



## ***EXECUTIVE SUMMARY***

### **E1 Introduction**

TTI Consulting Engineers (India) Pvt. Ltd. was awarded the Consultancy Services for Preparation of Detailed Project Report (DPR) for Sewerage System of Sambalpur Town by Orissa Water Supply and Sewerage Board (OWSSB). The contract was signed on 16-07-10 vide Contract No.02/LS/OWSSB/2010-11 and Work Order No.996 dated 16-07-10.

The broader objective of the project is to provide a sewerage system for Sambalpur town for improving the quality of life, environmental sustainability, health and safety of the people in the town and abatement of pollution of river Mahanadi.

### **E2 Project Area**

Sambalpur is municipality in the state of Orissa, India. It is the head quarters and the largest town of Sambalpur district. The project master plan area is approximately 99.0 sq. km which includes an area of 34.0 sq. km within the municipality area. The Sambalpur municipality area consists of 29 wards, whereas there are 21 villages outside the municipality area.

Sambalpur is located about 321 km from capital city of Bhubaneswar. Sambalpur Town is located 21° 28' North Latitude and 83° 58' East Longitude in Western Orissa. It has an average elevation of 150 m. The population of the town is 157,643 as per 2001 census. The township is rapidly developing. People from rural areas are migrating to Sambalpur for their livelihood and mostly staying in slum areas. There are 82 nos of slums in the town.

The town is having gentle slope and it slopes towards River Mahanadi. The city is elevated at North-East and slopes towards South-West. River Mahanadi flows at the South-West of the city from West to South direction. Two hillocks viz Brooks hill and Buddaraja hill, are located at the centre of the Sambalpur town divides the town into various drainage zones. The town is having four major nalas draining towards river Mahanadi

### **E3 Population Projections**

The population projections have been estimated using the various population forecast methods, viz Arithmetical Increase method, Geometrical Increase method, Regression method and FAR based Density method

The present DPR is prepared based on FAR based population projections as it provides realistic estimation of the population based on Land use pattern and Floor Area Ratio of the town. Thus, the projected population for base year 2015, intermediate year 2030 and design year 2045 are 214199, 270987 and 325796 respectively.

### **E4 Status of Water Supply**

The water supply system is maintained by Public Health Engineering Department (PHED) Sambalpur. Most of the area is covered by a piped water supply network except slums which are covered with public stand posts and some areas are covered with tube wells. The source of water is from river Mahanadi and the water is gravitated through pipe line from u/s of





Hirakud Dam. At present, there are two numbers of Water Treatment Plants (WTP) located at Bareipali (Installed capacity- 40MLD) and Modipara (Installed capacity- 11.25 MLD). The present usage at Bareipalli WTP is 27.3 MLD and at Modipara is 2 MLD. The present supply rate is about 161 lpcd.

### **E5 Status of Existing Sewerage System**

There is no sewerage system in the Municipality area of Sambalpur Town at present. Most of the households discharge the sewage into natural drains and waterways causing serious public health and environmental hazards to the people.

### **E6 Status of River Pollution**

Since, there is no proper sewerage system exists in the city, River Mahanadi gets polluted due to direct sewage discharge to the storm water drains.

Abatement of pollution to River Mahanadi will be achieved by providing Sewerage System (Core Component) to the Sambalpur Town and by addressing non-point sources of pollution (non-core components: Community Toilets, Dhobi Ghat, Crematorium, River Front Development etc.), the balance pollution will be controlled.

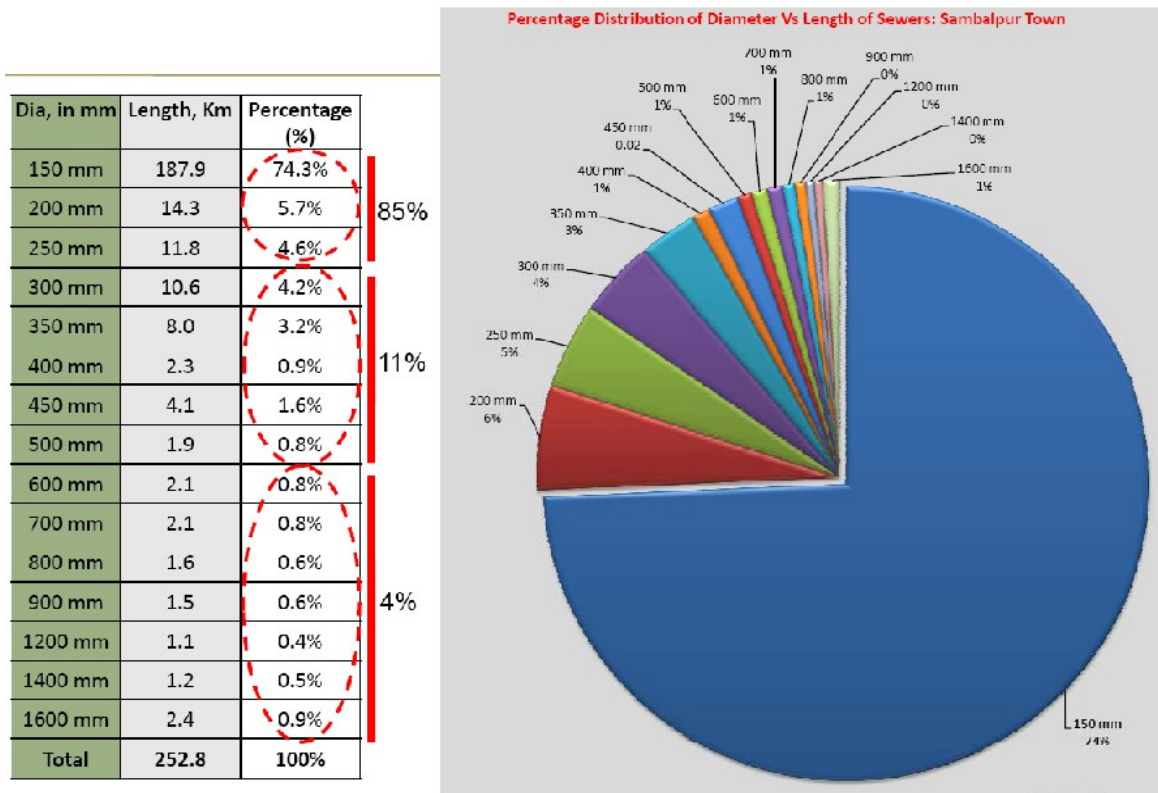
### **E7 Proposed Sewerage System**

The proposed sewerage system consists of 8 sewerage catchments. The sewerage system consists of sewer network of pipe of diameters varying from 150-1400mm of total length of 255.0 Kilometres, seven Intermediate Sewage Pumping Stations, one Terminal Sewage Pumping Station and one Sewage Treatment Plant. In addition to the above proposed works, construction of sewers by Trenchless Technology has been proposed at nine locations to cross the Railway/National Highway and bigger nallah crossings.

In order to reduce the depth of excavation, for laying of sewers, it has been proposed to introduce two more pumping stations in catchment-2&3. This options shall be considered during detailed engineering stage.

### **Summary of Proposed Sewer Network**





**E8 Details of Proposed Sewage Pumping Stations**

S. No.	Description	Catchment Numbers							
		1	2	3	4	5	6	7	
1	Location	Durgapali	Telecom Colony	Govindtola	Anguliapada	Sarla Village	Kuluthkani	Turipoda	
2	Name of Pumping station	SPS1	SPS2	SPS3	SPS4	SPS5	SPS6	SPS7	
3	Diameter of Wet Well, m	7.50	5 m x 10 m (Rectangular)	5 m x 18 m (Rectangular)	4	4	4	3	





S. No.	Description	Catchment Numbers							
		1	2	3	4	5	6	7	
4	Effective Side Water Depth, m	0.90	2.0	2.0	0.9	0.6	0.8	0.6	
5	Total Depth up to GL, m	8.25	11.47	7.0	3.85	8.90	5.68	7.50	
6	Total No of Pumps	3	6	6	3	3	3	2	
7	No of working Pumps	2	4	4	2	2	2	1	
8	No of stand by pumps	1	2	2	1	1	1	1	
9	Type of Pumps	Submersible							
10	Pump Capacity								
10a	Flow Rate, lps	80.10	132.80	284.4	32.67	14.04	22.28	16.50	
10b	Head, m	11.78	13.57	13.73	18.88	21.07	9.74	12.36	
11	Total Electrical Load, KW	37.55	141.69	310.80	24.54	11.77	8.63	4.06	





S. No.	Description	Catchment Numbers							
			1	2	3	4	5	6	7
12	Machinery used in the System	Mechanical Screen Pressure Gauge Gate valves Non Return Valves DG Set							
13	Other Units	Inlet Chamber Screen Channels Valve Chamber MCC Room							

