CHAPTER 1 BACKGROUND AND EMERGING ISSUES TO INITIATE DRAFT COMPREHENSIVE DEVELOPMENT PLAN (CDP) PROPOSALS

1.1 Background

Development planning seeks to achieve good quality development. An attempt has been made to prepare the comprehensive development of the area within the statutory framework of Act and Rules.

As per Section 9 of the Orissa Development Authority Act 1982, it is the statutory duty of the development authority to prepare the Comprehensive Development Plan (CDP) considering the provisions of CHAPTER-III of the Orissa Development Authority Rules, 1983, and has to submit it to the State Government for its approval under Section 11 of the Act. The SDA has to follow the procedure regarding preparation and approval of CDP as mentioned in Section 12 of the Act. This Comprehensive Development Plan shall come into operation as per provisions of Section 13 of the Act. According to the Act, the Comprehensive Development Plan (CDP) shall, define the various zones into which the land covered by the Comprehensive Development Plan may be divided for the purpose of development and indicate the manner in which the land in each zone is proposed to be used and the stages by which any such development shall be carried out. It shall serve as a basic pattern of frame work within which the Zonal Development Plan of the various zones may be prepared.

With the formation of the Sambalpur Development Authority (SDA), this would be the first attempt to visualize the area beyond the limits of Sambalpur and look towards holistic development of the Sambalpur including the adjoining areas of Burla, Hirakud and surrounding villages. The Sambalpur-Burla-Hirakud complex under the jurisdiction of SDA is located at 21°30’ North latitude and 84°0’ East longitude on the western belt of Orissa at a distance of about 325 kms from Bhubaneswar, the capital city. The SDA is responsible for planned development of this urban complex.

As part of scope of work to prepare Comprehensive Development Plan (Vision 2030) for the area of Sambalpur Development Authority (SDA), following tasks have been accomplished as shown in **Table 1A** below.

Table 1A
List of Task Accomplished for CDP

1	Concept Report Submitted	January 2009
2	MOU Signed	January 2009
3	Inception Report submitted	March 2009
4	Status Survey Report Part-I submitted	July 2009
5	Status Survey Report Part-II submitted	May 2010
6	Status Survey Report Part-III submitted	June 2010

7	Existing Landuse Map from satellite imageries submitted	March 2011
8	Existing Land use map print from the GIS data (cadastral maps showing existing land use) in (1:2000 scale)	January 2012

1.2 Main objective of the CDP

To formulate a meaningful development plan of the area to regulate and guide the urban growth in the region by 2030, under the provisions of Orissa Development Authority Act, 1982 and Orissa Development Authority Rules, 1983.

According to the Orissa Development Authority Act 1982, the Comprehensive Development Plan (CDP) has the following roles.

1) CDP shall, define the various zones into which the land covered by the Comprehensive Development Plan may be divided for the purpose of development and indicate the manner in which the land in each zone is proposed to be sued and the stages by which any such development shall be carried out.
2) CDP shall serve as a basic pattern of frame work within which the Zonal Development Plan of the various zones may be prepared.
3) The development shall be controlled and promoted according to Zonal Development Regulations and Building Development Control Regulations.

The preparation of the Draft Comprehensive Development Plan will have bearing on the assessment of the existing conditions and accounting for the potential resources and constraints.

1.3 Project Initiation

The Directorate of Town Planning, Orissa working under the Housing and Urban Development Department of the Government of Orissa initiated the work of preparation of Comprehensive Development Plan (CDP) for Sambalpur Development Authority (SDA) area by inviting offers from the interested organizations / institutions (Tender Call Notice of the Directorate of Town Planning, Orissa, Bhubaneswar dated 06.02.2008). The consortium of Gujarat Industrial and Technical Consultancy Organization (GITCO), Deepjyot Consultants (DJC) and Compusense Automation (CSA), Ahmedabad, was given the work of preparation of Comprehensive Development Plan (CDP) for Sambalpur Development Authority (Sambalpur, Burla, Hirakud and 67 Villages Development Area), Orissa on August 6, 2008. The beginning to initiate the project was made with the submission the Concept Report inviting inputs from the stake holders as a first step towards participatory planning process in January 2009.

1.4 Sambalpur Development Authority (SDA) Area

The planning area of SDA for CDP comprises of the jurisdiction within Sambalpur Municipality and surrounding 21 villages, Burla NAC and surrounding one village namely Amsadha Katapali, Hirakud NAC and surrounding 6 villages. In fact these were the areas for which the Master Plans were prepared earlier for the three towns of

Sambalpur, Burla and Hirakud respectively. Due to increased industrial and economic activities at Hirakud and on Sambalpur-Jharsuguda road in recent time, there has been rapid increase in population and shortfall in housing and public utilities and social infrastructure. In order to provide harmonious growth and to have a more comprehensive and coordinated planning of this fast developing region of Orissa, it is contemplated by the Orissa Government to include adjoining 67 revenue villages of Sambalpur district in the SDA area. The Government of Orissa by the notification in July 2011 has extended the scope of Orissa Development Authority Act, 1982 for the surrounding 67 villages also and they have been included in the SDA area. CDP is prepared for these 67 villages also.

The planning area admeasures 48874.53 hectares (488.75 sq.kilometers) of land comprises of three towns of Sambalpur, Burla and Hirakud and 95 adjoining villages which includes recently added 67 villages and which is the part of the Sambalpur District of Orissa State. About 425 hectares of Mahanadi River is also part of the SDA area. As per 2001 census 3,49,914 persons are living in the SDA area. The planning region is experiencing tremendous growth. Administrative, institutional and industrial activities have contributed to the increase in the volume of trade and commerce activity.

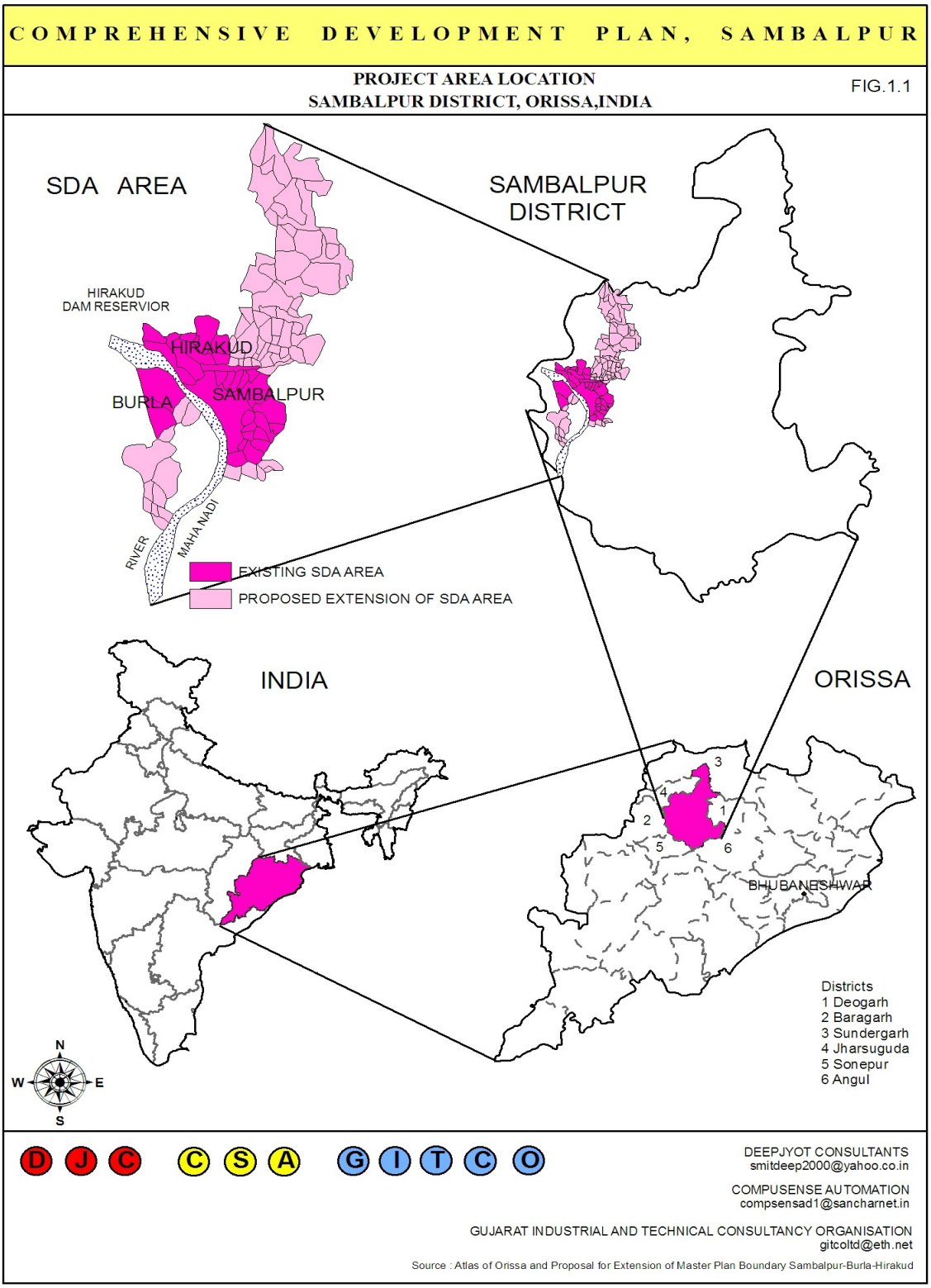
Refer **Figure 1.1** for the location of Orissa in the country, Sambalpur district in the State and the location of SDA area. Due to the operation of the multi-purpose Hirakud Dam project the importance of Sambalpur has increased manifold.

Sambalpur is a city in the western region of Orissa having the status of municipality and situated on the eastern bank of Mahanadi. It is the divisional head quarter of the northern administrative division of the State - also a very important Commercial and Educational center. Sambalpur lies at a distance of 321 km from the capital city of Bhubaneswar. It is the connecting city between Raipur on west and Bhubaneswar on east. Earlier it used to be known for its importance as a diamond trading centre. Nowadays it is mainly known for its textiles, folk dance and a variety of monuments.

Burla is a small town with a Notified Area Council (NAC) situated on the west bank of Mahanadi, and is about 20 kms from Sambalpur. The town lies at one end of Hirakud Dam which is located around 2 kms west of the town. The town's economy is mainly in retail, driven by the students, employees (their families) of the numerous educational institutions, local government employees (their families) and the incoming patient population for treatment at VSS Medical College. The town is also the headquarters of Mahanadi Coal Fields Ltd., a subsidiary of Coal India Ltd. The town is piquant and truly a university town and an education center of the district as it hosts the Sambalpur University, the VSS Medical College and the University College of Engineering (UCE Burla) , besides numerous schools and colleges.

Hirakud is also a small town with a Notified Area Council (NAC) in Sambalpur District. It is famous for the Hirakud Dam built over the Mahanadi River. Hirakud is also an Industrial township with number of industries particularly HINDALCO & JINDAL. Located 15 kms from the nearest city of Sambalpur, it is a town with a large portion of the population engaged in various industries located here.

Figure 1.1
SDA Area Location



1.5 Conceptualization of CDP

Sambalpur, Burla and Hirakud urban centers, along with their hinterlands, have grown over the time having separate identities and distinct growth potentials. Being contiguous and, to some extent, inter dependent to each other, growth prospects of the three urban centers deserve to be studied simultaneously and analyzed for exploring integrated development of the concerned urban region. For considering all physical and socioeconomic aspects of the urban region and exploring its meaningful role in balanced regional development preparation of Comprehensive Development Plan for Sambalpur, Burla & Hirakud Development Areas have become necessary. The Development Plan would guide the physical development and channelize harmonious growth of the urban centers, on exploring individual growth potentials of each of the urban centre. The regional setting of the SDA area with strong linkages and communication with the city of Bilaspur, Raipur, Cuttack-Bhubaneshwar-Puri, Rourkela-Howrah, Sundergarh etc. provides a vast potential for the development of Sambalpur-Burla-Hirakud area as commercial cum educational cum recreational cum small scale industrial hub.

1.6 Inception Report

The Inception Report which was submitted in March 2009, outlined the scope of work, development issues, strategies, approach and methodology for preparation of the Comprehensive Development Plan (CDP) of the Sambalpur Development Authority (SDA). The intention was to discuss the framework of making the CDP at a meeting in with the officials of the SDA, the representatives of the local bodies within the SDA in Sambalpur and with key decision-makers, and on that basis to proceed for the preparation of the CDP for the SDA.

1.7 Scope of Work

The overall scope of work involves preparation of CDP for SDA, which includes mainly the following:

1) To generate the up-to-date urban land use map using GIS technology on 1:2000 scale and formulate Comprehensives Development Plan along with Land use Plan for proper utilization of land for residential, commercial, industrial, institutional, recreation, transportation, agricultural & allied usages in the region by 2030.

2) Traffic and transportation Plan with long and short term strategies to take up development phase wise.

3) Development control regulations and critical area guidelines for proposed and anticipated development pattern considering the holistic and integrated growth with specific emphasis on environment and natural hazard prone zone.

4) Review and propose institutional set up for the SDA.

1.8 Methodology

Methodology for formulation of CDP involved accomplishment of following identified six major actions (**Table 1B**):

Table 1B

Major Actions Accomplished

Action 1	Project Initiation	• Understanding and conceptualization of project area • Mobilization of team
Action 2	Collection of existing information	• ***A Preliminary Survey*** • Reconnaissance survey was undertaken to get familiarized with the project area. • Preliminary investigation to figure out different government departments and sources which could provide various information and data related to the project area. • ***B Assembling of Information and data*** • Collection of existing information to cover demographic, socio-economic, landuse, cultural, infrastructure, industrial and tourism aspects. • Data on geographical profile was also collected which included natural features, geomorphology, soil condition and climate. • ***C Primary Survey*** • Undertaken Household survey, Slum survey, and various traffic & transportation surveys to understand the need of the general public. • ***D Procurement of cadastral maps & satellite imageries*** • Up-to-date urban land use map using GIS technology on 1:2000 scale was generated on about 600 Revenue mouza sheets. •
Action 3	Profile of the development area	• ***A Preparation of Base map*** • To cover description of land use detail, aerial distribution of forest & vegetation cover, land under agriculture use & settlement, waste land etc. • ***B Preparation of Thematic map*** • Main focus was on Topography, physiography, drainage, road network, existing social amenities and demography.
Action 4	Analysis of the existing situation and conceptualizing the development plan	• Workshop to introduce CDP as conceived by project proponents was proposed. A cross-section of stakeholders / NGOs represented at the workshop to have overall visioning for the SDA area and to understand the need of the area in terms of physical and social infrastructure and land use. • ***A Analysis of socio-economic aspects*** • Demographic pattern in terms of population growth, literacy rate, sex ratio and migration trend • Economic performance in terms of industries and agriculture sector • Occupational structure, WFPR • Economic growth along the transport corridor • Urban Settlement pattern: twin city concept, single nucleus to

		multi-nuclei • ***B Analysis of Land use aspects*** • Land use distribution in the urban center • To determine direction & extent of spatial expansion of urban centers, ecological sensitive zones, framing of zoning regulations & development control regulations • ***C Analysis of infrastructural aspects*** • Physical & social infrastructure gap was identified to mitigate the existing lacunae.
Action 5	Development strategy for the draft CDP	• To formulate the plan incorporating the gaps and the need of the area for integrated development. • To identify the growth centers, this could act as generator of development in project area. • Proposals were formulated to provide for adequate infrastructure in terms of proper connectivity and efficient public amenities.
Action 6	Institutional set up, project finance and implementation strategy completed	• An appropriate institutional mechanism has been identified. • The proposals of the CDP have been converted into implementable projects and the financial arrangements have been worked out for the successful implementation. • The General Development Control Regulations for controlling and promoting the development worked out. • Training will be imparted to the staff / officers of the SDA for working on GIS.

The concept and methodology to formulate the CDP of the area is well explained in the Inception Report.

1.9 Significance of study area

Hub of Administrative – Socio-Cultural – Business -Education – Tourism Potential

SAMBALPUR	**BURLA**	**HIRAKUD**
• Influence over surrounding villages • NH, SH, Major roads provide linkages in 5 directions • Pilgrimage and Site Seeing Spot, Leaning Temple of HUMA • Badasadak and Sansadak from Kunjelpada chowk to Municipal Building has proud Heritage • Industries	• University • Schools • Sports Activities	• Dam • Power House • Reservoir • Industries

1.10 Past Planning Efforts

In the past, the towns of Sambalpur, Burla and Hirakud had three different Master Plans although these three towns are very close to each other and have a very strong interaction

among themselves for the purpose of occupation, education, housing, services, trade & commerce, recreation, tourism, etc.

The Master Plan of Sambalpur comprising of Sambalpur Municipality and 21 adjoining villages admeasuring 96.75 sq kms was prepared by the Town Planning Unit Office of Sambalpur under the provisions of The Orissa Town Planning & Improvement Trust Act, 1956 and was sanctioned by the State Government on ***10.11.1983***.

Similarly, the Master Plan of Burla comprising of Burla NAC, part of Mahanadi River and 1 adjoining village of Amsadakatapali admeasuring 36.63 sq kms was prepared by the Town Planning Unit Office of Sambalpur under the provisions of The Orissa Town Planning & Improvement Trust Act, 1956 and was sanctioned by the State Government on ***1.10.1986***.

Hirakud town had originated as work colony when the Hirakud Dam Project was started in 1948. Due to the availability of electrical energy at the place of inception industries started coming up in Hirakud. The Master Plan of Hirakud was prepared by the Town Planning Unit Office of Sambalpur under the provisions of The Orissa Town Planning & Improvement Trust Act, 1956 in 1965.

1.11 Existing Conditions and Regional Resource Potential

The **Sambalpur-Burla-Hirakud complex** under the jurisdiction of SDA is located at 21°30’ North latitude and 84°0’ East longitude on the western belt of Orissa at a distance of about 325 kms from Bhubaneshwar, the capital city. The SDA is responsible for planned development of this urban complex. The municipal town of Burla and Hirakud are continuous with Sambalpur Municipal area. The total urban agglomerate of Sambalpur-Burla-Hirakud complex had a combined population of 1,89,744 in 1991 which rose to 2,57,477 in 2001 as per census report with a decadal growth rate of 35.7 percent. The National Highway No.6, connecting Kolkatta to Mumbai passes through this cluster

town. Sambalpur District is the westernmost district in the state of Orissa, India. The historic city of Sambalpur is the district headquarters. Sambalpur is the third largest city in Orissa and one of the major commercial and industrial hubs in the western region of Orissa situated on the left bank of Mahanadi. It is the divisional head quarters of the Northern administrative division of the State - also a very important Commercial and Educational center. Sambalpur derives its name from that of the Goddess Samaleswari; an incarnation of Shakti, who is regarded as the reigning deity of the region. In History, it has been variously known as 'Sambalak', 'Hirakhanda', 'Dakhina Kosal'. Sambalpur city is the connecting city between Chhattisgarh and Orissa. It is situated at the latitude of 21°28’ N and longitude 83°58’ E and has a mean elevation of 148.1 mts to 156.3 mts above the sea level. Whereas it used to be known for its importance as a diamond trading centre, nowadays it is mainly known for its textiles, folk dance and a variety of monuments. It's a good place from which to explore the surrounding forests and spot some of the rare species still roaming the area in one of the wild life sanctuaries, such as the well-known Badrama sanctuary.

Burla is a small town on the west bank of Mahanadi, and is about 20 kms from Sambalpur. Burla is located at 21.5° N 83.87° E. It has an average elevation of 173 metres. The town lies at one end of Hirakud Dam which is located around 2 kms west of the town. It acts as a premier institutional town of Orissa with more than 40 years old

Sambalpur University, 50 years old Medical College and 52 years old University College of Engineering besides office of Hirakud Dam Reservoir. Hirakud town is 5 kms north of Burla.

Formerly Hirakud was a small island lying between two branches of river Mahanadi. It is famous for the Hirakud Dam built over the Mahanadi River. It is a multipurpose project with the objective of flood control, irrigation, generation of electricity, navigation, soil conservation etc. Hirakud is located at 21.52° N 83.87° E. It has an undulating land with an average elevation of 160 metres. Elevation varies from 146 mts to 288 mts above sea level. Functionally Hirakud is an Industrial town with number of Industries particularly HINDALCO. Located 15 kms from the nearest city of Sambalpur, it is a quiet town with a large portion of the population engaged in various Industries located here.

1.12 Geography and Climate

The SDA area is situated in hot arid zone having extreme climate with the summer lasting from March to June. The monsoon is from July to October and the winter is from November through February.

The thick blanket of black cotton soil all over the district has been made somewhat sticky by the yellow earth developing in the undulating topography of the district. The general soil condition of the area is hard soil with hard granite stone beds visible on the soil surface at many places. The soil of the area is mostly characterized by red soil, but a small patch of mixed red soil and black soil appears in the southern part of Sambalpur town.

The SDA area is gifted with a natural drainage system from west to east. Keeping in view, the topography of the area, it can be divided into two major parts, namely, western upland and eastern lowland.

The Sambalpur district has a total forest area of 3986.27 Sq. Kms. which is 59.46% of the total area of the district. Total land under cultivation in the district is 173540 hectares.

1.13 Heritage Sites and Buildings

Sambalpur Complex serves as the gateway to the bewitching western zone of Orissa, abounding in lush green forests, colorful wild-life, exquisite array of hills, waterfalls of streaming pearls, rich tribal life and culture, folk songs and dances and a variety of monuments.Sambalpur has its own contribution to the cultural formation of our country.

Sambalpur retains its classic sleepy charm, even in the face of rapid, albeit unplanned expansion and a deluge of retail establishments. Some of the houses along the old part of Sambalpur are still maintained, and used, like they were, a century ago. A peculiar way the houses in the older parts of town are arranged is the gulli system, literally, mazeway. Houses in Patnaikpara, Nandpara, and along the parallel streets of Sansadak and Badsadak are examples of the above. The streets of Badasadak and Sansadak extending from Kunjelpada chowk to the office of the Sambalpur municipality, Samleshwari temple, Collector office, Municipal office, Budharaja Hill temple, Circuit house etc. have a proud heritage and have contributed immensely to make Sambalpur World famous and enriched the cultural heritage of the country.

1.14 Household Characteristics

Study of household characteristics gives the idea of housing shortage, if any. As per the census report of 2001, the total number of households in the SDA area is to the tune of 72,753 for the total population of 3,49,914 persons. It means on an average 4.81 persons are occupying each house in the SDA area. In urban areas of SDA, the average persons per household is more than in the rural areas. Refer **Table 1C** for household characteristics in the SDA area as per 2001 census.

Table 1C
Household Characteristics in the SDA area – 2001

	Total Population (2001)	No. of household	Average Persons per household
Total	349914	72753	4.81
Urban	219241	45052	4.87
Rural	130673	27701	4.72

1.15 Employment Status and Work Participation Rate

As per the 2001 Census report the data available for main workers are divided into four types of workers namely Cultivators, Agricultural Labourers, Household Industry Workers and Other Workers. As per the 2001 census the work participation rate (WPR) is defined as the percentage of total workers (main and marginal) to total population.

$$\text{Work participation rate(WPR)} = \frac{\text{Total Workers (Main+Marginal)}}{\text{Total Population}} \times 100$$

Accordingly, the WPR is calculated as per the 2001 census data for the SDA area as shown in the **Table 1D** below.

Table 1D
Work Participation Rate (WPR) in the SDA area – 2001

		WPR – 2001 (in %age)
Sambalpur	Total	33.30
	Rural	43.66
	Urban	31.46
Burla	Total	29.39
	Rural	40.02
	Urban	28.41
Hirakud	Total	34.33
	Rural	48.30
	Urban	30.45
Additional Area of 67 Villages	Total	45.93
	Rural	45.93

	Urban	0.00
Total SDA	Total	36.26
	Rural	45.42
	Urban	30.79

1.16 Housing Scenario

As per the census data for 2001, the Sambalpur municipality has total number of 43,235 census houses for 33,019 households. Out of 43,235 houses, 2,994 are vacant and therefore, 40,241 census houses are occupied in the Sambalpur municipality area as per 2001 census. Distribution of households by source of lighting, Distribution of households by availability of bathroom, latrine and drainage connectivity, availability of separate kitchen, type of fuel used for cooking within the house in Sambalpur, Burla and Hirakud Urban areas have been discussed in the Status Survey Report Part II.

1.17 Status Survey Reports

The status survey report of the SDA area was prepared and submitted in three Parts. The contents of the reports and the finding of surveys are briefly mentioned in the following paragraphs.

1.17.1 Status Survey Report PART-I

The contents of the Status survey Report Part-I is tabulated in the **Table 1E** below for reference.

Table 1E
Contents of the Status Survey Report PART-I

1	Sambalpur Development Authority	Existing scenario & jurisdiction of SDA Statutory provisions Objectives of CDP Surveys identified
2	Policy Perspectives	State Urban scenario Government intervention
3	Prelude To Planning Efforts And Basis of Development	Earlier master plans of three towns are discussed
4	Regional Resource Potential And Heritage Conservation	Location & regional setting of 3 towns Historical linkages Cultural Linkages Heritage sites and buildings Tourism potential & supporting facilities
5	Demography	Demographic profile of SDA as per 2001 census Settlements distribution by population size and areal class
6	Economic Profile And Employment	Landuse pattern as per Census 2001 Employment Status-An overview Occupational pattern Draft Infrastructure policy of State Govt. for

		industrial development Housing Scenario-Number, use, facilities Slum Profile of 3 towns
7	Transportation, Communication, Services & Social Infrastructure	Sambalpur connected to major towns by NH-6, 42, SH-10 and major road in 5 directions Truck terminus, Bus terminals Water Supply, SWD, Sewerage & Sanitation system, Solid waste management Educational facilities & Medical facilities Community facilities in Rural settlements
8	Environment Status And Natural Disturbances	Land formation, climate, soil Pollution Solid Waste Greenry, Flora, fauna & animal species Plantation, water bodies & artificial lake Cyclone, earthquake
9	Existing Development Control Regulations	Inadequacy identified Regulations proposed
10	Administration, Management and Finance	Existing scenario of SDA No CIP (City Investment plan) No FOP (Financial Operation Plan)

1.17.2 Status Survey Report PART-II

The contents of the Status survey Report Part-II is tabulated in the **Table 1F** below for reference.

Table 1F
Contents of the Status Survey Report PART-II

<table>
<tr>
<td>1</td>
<td>Household Survey
• In Urban-rural areas
• In Slum pockets
Local enumerators were engaged The survey was done in the early morning and in the late evenings when the head of the family is at home. Some information on the physical condition of the houses and the surroundings were collected by the enumerators.</td>
<td>Methodology - Random sample survey using Equal probability of Selection design (EPS)
Well structured Questionnaire design.

<table>
<tr><th>Area</th><th>Sample Size</th><th>%age of household</th></tr>
<tr><td>In urban-rural areas</td><td>1968</td><td>2.7%</td></tr>
<tr><td>In slum pockets</td><td>501</td><td>2.50%</td></tr>
</table>
</td>
</tr>
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<tr>
<td>2</td>
<td>Traffic & Transportation Survey, Sambalpur

The traffic volume count survey at 8 intersections / locations were carried out on normal working days for the time interval between morning 9-00 a.m. to 1.00 p.m. and evening 3-00 p.m. to 7-00 p.m. for one day. Care in deciding the day of count was taken to avoid abnormal conditions of traffic like fair or exhibition.

Following two sections of the major road of the Sambalpur town was selected for the hourly count of number of different vehicles both mechanized and non-mechanised parked between 9am to 1.00pm and than from 4pm to 7pm irrespective of the duration of parking.
1. From Aithapali Bus stand to Court Chowk area
2. From Khetraj Petrol Pump to Dhanupali</td>
<td>It is important to collect the necessary data in connection with the traffic to be carried by the road system of the town. To assess the magnitude and nature of the problem and the extent of utilization of existing traffic facilities, the following surveys have been carried out.
• Traffic Volume survey
• Street inventory
• Parking Survey
• Origin Destination Survey

8 intersections were selected for survey.
<table>
<tr><th></th><th>Location Name</th><th colspan="2">Date & Day of Survey</th></tr>
<tr><td>1</td><td>Dhanupali Chowk</td><td>31.12.2009</td><td>Thursday</td></tr>
<tr><td>2</td><td>Laxmi Talkies Chowk</td><td>30.12.2009</td><td>Wednesday</td></tr>
<tr><td>3</td><td>Modipara Chowk</td><td>29.12.2009</td><td>Tuesday</td></tr>
<tr><td>4</td><td>Khetrajpur</td><td>01.01.2010</td><td>Friday</td></tr>
<tr><td>5</td><td>Jharsugud a Chowk</td><td>02.01.2010</td><td>Saturday</td></tr>
<tr><td>6</td><td>Aithapali Chowk</td><td>04.01.2010</td><td>Monday</td></tr>
<tr><td>7</td><td>Remed Chowk</td><td>04.01.2010</td><td>Tuesday</td></tr>
<tr><td>8</td><td>P C Bridge Junction, Burla</td><td>06/01/10</td><td>Wednesday</td></tr>
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</td>
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Headings under which **Household Survey** data collected for urban – rural areas of the SDA and important findings are tabulated below in **Table 1G**.

Table 1G
List of Findings of Household Survey

Sr. No.	Item	Finding
1	Year of stay	Less in-migration. 42% households living for more than 30 years
2	Family size	60% have 2-4 members
3	Sex ratio	797 – very low
4	Monthly family income	One-third earning Rs.5000 – 10000 per month
5	Housing typology	80% have individual houses. Horizontal growth of towns.
6	Tenure status	76% Owners
7	House condition	61% mostly in Sambalpur are living in pucca houses.
8	Built-up area	38% have 250-500 m^2 35% have 500-1000 m^2 4% have 2000 m^2
9	Stand post distance	43% have not provided information 46% have within premises or at a distance of less than 10m.
10	Summer source of water	46% have not provided information 23% get from public stand post 22% get from hand pumps
11	Water shortage perception	Yes – 56% No - 30% No Comment – 14%
12	Water service perception	Highly satisfied – 1% Satisfied – 31% Not Satisfied – 53% No Comment – 15%
13	Type of access to sanitation facility	Septic tank – 74% Dry Latrine – 11% UGD – 0%
14	Sewerage and sanitation status	Highly satisfied – 1% Satisfied – 60% Not Satisfied – 28% No Comment – 11%
15	Preferred sanitation connection	Septic tank – 42% No Comment – 43%
16	Flooding effect	Yes – 29% No - 71%
17	Solid waste disposal mode	Along the road – 55% Household collection – 7%
18	Solid waste disposal frequency	Irregular – 73% Daily – 6%
19	Vehicle ownership	2 Wheeler – 46%

<table>
<tr><td></td><td></td><td>Bicycle – 42%</td></tr>
<tr><td>20</td><td>Public transport service perception</td><td>Good – 2%
Satisfactory – 52%
Poor – 30%</td></tr>
<tr><td>21</td><td>Regular use of public transport</td><td>Yes – 11%
No - 74%
No Comment – 15%</td></tr>
<tr><td>22</td><td>Road type</td><td>59% have approach from Tar / Concrete road
25% from earthen road
16% from WBM road</td></tr>
<tr><td>23</td><td>Road width</td><td>57% from 3.5 to 7.5 m
43% from less than 3.5 mts</td></tr>
<tr><td>24</td><td>Road surface perception</td><td>Good – 23%
Fair– 53%
Poor – 24%</td></tr>
<tr><td>25</td><td>Type of street light</td><td>Not available - 40%
Tube light – 33
Sodium Vapour Lamp – 27%</td></tr>
<tr><td>26</td><td>Presence of garbage on roads</td><td>Yes – 71%
No - 29%</td></tr>
<tr><td>27</td><td>Dustbin availability</td><td>Yes – 8%
No - 92%</td></tr>
<tr><td>28</td><td>Educational status</td><td>Secondary Pass – 39%
Graduate – 16%
Illiterate – 12%</td></tr>
<tr><td>29</td><td>Occupational level</td><td>Workers – 36% (mostly in Service & business)
Non-workers – 64%</td></tr>
<tr><td>30</td><td>Expectation of service priorities - chart 1(a)</td><td>
<table>
<tr><th></th><th>Sambalpur</th><th>Burla</th><th>Hirakud</th><th>areaTotal SDA</th></tr>
<tr><td>Water Supply</td><td>1st</td><td>1st</td><td>5th</td><td>1st</td></tr>
<tr><td>Sewerage & Sanitation</td><td>4th</td><td>4th</td><td>4th</td><td>4th</td></tr>
<tr><td>Drainage</td><td>2nd</td><td>2nd</td><td>1st</td><td>2nd</td></tr>
<tr><td>Solid Waste Disposal</td><td>3rd</td><td>3rd</td><td>3rd</td><td>3rd</td></tr>
<tr><td>Roads & Transport</td><td>5th</td><td>5th</td><td>2nd</td><td>5th</td></tr>
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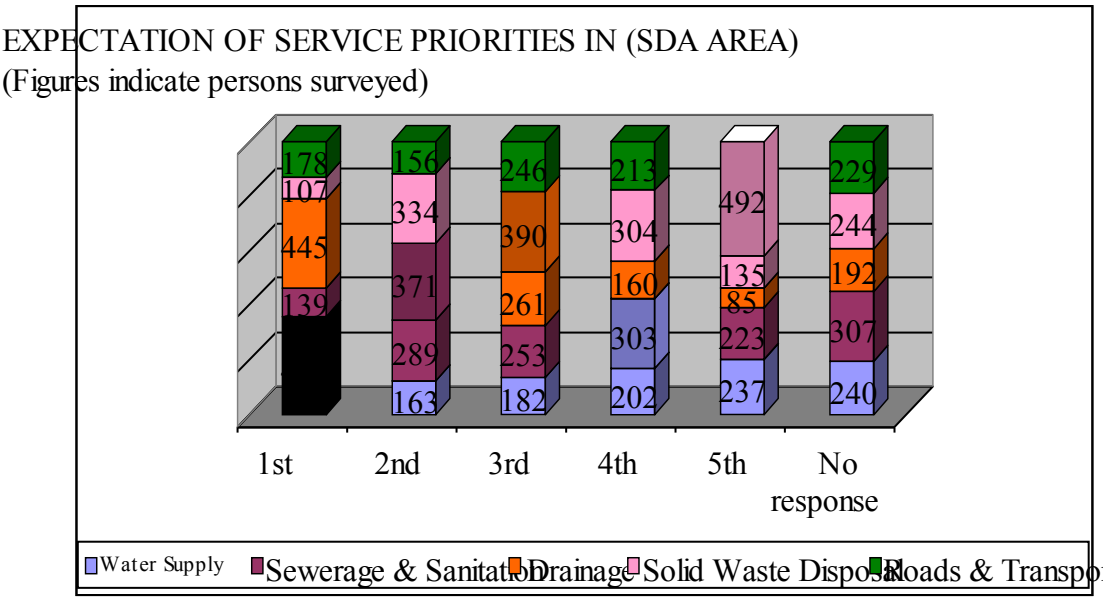
Chart 1(a)



Headings under which **Slum Household Survey** data collected and important findings are tabulated below in **Table 1H**.

Table 1H
Gist of Findings of Slum Household Survey

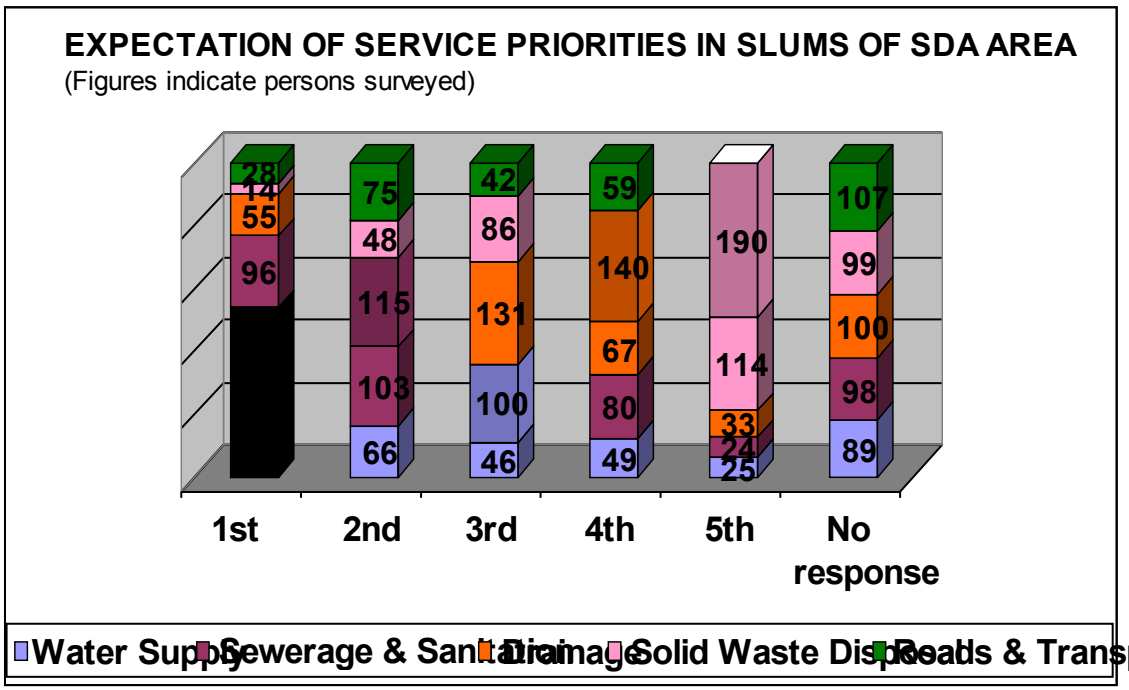
Sr. No.	Item	Finding
1	Legal Title Status	Yes – 44% No - 40% Information not provided – 16%
2	Specific Legal Title	40% - No legal right 10% - free hold title
3	Willingness to improve Housing Condition	Yes – 38% No - 2% Information not provided – 60%
4	Sex ratio	821 – very low
5	Family size	50% have 3-4 members 33% have 5-6 members
6	Years of stay	67% more than 30 years
7	Monthly family income	30% earning Rs.1500 – 2500 per month 30% earning Rs.2500 –5000 per month
8	Tenure status	85% Owners
9	House condition	64% mostly in Hirakud slums are living in Kutcha houses.
10	Built-up area	38% have 200-400 m^2 37% have 100-200 m^2 13% have more than 400 m^2
11	Source of Housing Finance	79% Self financing
12	Summer source of water	35% have not provided information

		20% get from public stand post 30% get from hand pumps
13	Water service perception	Highly satisfied – 0% Satisfied – 18% Not Satisfied – 72% No Comment – 10%
14	Type of access to sanitation facility	Information not provided – 72% Dry Latrine – 16% LCS – 6% Public Conveniences- 5%
15	Sanitation Status Perception	Highly satisfied – 0% Satisfied – 16% Not Satisfied – 79% No Comment – 5%
16	Preferred sanitation connection	Individual -LCS – 42% No Comment – 72%
17	Flooding effect	Yes – 35% No - 57% Information not provided – 8%
18	Solid Waste Disposal Mode	Along the road – 66% Identified place – 21%
19	Distance of Solid Waste Disposal	Information not provided – 49% Less than 25 mts – 36%
20	Solid waste disposal frequency	Irregular – 66% Daily – 12%
21	Solid Waste Disposal Mode Perception	Highly satisfied – 0% Satisfied – 17% Not Satisfied – 76%
22	Paved Road in front of House	Yes – 61% No - 30% Information not provided –9%
23	Status of Street Light	Present - 70% Absent - 24% Information not provided –6%
24	Vehicle ownership	Bicycle – 76% 2 Wheeler – 9%
25	Public transport service perception	Good – 5% Satisfactory – 55% Poor – 31%
26	Regular use of public transport	Yes – 14% No - 58% No Comment – 28%
27	Location of Slums	Along the main road – 66% Along the Nalla – 24% Along the railways – 7% Hill slopes – 3%
28	Road type	60% have approach from Tar / Concrete road 33% from earthen road 7% from WBM road
29	Road width	51% from less than 3.5 mts 43% from 3.5 to 7.5 m
30	Road surface perception	Good – 20%

		Fair– 44% Poor – 36%
31	Presence of road side drains	Not present – 51% Single side – 37% Both side – 12%
32	Presence of garbage in the neighborhood	Yes – 76% No - 24%
33	Predominant neighborhood	Residential – 90% Commercial – 6% Industrial – 4%
34	Educational status	Illiterate – 34% Primary Pass – 31% Secondary Pass – 29% Graduate – 4%
35	Occupational level	Workers – 44% (mostly daily wagers) Non-workers – 56%
36	Expectation of service priorities – chart 1 (b)	

	Sambalpur	Burla	Hirakud	Total SDA area
Water Supply	1st	1st	1st	1st
Sewerage & Sanitation	3rd	4th	2nd	3rd
Drainage	2nd	3rd	3rd	2nd
Solid Waste Disposal	4th	5th	4th	4th
Roads & Transport	5th	2nd	5th	5th

Chart 1(b)



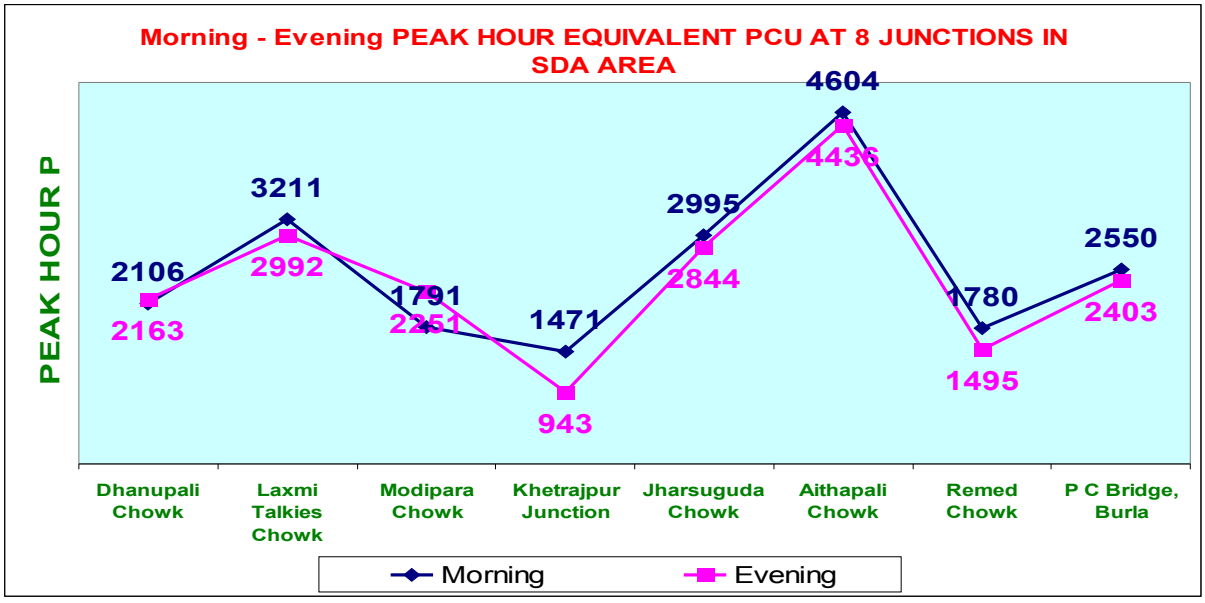
Inference from Traffic and Transportation Survey

Traffic conditions are nothing short of chaos especially on roads around the Khetrajpur (railway station), Golebazar, Laxmi Talkies chowk, and Remed Chowk to Jharsuguda chowk. Existing roads are also extensively used for on-street parking. Due to excessive demand from the entire town as well as from the SDA area, the central area of Sambalpur town has been inefficient to function as a town – centre for the whole City. Traffic congestion is now order of the day. It is important to collect the necessary data in connection with the traffic to be carried by the road system of the town. To assess the magnitude and nature of the problem and the extent of utilization of existing traffic facilities, the following surveys have been carried out.

1. Traffic Volume survey
2. Street inventory
3. Parking Survey

The total volume count of the traffic both mechanised and non-mechanised in the morning and evening peak hour at each of the 8 intersections of the SDA area are depicted in the **Chart 1(c)** below. It is observed that the daily peak hour is observed in the morning itself at all the intersections except at Modipara Chowk where the peak hour is observed during the evening hour. At Dhanupali Chowk the morning and evening peak has almost the same value of PCU.

Chart 1(c)



The peak hour demand of parking space in terms of Equivalent Car Space i.e. ECS at different parking location both designated and not-designated, surveyed from Anthiapali Bus Stand to Court Chowk Area and Khetraj Petrol Pump to Dhanupali area are depicted respectively in **Chart 1(d)** and **Chart 1(e)** on the following pages.

Chart 1(d)

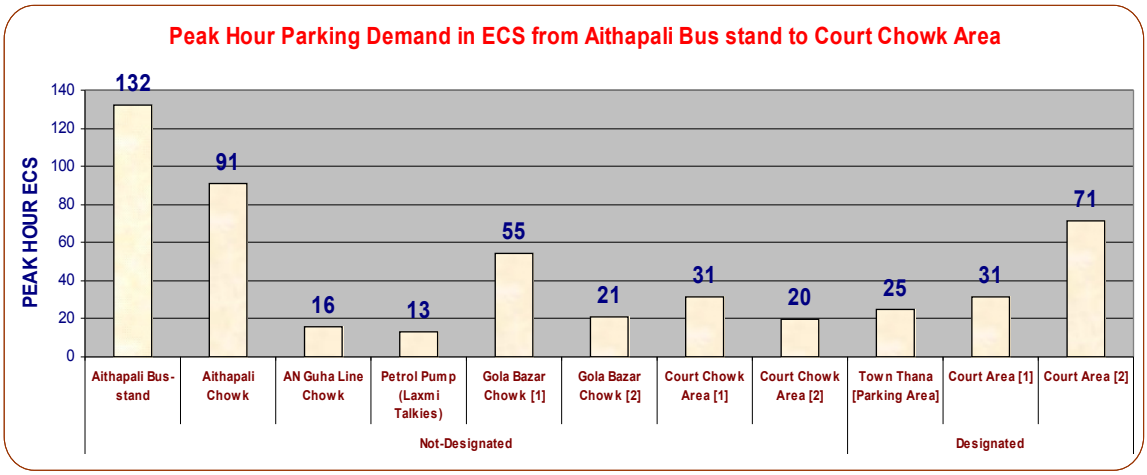
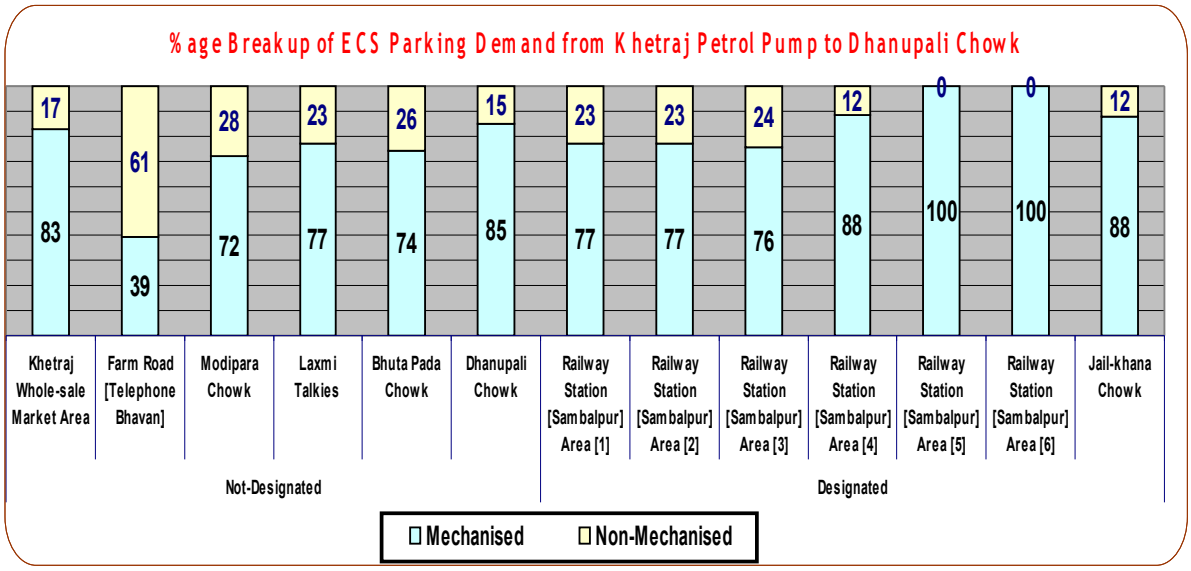


Chart 1(e)



Note: ECS = Equivalent Car Space

Following is the inference from traffic and transportation survey done in the urban area of SDA.

1. At **Dhanupali Chowk** road arms leading to NH-6 and Dhama village may be upgraded to 4-Lanes carriageway.
2. At **Laxmi talkies Chowk** road arm leading to Dhanupali Chowk may be upgraded to 4-Lanes Two Way (Divided) carriageway.
3. At **Modipara Chowk** road arms leading to Flyover bridge may be upgraded to 4-Lanes carriageway.

4. At **Khetrajpur Junction** road arm leading to Modipara may be upgraded to 4-Lanes carriageway.

5. At **Jharsuguda Chowk** road arm leading to Remed may be upgraded to 6-Lanes (Divided) carriageway and road arm leading to SH-10 may be upgraded to 4-Lanes (Divided) carriageway.

6. At **Aithapali Chowk** road arm (NH-6) leading to Remed may be upgraded to 6-Lanes (Divided) carriageway and road arm (NH-6) leading to Jharsuguda Chowk may also be upgraded to 6-Lanes (Divided) carriageway. Road arm leading to Sambalpur town may also be upgraded to 4-Lane (divided) carriageway to take care of the future traffic need.

7. At **Remed Chowk**, though the present carriageway is sufficient for the existing traffic volume but it is recommended that road arm (NH-6) leading to Burla Town may be upgraded to 6-Lanes (Divided) carriageway and road arm (NH-6) leading to Aithapali Chowk and to Jharsuguda Chowk may also be upgraded to 6-Lanes (Divided) carriageway so as to have a contiguous road width along the NH-6 in the SDA area to take care of the future traffic need.

8. At **PC Bridge Junction** in Burla, road arm (NH-6) leading to Baragarh and to Raipur and beyond may be upgraded to 6-Lanes (Divided) carriageway and road arm (NH-6) leading to Sambalpur Town via Aithapali Chowk and to Jharsuguda Chowk may also be upgraded to 6-Lanes (Divided) carriageway so as to have a contiguous road width along the NH-6 in the SDA area to take care of the future traffic need.

9**. Golebazar area and Court Chowk** area does not have parking requirement for slow moving vehicles like cycle and cycle rickshaws. A N Guha Chowk popularly known as Laxmi Narayan Mishra Chowk has the high requirement of parking space for the slow moving vehicles (non-mechanised).

10**. Dhanupali chowk area and the Khetraj Petrol Pump area** have the heavy requirement of parking space for the fast moving vehicles. At Farm road near telephone exchange, cycle rickshaws were found to be parked haphazardly on the road capturing parking space equivalent to almost 8 cars. More than 60 percent vehicles parked were slow moving vehicles.

1.17.3 Status Survey Report PART-III

The contents of the Status survey Report Part-III is tabulated in the **Table 1I** below for reference.

Table 1I
Contents of the Status Survey Report PART-III

1	Digital Basemap Creation And Landuse Mapping	**Digitization & geo-referencing** 1. Digitization of Cadastral map 2. Digitization of Mauza 3. Mosaicing of mauza sheets 4. Georeferencing of mauza map 5. Preparation of cadastral mosaic Image Interpretation Ground Truth Data Collection GIS Database Creation

2	Present Urban Structure – Existing Landuse	The GIS database is developed in ArcGIS platform. The soft copy of the base map in the scale of 1 : 2000 prepared by interpreting the satellite imageries has already been provided to the SDA. Spatial Extent of Zones Explained Master plan of Sambalpur : X Zones Master plan of Burla : III Zones Master plan of Hirakud : III Zones Proposed 67 Villages : VII Zones

1.18 GIS Database

The digital base map of study area is created using satellite imageries and superimposing with the revenue maps for Comprehensive development plan which is represented in the form of 18''X 18'' grid using GIS technology. Rectification and geo referencing of the satellite imagery was done using DGPS control survey. The revenue sheets are properly edge matched to form revenue villages and mosaics of villages are made to form the Development Plan Area. A grid base is generated for the CDP area to produce the hard copy maps in standard A1 size in 1: 2000 scale.

The GIS database is developed in ArcGIS platform. The soft copy of the base map in the scale of 1: 2000 prepared by interpreting the satellite imageries has already been provided to the SDA.

A Digital Basemap Creation and landuse Mapping

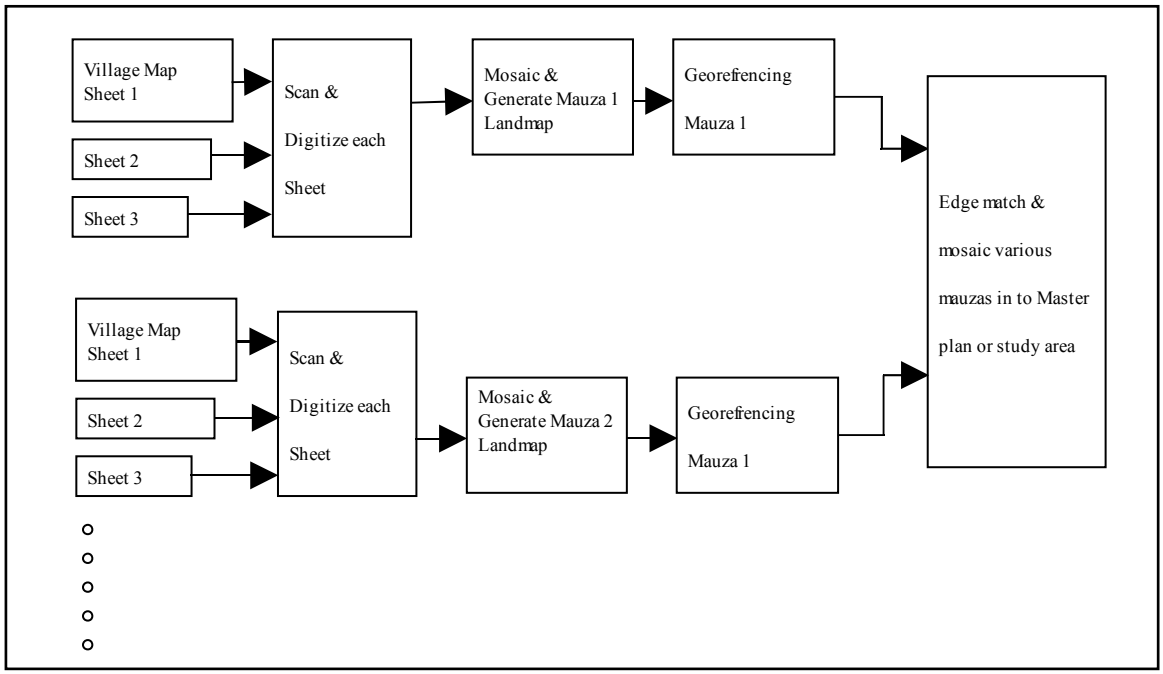
The preparation of comprehensive Development Plan starts with the assessment of the existing conditions & accounting for the potential resources and constrains. As a part of assessment of physical characteristics and natural resources, the exercise of mapping existing landuse translated over digital revenue plan as per interpretation of satellite imagery and field verification was carried out. Methodology of digitization, geo-referencing of cadastral database and landuse mapping was made available by Orissa Remote Sensing Applications Centre (ORSAC) vide ORISSA Technical Manual 2009 on cadastral level urban LIS for urban planning.

B Digitization and Geo referencing of Cadastral Maps

The purpose of digitization and geo referencing of cadastral maps is to generate digital data sets in cadastral scales so as to make it usable by various agencies at ground level for various development plan preparation activities. Therefore, the methods of scanning, vectorization and geo referencing were standardized by ORSAC. These methods were followed throughout the project.

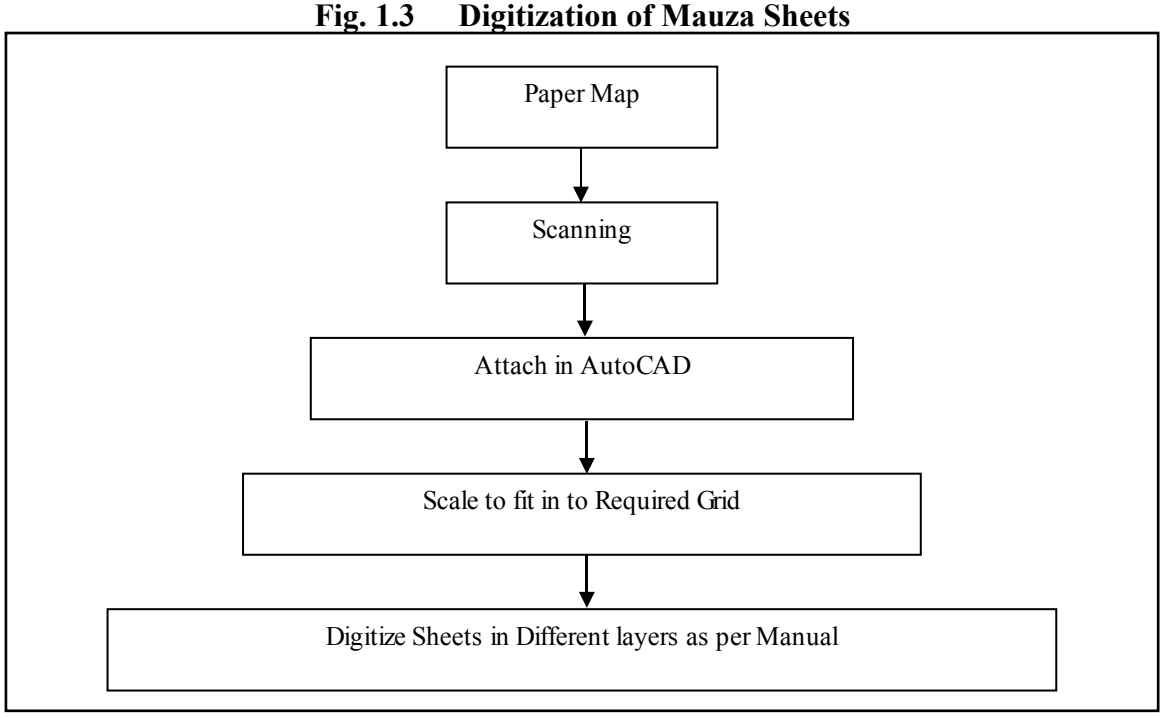
Cadastral maps in paper format are available at different scales such as 16':1 mile, 32':1 mile and 64':1 mile which is approximately 1: 4000, 1: 2000 and 1: 1000 respectively in MKS System. There may or may not be any projection system in village maps. The overall flow of activities is shown in **Figure 1.2**.

Figure 1.2
Digitization of Cadastral map



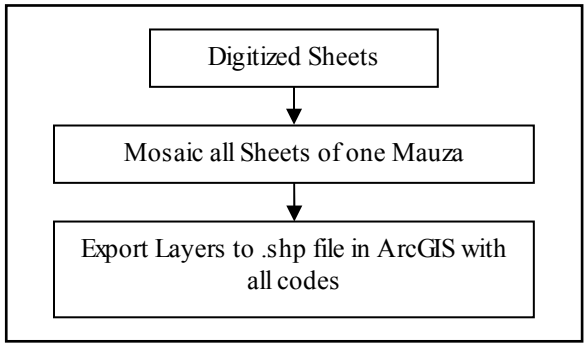
During first stage individual mauza sheets were scanned, digitized and all information captured in required levels in AutoCAD Software. **Figure 1.3** depicts the flow.

Fig. 1.3 Digitization of Mauza Sheets



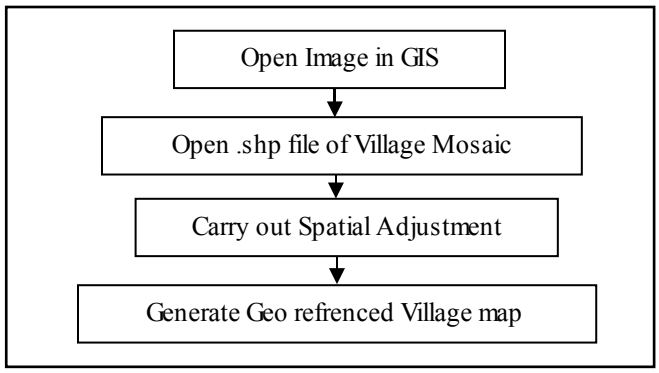
After digitizing all sheets of mauza, they were mosaic using index map produce a single file of mauza map in AutoCAD. The process in shown in **Figure 1D.**

Fig.1.4 Mosaicing of mauza sheets



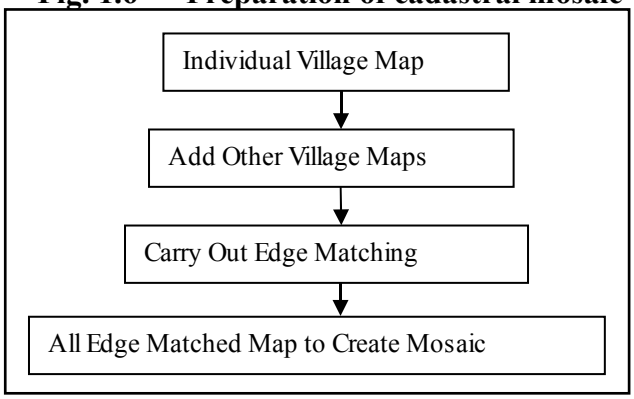
Each mauza map in digital format was then exported from AutoCAD to GIS environment using ArcGIS software, where it can be overlaid on a satellite image. Using technique of spatial adjustment the mauza maps were overlaid on satellite image with reference to features seen in the satellite images and those depicted in mauza maps. There is shown in **Fig. 1.5.**

Fig. 1.5 Geo referencing of mauza map



Individual geo referenced mauza maps were then edge matching by putting them side by side and referring to satellite images to match the mauza boundaries, which are in many cases natural boundaries or roads etc. thus a seem less map of each region like master plan area, municipal area were created. They can be further mosaic in to bigger mosaic covering entire study area **(Fig. 1.6)**.

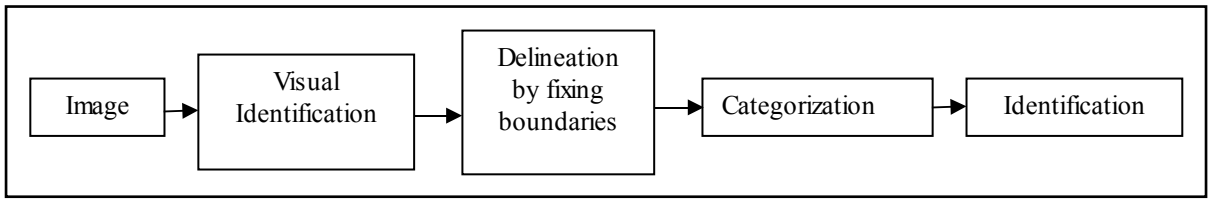
Fig. 1.6 Preparation of cadastral mosaic



C Image Interpretation

Image interpretation was done using above referred classification system and visual technique of remote sensing involving parameters such as tone, texture, shape, size, shadow, pattern location or association and field knowledge. Sequence of image interpretation is shown in **Figure 1.7**.

Fig. 1.7 Image Interpretation



D Ground Truth Data Collection

Ground truth in remote sensing projects is the process of verifying the classification done on basis of interpretation techniques applied. It is to be carried out on sample basis to come all possible classes and to ascertain the doubtful signatures which cannot be resolved without field knowledge. In this project the local field knowledge was available and in addition ground truth was collected to verify the classification.

E GIS Database Creation

GIS database has been created as per guidelines from Orissa Remote Sensing Applications Centre, Bhubaneshwar.

1.19 Broad Existing Landuse of SDA Area

The details of the broad landuse of the developed land in the SDA area with 67 villages is shown in the **Table 1J** and broad existing landuse is depicted in the **Chart 1(j)** below. The figures are obtained by adding the numerical data of the respective use zones of the master plan areas of Sambalpur, Burla and Hirakud and that of the proposed 67 villages. The table is generated to understand the overall existing land use of the SDA area if the proposed 67 villages are considered to be included in its jurisdiction. This will help in framing the proposals of landuse for the CDP of SDA in case these 67 villages are included in its boundaries. Otherwise also it is important to understand the existing landuse in the regional context.

45 percent of the developed land mostly in the rural area is presently put to residential use in the SDA area with 67 villages. More than 25 percent of the developed land of the SDA area combined with 67 villages is being used for the residential purposes in the rural areas. Circulation and transport occupies almost 35 percent of the developed land. Most of the land in this category is under roads, parking, terminus for buses and trucks, etc. Railways occupy less than 2 percent (1.75%) of the developed land in this category. Less than 2 percent of the developed land is used for the commercial purposes in the overall SDA area with 67 villages. Industrial use of the developed land is significant. Overall in

the present SDA area with 67 villages, more than 12 percent of the developed land is being used for the industrial purpose. Another 4 percent of the developed land is put to use for public and semi-public purposes mainly for the administrative buildings. Only 1.12 percent of the developed land in the present SDA area with 67 villages are put to educational and health service uses. Less than 1 percent (only 0.60%) of the developed land is used for the utility and services in the present SDA area with 67 villages. Open spaces and recreation in the present

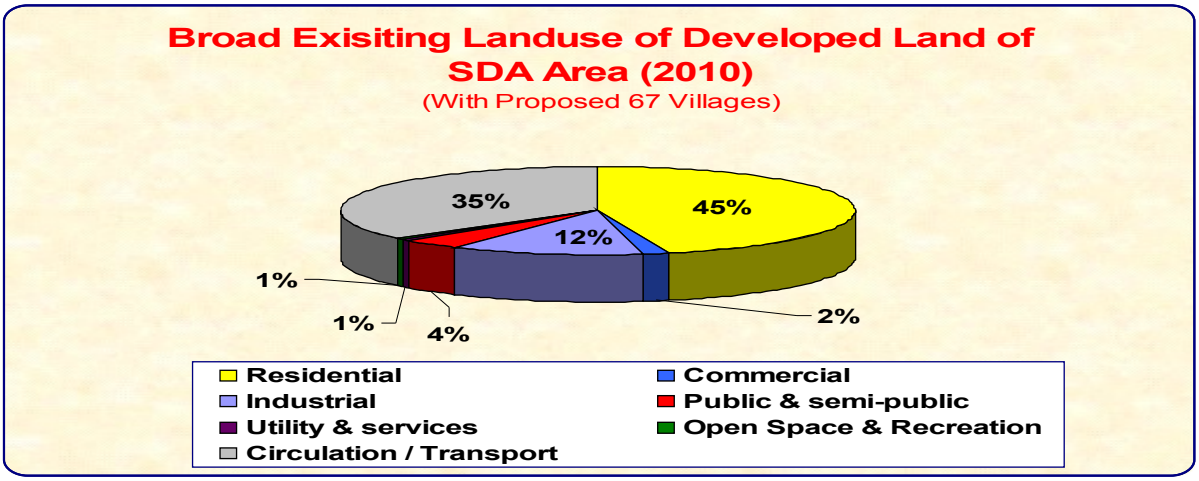
SDA area also occupies less than 1 percent of the developed land. Road network occupies most of the developed land (34.08%) in the present SDA area with 67 villages. The development potentialities of the SDA area with the proposed 67 villages because of the presence of large network of roads (national highways, state highway and major roads) can be exploited while framing the proposals for the proposed landuse of the SDA in the CDP if the proposed 67 villages are included in the SDA area.

Table 1J

BROAD EXISTING URBAN LANDUSE CLASSIFICATION OF DEVELOPED LAND – SDA Area, 2010

Sr. No.	Use Zone		Area (in Hectares)	% age
1	Residential			
	i	Urban	825.69	19.75
	ii	Rural	1080.62	25.85
	iii	**Total**	**1906.31**	**45.60**
2	Commercial		**66.80**	**1.59**
3	Industrial		**509.40**	**12.18**
4	Public & semi-public			
	i	Administrative	96.26	2.30
	ii	Religious	5.14	0.12
	iii	Education & Health	46.90	1.12
	iv	Cultural	2.59	0.06
	v	**Total**	**150.89**	**3.60**
5	Utility & services		**25.40**	**0.60**
6	Open Space & Recreation			
	i	Park	9.66	0.23
	ii	Play Ground	12.94	0.31
	iii	Open Space / Recreation & Sports area	0.63	0.01
	iv	**Total**	**23.23**	**0.55**
7	Circulation / Transport			
	i	Road, Parking, Bus/Truck terminus	1424.66	34.08
	ii	Railway	73.32	1.75
	iii	**Total**	**1497.98**	**35.83**
	Total Developed Land		**4180.01**	**100**

Chart 1(j)



The details of the existing landuse of the developed land in the SDA area as obtained from the interpretation of the satellite imageries using the advance technology and after getting the information from the secondary sources have all been depicted in the existing landuse map which is prepared in the scale of 1 : 2000 and is handed over to the SDA. The location of Mahanadi River and other river streams as well as the Railway line, National Highways (No. 6 and 42), State Highway (No.10) and major road passing through the SDA area are also depicted in this landuse map. Also shown is the boundary of urban areas of Sambalpur municipality, Burla NAC and Hirakud NAC. Moreover Sambalpur town with ten zone boundaries, Burla and Hirakud each with three zone boundaries and 67 villages with seven zone boundaries have been identified for future micro urban management by SDA. Central village may be developed as farming and marketing related agricultural activities. The Wards of Sambalpur, Burla and Hirakud areas are elaborated and population densities discussed at length.

1.20 Development Potentiality of the SDA Area

Sambalpur-Burla-Hirakud region being the hub of administrative – socio cultural-educational - tourism activities of Orissa have a rich potential for development.

- Sambalpur city is an administrative cum commercial & business hub of the western region of the Orissa state. It has the influence on the surrounding villages of the region.
- Two national highways, state highway and the major road provide the appropriate linkages in different five directions towards the major towns. Sambalpur also boasts of a pilgrimage-cum-sightseeing spot.
- Over a period of time, the town of Burla across the Mahanadi River has developed as an educational hub. It hosts the Sambalpur University, the VSS Medical College and the University College of Engineering (UCE Burla), besides numerous schools and colleges. There is a vast potentiality for the development of this town as an education and sports center.
- Similarly, Hirakud town is an industrial town famous for the Hirakud Dam and the HINDALCO factory. Due to the operation of the multi-purpose Hirakud Dam Project the importance of Sambalpur increased manifold. This town has a vast untapped potential for the development of water resources and tourism. This can be developed

as a center for water management, irrigation, power generation, recreational areas, tourism etc.

- The streets of Badasadak and Sansadak extending from Kunjelpada chowk to the office of the Sambalpur municipality have a proud heritage.
- The regional setting provides the potentiality for further development of the town. Sambalpur railway station, situated 3 km from the city center, has direct connections to Bilaspur, Jhansi, Kolkata, Bhubaneswar, New Delhi and Chennai. It is an important junction on Raipur-Puri broad-gauge railway track.
- The nearby Airports are at Bhubaneswar (325 km) and Raipur (300 km). Regular bus services connect the town with Bhubaneswar, Cuttack and Puri.
- Jharsuguda which is a cosmopolitan town and is fast emerging as the economic hub of western Orissa is only 70 km from Sambalpur and is well connected with railway and major road. Many small and medium scale steel units are being set up in the Jharsuguda town vicinity giving impetus to the industrial growth of the district. This Sambalpur – Jharsuguda corridor is well accessible and connected to other parts of the state and other neighboring states as well to facilitate the flow of commodity, goods and services to the required destination.
- The regional setting of Sambalpur and Jharsuguda provides a perfect setting for the development of this corridor on the basis of twin city concept.
- Sambalpur town has developed in a unplanned manner. Its existing infrastructure status does not provide amenities for modern living. Recent rapid industrialization in Sambalpur- Jharsuguda area creates a clear impression that both the towns will develop into a twin city and civil life of this area will become very hectic due to congestion and pollution and in absence of any proper planning, township will develop in very haphazard manner by the side of S.H. 10. Because of the absence of proper infrastructure, educational institutions and corporate houses may not come to Sambalpur for establishing their institutions. A well planned strategically located SATELLITE TOWNSHIP in the Sambalpur Development Authority area in the vicinity of the Sambalpur – Jharsuguda corridor has a potential to develop which is proposed in the CDP.

With such background and potentialities for development, this SDA area stands at a major crossroad. At present the central area of Sambalpur is the only developed area in the SDA having not much integration with the towns of Burla and Hirakud. Separate master plans were prepared for Sambalpur, Burla NAC and Hirakud NAC. The CDP will thus be an attempt to analyze such vital issues and frame realistic guidelines and action plans for achieving a balanced and planned development.

1.21 Planning Issues

Physical environment is a dynamic, complex and interconnected system. Planning for harmonious development recognizes unity between man and nature. Planning for recreational area is important aspect of the urban planning. Recreational areas such as public parks, gardens, green open spaces, river banks etc. and recreational activities such as sports, trekking, mountaineering, hunting, skiing, swimming etc. perform not only the

hygienic function of lungs, but they form, in view of the present state of technical advance, an oasis of leisure, mental peace filling stations for the whole population.

For passive recreation, recreational park such as national and regional parks, wild life safari parks, orchards etc. are a great source of inspiration and relief. Besides this, areas having beautiful natural landscape can be more refreshing and inviting with little efforts to make them approachable without disturbing their character. All these recreational areas evoke in the observer a strong and distinctive emotional response. Hirakud Dam site and its surrounding area with number of water ponds amidst dense hilly forest will create unique natural environment. There is a potential for Tourist Complex which can include cultural centre, spiritual center, environmental education center, holiday resort, hotels. Amusement parks with water rides, boating club, and fountain with light and music at garden on the line Vrindavan garden of Mysore can be developed. With indoor – outdoor games, a state level sport stadium can be developed. Thick dense wood logs with jungle track, bird watching towers, forest huts, safari park, etc. can be developed in the forest area. Eco-tourism is conceptually a purposeful travel to natural areas with an emphasis to understand the culture and natural history of environment, taking care not to alter the integrity of the Eco-system, which providing economic opportunities that make the conservation of natural resources beneficial to the inhabitants of the host region. Botanical garden can become point of attraction. Agro-Medicine (Ayurvedic) Research and Development centre can be developed here. Exhibition centre for displaying tribal arts and crafts, melaground, aquarium etc. can also be developed. All these activities require considerable area which can be developed within the land available in the SDA area.

1.21.1 At a regional level

The regional setting of the SDA area with a strong linkages and communication with the city of Bilaspur, Raipur, Cuttack-Bhubaneshwar-Puri, Rourkela-Howrah, Sundergarh provides a vast potential for the development of Sambalpur-Burla-Hirakud area as commercial cum educational cum recreational cum small scale industrial hub making use of linkages with the neighboring large cities of Raipur, Bilaspur and Rourkela and supporting the smaller towns of the Orissa state. At a regional level the development projects have been proposed considering the Sambalpur – Jharsuguda as a twin city there being very close socio-economic relationship between these two towns. Both the towns are about 70 kms apart and are connected with railway and major road. Jharsuguda is a cosmopolitan town and is fast emerging as the economic hub of western Orissa. Currently, many small and medium scale steel units are being set up in the town vicinity giving impetus to the industrial growth of the district. Jharsuguda is an Industrial town as well as a Business center catering to the daily basic needs of nearby areas. This corridor is well accessible and connected to other parts of the state and other states as well to facilitate the flow of commodity, goods and services to the required destination. Hirakud dam reservoir is located on north of Sambalpur urban settlement and stretches on west, along major length of rail and road connections between Sambalpur and Jharsuguda. Huge reserve forest adjacent to the SDA area shall provide input for the agro based industries which can be linked to the markets of major urban centers of Raipur, Bilaspur and Rourkela. As such, the possibility of developing rural areas as Mandi center, socio-economic node, water resort and agro-industrial based nodes have been worked out.

1.21.2 At the city level

At the city level the CDP is conceptualized to transform the area within the SDA from single nucleus (core area of Sambalpur) to multi nuclei i.e.

Sambalpur as	Administrative and Business hub
Burla as	Education and Sports Center
Hirakud as	Tourism and Recreational area
67 Villages	Prosperous agricultural activity area

Following proposals need consideration.

- Upgradation of roads having regional linkages.
- Upgradation of Urban and rural links.
- Various zones for modern recreation facilities and theme parks for outdoor recreation.
- Development of Commercial nodes
- Major organized open spaces like, urban squares, ceremonial / recreational grounds.
- Health complex, educational complex
- Development of Hirakud reservoir for the state level recreational use.
- Development of forest based activity node.
- New Satellite Township.
- Flyovers and Parking Lots
- Preservation & Development of Water. Bodies and Water Retaining Structures

All these activities will be integrated in the planned and coordinated manner to have multi nuclei in the SDA area instead of single nucleus in the Sambalpur city.

1.21.3 Satellite Township

Sambalpur Town has developed in unplanned manner. Its existing infrastructure status does not provide amenities for modern living. Recent rapid industrialization in Sambalpur- Jharsuguda area creates a clear impression that both the towns will develop into a twin city and civil life of this area will become very hectic due to congestion and pollution and in absence of any proper planning, township will develop in very haphazard manner by the side of S.H. 10. Because of the absence of proper infrastructure, educational institutions and corporate houses may not be coming to Sambalpur for establishing their institutions. It is understood that the SDA has conceived to develop a well planned SATELLITE TOWNSHIP in a strategically located area between Sambalpur Town and Jharsuguda over an area of about 2000 acre of land to cater to the need of people and the institution. As a part of the CDP, the location of this Satellite Township is proposed.

To realize the stated objectives a detailed methodology has been worked. For the purpose of preparation of development plan a detailed and extensive study has been done. An exhaustive review of literature on regional planning documented for various similar regions was also undertaken. The primary data has been collected from various discussions with persons involved in the development work followed by interactions with the local people and stakeholders. It was supplemented with reconnaissance survey and numerous visits to the site. However, the plan proposals substantially utilized secondary and recorded data collected from various sources and relied on the Census 1991 and census 2001 data. Analysis of development potential of the development area was undertaken so as to evolve the development plan proposals.

Development of this region, if efficiently and equitably managed, will trigger development of its adjoining hinterland, which in turn would help raise the level of overall welfare in this part of the region.