standard assumptions under which the projections are carried out and certain expenditure control and revenue augmentation measures proposed in line with the mandatory and optional reforms under the JNNURM framework are presented below.

18.4 Investment Sustenance Capacity

Given the existing financial position of SMC, the revenue and capital accounts of SMC are projected against the growth scenario. The FOP is generated from the sustainable investment point of view in line with the current growth trends against the identified investment. It has been estimated that SMC would require about Rs. 2,282 [18]crore to improve the infrastructure for meeting the current gap and medium-term requirement. In order to check the financial capacity of SMC, following assumptions have been considered.

18.4.1 Key Assumptions

Table 145: Key assumptions

Head	Assumptions	
Guiding factor for assessing the sustaining capacity		
Surplus	• Positive surplus - year-on-year basis	
DSCR	• Greater than 1.25	
Project Financing – For Admissible Components under New Urban Mission		
Project Costing	• Unit Cost, with 7% price contingency and 8% physical contingency	
New/Additional O&M	Water Supply	3%
	Sewerage and Sanitation	5%
	Urban Roads, Traffic and Transport	4%
	Storm Water Drains	1%
	Solid Waste Management	10%
	BSUP	2%
	Urban Environment	1%
	Social Infrastructure	1%
For projects to be approved under New Urban Renewal Mission		
Grant from GoI	• 80% of sanctioned cost	
Grant from GoWB	• 10% of sanctioned cost	
Loan for balance funding	• Repayment in 15 years @11% interest rate	
Regular capital expenditure	• Rs. 20 crores per annum (growth rate 3% over current expenditure)	
Revenue Expenditure		
Growth in Expenditure	• Minimum growth rate: 5% • Maximum growth rate: 12%	
Pay Commission Revision	• 7th Pay Commission revision from 2016 and 2022 (Currently, in SMC, the salaries are being paid from State treasuries i.e.)	
Assumption for assessment of SMC's sustainability		
Income Items		
Growth in revenue income	• Minimum growth rate: 8% • Maximum growth rate: 12%	
Income items - Property tax		
Annual growth in Assessment	• 1.75% per annum	
Revision of Tax	• 15% every year starting from 2015-16	

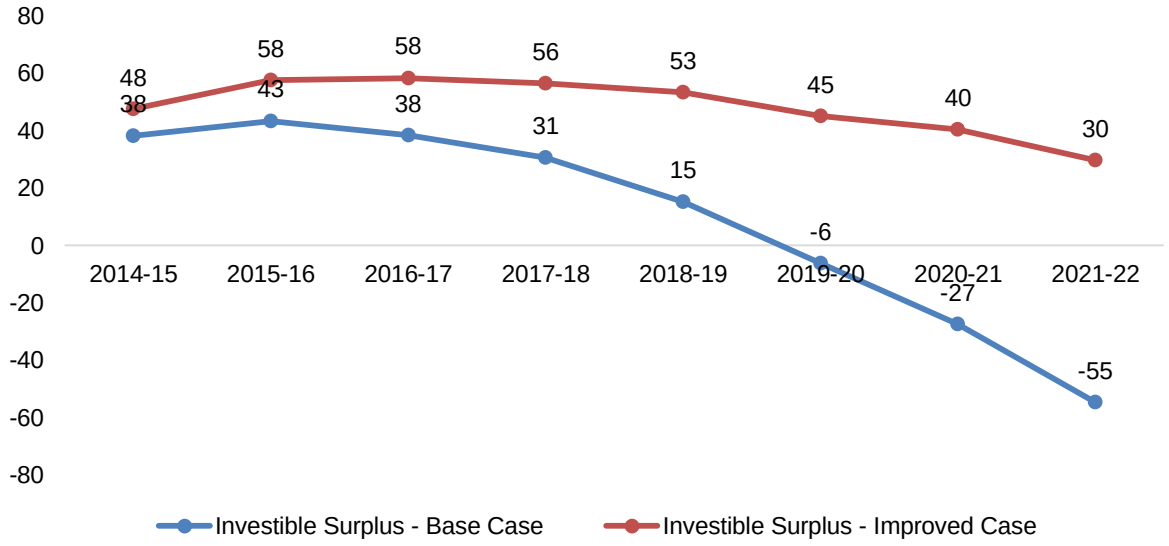
[18] ***Overall the investment required for the year 2021-22 is Rs 2710crores. However, SMC would be responsible to take-up the projects worth Rs 2282 crores and the remaining investment to be taken-up by the Parastatals/state government departments. Therefore, the financial operating plan has been prepared for SMC with an estimated investment for Rs 2282 crores.***

Head	Assumptions
Collection Performance	• 75% (Maximum collection performance over the last 5 years)
Income Items - Water Supply	
Water supply charges	• 12% growth in water tanker and water supply connection charges.
Income Items - Sewerage	
Sewerage Connections	• 80% of water supply connections
Sewerage Charge	• Rs. 21 per month per connection; 15% increase in monthly charge per connection every 5 years starting from 2015-16.
Collection Performance	• 80% (Maximum collection performance over the last 5 years)

18.5 Investible Surplus

Based on the various assumptions, the investible surplus has been estimated[19] for the city in base and improved case scenarios. As per the base case scenario, on an average, SMC will have investible surplus of Rs. 10 crores over the next 7 years. This surplus would be transfer to capital account to take up the capital works. At the same time, in the improved case scenario, on an average, SMC will have investible surplus of Rs. 49 crores**.** Following figure presents the investible surplus in base and improved case scenarios.

Figure 62: Investible surplus – Base and improved case



[19] *Investible surplus = (Revenue (own sources of income) income + Capital (own sources of income income) - Revenue expenditure. And, excluding the revenue and capital grants received for specific purpose*

18.6 Business as Usual Scenario

Business as usual scenario: In this scenario, it is assumed that SMC shall do business as usual and endeavour to implement the capital projects. This scenario will indicate the overall capacity of SMC to take up projects on business as usual basis.

Investment capacity: Rs. 106 crores

- The key considerations in this scenario are as follows:
  - SMC will not take up any reform measures to improve the revenues.
  - The income and expenditure growth would follow the past trends.
  - The regular capital expenditure would grow at 3% on year-on-year basis.
  - SMC should maintain positive closing balance on regular basis

Table 146: FoP- Business as usual scenario

Financial Year ------>		2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
	Figures in Rs. Lakhs	*Actuals*			*Estimated*						*Projection*	
Summary												
	Opening Balance	**5,873**	**6,909**	**9,538**	**10,995**	**7,845**	**4,823**	**6,396**	**5,464**	**4,085**	**2,597**	**3,952**
1	Revenue Income	4,277	5,146	6,013	6,709	7,412	8,426	9,318	10,242	11,462	12,962	14,878
2	Revenue Expenditure	3,752	4,285	4,998	4,864	5,440	6,084	7,445	8,449	9,679	11,124	12,735
a	Surplus/Deficit- Revenue Account	526	861	1,015	1,844	1,972	2,342	1,873	1,793	1,784	1,839	2,143
b	Operating Ratio	0.88	0.83	0.83	0.73	0.73	0.72	0.80	0.82	0.84	0.86	0.86
c	Debt Servicing Ratio	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3	Capital Income	3,680	4,222	4,512	1,719	1,856	2,005	2,165	2,338	2,525	2,726	2,944
4	Capital Expenditure	3,563	3,015	4,070	6,713	6,850	2,774	4,970	5,510	5,796	3,211	2,980
d	Surplus/Deficit- Capital Account	117	1,206	442	-4,994	-4,994	-770	-2,805	-3,172	-3,272	-484	-35
e	Overall Surplus/Deficit- Municipal Account	643	2,068	1,457	-3,150	-3,022	1,572	-932	-1,379	-1,488	1,355	2,108
f	**Closing Balance**	**6,516**	**8,977**	**10,995**	**7,845**	**4,823**	**6,396**	**5,464**	**4,085**	**2,597**	**3,952**	**6,059**
	Opening Balance	**5,873**	**6,909**	**9,538**	**10,995**	**7,845**	**4,823**	**6,396**	**5,464**	**4,085**	**2,597**	**3,952**

18.7 Improved Case Scenario – Reforms Implementation

- In this scenario, it is assumed that SMC shall take up revenue improvement measures such as property tax and water charge coverage and collection efficiency improvement. Further, it is assumed that SMC shall receive capital grants from the state and central governments (from New Urban Development Mission). SMC shall endeavour to implement the capital projects. This scenario will indicate the overall capacity of SMC to take up projects on improved case scenario with grant support.
- **Investment Capacity: Rs.913 crores**
- The key considerations in this scenario are as follows:
  - SMC is going to undertake reforms leading to improved financial sustenance capacity.
  - The reforms are especially in the areas of property tax and water charges.
  - SMC shall receive grant from the state and central governments for the approved projects (New Urban Development Mission).
  - The regular capital expenditure would grow at 3% on year-on-year basis.

Property Tax

- On immediate basis, reforms are to be implemented in property tax to improve the coverage and collection efficiency
- State government should revise the property tax rate
- the property tax rate should be increased about 15% every three years
- Identified the poor performing zone in term of recovery of arrears
- Restructure the property tax department

- SMC should maintain a positive closing balance on regular basis.

Table 147: FoP- Improved case scenario – Reforms implementation

Financial Year ------>		2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Figures in Rs. Lakhs		*Actuals*			*Estimated*	*Projection*											
Summary																	
	Opening Balance	**5,873**	**6,909**	**9,538**	**10,995**	**8,387**	**6,292**	**9,240**	**10,362**	**10,520**	**9,893**	**10,817**	**11,184**	**10,059**	**5,907**	**91**	**-7,413**
1	Revenue Income	4,277	5,146	6,013	7,251	8,338	9,843	11,319	12,829	15,281	18,101	21,660	24,969	28,620	32,800	37,460	42,691
2	Revenue Expenditure	3,752	4,285	4,998	4,864	5,440	6,084	7,688	9,661	12,778	16,833	21,279	26,102	32,781	38,626	44,974	51,872
a	Surplus/Deficit- Revenue Account	526	861	1,015	2,386	2,898	3,759	3,631	3,167	2,504	1,267	381	-1,133	-4,161	-5,825	-7,514	-9,181
b	Operating Ratio	0.88	0.83	0.83	0.67	0.65	0.62	0.68	0.75	0.84	0.93	0.98	1.05	1.15	1.18	1.20	1.22
c	Debt Servicing Ratio	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3	Capital Income	3,680	4,222	4,512	1,719	1,856	9,359	24,803	29,485	30,763	5,887	3,139	3,180	3,434	3,708	4,005	4,325
4	Capital Expenditure	3,563	3,015	4,070	6,713	6,850	10,170	27,312	32,495	33,893	6,231	3,152	3,171	3,425	3,699	3,995	4,315
d	Surplus/Deficit- Capital Account	117	1,206	442	-4,994	-4,994	-811	-2,509	-3,010	-3,130	-344	-14	8	9	9	10	10
e	Overall Surplus/Deficit- Municipal Account	643	2,068	1,457	-2,608	-2,096	2,948	1,122	158	-627	924	367	-1,125	-4,152	-5,816	-7,504	-9,171
f	**Closing Balance**	**6,516**	**8,977**	**10,995**	**8,387**	**6,292**	**9,240**	**10,362**	**10,520**	**9,893**	**10,817**	**11,184**	**10,059**	**5,907**	**91**	**-7,413**	**-16,584**
	Opening Balance	**5,873**	**6,909**	**9,538**	**10,995**	**8,387**	**6,292**	**9,240**	**10,362**	**10,520**	**9,893**	**10,817**	**11,184**	**10,059**	**5,907**	**91**	**-7,413**

18.7.1 Key Summary

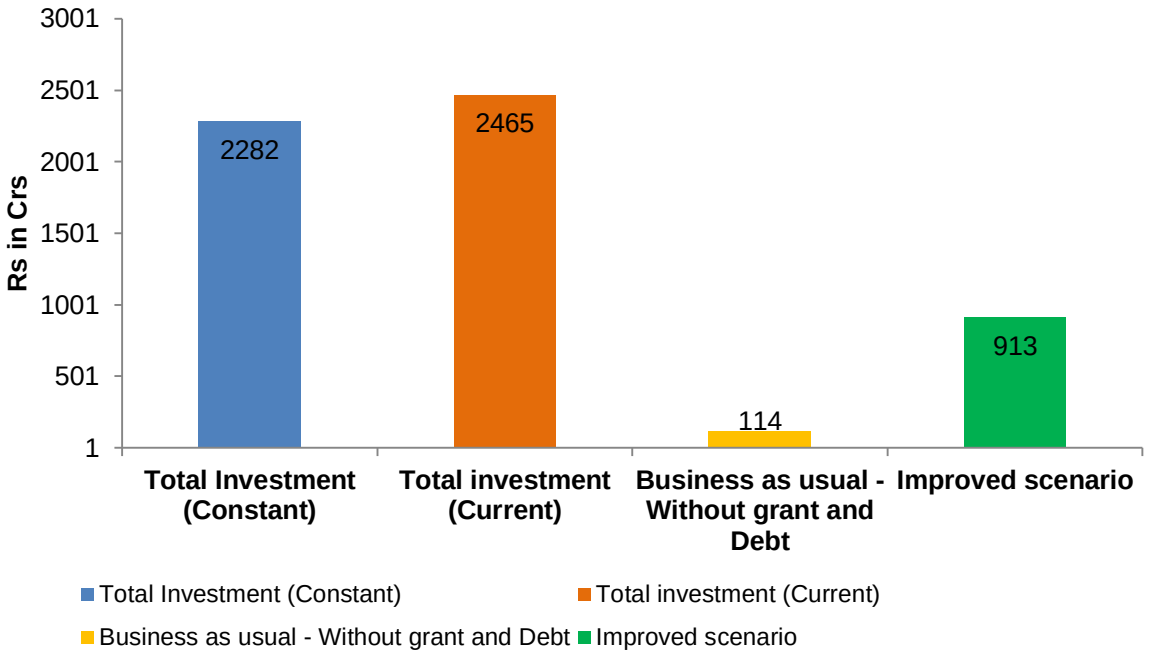
Further, the results of the above scenarios have been presented in the figure below. The overall investment estimated is Rs. 2282 crores (on constant prices). However, as per the current prices, the estimated investment would be Rs. 2465 crores (which includes the cost escalation and physical contingencies). It is observed that without any grant support, SMC can implement projects worth Rs. 114 crores only. Based on the availability of grants, SMC can take up priority projects in the area of sewerage and sanitation, solid waste management, and traffic and transportation.

- Business as usual scenario: Rs. 114 crores
- Improved investment capacity with grant support: Rs.913 crores

Figure 63: Financial capacity – Key scenarios

Water Charges

- Increase the base tariff in every three years, at 15%.
- Assess the different user groups' ability to pay for different services through occasional surveys and establish affordability levels, especially among low-income groups.
- Increase coverage (base) of users
- Reduce losses (commercial and technical losses)
- Improve the method of measurement of service
- Improve billing and collection efficiency



18.8 Revenue Enhancement Initiatives

Property tax, water charges are the key own sources of revenues of SMC. There is scope for further improvement of these revenues in order to enhance the overall sustainability of SMC. Following sections describe the revenue enchantment measures for key revenue sources such as property tax and water charges.

1. **Property tax**: The revenue enhancement measures for property tax are categorised into the following four categories:

a) **Policy-level interventions:**

- The property tax rate is revised by the state government every five years. However, the property tax rate was last revised in 2007 and came into force from the year 2010. Hence, it is suggested to change the rate in every three years. Also, the system should be developed in such a way that the changes should be reflected in the demand bills without any human intervention.
- It is also suggested that the property tax rate should be increased about 15-25% every three years.
- In addition to the property rate, as part of the property tax, SMC collects water tax, drainage tax, and sanitation cess. Hence, it is suggested that the state government should amend the municipal laws if required to enhance the percentage of water and other tax rates. For instance, as per the existing municipal laws, SMC can only levy 5% as water charges. However, this can be enhanced to 10% by considering the huge capital works to be taken up by SMC in near future.
- The state government should take appropriate steps for the revision and accordingly implement the same to enhance the revenues.

b) Recovery of arrears

- Identified the poor performing zone in term of recovery of arrears
- Prepared the list of defaulters with outstanding arrears <=Rs 10,000
- Prepared the action plan to issue of warrant notices

- Carried out daily the monitoring of each tasks
- The recovery staff provide the sample warrant notices to defaulters

c) Revision of tax calendar

- Preparation of tax demand bills latest by 30th April 2015
- During 1st to 31st May 2015, all the tax demand bills must be served by using Indian postal service or courier services etc.
- 30 days grace period should be given for demand bills served from 1st to 30th June 2015.
- Necessary changes should be made in tax software and pre-printed stationery to show the per day penal interest.
- The collection counters should be opened at as many places across the city.
- As soon as grace period ends, the ward-wise list of tax defaulter along with the demand notice should be made available.
- With rationalization of the tax calendar, various tax processes and reduction in the work load of tax personnel; it will be possible to do work division of personnel.
- In the light of above, daily targets should be provided to each team working in the tax administration.
- Monitoring of the targets vs. actual should be carried out.
-

d) Restructuring of Property Tax Department

- The proposed structure is based on a functional-cum-geographical approach.
- The proposed structure clearly identifies four main functions: assessment, billing and collection, appellate, and vigilance.
- The four functions are to be managed independently by different senior officers.

2. Water charges: The revenue enhancement measures for water charges are broadly categorised into the following four categories:

- **SMC should undertake the following initiatives to enhance revenues from water charges:**
  - Increase coverage (base) of users
  - Reduce losses (commercial and technical losses)
  - Improve the method of measurement of service
  - Improve billing and collection efficiency

Water tariff

- Increase the base tariff in every three years, at 15%.
- Assess the different user groups' ability to pay for different services through occasional surveys and establish affordability levels, especially among low-income groups.
- It is always recommended to ensure volumetric pricing wherein the user is charged based on consumption. However, in the absence of measurement systems, a simple telescopic flat tariff system can be followed until the measurement systems are in place. In the case of services like waste management, the user charges are flat tariffs only.
- On determining the tariff structure, including cross subsidies and inflationary trends, SMC shall prepare a progressive tariff rationalization plan.
- While preparing the tariff rationalization plan, care should be taken to commit to progressively improving efficiencies by reducing losses and improving customer services, which can significantly reduce the tariff impact on the users. Reducing commercial losses primarily by improving management efficiency by way of improving billing and collection systems would require minimal time and capital investment. However, reducing physical losses would require some investments, which need to be planned and budgeted for.

- Tariff increases due to natural inflation shall preferably be automatic and should be implemented at least annually through automatic annual indexation. Any increase beyond normal inflation shall be carefully planned, and agreed among the council and with citizen groups.
- If the cost of collecting a charge, say every month, exceeds the amount collected, an alternative charging mechanism shall be determined either by integrating with an annual tax or by other means.

O&M recovery

- The first step in implementing user charge reform is to understand the real costs of operation and maintenance for each service. SMC should ring-fence all the related costs pertaining to a specific service with clear demarcation in capital and revenue accounts. This permits the identification of the real costs for O&M so that the unit costs, which need to be recovered from the users, can be assessed for the respective service.

18.9 Expenditure Management Initiatives

Over the review period, the revenue and capital expenditure of SMC has increased. In order to reduce the revenue and capital expenditure at SMC, following key initiatives are to be taken up.

Reduction in establishment expenditure

- Outsourcing of certain functions: SMC should explore outsourcing of some functions in order to reduce the establishment expenditure.
- For instance, SMC can outsource the collection, transportation, and treatment of SWM. In addition, maintenance of public toilets, parks, and other play grounds on outsourcing basis.
- Moreover, SMC can outsource the clerical posts such as data entry operator and clerks to reduce the establishment cost.

Reduction in capital expenditure

- SMC is implementing the capital works on a regular basis. Overall, this would be a burden for SMC. In near future, if SMC wants to take up the projects on Central funding, then it would be difficult to fund the projects.
- Therefore, SMC has to curtail the regular capital expenditure (say 10%); at the same time, SMC should take up priority projects only.
- Also, SMC should focus on projects to be implemented through central/state funding.

Expenditure

- SMC should ensure that the contractor carries out the O&M of the assets (WTP, STP, and SWM plant) for a period of 5-8 years after the completion of test run.
- SMC should curtail the regular capital expenditure over the next 5-10 years. SMC should take up only priority works in wards
- Explore the outsourcing option wherever possible

18.10 Asset Management Initiatives

The establishment of linkage between the asset creation and asset management should be through a series of reforms for project sustainability. SMC should ensure adequate funds to meet the deficiencies in urban infrastructural services.

In order to maintain the assets over the project cycle, SMC should allocate 5-10% of funds for operation and maintenance of the project components. For water supply projects, the O&M cost would be 3% of the project cost, and this would be on a recurring basis.

Deprecation account/fund

SMC should ideally practice to maintain the depreciation account in order to replace the existing asset with a new asset post its life cycle.

Key steps to be taken by SMC for better management of assets

- SMC should focus on department wise budget and O&M cost for newly created assets,
- Explore the best practice to reduce the O&M cost on sewerage and solid waste management
- Carry out water and energy audit to reduce the O&M cost and water leak detection
- Study the existing status of the assets of key sectors, prepare a tangible action plan for the maintenance of assets, provide the replacement list for the assets
- Conduct workshops/trainings for the staff on management of O&M, best practices across the states
- Organize study tours for the staff and elected representatives for effective implementation of reforms for full O&M recovery
- Latest techniques and technology for management (inventory, maintenance cycle, replacement time, etc.) of municipal assets.
- Conduct trainings in the area of sewerage, asset management, new techniques in operation and maintenance of STPs, and maintaining the power factors during the peak time

18.11 Financial Management Initiatives

In order to implement the identified projects over the project cycle, SMC has to take-up the financial management initiatives for smooth implementation of the projects. The key initiatives are as follows.

- First and foremost, the accounts department of SMC should maintain the separate account for the project. The financial transactions such as deposit the grants and release the payments should be carried out thorough the project account.
- Transfer the part of the revenue surplus (own source of revenues) to the project account to implement the project
- Internal audit of the project accounts has to be carried out on quarterly basis and external audit has to be carried on annual basis

18.12 Projects on PPP basis

SMC may explore the PPP route in the following projects. The details of each component have been provided in the table below.

Table 148: Projects on PPP basis

Sector	Development	Possible PPP interventions	Key Aspects
Water Supply	Improve the water supply system	SMC can explore the O&M of entire water supply system to reduce	• SMC shall fix the tariff for water user charges. • Handover the assets to the operator for operation and maintenance

Sector	Development	Possible PPP interventions	Key Aspects
		the water losses in the system.	• Billing and collection of the water charges should be done by the private operator. • The assets would be maintained by the private operator, and SMC shall pay revenues to the private operator.
Sewerage	Construction. operation, and maintenance of STPs	Construction and O&M of STPs and selling of treated sewerage water to potential users	• SMC shall handover the land for construction of STPs. • O&M of STPs has to be carried out by private operator as per the contract period. • The operator would be responsible for the O&M of STPs and further selling of the treated sewerage water to potential users. • The revenue sharing between SMC and the private operator can be explored.
Solid Waste Management	Improve the waste collection and transportation recovery & scientific landfill	BOT basis	• SMC shall procure the vehicles and handover the same to the private operator. • The operator would be responsible for collection and transportation of the waste. • SMC may allocate the land to develop the SWM treatment plant. The assets would be created and maintained by the operator. • Further, the private operator may sell the manure and pallets and further generate revenues. • The revenue sharing between SMC and the private operator can be explored.
Parking	Multilevel car parking complex on PPP basis	Land to be provided on lease basis	• The feasibility to be improved by introducing a mixed use – shops & offices

18.13 Land Resource Leveraging

SMC should focus on preparing the inventory of available land in the city in order to explore the land based financing offers to implement the infrastructure projects. Following steps are to be taken up SMC.

- SMC should initiate the inventory of the land parcels available in the city. Further, SMC should create the database of the same.
- SMC should crosscheck the proposed land use as per the zonal development plan. If required, SMC needs to initiate for the land use conversation.
- May explore these land parcels for development affordable housing projects, parking projects, real estate projects and convention centres on PPP basis

18.14 Key Conclusion

Overall, on short-term basis, SMC requires around Rs. 2,282 crore to improve the municipal services in the city. However, as per the business as usual scenario, SMC has the financial capacity about Rs. 114 crore to take up the infrastructure projects.

Given the importance of Siliguri city in the region, it is very important to improve the basic infrastructure facilities to attract the investment and industries in the city and further to boost the economic development in the region.

Therefore, SMC should aim to implement the improved case investment capacity (Rs. 913 crore) with grant support for state and central governments. Following key steps to be taken by SMC to achieve the improved case scenario investment:

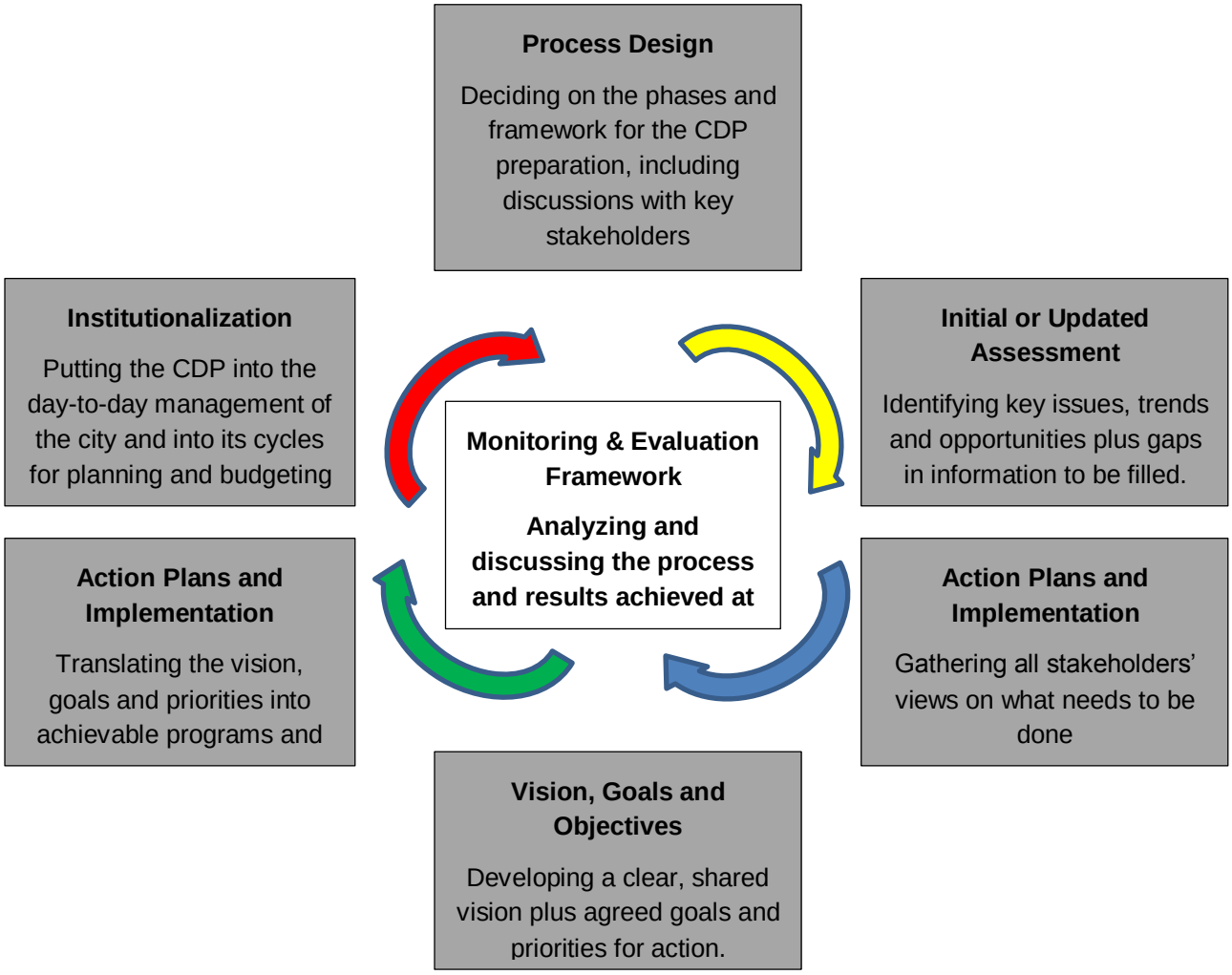
- **Property Tax**: On immediate basis, reforms are to be implemented in property tax to improve the coverage and collection efficiency; the reforms could be policy levels change to streamline the department.
- **Water and Sewerage**: Water and sewerage tariff structure is to be revised immediately. SMC should explore the volumetric tariff structure for the metered water connections.
- **SWM Charges:** SMC should levy the user charges on SWM services – SMC may explore this initiative as part of property tax.
- **Establishment Expenditure:** SMC should explore the outsourcing of certain function to reduce establishment expenditure.
- **O&M new assets**: SMC should ensure that the contractor carries out the O&M of the assets (WTP, STP, and SWM plant) for a period of 5-8 years after the completion of test run.
- **Regular Capital works:** SMC should curtail the regular capital expenditure over the next 5-10 years. SMC should take up only priority works in wards.
- **PPP route:** SMC should explore the PPP route to implement either the projects or project components.
- **Capacity Building:** It is very important that SMC should keep on imparting training to the staff on various aspects starting from technical to managerial skills.
- **Study Tours:** SMC should organise study tours to know the best practices in the sectors and also to understand the challenges faced by others cities in the implementation of projects and reforms.

19. Review and Monitoring framework

The monitoring and evaluation (M&E) framework has been designed to help cities integrate M&E into their city development plan (CDP) from the initial phases. M&E is important to enable cities determine whether their CDP is achieving its vision and goals and realising its intended outcomes or not. It is a tool that shall enable cities to monitor the progress on the plan at regular intervals.

The information generated by M&E can be used to provide information and support for the implementation of CDP. It shall help in strengthening the downstream project implementation, undertaking programme and investment activities, and devising strategies for future planning initiatives. A basic principle of the CDP approach is that the way in which the CDP is developed and the development issues that it addresses, are determined by each city and community to meet their own needs. There is no 'one size fits all' approach to designing and implementation of CDP.

The framework mentioned below clearly lays down the broad principles that need to be fine-tuned based on the city specific needs and inputs from various officials at the city level to develop for each city.



19.1 Framework for Review and monitoring

In the context of the ever changing landscape of the developments in the city, the impacts on the growth of the city will have wide ramifications if it is not factored into the City Development Planning process in a dynamic manner. The CDP should have a fixed time frame for its implementation, and shall be followed by a review to study and analyse the impact of the implementation of the plan, in order to make mid-term course corrections, wherever necessary. A monitoring mechanism should also be established for measuring the identifiable indicators provided in the CDP for each sector and there after implementation of CDP can be measured.

The table below gives a framework for updating and reviewing CDPs; this needs to be followed as per the revised tool kit.

Table 149: Framework for Monitoring and Evaluation of various components in the CDP

Sr. No.	Framework for Updating and Reviewing City Development Plan (CDP) to make it a living document							
	Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1	Reviewing CDP Document	√					√	
2	Community and Stakeholder Consultation	√	√	√	√	√	√	√
3	Data Update and Mapping the City	√				√		
4	Capacity Building	√	√	√	√	√		
5	Planning Building Regulations Reforms	√				√		
6	Property Tax Reforms	√	√	√	√	√	√	
7	Institutional Reforms	√	√	√	√	√		
8	Financial Reforms	√	√	√	√	√		
9	Sectoral/Ward Development Plans	√				√		
10	Review of Project Priorities	√		√		√		
11	Financial Operating Plan	√				√		
12	Capital Investment Plan	√				√		
Source: Revised City Development Plan toolkit								

19.1.1 Timeline and Periodicity of review

To make CDP as a living document, it is essential to understand that the city landscape, growth source as well as direction keep changing with time. Hence, the CDP should have a fixed time frame for its implementation, and shall be followed by a review to study and analyse the impacts of the implementation in order to make mid-course corrections, wherever necessary. The monitoring mechanism should be on the activities based on the identified indicators in each sectors in the CDP. Some of the identified activities that could be monitored are given below.

19.2 Reviewing of the CDP Document

The foremost thing that comes up is the reviewing of the CDP document. As the city's conditions may change after few years, the CDP needs to be reviewed and evaluated after a particular time before a new development plan is proposed. It is necessary to identify the sectors that are growing and sectors that are lagging, to achieve the vision framed for the city. The CDP is prepared for a long term vision for 30 years and the investment plan is prepared for a time frame for 7 years. Thus it mandatory that review of the City Development Plan is taken up after every five years.

19.2.1 Engaging with Community and Stakeholders' Consultation

CDP focuses on the holistic development and betterment of the city as looked upon by various communities and stakeholders. Therefore, it is very important to keep consulting with them about the process of the work to be undertaken to achieve the framed vision for the city. This could be done by conducting a meeting every alternate year, i.e., once in every two years. The feedback should be incorporated and the shared with citizens through a common platform like website etc.

19.2.2 Data Update and Mapping of the City

In case of any major changes in the city limits/boundaries, a complete data updation exercise should be carried out for effective implementation. Therefore, data updates and mapping of the city become very essential. This should always be done before the preparation of the CDP.

19.2.3 Capacity Building

Capacity building initiatives should focus on understanding the areas where in capacity needs to be built in terms of project implementation, reform implementation etc. The regular assessment of the needs can ensure better capacity building measures to be adopted by city.

19.3 Review and Monitoring of Reforms and Project Implementation

The CDP Technical and Policy Committee should be involved in the monitoring and evaluation of the CDP across various components.

19.3.1 Assessment of Reforms and Project Implementation

- Regular assessment of reform and project implementation is necessary for the city to achieve its vision.
- Reforms should be framed for all the institution responsible for the development process of any city. These reforms are very important for all the institution to work in a synchronized manner for the development of the city. **Hence, they must be monitored every year.**

19.3.2 Financial Reforms

- Finance being a most important part for any ULB of the city. The funds are to be utilized according to the kind of development approach adopted to achieve the city vision. **Therefore, financial reforms must be monitored and evaluated on yearly basis**.

19.3.3 Property Tax Reforms

- All the properties abiding under the ULB should be carefully mapped and marked, as it is an important source of revenue for a city. Hence it should be prepared before the implementation of the CDP and monitored at frequent intervals.

19.3.4 Sector /Ward Development Plans

Vision of the city could only be implemented at a macro level only if there is prominent change at the micro level like at the ward level or the sectoral block level planning. To make a CDP document comprehensive in approach, the M&E of these micro level plans should be evaluated at the very beginning and impact should be reviewed in the very first year.

19.3.5 Review of the Project Priorities

The project prioritized in the CDP to achieve the vision may have to undergo changes in their priority order once the implementation of the CDP starts. The reason may be due to any practical issues that arise during project implementation or any other complication. Hence, it is very important to monitor and evaluate the projects that are underway and projects that need to be taken up for the development of the city. The updating process should be regular, but M&E should be done every alternate year.

19.4 Monitoring of Financial Operating Plan and Capital Investment Plan

A capital investment plan (CIP) provides a detailed understanding of anticipated investments into tangible capital assets. The assets include basic facilities, services, and installations needed for the functioning of the community, such as bridges, roads, water, and wastewater systems. This helps the ULBs to formalize their priority setting and decision making process. Therefore, the M&E of CIP should be done on regular basis every year.

A financial operating plan (FOP) outlines the revenues and expenses over a period of time. An FOP uses past performances, incomes, and expenses to forecast what to expect in the following years. It then incorporates the past and recent trends into the planning so as to most accurately forecast what is to come. Therefore, for city development plan in a proper way, it is necessary to monitor and evaluate the FOP regularly every year.

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Annexures

Annex-1: Kick off meeting with MoUD

Meeting Agenda	Kick Off Meeting
Assignment Title	• Preparation and Revision of City Development Plans for 13 Selected Cities Package 1 (13 cities) • Preparation and Revision of City Development Plans for 17 Selected Cities Package 2 (17 cities)
Name of Client	Ministry of Urban Development
Date of meeting	8th August 2013, 4 p.m
Place/Location	Ministry of Urban Development, New Delhi
Participants	**Ministry of Urban Development** Ms. Nisha Singh, IAS, Joint Secretary and Mission Director Mr. Prem Narayan, Director (JnNURM) Mr. Sanjay Kumar, Under Secretary (JnNURM) Officials from TCPO, CPWD, CPHEEO **CBUD PMU Team** **CRISIL Risk and Infrastructure Solutions Limited (CRIS)** Mr. Ravi Poddar, Director, Urban Practice Mr. Brijgopal Ladda, Urban Planning Expert Mr. Abhay Kantak, Municipal Finance Expert Mr. K.K Shrivastava, Municipal Engineering Expert Mr. Tapas Ghatak, GIS Expert Mr. Appeeji Parasher, Associate Director Ms. Monika Bahl, Manager

CRISIL Risk & Infrastructure Solutions Limited (CRIS) has been appointed by Ministry of Urban Development (MoUD) for the Preparation and Revision of City Development Plans for 13 Selected Cities under Package 1 and 17 selected cities under Package 2. A kick-off meeting was organized by MoUD to review the work plan and approach for the assignment. The meeting was chaired by Ms. Nisha Singh IAS, Joint Secretary and Project Director and was attended by senior officials from MoUD, PMU from CBUD and officials from TCPO, CPWD.

CRIS Team made a presentation on the following aspects

- Our Experience in Preparation of CDPs
- Details of Assignment Coverage
- Our Approach - Revised CDP toolkit
- Proposed Teaming
- Work Plan
- Support from MoUD

Following were the key points suggested by MoUD /CBUD PMU team and other key officials present during the meeting

1. Various recommendations were made by the participants for preparation of CDP. The Mission Director however suggested that the CDPs shall be prepared in line with the revised tool kit issued by MoUD and also mentioned that MoUD has prepared a comparison of variance between the first generation and 2nd generation CDPs and it shall provide a copy of the same.
2. It was also mentioned that an inclusive approach should be adopted as specified in the tool kit and sufficient emphasis should be made on strategies addressing urban poverty issues.
3. It was also suggested that cities have prepared other plans like CSP, CMP, disaster management etc. The interventions, projects, costing etc. suggested in this studies should be incorporated in the CDP. MoUD also suggested for sharing information from ISNA study to consultant for CDP such to synchronize the two reports.
4. The Mission Director also stressed on to focus on efficiency improvement related aspects while identifying projects in cities.
5. It was discussed that the population projection in all the CDPs shall be for a period of 30 years i.e. 2041 whereas the FOPs can be made for a period of 20 years to be realistic. All CDPs should have same time line for projections and should be based on Census 2011.
6. Some other aspects discussed were as follows
    - 24x7 Water Supply and implementation of SCADA and other new system to bring in efficiency, 100% metering etc.
    - Linkages with existing Development Plan or Master Plan
    - CDP should also endeavor to mention of suitable technologies based on the geographical condition of the cities.
    - Local Economic Development – Enlist the key thrust areas of economic development and broad level strategies
    - Map preparation
    - Smart cities concepts should be explored
7. It was suggested that CDPs should be made through rigorous stakeholder consultations and the ownership should be ensured at the city level.
8. It was suggested to have the executive summary to the Final CDP in vernacular language.
9. The timelines proposed for the assignment were found to be in line with that mentioned in the RFP.

During the presentation CRIS suggested the following points for support from MoUD

1. The team would require a letter of Introduction from MoUD to ensure that all the ULBs can assist the team in the following
    - Designate an “Officer-In charge” responsible for management and coordination of consultants
    - Constitute multi-stakeholder City Level Steering Committee and working groups.
    - Nominate officers from relevant sections of ULB to participate in the process of stakeholder consultation and CDP preparation.
    - Provide the consultant with information, maps and relevant data and documents on ULB.
    - Provide the consultant with necessary authorization to procure information from the line departments
2. Introducing the consultants to the Urban Local Bodies
3. Facilitate and expedite approvals from ULB.

The meeting ended with a vote of thanks to all participants.

Annex-2: Technical Committee at SMC

SILIGURI MUNICIPAL CORPORATION

PROCEEDINGS OF THE MAYOR-IN-COUNCIL MEETING DATED 27.01.2014
HELD IN THE MEETING HALL OF SILIGURI MUNICIPAL CORPORATION

PRESENT

01.	Smt.Gangotri Datta	Mayor	SMC
02.	Smt. Sabita Devi Agarwal	Deputy Mayor	SMC
03.	Sri Sujoy Ghatak	Member, MIC	SMC
04.	Sri Sanjay Pathak	Member, MIC	SMC
05.	Sri Deb Sankar Saha	Member, MIC	SMC
06.	Sri Swapan Chanda	Member, MIC	SMC
07.	Smt. Pampa Das (Ray)	Member, MIC	SMC
08.	Smt. Sikha Roy	Member, MIC	SMC
09.	Smt. Ruma Nath	Member, MIC	SMC

Smt. Gangotri Datta, Hon'ble Mayor, Siliguri Municipal Corporation presided over.

The members present participated in the discussions and after threadbare discussion the following matter as part of working group for CDP has been approved:

1. **WORKING GROUP FOR VISION DOCUMENT & CDP OF SMC**

Urban Planner & Co-ordinator

Category – 1 **Infrastructure, land use and Environment Development**	*1.* SAE(PHE) *2.* SI(HQ) *3.* AE *4.* SI, Pry/Secondary *5.* Health Officer, SMC *6.* Market of Superintendent *7.* Sr. Clerk. of UPE *8.* SDL & LRO (Darjeeling District and Jalpaiguri District) *9.* Official of WBPCB *10.* Sub-Div. Relief Officer (SDDMO) *11.* ARTO, Siliguri *12.* SAE(Elec.) *13.* V.S. *14.* CDPO, ICDS *15.* Surveyor
Category – 2 **Social & livelihood Dev.**	*1.* Sr. Clerk., UPE *2.* TPO *3.* Staffs of Self-Employment *4.* TCI *5.* Asse-in-charge *6.* License Inspector-incharge (Trade) *7.* Market Suptd.

8. DICO
9. Bankers(Lead Bank Manager)
10. Super, Siliguri Hospital
11. MO
12. SR of Pry, DI Secondary
13. CDPO, ICDS

Category – 3
Municipal Institutional strengthening

1. Sr. Clerk., Estt.
2. Accountant
3. FAMC (Manoj Karmakar)
4. ITC
5. TIC
6. Assessment in-charge
7. UPE Head
8. DM/AE, WBEDCL

Decided that the Policy Group for Vision Document & City Development Plan of Siliguri Municipal Corporation would be adopted in the Board of Councillors meeting to be held on ***28.01.14***.

Mayor
Siliguri Municipal Corporation

Annex-3: Focus Group Discussions

Subject of Meeting: Focus Group Discussion with City Auto Association
Date and Time of Meeting held: 11th June,2014 At 2 P.M.
President : Mr.Sandeep Ghosh, contact : 9434152050
Vic-President : Mr. Jayant Sarkar, contact : 9832977209
Secretary : Nirmal Sarkar, contact : 9749866994
Treasurer : Mr. Swapan Dutta, contact : 9832063514
Venue: Siliguri City Auto Operator's Welfare Society, Siliguri
Attended by: Vic-President (Mr. Jayant Sarkar) & Treasurer (Mr. Swapan Dutta)
Agenda: To know there views regarding the city auto service inside the SMC area.
Summary of Discussion: ▪ Information about the number of Auto running in the city was provided, which counts to 1450. ▪ Tax details were discussed. Which are : Rs. 2240 to be paid quarterly to the Government. Yearly insurance of Rs.6000 to the third party or Rs. 6500 as first party insurance. Rs.1000 are charged as fitness and Rs. 1000 half yearly as maintenance charges. ▪ The license generally cost round Rs.500 per Auto. But as the brokers are generally involved who charge around Rs.50, 000(should be investigated).These brokers hampers the business of the Auto Associations ▪ Some Issues they are facing: 1. No revisions of fare charts and increasing cost of insurance. 2. No stand or any proper parking space for the auto (Infrastructure Gap). 3. Harassment by the Law maintainers. 4. Infra structures to support them.

Subject of Meeting: Focus Group Discussion with Hotels Owners Association
Date and Time of Meeting held: 12th June,2014 At 11 A.M.
President : Mr. Ujjwal Ghosh, contact : 9832065531
Secretary & Vice president of Bengal Owners Hotel Association : Mr. K.C.Ghosh, contact : 7679240831
President of Bengal Owners Hotel Association : Mr.T.P. Bhowmick
Venue: Hotel Hindusthan, Pradhan Nagar, Siliguri
Attended by: Secretary, Mr. K.C.Ghosh
Agenda: To know there views regarding the conditions of hotels and their issues, role of hotels in economic development of the city.

Summary of Discussion:

- There are more than 200 hotels in the city and their number is rapidly increasing.
- More than 20 types of taxes needs to be paid for the maintenance of a hotel like the license of fire, water, pollution license, trade license etc.
- Lots of brokers are involved in for tourist to misguide them and charge extra money from them.
- Issues faced by hotel industry:

  1. City doesn't have a proper tourism catchment activities unlike the neighboring places like Darjeeling, Sikkim, Kalimpong etc.
  2. Tourism spots, activities should be revamped
  3. in the peak season of April, May & June, even the best hotels have 25-45 % of occupancy

- Many hotels use child labor.

Subject of Meeting: Focus Group Discussion with Borough II Officer
Date and Time of Meeting held: 11th June,2014 At 3: 30 P.M.
Borough Officer : Mr. Souranshu Roy, contact : +919494307573
Venue: Borough II Office Building, Hakim Para, Siliguri
Attended by: Borough Officer, Mr. Souranshu Roy
Agenda: To know the views regarding the conditions of Borough II i.e., wards 6-15 and the possible proposals to resolve these issues.

Summary of Discussion:

- Character of the wards : ward no. 14, 15 are Residential
  ward nos. 8,9,11 are Commercial
  ward nos. 6,7,10,12,13 are mixed used(resi.+ com)
- Major source of income : Trade
- Issues: -Traffic Congestion is the major issue.
  - Cost of living is high.
  - 50% of the marginal workers are Rickshaw pullers (cycle Rickshaws).They come from Jotiakali which is around 12-13 kms from Siliguri & around 1.5km from Bangladesh border.
  - Electric Cables are exposed and should be underground.
  - Revenue generated by Siliguri, so load shedding is minimum.

  Water Supply- Water Table is very fluctuating; it gets 10ft. height in rainy season and in March, April remains Sandy Porous.

  Some Suggested Proposals were:
  - Court More to Pradhan Nagar & Pradhan Nagar to Jalpai More.
  - Car parking system near 1) Mahananda Banks 2)Suryasen Park.

- Manure Biogas plant near DonBosco.
- Development from Fulbari to Bagdogra.

Subject of Meeting: Focus Group Discussion with members of Siliguri Mini Bus Syndicate
Date and Time of Meeting held: 13th June,2014 At 4:00 P.M.
Secretary : Mrinal Kanti Sarkar, contact : +919494307573
President : Chandrashekhar Dey
Vice-President : Dulal Ray
Venue: Siliguri Mini Bus Syndicate, Kachari Road, Siliguri
Attended by: Mrinal Kanti Sarkar (Secretary) and other members of the association.
Agenda: To know the views regarding the present scenario of the mini bus situation in the city study there perspective about the proposals.

Summary of Discussion:

- There are about 100 mini buses and around 200 buses runs around Siliguri sub divisional area.
  The buses are generally 28 seated.
- There are 650+ School Buses.
- There was a survey conducted by RITES in 2000 & 2008.'
  According to 2008 survey report, there was 250% growth in no. of vehicles.
- The cost of operation of the buses is very high as compared to the returns that the operators get by running the bus service. Hence there should be revision in the fares.
- Road conditions still remains the same from 2000.
- According to the JnNurm survey done earlier, introduction of buses are not possible in such kind of infrastructure.
- Extra permit (more than the required permits) is issued which destroys the healthy competition in the operation of the buses.

Proposals :

- Revision of the fare, considering all the costs required in the operation and maintenance of the buses.
- Improvement of road infrastructure.
- To check the extra permits issued to the vehicles so that the bus operation market maintains a healthy competition which will benefit the bus operators, as well as the public using the bus service.

Subject of Meeting: Focus Group Discussion with Biswajit Das(Hon Secretary)
Date and Time of Meeting held: 16th June,2014 At 5 P.M.
Honorable Secretary : Biswajit Das, contact : 9434081811
Venue: FOCIN, Siliguri

Attended by: Biswajit Das(Hon Secretary)
Agenda: To know about the trade and commerce in the city.
Basic Information: ▪ FOCIN has around 200 associatins from Malda to Darjeelling. ▪ The income of the North Bengal without VAT is Rs.591 crores. In this income Siliguri contributes around Rs.453crores. ▪ Siliguri is majorly dependent on trading. Goods are exported from Bangladesh, Bhutan, Nepal and sold in the markets of Siliguri. **Issues:** ▪ The connectivity of Siliguri, for transportation of goods purpose, with major markets of the region as well as outside, is one of the major issues here. Lack of proper State Railway network, importing of goods becomes difficult. ▪ Many places near Siliguri like Haldibari etc produces good agriculture but due to lack of proper communication the vegetables are not properly delivered to the city. They get damaged in the process of transportation. ▪ No multipurpose cold storage system around Siliguri. ▪ There are few small scale industries like plastic, food processing etc, but these are not encouraged in a fair manner. ▪ Unlike Siliguri, neighboring states like Assam, Sikkim and few more states, who enjoys the benefit of flexible industrial promotion policies. It is due to which industrialists opts for these places to set up industries rather than Siliguri. It is the major reason that there is no major industry in Siliguri. **Proposals as suggested:** ▪ To provide direct linkages with the DMU Haldibari which are, within vendor touch for proper export of goods and supplies. ▪ To have a good cold storage system in city. ▪ Regulated Market system should be maintained i.e., Grower-Buyer-Seller connections(PMC act) ▪ Silguri does not have a proper agricultural sector. Not much agricultural production is done here. Therefore this should be looked uon. ▪ North Bengal to come under the ambit of NEIIP. ▪ Jadavpur has already given some proposals in their 25yrs perspective plan to SJDA. They could be looked upon for proper growth prospects.

Subject of Meeting: Focus Group Discussion with Ward 20 councilor and other members of the office regarding the slum condition
Date and Time of Meeting held: 14th June,2014 At 9 A.M.
Ward Councilor : Mayadevi Paswan
Venue: Ward no.20 office
Attended by: Mayadevi Paswan(wardd 20 Councilor) and various other members of the ward office.

Agenda: To know about the present condition of the slums and their point of view about the proposals.

Basic Information:

- There are 6 slums in ward no.20.They are :
  1) Phuleswari Union Colony
  2) Durgapur Colony
  3) Chittaranjan Colony, Railine Station
  4) Jyotinagar Colony
  5) Raja Rammohan Colony
  6) Sraban nagar Colony

Issues:

1. Water is the main problem here. There is very low supply of water in almost all of these slums.
2. There are 20-22 taps in ward no. 20.
3. The major economic activity of the people of the slums is Van driver, Rickshaw Puller, Laborers etc.

Proposals :

PHULESWARI UNION COLONY

- There is no Community toilet in Phuleswari Union Colony.
- Drainage system needs repair.
- Water supply timing is 2hrs morning and 2hours in evening.
- Drains are blocked through disposal of garbage in the drains.

DURGAPUR COLONY

- The major economic activity here is garbage collection, daily labour, rickshaw pullers, etc.
- This slum has been surveyed by RAY.
- There are CDS Centres and one Community Centre.
- One primary School, to provide education.
- Four self-help groups are present.
- Road conditions are good (pukka road is present)
- Needs more Community toilets.
- CDS Centers are not maintained in good conditions.

CHITTARANJAN COLONY, RAILINE STATION

- 2-3 wells are in pathetic conditions, rings have formed. In few wells the water has foul odor and is unhealthy for drinking.
- Roads are in good condition
- There is no water in the taps of this region.
- Drainage system is blocked as the Solid Waste is disposed in the drains.

Subject of Meeting: Focus Group Discussion with Borough I Officer

Date and Time of Meeting held: June,2014 At 3 P.M.
Borough Officer: Juyol Sarkar
Venue: Borough I Office
Attended by: Borough Officer: Juyol Sarkar
Agenda: To know about the present condition of the Borough and know the proposals.

About the Borough :

1. Borough I includes wards nos. 1-5, 45, 46, 47
2. The land use pattern of this Borough is basically Mixed-Used with ward 46 being commercial.
3. Ward nos. 2,3,46,45 being slum area.

Issues:

4. No government hospital operates here only private nursing home are present.
5. Parking is a major problem for the vehicle owners.
6. Ward 46 has problems of water supply. According to Mr. Juyol Sarkar there is no water supply pipeline provided in this area.
7. Solid waste disposal is not a problem.
8. Ward no. 3 & 45 are the areas of Mahananda bed. Here slums are formed during the dry season but the slum dwellers again become homeless in the rainy season as in the heavy rainfall the river levels up and encroaches the entire area where the slum population lives.
9. Through SJDA , there were small projects going on in Mahananda bank of cleaning the area of Jora-Pani and Panchonia.

Proposals :

- On street parking is a major issue. Provision of proper parking areas.
- Water supply is another issue hence more water reservoir are needed for this area.
- Pressure of water is very low, measures should be taken to increase it.
- Traffic remains a big problem, it should be resolved.

Subject of Meeting: Focus Group Discussion with Ward 28 councilor and other members of the office regarding the slum condition
Date and Time of Meeting held: 13th June,2014 At 9 A.M.
Ward Councilor : Sharmila Das
Venue: Ward no.28 office
Attended by: Sharmila Das(ward 28 Councilor) and various other members of the ward office.

Agenda: To know about the present condition of the slums and their point of view about the proposals.

Summary of Discussion:

- From Phuleshwari to Mahabristhan there are 9 slums identified in which 3 are new slums.
- Water Pressure is not adequate. Water is supplied 2 times a day (8 am & 4 pm).
- The major employees here are laborers or daily wage workers while others are unemployed or don't have a permanent source of income.
- The condition of community toilets is not hygienic.
- In Matangani there is one Community toilet, in Ramakrishna everyone have their own toilets and in Sarbhara there are 2 toilets one old & one new & one is in poor condition. In Majdoor Colony there are 3 community toilets out of which 2 are not in proper conditions.
- Water logging is an issue.
- Here the slums are not under RAY.
- There are 9 self-help groups which even provide loans to the slum dwellers for small business.
- NIMNO- Social package from SMC which provides 10kg rice/month or Rs.350/month if the lady is physically challenged or if the person is physically challenged.(8 months backdated)

Subject of Meeting: Focus Group Discussion with Eastern Himalaya Travel & Tour Operators' Association (EHTTOA)

Date and Time of Meeting held: 24th June,2014 At 10.30 A.M.

Venue: EHTTOA office in Pradhannagar, Siliguri

Attended by: Assistant Secretary, Mr. Milan Bose

Agenda: To know the association's view on the problem in tourist facility provision.

Summary of Discussion:

Information:

- 30,000 tourist (approx) visited Siliguri in the month of May ,2014
- **Peak Seasons are**: April to June; again during the Christmas and New Year; and Sometimes in the Durga Puja Season.
- Siliguri by Character is a not a Tourist Town but a Transit Town.
- There is just one Tourist Information of EHTTOA at Hotel Mainak, Hillcart Road , Siliguri.

Some Problems according to him:

1. Siliguri is a transit town and tourists come here to avail facilities that would take them to the nearby tourist spot.

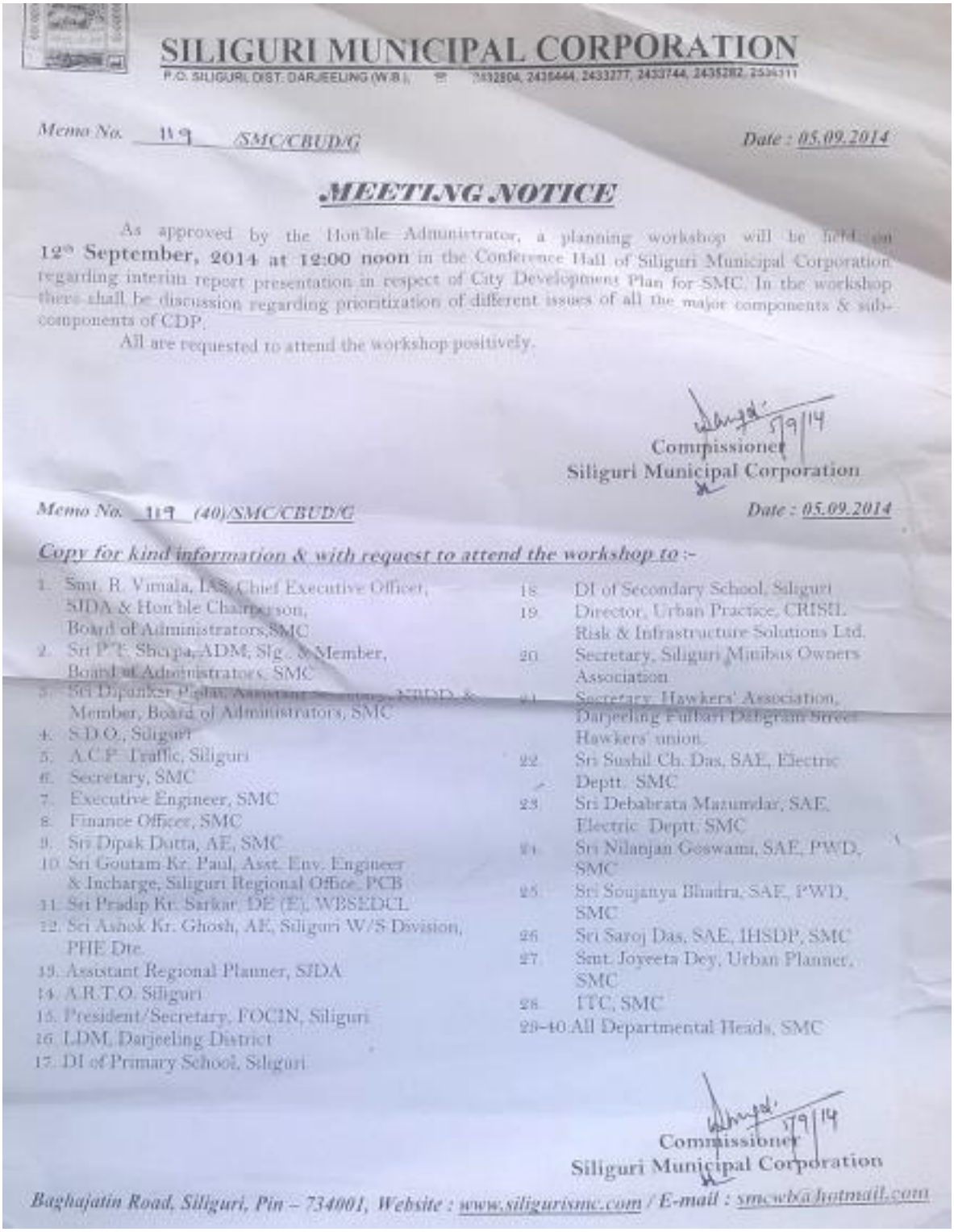
2. There is a huge problem of middlemen who harass and misguides the tourists in the peak seasons. These middlemen start harassing the tourist right from the NJP station.

3. The car operators are mainly private and there is no government intervention hence during the peak season these car operators charge exorbitantly high prices to the unaware tourists.

4. Most of the tourist who visits Darjeeling, Gangtok, Kalimpong or Kurseong usually go directly to these places as soon as they reach NJP. If their train reaches NJP late in the evening (after 8pm) it is only then they decide to stay overnight in Siliguri's hotels or lodges.

- Some Proposals according to him:
  - Construction of Sulabh Complexes in certain important part of the city. (proposal already under consideration by Local Authorities, some have been constructed but not yet operational)
  - A proper Taxi stand for the tourists. There are stands on the Hillcart Road, Sevoke Road and near NJP, none of which are planned and during the Peak seasons Taxi Stands pop up here and there like mushrooms creating inconvenience to both the tourists and the city's traffic.
  - There should be proper intervention on the part of the government regarding rates and charts of the taxis to avoid harassing of the tourists.
  - **EHTTOA** has already asked the NF railways to assign names to the all the four Overbridges in the NJP station so that tourists could be properly channelized to their respective areas of interests. For example tourists for Darjeeling could come through one Overbridge to meet the tour & travel operator for Darjeeling.
  - They have asked the NF railway to assign them "Meet and Greet" points within the NJP station premises.
  - Flights between Siliguri and Kolkata during the Night from the Bagdogra Airport would be helpful.
  - Proper Management of the traffic.
  - Information Kiosks at different Locations of the city to provide proper info to the tourists.

Annex-4: Stakeholder Workshop Invitation Letter (Interim Stage)



SILIGURI MUNICIPAL CORPORATION

P.O. SILIGURI, DIST. DARJEELING (W.B.) ☎ 2432804, 2436444, 2433277, 2433744, 2435282, 2534311

Memo No. 119 /SMC/CBUD/G Date : 05.09.2014

MEETING NOTICE

As approved by the Hon'ble Administrator, a planning workshop will be held on **12th September, 2014 at 12:00 noon** in the Conference Hall of Siliguri Municipal Corporation regarding interim report presentation in respect of City Development Plan for SMC. In the workshop there shall be discussion regarding prioritization of different issues of all the major components & sub-components of CDP.

All are requested to attend the workshop positively.

5/9/14
Commissioner
Siliguri Municipal Corporation

Memo No. 119 (40)/SMC/CBUD/G Date : 05.09.2014

Copy for kind information & with request to attend the workshop to :-

1. Smt. R. Vimala, IAS, Chief Executive Officer, SIDA & Hon'ble Chairperson, Board of Administrators, SMC
2. Sri P.T. Sherpa, ADM, Sig., & Member, Board of Administrators, SMC
3. Sri Dipankar Pathak, Assistant [illegible], CBUD & Member, Board of Administrators, SMC
4. S.D.O., Siliguri
5. A.C.P. Traffic, Siliguri
6. Secretary, SMC
7. Executive Engineer, SMC
8. Finance Officer, SMC
9. Sri Dipak Dutta, AE, SMC
10. Sri Goutam Kr. Paul, Asst. Env. Engineer & Incharge, Siliguri Regional Office, PCB
11. Sri Pradip Kr. Sarkar, DE (E), WBSEDCL
12. Sri Ashok Kr. Ghosh, AE, Siliguri W/S Division, PHE Dte.
13. Assistant Regional Planner, SIDA
14. A.R.T.O. Siliguri
15. President/Secretary, FOCIN, Siliguri
16. LDM, Darjeeling District
17. DI of Primary School, Siliguri
18. DI of Secondary School, Siliguri
19. Director, Urban Practice, CRISIL Risk & Infrastructure Solutions Ltd.
20. Secretary, Siliguri Minibus Owners Association
21. Secretary, Hawkers' Association, Darjeeling Further Debgram Street Hawkers' union.
22. Sri Sushil Ch. Das, SAE, Electric Deptt. SMC
23. Sri Debabrata Mazumdar, SAE, Electric Deptt. SMC
24. Sri Nilanjan Goswami, SAE, PWD, SMC
25. Sri Soujanya Bhadra, SAE, PWD, SMC
26. Sri Saroj Das, SAE, IHSDP, SMC
27. Smt. Joyeeta Dey, Urban Planner, SMC
28. ITC, SMC
29-40. All Departmental Heads, SMC

5/9/14
Commissioner
Siliguri Municipal Corporation

Baghajatin Road, Siliguri, Pin – 734001, Website : www.siligurismc.com / E-mail : smcwb@hotmail.com

Annex-5: Stakeholder Participants sheet (Interim Stage)

Attendance sheet for the meeting on 1st Planning Workshop on City Development Plan (CDP)

Venue : SMC Conference Hall Time: 12 noon Date : 12.09.2014

Sl.no.	Name	Designation & Organization	Contact No.	Signature
1	R Vimala	Chairman, Board of Administration	9434 023101	
2	Sima Halder	SDO, Sadar, Jalpaiguri	9434725258	
3	Swapan Simha IB	Dy CP (Traffic)	9474598616	
4	Sovan W. Bhandari	Commissioner, SMC	94340-51769	
5	Joyashree Roy	Secretary, SMC	31636-00856	
6	Sandeep Das	F.O. SMC	94343-07250	
7	Bikram Thapa	ACP Traffic, SMP	8348035000	
8	Tushar Kanti Roy	Associate Planner SJDA	9434162630	
9	Biswajit Das	Hony. General Secretary FOCUS	94340-81811	
10	Santiranjan Maity	IT Coordinator, SMC	9051184252	
11	Pradip Sarkar	DE(E), WBSEDCL	9434368516	
12	Samar Ch. Mandal	AI/s(PE) Rep. of DI/SPE	9735923985	
13	Subrata Dutta	S.M.B.S (Asst) Secretary	9749325496	
14	Kamalesh Dutta	S.M.B.S (M.C.E)	7602343717	
15	Pradip Kumar Das	DMDC/SLG	9434198361	
16	Tapankr. Ghatak	Advisor CRISIL	9830251685	
17	Appaji Parashar	Associate Director CRISIL	8551851122	
18	Gopal Ghosh	DARJILING DISTRICT & PULBARI DARGAHA STREET	9593948557 HAMORB UNION	
19	A. Bhattacharjee	A.E/PHE/SWSD.	94340-19890	
20	G. Bhattacharya	SE/FSD	94340-47757	

	Name	Designation/organisation	Contact no	Signature
21	Debabrata Majumdar	SAE (Civil) SMC	9434211556	
22	Sabir Sarkar	S.S SMC	9434249116	
23	Biswanath Ghosh	T. C. I.	9832440348	
24	Goutam Paul	WBPDCL.	9830144086	
25	Tanistha Mishra	EE, SMC	9836045088	
26	Baijali Chakraborty	TPO, SMC	9733439936	
27	Jayeeta Roy	U.P. SMC	9733889090	
28	Sanjaya Bhadra	SAE(Civil) SMC	9474389329	
29	Nilanjan Goswami	SAE (civil) SMC	9435507332	

Annex-6: Stakeholder Workshop Invitation Letter (Draft Stage)

SILIGURI MUNICIPAL CORPORATION

P.O. SILIGURI, DIST. DARJEELING (W.B.), 2432804, 2435444, 2433277, 2435282

Memo no. 249/SMC/CDP/Gn Date: 10/02/2015

Meeting Notice

3rd City level workshop will be held on 16th February, 2015 at 1:00 o'clock at the conference hall of Siliguri Municipal Corporation regarding Draft report presentation in respect of capital investment and financial operation plan of City Development Plan for Siliguri Municipal Corporation. In the workshop there shall be discussion on prioritization of different issues of all the major components & sub-components of CDP.

All are requested to attend the workshop positively.

Commissioner
Siliguri Municipal Corporation

Memo no. 249 (50)/SMC/CDP/Gn Date : 10/02/2015

Copy for kind information & with a request to kindly attend the workshop to :-

1. The Commissioner, Siliguri Metropolitan Police,
2. The D .M, Darjeeling
3. The D .M, Jalpaiguri
4. Smt. R. Vimala, IAS, Chief Executive Officer, SJDA & Hon'ble Chairperson, Board of Administrators, SMC
5. The S. D. O, Siliguri
6. Sri Dipankar Piplai, Assistant Secretary, N.B.D.D & Member, Board of Administrators, SMC
7. A. C. P, Traffic, Siliguri
8. Secretary, SMC
9. Executive Engineer, SMC
10. Finance Officer, SMC
11. Sri Dipak Dutta, A.E, SMC
12. Sri Goutam Kr. Paul, Asst. Env. Engineer & Incharge, Siliguri Regional Office, PCB,
13. Sri Ashok Kr. Ghosh, A.E, Siliguri W/S Division, P. H. E, Dte.
14. Sri Pradip Kr. Sarkar, DE (E), WBSEDCL,
15. A.R.P, SJDA
16. Sri Raj Kr. Mistry, A. E, IHSDP, SMC
17. Sri Sushil Ch. Das, SAE, Eletric Dept., SMC
18. Sri Debabrata Mazumder, SAE, Eletric Dept., SMC
19. Sri Nilanjan Goswami, SAE, P. W. D, SMC
20. Sri Soujanna Bhadra, SAE, P. W. D, SMC
21. Sri Saroj Das, SAE, IHSDP, SMC
22. Smt. Joyeeta Dey, Urban Planner, SMC
23. ARTO, Siliguri
24– 33. All Deparmental Head, SMC
34. ITC, SMC
35. President / Secretary, FOCIN, Siliguri
36. LDM, Darjeeling District
37. D.I of Primary School, Siliguri
38. D. I of Secondary School, Siliguri
39. Director, Urban Practice, CRISIL Risk & Infrastructure Solutions Limited,
40. Secretary, Siliguri Minibus Owners Association

Commissioner
Siliguri Municipal Corporation

Annex-7: Stakeholder Workshop Invitation Letter (Final Stage)

SILIGURI MUNICIPAL CORPORATION
P.O. SILIGURI, DIST. DARJEELING (W.B.), 2432804, 2435444, 2433277, 2435282

Memo no. 272/smc/CDP/G Date: 10/03/2015

Meeting Notice

Final Workshop of City Development Plan (CDP) will be held on 12th March, 2015 at 1:00 P.M. at the conference hall of Siliguri Municipal Corporation regarding the discussion on project finalization of Siliguri City.

All are requested to attend the workshop positively.

Commissioner
Siliguri Municipal Corporation

Memo no. 272 (28)/smc/CDP/G Date : 10/03/2015

Copy for kind information & with a request to kindly attend the workshop to :-

1. Secretary, Siliguri Municipal Corporation,
2. Executive Engineer, Siliguri Municipal Corporation,
3. Finance Officer, Siliguri Municipal Corporation,
4. Sri Dipak Dutta, A.E, Siliguri Municipal Corporation,
5. Sri Raj Kr. Mistry, A. E, IHSDP, Siliguri Municipal Corporation,
6. Sri Sushil Ch. Das, SAE, Eletric Dept., Siliguri Municipal Corporation,
7. Sri Debabrata Mazumder, SAE, Eletric Dept., Siliguri Municipal Corporation,
8. Sri Nilanjan Goswami, SAE, P. W. D, Siliguri Municipal Corporation,
9. Sri Soujanna Bhadra, SAE, P. W. D, Siliguri Municipal Corporation,
10. Smt. Joyeeta Dey, Urban Planner, Siliguri Municipal Corporation,
11. Sri Jayanta Jha Chakraborty, H.C, Siliguri Municipal Corporation,
12. – 24 All Deparmental Head, Siliguri Municipal Corporation,
25. ITC, Siliguri Municipal Corporation,
26. Director, Urban Practice, CRISIL Risk & Infrastructure Solutions Limited,

Commissioner
Siliguri Municipal Corporation

Annex-8: SMC ward-wise population

Ward no.	Population (person)		Population growth rate (%)	Density (person/sq km)		Area of ward (sq.km)
	2001	2011	2001-2011	2001	2011	
1	17843	18928	-33.63%	11083	7356	1.61
2	11436	14327	25.28%	13946	17472	0.82
3	11753	10993	-6.47%	25550	23898	0.46
4	20028	20745	3.58%	28208	29218	0.71
5	15326	16369	6.81%	29473	31479	0.52
6	9023	6484	-28.14%	34704	24938	0.26
7	9889	7954	-19.57%	32963	26513	0.3
8	7843	5097	-35.01%	32679	21238	0.24
9	7306	6481	-11.29%	19746	17516	0.37
10	4720	4019	-14.85%	12757	10862	0.37
11	2933	1912	-34.81%	15437	10063	0.19
12	3772	2832	-24.92%	16400	12313	0.23
13	5070	4886	-3.63%	16355	15761	0.31
14	6407	6566	2.48%	20022	20519	0.32
15	8103	8002	-1.25%	22508	22228	0.36
16	5984	4922	-17.75%	23015	18931	0.26
17	5485	5029	-8.31%	14824	13592	0.37
18	8440	7774	-7.89%	36696	33800	0.23
19	3233	3286	1.64%	24869	25277	0.13
20	9869	9009	-8.71%	32897	30030	0.3
21	5875	5624	-4.27%	26705	25564	0.22
22	10293	10182	-1.08%	19061	18856	0.54
23	6205	6340	2.18%	16329	16684	0.38
24	11165	11045	-1.07%	20300	20082	0.55
25	8525	9459	10.96%	16394	18190	0.52
26	4873	5038	3.39%	17404	17993	0.28
27	5630	6892	22.42%	15639	19144	0.36
28	9578	8836	-7.75%	31927	29453	0.3
29	4783	10703	123.77%	16493	36907	0.29
30	6510	7819	20.11%	15140	18184	0.43
31	13404	14424	7.61%	14570	15678	0.92
32	11845	11334	-4.31%	9182	8786	1.29
33	13543	14518	7.20%	13149	14095	1.03

Ward no.	Population (person)		Population growth rate (%)	Density (person/sq km)		Area of ward (sq.km)
	2001	2011	2001-2011	2001	2011	
34	16560	16999	2.65%	14655	15043	1.13
35	14945	15820	5.85%	9113	9646	1.64
36	13653	14734	7.92%	15515	16743	0.88
37	14421	15690	8.80%	18254	19861	0.79
38	11235	13022	15.91%	15824	18341	0.71
39	11237	12353	9.93%	19046	20937	0.59
40	18164	25152	38.47%	11008	15244	1.65
41	12951	17351	33.97%	4022	5389	3.22
42	14711	19139	30.10%	3641	4737	4.04
43	9661	16339	69.12%	5112	8645	1.89
44	11522	11843	2.79%	19529	20073	0.59
45	7117	7001	-1.63%	13428	13209	0.53
46	21222	30665	44.50%	6780	9797	3.13
47	8363	9327	11.53%	10076	11237	0.83
SMC	**472,454**	**513,264**	**8.64%**	**11276**	**12250**	**41.9**

Source: SMC

Annex–9: List of Projects proposed under CDP

S.No.	Projects	Amount (Rs.in Crore)
I	**Water Supply**	**388.9**
1	Source Development (Daily Supply)	80.0
2	Distribution Network (% Roads Covered)	120.0
3	Elevated Storage capacity (% of Water Supply)	68.1
4	Treatment capacity (% of Water Supply)	58.1
5	Refurbishment of old Pipelines	51.8
6	Metering of household connections	5.7
7	Bulk metering - Source, WTP, ESRs	0.3
8	SCADA system	5.0
II	**Sewerage and Sanitation- Under Ground Drainage**	**421.1**
9	UGD Network/ Road Length Covered	359.1
10	Sewerage Treatment (water supply)	58.9
11	Public toilets	1.0
12	Sewerage cleaning equipmnet	2.0
III	**Solid Waste Management**	**116.5**
13	Vehicle Capacity Required (Vehicle Carrying Capacity)	24.0
14	Development of Disposal and Landfilsite (2031)	26.8
15	Waste processing facility	56.7
16	Bio gas	5.0
17	Primary collection facility	4.0
IV	**Storm Water Drains**	**424.1**
18	New Pucca Closed Drains	424.1
V	**Urban Roads, Traffic & Transportation**	**623.3**
19	Upgrade BT to CC	5.9
20	Upgrade WBM & earthen to BT	14.3
21	New Black Top Roads	39.5

S.No.	Projects	Amount (Rs.in Crore)
22	Widening & upgradation of Hill road, bidhan road, sevoke, wall fort, nivedita road, station feeder,	99.9
23	Extension of road network system	19.6
24	Flyover/ underpass - check post More, Mallaguri Intersection, Between Nivedita road and Hill Cart road near Gurung Basti.	231.4
25	Junction improvement - Sevoke More, Pani Tanki More, Venus More, Air View More, Champasari More, Darjeeling More, Tinbatti More, Jalpai More	33.7
26	Transit Oriented Development (500 to 800 m)	100.0
27	New Bus Stand	50.0
28	Relocation Of Existing Bus Stand	20.0
29	Multilevel Parking	6.0
30	Development of Road safety facilities in Siliguri city	3.0
VI	**Street Lighting**	**26.4**
31	High Power	25.6
32	High Mast Lamps	0.8
VII	**Basic servies for Urban poor**	**650.8**
33	Affordable housing	485.6
34	Comprehensive development of 154 Slums..	154.4
35	Livelihood development	10.8
VIII	**Social Infrastructure**	**276.2**
36	Schools	49.6
37	Health care	192.5
38	Socio cultural infrastructure	5.7
39	Parks & play grounds	28.5
IX	**Local Economic Development**	**101.7**
40	Development of Market, Small Trade Industry & Bazar.	35.1
41	Vocational Training for unemployed youth.	0.7
42	Establishment of common facility Centre for Small & cottage industries.	7.0
43	Rest shed or temporary housing facility for industrial workers.	7.0
44	Setting up of a permanent fairground (for formal industries and informal manufacturing sector / cottage industries).	21.0

S.No.	Projects	Amount (Rs.in Crore)
45	Construction of Flower market cum car parking space at ground floor at Kumartuli Siliguri added areas ward 45,46 & 47	7.0
46	Pineapple auction centre	9.8
47	New Market Complexes.	14.0
VIII	**Urban Environment**	**227.2**
48	Construction of walking tracks around water bodies	21.0
49	Pollution control check devices, installation of sprinklers at identified corridors, and plantation activity	7.0
50	Tree Plantation	1.0
51	Establishment of Disaster management cell at SMC with Emergency response system	14.0
52	Solar street lighting along major arteries	28.1
53	Installation Rooftop Photovoltaic paneling on Government and institutional buildings	56.1
54	River front development project	100.0
XI	**Tourism Development**	**38.1**
55	Development of amenities centers	7.0
56	Landscaping and creation of bunds around Tourism Spots	7.0
57	Construction of tourist kiosk with infrastructure	5.6
58	Preparation of information broachers and Audio visual documentation	1.4
59	Development of Convention Cum Tourist Centre.	7.0
60	Tea museum	10.0
XII	**Urban Governance**	**67.3**
61	Migration to DEAS, accounting reforms and Budgetary reforms	14.0
62	Property tax survey and reforms implementation	25.2
63	E-Governance reforms implementation	14.0
64	Capacity building and training	14.0
	Total Investments	**3,361.7**

Annex–10: Data gaps in Siliguri CDP

Sr. No	Section	Data gaps as per revised toolkit	Remarks	Criticality of information
1	**Physical setting**	Wind Direction	The information on wind direction is not available	Low relevance
2	**Demography**	Age-Sex pyramid	The information on Age-sex period is not available	Low relevance
		Migration	The latest information on migration is not available and has not been updated	Low relevance Since phenomenal migration has happened only in past.
3	**Economic profile of the town**	Information on no. of units registered in primary, secondary and tertiary sector	The reliable data on the mentioned subject is not available.	Low relevance
4	**Physical planning and growth management**	Future land use analysis for SMC	The proposed land use data for SMC area is not yet developed.	Low relevance
5	**Social infrastructure**	Quantitative information on infrastructure available in hospitals	The quantitative information on infrastructure available in hospitals, education institutions is not available	Low relevance
6	**Baseline Environment: Urban Environment and Disaster Management**	Air Quality	The latest information on Ambient Air Quality (AAQ) parameters is not available.	Medium relevance.
		Water Quality	The latest information on surface and ground water quality parameters is not available.	Medium relevance.
7	**Climate change and sustainable development**	City level analysis	The micro level data to carry out city level analysis is not available.	Medium relevance

Annex-11: Action Taken Report

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
Project Background	The chapter has mentioned about the Stakeholder consultations and focused group discussion, however, it is not clear whether the workshops were organized in accordance with Stage I, II and III workshops prescribed in CDP Toolkit. Proceedings of Stakeholder consultations and focus group discussions (FGD) have been incorporated in Annexure. It is also not clear whether CDP Policy Committee, CDP Technical Committee and CDP Technical Groups were constituted in order to have in-depth consultations.	As suggested, the details of workshops are presented in suggested format. As suggested, the details of FGD annexed As suggested, the section 1.5.2 on committee formation was rephrased to provide more clarity.	This comment has been incorporated. This comment has been incorporated. No CDP Policy or Technical committee constitution yet reported in the CDP. Reference to JnNURM in the report may be kept minimum unless quantified in project investments and current status reports.	The status of CDP policy and technical committee formation has been discussed in Section 1.8.3. As suggested the reference to JnNURM has been minimized.
Introduction	Figure -7 which shows the India's map should be a corrected one as it seems some of the areas in Jammu and Kashmir has not been shown as integral part of the country. Under climatic parameters information on relative	As suggested, the Figure 7 has been replaced. Also, the figures 7-9 and 10-11 shall be presented in color maps. The information on relative humidity, wind direction	These comments have not been incorporated. The introduction to the city is desirable to be kept short and crisp with the overall history and the existing administrative, physical and economic base reference over a considerable period of time. Location map to be provided in section 2.1	The map has been replaced. Refer section 2. As suggested, the introduction to city has been concised. Refer Section 2. The location map has been added in Section 2.1

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
	humidity, wind direction and circulation also needs to be included.	and circulation have been updated in the report.	Section is desired to dwell at the Regional location of the SMC with respect to the other regional nodes of Economy, Commerce, and Transport etc with the regional linkages and the inter-regional-relationship between them.	The regional settings has been reworked to include economic and functional linkages, as discussed in the TAC meeting.
			Other regional influences of Employment and Socio-economic indicators may also be analysed in this section for arriving at regional level strategies of development. Accordingly the regional maps are to be provided.	Wikipedia as a source of information has been removed from the report.
			Wikipedia may not be referenced as a source of info.	
			The legend to the Administrative map may be redefined as per relevant information with administrative jurisdiction of the delineated areas.	As suggested, the administrative map has been revised.
			Fig 7 does not have proper relevance to the report. May be properly formatted for significant inclusion. Fig 8 may be deleted.	As suggested, the figure 7 has been removed from the report.
			Sec 2.5.2 the base year to be given for all sections. Wikipedia may not be referenced as a source of info.	The section 2.5.2 has been revised as suggested. And the data from IMD has been used.
			Data from govt departments may be sought for use in report.	
			Sec 2.5.6 Area under forests to be given.	It has been mentioned in Section 2.5.6 that there is no significant forest cover in the city.
			Proper maps to be incorporated with legend and symbols Fig 12 may be deleted.	
				As suggested, the figure 12 has been deleted.

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
Demographic Profile	The reason for drastic decline in growth trend from 117.73% during 1991-2001 to 8.66% during 2001-2011 needs to be clearly explained. It is also observed that 22 wards out of 47 wards have experienced negative growth rate. What could be the implications of negative growth on the development of city needs to be elaborated in this Chapter. Information on population composition by religion, language, proportion of SC/ST, Economically Weaker Sections and age sex distribution also needs to be assessed in terms of concentration of population in various parts of the city. Map showing intra city variation on population density to be included. In view of declining growth rate, it is rather difficult to foresee that the city has the right potential to develop in future or it may	The report mentioned that the sudden increase in jurisdiction from 1991 to 2001 is the reason for high growth rate of 117.73%. During 2001 to 2011 there has been no jurisdictional increase. Hence the growth rate is constant. The reason for negative growth in certain wards added in the SMC.	These comments have not been incorporated. CDP has not attempted the following analysis: • Population composition by social classes and Economically Weaker sections. • Age sex-Structure, Age-cohorts, Work-Force, • Ward wise Population Distribution • Migration • Analysis of Workers, Marginal workers and Non workers • Occupational Pattern- in various sectors of economy. Maps to show population distribution, densities and growth trend curves/graphs may be included. Floating population during festivals may also be included. Graphical representation of occupational structure, sex-ratio, and population growth may also be included. Figure 20 & 21 may be put together to show the trend of projection. Sec 3.10.2 the basic assumptions have not been used in the population projections or demography. The statistics of Sex-ratio and Literacy, all programmes undertaken by the State Govt / ULB in respect of these two aspects may be reported and the benefits or outcomes of such awareness programmes may be listed and analysed for future strategy. No critical issues/constraints have been identified for specific attention and Demographic study and control. Population density maps could have been identified zones of more stringent	The reason for drastic decline of growth has been mentioned in Section 3.4. The analysis on SC/St population has been included. However, the religion, language composition has not been carried out due to lack of reliable data. The age sex distribution has not been addressed due to lack of reliable data. The economically weaker section population has been discussed in Section 9. The ward wise population distribution has been discussed in Section 3.6. The graphical representation of occupation structure has been discussed in Section 4.4. As suggested the figure 20 and 21 have been merged. Refer Section 3.4. The discussion on programmes conducted by ULB to support healthy sex ratio has been included in the CDP. (Refer section 3.11)

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
	be more or less a stagnated growth story.		control over new areas / additional housing areas or other uses.	The details on the age-sex structure is not available and has been included as a data gap in the CDP. The key issues and observations have been provided in Section 3.12. The existing landuse did not identify any restricted zones for housing in the SMC limits.
Economic Profile of the Town	In overall, the Chapter has touched upon all the aspects on city's economy. It is desirable to include a section on land and its role in market and its environmental sustainability. How the economy of the city is going to sustain in view of declining population growth needs to be elaborated.	The section on land market shall be updated as per data availability. The other suggestions shall be incorporated in the report.	These comments have not been incorporated. This Chapter is not well drafted. The not mentioned distribution of economic activities, industrial profiles, workforce participation, and workers classification, economic policies affecting the economy, key economic indicators, and informal economic details. The chapter does not have any significance without the abovementioned details in the report. CDP needs to include analysis of *Broad sectors* which constitute the economic base of the city viz. *Primary, Secondary (Manufacturing, Processing, Servicing, Construction etc) and Tertiary (Trade & Commerce, Transport and other services)* All major Primary, Secondary and Tertiary units registered should be tabulated with their employment and production statistics.	As suggested, the entire section has been restructured with discussion on: State level policies Sectoral activities and mapping of economic activities in city Informal economic activity Workforce participation and workers classification (primary, secondary and tertiary) The information on no. of units registered in primary, secondary and tertiary sector is not available and has been included as data gap. The map showing the major economic activities in the city have

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
			The 3 sectors of Timber, Tourism and Tea has to show more details of production, employment and facilities in this sector for economic development It should also incorporate analysis on Investment, Capacity, Production, Employment and industrial infrastructure. The CDP has to include the *informal sector* of the economy as well for its potential employment and contribution to economy. Location Map of clusters of industries may be included in the report. Wikipedia may not be referenced as a source of info. Key issues have to be worked out better.	been provided in this section. As suggested, the key issues have been revised.
Physical Planning and Growth Management	The physical growth trend of the city has been explained appropriately, however, it will be desirable to include colour maps in order to have better comprehension. Further, land use map existing for two different periods and proposed to be shown in colour also to be included clearly analysing the changes in the land use pattern. Figure 36 is difficult to comprehend as it is given in black and white.	As suggested colour maps shall be annexed with this sections. The Land use maps showing the temporal changes could be presented based on data availability.	These comments have not been incorporated. The landuse analysis should provide an overview of City growth and of predominant uses/functions/activities / ownership and Land market for the horizon year. The analysis of future land use needs to be correlated with the availability of land vis-a-vis use suitability and location.	As suggested, the land use analysis with predominant functions and activities has been provided in Section 5.5.1. The proposed Land use is not available for SMC area.
Social Environment	The chapter sans description on social and cultural	As suggested, Figure 38 shall be shown in	These comments have not been incorporated. This Chapter is not well drafted.	As suggested, analysis of health facilities and comparison with URDPFI guidelines

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
	environment and they are conducive for all-round development of the city. Further, existing analysis of education and health facilities should be compared with URDPFI Guidelines, 2014 in order to clearly bring out the deficiencies with regard to intra city disparities in their availability. Figure 38 to be shown in colour to clearly identify the location of various facilities.	colour in the report.	Health The existing situation of the Health sector has not be assessed or worked out for its quantitative or qualitative requirements. Details of Category of Hospitals/Facility, Capacity (beds), Child welfare and Maternity, Medical and support staff counts, Area of Facility, Service zone to be included. Supportive infrastructure facilities for existing health care institutions be presented in tabular form. Overall all health infrastructure facilities must be compared w.r.t URDPFI guidelines, 2014 both in terms of area and population coverage. Key issues have to be worked out better. Education The existing situation of the Education sector has not be assessed or worked out for its quantitative or qualitative requirements. Details regarding existing infrastructure facilities, Students enrolled at every level of education to ascertain adequacy of facility. Information on Student-Teacher ratio, School drop outs with reasons may also be added. All educational facilities have to be presented in categories	has been provided in Section 6.2.4. The key issues have been redrafted as suggested. The quantitative assessment of the education facilities has been provided in Section 1.3.1 and the comparison with URDPFI guidelines has been provided in Section 1.3.3. The information on student teacher ratio and drop outs is not available and has been indicated as a data gap.

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			of Girls and Boys to address the issues of differing between Female and Male literacy rate. The Central/State policy/ schemes for the education may also be included, particularly for girls and minorities. All facilities to be mapped and provisions compared w.r.t URDPFI Guidelines. Key issues have to be worked out better. Recreation The existing situation of the recreation sector has not be assessed or worked out for its quantitative or qualitative requirements. A tabulated form of location wise distribution of recreation facilities with Name, category, area and facilities to be included. Environmental issues around recreational spaces may also be discussed. Norms for Parks, Play fields, Open space, amusement park may be compared with URDPFI Guidelines, 2014. Possibilities of city lakes & surrounding spaces for recreation purposes may also be explored. Location all social infrastructure facilities may be indicated in a map. Other Sports/Social Clubs, Libraries other social activities to be included. Key issues have to be worked out better.	The tabulated details of parks in SMC has been provided in Section 6.4. The comparison with URDPFI guidelines has been provided in Section 1.4.1. The discussion on city clubs and other sorts of entertainment locations has been included.
Infrastructure and Services	The chapter is quite comprehensive, however, there is also need to assess coverage of water supply network, with special focus on	The infrastructure and services assessment has been carried at city level. Hence ward level information	These comments have not been incorporated.	The coverage of water supply in slum areas has been discussed in Section 9.2. It has been clarified that the analysis of

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	inclusion of the EWS, LIG and slum areas into the coverage of the network. It should also estimate per capita availability of water and availability through different sources at the ward level as well. Intra city disparities in the water supply should be clearly reflected in the CDP. As the city is not having underground sewerage, what options could be thought off especially in terms of decentralized waste water treatment needs to be elaborated. Provision of water supply, underground sewerage and solid waste management to adhere to CPHEEO norms. Map showing existing drainage network and solid waste landfill site to be incorporated. Map showing the distribution of social infrastructure	has not been presented. The water supply network coverage for EWS, LIG and slum areas shall be updated as per data availability. The other suggestions have been addressed in the Draft CDP. The social infrastructure map has been annexed in the Draft report. The storm water drainage map shall be provided based on the availability.	A tabulated form of Source of augmentation, Storage facilities, Treatment capacity, and distribution system and supported with maps /Flow diagram may be incorporated. Network Map for all infrastructures (existing and proposed) Water Supply, Sewerage and Solid Waste Disposal are to be included. Key issues should quantify gaps in supply, need of New Proposals and maintenance or repair needs to arrive at *"project proposals" with Capital investment needs*. Table 38 maybe corrected Sewerage Network Map should plot all existing and proposed service units and networks (Treatment Plant, pumps, pumping stations, pipe networks, etc) are to be included. Key issues have to be worked out better. The CDP has to work out the overall Solid Waste generation for 2041 and estimate the machinery and equipment requirement for collecting, handling, transporting and disposal of the waste at the horizon of 2041, and also find the gaps in the existing situation.	water supply coverage and distribution have been carried out city level. Per capita availability has been estimated at city level. As suggested the flow chart showing the water supply services has been provided in Section 7.1.1 The network maps has shall be included based on data availability. The key issues have been redrafted to highlight the issues in service levels and thus provide basis for project identification. The table 38 has been eliminated since the updated data is not available.

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	may be placed in Chapter -6		CDP may detail the proposed technologies for treatment of bio-degradable, non-biodegradable, bio-medical and bio-hazardous wastes. Also waste-to-energy potential may be explored. Table 42 : may include the construction waste The current method of disposal of bio-medical waste disposal maybe explained. Solid Waste Management Map should show all existing and proposed Unit space and transport network (Treatment/Processing Plant, Transfer stations, Vehicle yards, Landfill site, Community bin spaces, etc) are to be included. Key issues have to be worked out better. This section is not well drafted. The existing situation is not detailed. Key issues should quantify need of New Proposals and maintenance or repair needs to arrive at *"project proposals" with Capital investment needs*. This section is not well drafted. The existing situation is not detailed. The street lighting maybe incorporated based on the vulnerable to personal safety. Key issues should quantify need of New Proposals and maintenance or repair needs to arrive at ***"project proposals" with Capital investment needs***.	As suggested the demand analysis for transport capacity, landfill requirement and treatment capacity has been discussed in Section 17.4. As suggested and as per discussions with ULB officials, suitable technologies for waste treatment have been proposed. The share of construction waste has not been included, since the ULB is not carrying out precise analysis of the construction waste. The current status of bio medical waste has been indicated in Section 7.4.4.

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				The street lighting section has been redrafted. Areas which lack street lights and thus pose vulnerability to personal safety have been discussed.
Traffic and Transportation System	The chapter needs to include the modal split. Further, there has been no assessment of the need of facilities like bus terminal, truck terminal and integrated freight complex especially in terms of size, space usage and different type of facilities within the premises. This is important as lot of freight traffic passes through the city on route to neighboring countries. What are the major conflict points in traffic circulation in the city. The maps given in the Chapter cannot be comprehended and it is desirable that the same may be shown in colour.	As suggested, the maps shall be presented in colour. The assessment on need for bus terminals, freight complex, and conflict points in the city has been updated in the draft report.	These comments have not been incorporated. City assessment has to include physical characteristics and indicators, Conditions of road network, capacity of network, other transport infrastructures/facilities like Bus terminals and truck terminals. For Railways, Seaports and IWT, volume of Passenger *viz-a-viz* Freight load may also be accounted for study during the last few years for analysing trends. Modal Split, Volume and Directional Flow, Passenger trips, BRT system in region, Nodes/Facility needs, Para transits, NMT & Accidents, disaster management may also be analysed. Present Public parking needs and projection into Horizon 2041 may also be included.	The section has been revised to include : The indicative traffic volumes have been provided in Figure - 38 The traffic modal split has been discussed in Section 8.3 The status of existing bus terminals has been discussed in Section 8.6. The conflict points in the city has been discussed in Section 8.1.2 The freight terminals have been discussed in Section 8.7.6 As suggested, the maps in the section have been revised to provid better legibility. The road network condition has been included in Section 8.1.1 The parking needs for present

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			Figure 40: maybe presentable way. Key issues have to be worked out better.	requirement as per the CMP study has been provide in Section 8.5. The data on parking projections is not available.
Housing and Urban Poverty	It is not clear in the chapter that what the shortage of housing in the city is. Although it has been mentioned that there are 1.69 lakh houses against 1.15 lakh households in 2011. It is also not clear that, what is the proportion of population living under the poverty line. Figure (47) should be shown in colour.	The section on housing demand has been included in the report. The no. houses and households has been cross checked and updated in the report. As suggested, figure 47 would be shown in colour.	These comments have not been incorporated. Housing typology, in the inner city and the peripheral zones has not been discussed. Key issues have to be worked out better.	The demand gap analysis for housing has been included in Section 9.1.3. The population below poverty line has been updated in Section 9.2.1. The figure 47 is not available in color. The proportion of population below poverty line has been included in Section 9.2.1 The housing scenario in the city has been updated in Section 9.1.4.
Baseline Environment: Urban Environment and Disaster Management	With regard to Disaster Mitigation and Management, only descriptive assessment has been done. What measures have been taken by the district authorities for preparing the Disaster Management Plan as both District and the city falls in Seismic Zone - IV	The measures taken by district administration have been updated in the report.	Table 58 needs to describe the maximum and minimum extent of pollution at one location so as to ascertain diurnal variation with reference to a specific period of observation. And the data may be updated to 2015. There is a need for assessment of existing status of seasonal ambient air quality (winter, summer and monsoon seasons). Table 59 maybe updated. Noise levels have to be analysed, especially in industrial areas and traffic intersection. Institution/Authorities responsible for Disaster	The updated information on the environmental parameters is not available. It has been indicated as a data gap. The project on disaster management has been included in sector plan. Within the city there are no ecologically sensitive regions.

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			Management and their roles and responsibilities may be clearly indicated. Capacity Building to manage disaster situation at ULB level is needed. State and Local level Disaster Management cells/units and their constitution may also be reported. Ecological/Environmentally sensitive river front Areas of Natural Significance and their development control policies may also be discussed. Any disaster shelter (Community hall, Primary school or temple and other public buildings) may also be indicated. Existing early warning and communication systems also to be reported. Map for cover of Water Bodies may be added. Further catchment area of each major Water body may also be marked. Policy measures to curb depleting ground water may also be identified.	
Climate change and Sustainable Development	With regard to climate change, it has to be seen whether the average mean temperature of the city and district has increased in the recent past. Further, the incidence of floods should have also been mentioned in the chapter. How the Master Plan of the city has addressed the issue may also be indicated with the Chapter	The section shall be updated based on data availability	City level analysis is not done.	The city level data for climate change is not available and has been included as a data gap in the CDP.
Cultural Resources, Heritage and Tourism	The Chapter is rather descriptive as there is no analysis of visit	There are no significant heritage structures within the	These comments have not been incorporated.	It has been clarified that there is no significant heritage in the SMC limits. Also, ASI/state listed

Chapters/Contents	Comments and Remarks - Interim Report	Response by CRISIL	Comments on revised - Draft CDP	Response by CRISIL
	of tourists to the city as well as district. The Chapter should also mention that whether Siliguri Municipal Corporation /Siliguri Jalpaiguri Development Authority have done the listing of heritage structures not covered under the ASI Acts. Since the City is gateway to Sikkim, Bhutan and Nepal, it has to be ensured that lot of importance to be given for strengthening the tourism infrastructure. The Chapter should include the map which should clearly show the location of both ASI protected monuments and non-ASI Heritage structures.	corporation limits.	Natural Feature areas/ Natural Heritage areas are to be discussed w.r.t the rivers and their habitat zones. Heritage analysis has to include legislation, Institutions, conservation programmes and Tourism aspects. Programmes may assess ***current status***, ***deficiencies*** and ***Broad proposals*** of each Heritage listed/tabulated and propose measures to improve connectivity of all heritage/tourism sites with other facilities for developing tourism. The CDP has to report on the Cultural resources: cultural festivals, practices, rituals, use of public spaces during festivals and the social integration in such occasions. It is desired that lists be drawn up for Heritage and Religious sites as per ASI, ULB and local unlisted significant heritage. Condition assessment, Footfalls (no of domestic and international tourists) and Revenue generated, Renewal and upkeep needs should arrive at financial estimates. This chapter may be drawn up w.r.t Section 6.12 of the toolkit including Heritage Resource Management Plan for both Tangible and in-tangible Heritage.	structures are not present in the city. The information on festivels of cultural importance has been updated in Section 12.5. Based available data, the tourist footfall has been updated in Section 12.5.

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			It may also indicate whether Heritage Conservation Committee (HCC) may be constituted.	
Assessments of Institutions, Systems and Capacities.	It appears that Siliguri Municipal corporation has adequate sanction of posts, however, the Chapter should clearly mention about the problems beings faced in implementing the reforms. How effective is the coordination of Municipal Corporation with Siliguri Jalpaiguri Development Authority in terms of implementation of the Master Plan.	As suggested, the issues with respect to coordination within SMC and SJDA has been updated in the report.	A matrix of Role and Responsibilities as per Section 4.2.5 may help in sorting out staffing, overlapping and unsynchronized functions between various departments in the Planning Area. ***"Function and Organisation Mapping"*** (page 23 of revised toolkit, 2013)	The matrix indicating roles and responsibilities of various departments has been provided in Section 13.4.
Municipal Financial Management.	The Chapter has given the details of recent status of Municipal Finances and it has highlighted that the operating ratio is beyond 1 which indicates revenue deficit in the municipality. The chapter should have suggested other options for revenue generation in the Municipal corporation.	The measures to improve the operating ratio have been provided in section 18.9 of draft report	CDP should also undertake an assessment of revenue sources under all heads to explore areas of possible increase in tax & non-tax revenues for the Corporation.	The assessment of past trends of revenue sources has been provided in Section 14.2. The revenue enhancement measures have been discussed in Section 18.8
SWOT analysis	The Chapter has more or less identified the strength and weaknesses of the city along with opportunities	The suggestions shall be incorporated in the report.	Sectoral SWOT evolves into overall SWOT. SWOT leads to a set of adoptable measures / strategies to undertake Development and should exclude other options. SWOT exercise maybe taken	As suggested the SWOT analysis has been revised to reflect the sectoral SWOT analysis and highlight the opportunities. Also,

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	and threats based on certain parameters. However, there is a need to analyse that how city will grow to its full potential as the population growth has been on decline.		up as per Section 4.3 of toolkit. Environmental and other concerns have not been mentioned in the Threats and may be incorporated.	the environmental concerns have been incorporated in threats.
Stakeholder Consideration	The Chapter has highlighted the stakeholder view on issues and challenges in the key areas of City Development.		Suggestion/recommendations and outcomes are not mentioned.	The suggestions and recommendations of stakeholders has been updated in Section 16
Annexures	The Chapter gives the detail of focus group discussions and consultations.	-	-	-
Sector Plans			Comments for all Sectoral Plans presented in this chapter: 1. The Sector Goals stated at the sector Plan table should be drawn from Table 78 and matched with issues identified against each sector in City assessment. 2. All calculations of estimated requirements @ Short term and long term horizon should be placed with projected population at the horizon and per capita need. 3. The phasing of Capital investments is shown only until 2021. The long term phasing should also be included. 4. There are obvious mismatches between the CIP broad phasing and the detailed outlay in financial years. These may be corrected. Other specific Sectoral comments;	As suggested, the demand gap analysis for 2021 and 2041 horizon periods have been derived from city level assessment. The proposed projects have been aligned with the action plans recommended.

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			SWM- Plan does not identify Land requirement for the Sanitary Landfill site Housing – Plan has not assessed demand and projects for either short term or long term. The Demand-Gap analysis for all sectors should be drawn from City Assessments. There is a mismatch in the *Existing situation* in the *Demand-gap* analysis of sectoral plans and City assessments. The Actions Plans for short term Goals (projects) should be synchronised with the Action Plans Formulated in the Goals and Strategies at Table 78	
CIP			1. All calculations of estimated requirements @ Short term and long term horizon should be placed with projected population at the horizon and per capita need. 2. The phasing of Capital investments is shown only until 2021. The long term phasing should also be included. There are obvious mismatches between the CIP broad phasing and the detailed outlay in financial years. These may be corrected. Projects identified for all sectors have been listed for Sectoral project description should be drawn from Demand-Gap analysis, Priority Rank from Stakeholders identified issues. Project description may also include specific Location, Land Area requirement and	The section has been restricted to include demand gap analysis, CIP, project details s suggested.

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			the quantity and Sub projects. Tables need to be re-worked accordingly.	
			Formats for monitoring for the first 3 years of the short term phasing may be included in the CDP	Section on review and monitoring has been included in Section 19.

TAC meeting comments

Sector	Comments	CRISIL response
Project Background	• Reference to JnNURM in the report may be kept minimum unless quantified in project investments and current status reports;	• The suggestion has been incorporated in the Final CDP.
Introduction to city	• Introduction to the city is desirable to be kept short and crisp; • India map to be corrected (Jammu & Kashmir part), Figure-5; • Figure-7 to be revised with detailed regional connections; • Wind direction an annual rainfall trend map to be incorporated;	• Introduction has been revised. Refer section 2. • As suggested the map has been revised. • The regional connectivity map has been revised. • The wind direction and rainfall details have been provided in section 2.5.2.
Demography	• Age-sex details to be provided; • Add details on Migration; • Figure 20 & Figure 21 may be put together to show the trend of projections; • Growth factors brief (possibly with quantitative reference) for population projections	• The figures 21 and 22 have been merged as suggested. • The age sex details are not available. Hence this has been mentioned as a data gap. • The subjective argument on growth factors have been mentioned in population projection.
Economic profile of the town	• Provide the more details on Tea, Timber, Tourism economic activities; • Informal sector and employment details, contribution to economy; • Details of IT sector employment and real estate investment details;	• The section has been updated as per the data available.
Physical planning and growth management	• Provide the details of Tea estates in and around the city; • Link the Figure 33 with Table 17; • Brief on Future city expansion;	• The brief on cities potential growth corridors has been provide in Section 5.4.
Social environment	• Details of Teacher-student ratio; • Details of child friendly toilets; • Institutional development in slum areas; • Compare the current health and education facilities with URDPFI guidelines ; • Bring out the stray animal issues;	• The social infrastructure has been compared with URDPFI guidelines.(Section 6.2.4) • As suggested, the stray animal issues have been updated in the health infrastructure sector.

Sector	Comments	CRISIL response
Infrastructure and services	• Brief the key issues in terms of coverage, distribution and cost recovery; • Provide the gap/requirement details of Sewerage system; • Table 46 may be insert in between the paragraph to cross refer the data;	• As suggested, the key issues have been updated. • The demand gap analysis for sewerage has been provided in sector plan (Refer section 17.3).
Urban roads, traffic and transportation system	• Major roads and junctions may be listed out in Section 8.1; • Acceptable share of roads type and comparison with Siliguri roads (Arterial, sub arterial, collector street, local); • Add the traffic density map; • On street parking locations map; • List out the accident prone areas; • Suggest suitable public transport system for the city;	• The list of major roads and junctions has been listed in Section 8.1.2. • This has not been addressed since no such comparable norm is available. • The traffic density map has been added. (Refer figure 38). • The on street parking locations have been discussed in Section 8.5. • Transit Oriented Development has been discussed in the TOD Section
Housing and urban poverty	• Details of Slum improvement and UPE cell; • Revise the slum map; • Details of women self-help groups; • Self-help group networking details; • Innovative employment generation options for women (self-help groups); • Details of NGOs/CBOs and their participation in City development;	• The details of slum improvement programme have been discussed in Section 9.2.2. • As suggested, the slum map has been revised. (Refer figure 46). • The self-help groups have been provided in Section 9.2.4 • The details of NGOs have been provided in Section 16.
Baseline Urban environment	• Update the air, water pollution data with latest statistics;	• The latest data is not available and has been indicated as a data gap.
Cultural resources, heritage and tourism	• Map the tourist points in the city; • Add issues related to heritage conservation ; • Details of national park near Siliguri;	• The tourist locations have been provided in figure 21. • The details of the national park near Siliguri have been updated.
SWOT Analysis	• Improve the SWOT analysis section; • Provide the scaling details of high, medium and low;	• As suggested, the SWOT analysis has been updated.
City Vision and strategies	• Concept development on City vision; • Revise the Table 78;	• The concept on city vision have been provided in section 16.6. • As suggested, the table 78 has been revised.
Sector plans	• Project proposal for development of “T-Museum, Sport complex; • Development options for Eco, Health Tourism infrastructure ; • Revise the investment cost of Tourism sector;	• The suggested projects have been incorporated in CDP.

Annex-12: TAC minutes

Minutes of the meeting

Discussion on draft CDP for Siliguri

Date	24th March, 2015
Place	Nirman Bhavan, MOUD, Delhi
Agenda of meeting	Discussion on draft CDP for Siliguri with Technical Advisory Committee (TAC)

Discussion points for Siliguri

Project Background	• Reference to JnNURM in the report may be kept minimum unless quantified in project investments and current status reports;
Introduction to city	• Introduction to the city is desirable to be kept short and crisp; • India map to be corrected (Jammu & Kashmir part), Figure-5; • Figure-7 to be revised with detailed regional connections; • Wind direction an annual rainfall trend map to be incorporated;
Demography	• Age-sex details to be provided; • Add details on Migration; • Figure 20 & Figure 21 may be put together to show the trend of projections; • Growth factors brief (possibly with quantitative reference) for population projections
Economic profile of the town	• Provide the more details on Tea, Timber, Tourism economic activities; • Informal sector and employment details, contribution to economy; • Details of IT sector employment and real estate investment details;
Physical planning and growth management	• Provide the details of Tea estates in and around the city; • Link the Figure 33 with Table 17; • Brief on Future city expansion;
Social environment	• Details of Teacher-student ratio; • Details of child friendly toilets; • Institutional development in slum areas; • Compare the current health and education facilities with URDPFI guidelines ; • Bring out the stray animal issues;
Infrastructure and services	• Brief the key issues in terms of coverage, distribution and cost recovery; • Provide the gap/requirement details of Sewerage system; • Table 46 may be insert in between the paragraph to cross refer the data;
Urban roads, traffic and transportation system	• Major roads and junctions may be listed out in Section 8.1; • Acceptable share of roads type and comparison with Siliguri roads (Arterial, sub arterial, collector street, local); • Add the traffic density map; • On street parking locations map; • List out the accident prone areas; • Suggest suitable public transport system for the city;
Housing and urban poverty	• Details of Slum improvement and UPE cell; • Revise the slum map; • Details of women self-help groups; • Self-help group networking details; • Innovative employment generation options for women (self-help groups);

	• Details of NGOs/CBOs and their participation in City development;
Baseline Urban environment	• Update the air, water pollution data with latest statistics;
Cultural resources, heritage and tourism	• Map the tourist points in the city; • Add issues related to heritage conservation ; • Details of national park near Siliguri;
SWOT Analysis	• Improve the SWOT analysis section; • Provide the scaling details of high, medium and low;
City Vision and strategies	• Concept development on City vision; • Revise the Table 78;
Sector plans	• Project proposal for development of "T-Museum, Sport complex; • Development options for Eco, Health Tourism infrastructure ; • Revise the investment cost of Tourism sector;

Other general comments

1. Formation of policy committee is pending in Siliguri. Responding to this, SMC commissioner has informed that the municipal elections will be held in April 2nd week and once the administrative body formed, policy committee will take place at priority basis;
2. List of stakeholders (Attendance sheet) to be incorporated;
3. Issues should be written in detail linking with the discussion in the relevant subsection;
4. Add the summary, preface, acknowledgment and project team details in the report;
5. ATR should be annexed with revised Draft report;
6. Total proposed projects list should be annexed (in a single sheet) in the report;

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