

ENVIRONMENT AND SOCIAL ASSESSMENT REPORT

For

**Construction of
Sewerage Network and Sewage Treatment Plant
at Chhindwara
Sub project of
Madhya Project Urban Development Project**

Assessment done by:

M/s LN Malviya Infra Pvt. Ltd., Bhopal

for

Madhya Pradesh Urban Development Company Limited

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ABBREVIATIONS

AC	--	Asbestos Cement
BOD	--	Biological Oxygen Demand
CPCB	--	Central Pollution Control Board
CPHEEO	--	Central Public Health Environmental Engineering Organization
D(R)BO	--	Design Review and Built operate
DO	--	Dissolved oxygen
DPR	--	Detailed project report
DUAD	--	Directorate of Urban Administration and Development
EA	--	Environmental assessment
EMP	--	Environmental management plan
GOI	--	Government of India
GOMP	--	Government of Madhya Pradesh
HFL	--	Highest flood level
CMC	--	Chhindwara Municipal Corporation
LPCD	--	Liter per capita per day
MCm	--	Million Cubic Meter
MOEF	--	Ministry of Environment and Forests
MPUDC	--	Madhya Pradesh Urban Development Company
MPUDP	--	Madhya Pradesh Urban Development Project
NOC	--	No Objection Certificate
NO _x	--	Oxides of nitrogen
OHT	--	Over Head Tank
PIU	--	project implementation unit
PMC	--	Project Management Consultant
PWD	--	Public Works Department
ROW	--	Right of way
SO ₂	--	Sulphur Dioxide
SPS	--	Sewage Pumping Station
STP	--	Sewage Treatment Plant
SPCB	--	State Pollution Control Board
UDED	--	Urban Development and Environment Department
ULB	--	Urban Local Body

EXECUTIVE SUMMARY

1. INTRODUCTION:

Madhya Pradesh (MP) is geographically the second largest, fifth populous, and eighth most urbanized state in India. Although MP recorded a higher rate of growth for its urban compared to rural population in the last decade, its urbanization rate is still below the national average but it is projected to catch-up in the next 15 years. At present, MP's total urban population is of 20.1 million (28% of total population) concentrated in 476 urban centers.

Rapid urbanization in MP has seen sprouting of new urban settlements across the state, more often close to existing cities. The last decade (2001-2011) has seen a 20% increase in the number of urban centers, including a 50% increase in census towns, compared to a 6% increase in the previous decade (1991-2001). In the cities in MP, household access to piped water supply ranges between 48-80%, per capita; water supply ranges between 35 to 150 lpcd; access to underground sewerage range between nil to 40%; waste collection ranges between 85-90%, and 60-80% of rainwater runoff is effectively drained.

This report presents an Environmental and Social Assessment (ESA) of the Chhindwara Sewerage Scheme subproject under MPUUDP project. The ESA identifies potential impacts on the natural environment and the social situation in subproject region during construction and operation of the sub project. Where potential adverse effects are predicted, mitigation has been developed and its implementation is presented in an Environmental and Social Management Plan (ESMP) and Environmental Monitoring Plan (EMP)/Social Monitoring Plan(SMP).

This project has been identified as a Category A project in the ESMF classification for environmental assessment. This requires an EA report and an Environmental Management Plan. Also according to ESMF classification for SA identified as a Category B. Moreover, public consultations are required to discuss the project and the proposed Environmental/Social management plan.

2. SUB PROJECT DESCRIPTION

Chhindwara, the administrative headquarters of Chhindwara District, comes under the Jabalpur Administration Division of Madhya Pradesh. It is the largest & growing city in the district. The population of Chhindwara city was 1, 38,266 as per the 2011 census. The municipal area of Chhindwara was about 11.33 sq km. Vide Urban Administration and Environment Department Government of Madhya Pradesh notification 28 F 1-14 /2014/18-3 dated 5.9.2014; 24 adjoining villages has been merged in the municipal area. The area of these 24 villages is 98.94 sq km. As per 2011 census, population of these villages was 77552. Hence the new municipal area of Chhindwara town is 110.27 sq km and population as per 2011 census is 215843. Chhindwara has no sewerage system in place. Effluent from septic tanks and even raw sewage is flowing in open drain and directly meets into the tributaries of Kulbehra River.

The intent of the project is to ensure that comprehensive, technically and financially viable system for Sewerage collection and treatment and Sepatage Management for Chhindwara town. The water supply project @ 135 lpcd for old CMC area is nearing commissioning and for newly

added area, it is in pipeline under AMRUT. Both these Water Supply Schemes aim at 100% coverage with individual connections, which will definitely add to the Waste Water generation. Hence sewerage project is the need of the Town. Due to topography and sparse distribution of the habitations, providing sewerage network in the whole CMC will be technically and financially unviable. Hence, the DPR envisages covering the core CMC area and 7 villages adjacent to the core city, with sewer network alongwith Sewage Treatment facility whereas the sewage generated in remaining 17 villages spread over more than 80% of the CMC area will be managed through “Septage Management” system supported with 4 Bio Digesters.

For sewage collection the whole considered area has been divided into two zones. Zone 1 design population in the year 2048 is 1, 15,020 and Zone 2 population is 1, 75,899. Considering the techno economics of material, pipe 150- 300 mm has been taken as DWC and above 300 mm and upto 1000mm of NP-3 concrete pipe. The minimum cover taken is 1.0 m minimum. Total network length is 266 km; out of which more than 90% of the pipes range from 150 mm to 250 mm. The maximum diameter of pipe is 1000 mm and depth is 4.8 m. At every 30 m length and change in alignment manhole has been proposed. Flushing points where the velocity of the sewerage is less than the self - cleaning velocity have been identified and proposed. From SPS 1 pumping main of DI K-9 of 450 mm; 550 m length will run up to MH 4905, from where it will flow up to SPS 2 through gravity. From SPS 2 it will be pumped to STP by pumping main of DI K-9 of 750 mm.

3. LEGAL, POLICY AND ADMINISTRATIVE FRAMEWORK

Regulatory Framework (Environment And Social): The National and state level environmental laws and the Operational Policies of the World Bank are applicable to MPUDP financed projects. The most important of the applicable laws are Water (Prevention And Control of Pollution) Act, 1974, The Water (Prevention And Control of Pollution) Act, 2012, Forest (Conservation) Act, 1980, Air (Prevention and Control of Pollution) Act 1981, etc and the World Bank OP 4.01 Environmental Assessment, OP 4.04 Natural Habitats, OP 4.11 Physical Cultural Resources and OP 4.36 Forests.

The National and state level Social laws and the Operational Policies of the World Bank are applicable to MPUDP financed projects Land Aquisition Act-RTFCTLARR Act 2013, The Street Vendors(Protection of Livelihood and Regulation of Street Vending) Act, 2014, The Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act,2006 etc and the World Bank OP/BP 4.12 Involuntary Resettlement, OP/BP 4.10 Indigenous People.

4. BASELINE ENVIRONMENT PROFILE

Environmental and Social Profile of the study area of Project site based on secondary data of Physiography, Topology, climate, water quality, Biological profile of Chhindwara town. The flora and fauna identified in the study area are commonly found and not specific to the region due to the absence of forest in the study area. Moreover, there are no National Parks, Wild life sanctuaries, Bird sanctuaries within 10 Km radius of the project site. There is no rare and endangered species in the area.

Socio economic profile of the town also based on secondary data of Demographic data, Land use, Work force distribution in town, Vulnerability & Commercial activities of town etc.

5. ASSESSMENT OF ANTICIPATED IMPACTS

This Chapter identifies and discusses both positive and negative impacts associated with the proposed project and their mitigation measures. The anticipated impacts and corresponding mitigation measures are discussed in Phases namely: influence area and general impacts. This chapter focuses on the prediction and assessment of impacts on the various ES components due to the project activities. Based on the magnitude and duration of the project activities, the nature, duration and extent of impact are assessed. Minor project impacts have also been identified and basis for their insignificance has been provided. Wherever relevant, the EMP/SMP also addresses the minor impacts and provides environmental and social mitigation / environmental enhancement measures. Possible Environmental and Social Impacts during Design Phase, Construction Phase and Operation Phase has been identified and mitigations during these phases have been suggested.

6. STAKEHOLDER AND PUBLIC CONSULTATION

Stakeholder and Public consultation is useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives and designing viable and sustainable mitigation and compensation plans. Extensive public consultation meetings for the Chhindwara Sewerage Scheme took place while undertaking this ESA study. The main objective for the consultation process was to involve the community at the very early stages so as to identify likely negative impacts and find ways to minimize negative impacts and enhance positive impacts of the project.

Public sensitization and inclusion meetings were held within the wards of the project area from 18th April' 2016 to 20th April' 2016 with the help of respective local administration and the elected representatives. A total of 9 meetings were held the key outputs of consultations have been taken into consideration and suggested changes in the design and implementation activities.

7. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The ESMP presented in this Chapter summarizes the key impact elements identified and the remedial measures, the actions to be taken by various parties and the monitoring activities. An indication of the time scale for implementation and cost involved is also provided. The ESMP can be further expanded during implementation with documented procedures and guidelines for work practices so as to be as responsive to the situations that various Contract Parties will encounter.

The effectiveness of the ESMP shall be monitored and assessed during spot checks, formal inspections and at the end of the Project when an overall audit of the works shall be carried out.

Monitoring and Evaluation

Monitoring and evaluation process will involve the assessment of the following benchmarks

- The implementation process of guidelines stipulated in the ESMP
- Evaluate impact of the project to the environment and social setting of Chhindwara Town

- Monitoring of the involvement of the community through public consultations in decision makings and the implementation of the project

Urban Development and Environment Department (UDED) of Government of Madhya Pradesh (GoMP) will be the Executing Agency for the Program, responsible for management, coordination and execution of all investment program activities. Implementing Agency will be the Madhya Pradesh Urban Development Company (MPUDC) of GoMP, which will implement this program via a Project Management Unit (PMU) at Bhopal, and Project Implementation Units (PIUs) at project towns. PMU will appoint contractors to build infrastructure and PIUs will coordinate the construction. PMU and PIUs will be assisted by Program Management Consultants (PMC).

8. Vulnerable Group(SC/ST) in Chhindwara

The tribal population of Madhya Pradesh increased to 15,316,784 in 2011 from 12,233,474 in 2001. The decadal growth rate during this period is 25.20 percent. The trends in the population of the Scheduled Tribes by residence (total, Rural and Urban) for Census Years 1961- 2011 shows that the percentage of Scheduled Tribes Population in the Rural Areas (11.3 percent) much higher than Urban Population (2.8 percent). In Madhya Pradesh certain areas have been declared as scheduled area as Specified by the Scheduled Areas under the Sixth Schedule of Indian Constitutions.

Chhindwara district is not coming under the Schedule V declared by Government of Madhya Pradesh. Social Impact screening done on different aspects no negative impact of project on Indigenous people .project is coming under category C .No IPP plan required for IPs but strategy should be planned for the active participation of Indigenous people.

9. CONCLUSION AND RECOMMENDATIONS

The Environmental and Social Assessment (ESA) Study was carried out based on field assessments and public consultations with the community who are likely to benefit or to be affected by the proposed Project and the Proponent in compliance with the World Bank environmental policies.

The project report of the proposed sub-project for Chhindwara City after environment and social analysis concludes that the project have overall positive benefits on the life, health and environment of the people. There is no reported land acquisition or livelihood losses to be caused under this project. As per environmental and social management framework guidelines of MPUDP, Environmental and Social Assessment, with a Generic Safeguard Management Plan was conducted for addressing possible issues/ concerns arising from proposed project.

There are no environmentally sensitive areas (like forest, sanctuaries etc.) in or near sub-project area. Also there are no archeological and historical protected areas/ sites within or near the town. Hence the impact identified are mostly related to construction and operation phase. There is no land acquisition nor any involuntary resettlement required in the project. During implementation only temporary disruption (damage to public utilities/temporary structure etc.) is assumed this can be avoided. No negative impact on vulnerable group is seen.

CHAPTER 1 INTRODUCTION

1.1 Project Background

Madhya Pradesh (MP) is geographically the second largest, fifth populous, and eighth most urbanized state in India. Although MP recorded a higher rate of growth for its urban compared to rural population in the last decade, its urbanization rate is still below the national average but it is projected to catch-up in the next 15 years. At present, MP's total urban population is of 20.1 million (28% of total population) concentrated in 476 urban centers as follows: 378 municipal bodies of which 16 are Municipal Corporations (Nagar Palik Nigams), 98 are Municipal Councils (Municipal Corporation Parishad), and 264 are Nagar Panchayats, and 98 Census Towns - identified as areas with urban characteristics, but not formally notified as urban. Of the 16 municipal corporations, four (Indore, Bhopal, Jabalpur, and Gwalior) are million-plus cities.

Rapid urbanization in MP has seen sprouting of new urban settlements across the state, more often close to existing cities. The last decade (2001-2011) has seen a 20% increase in the number of urban centers, including a 50% increase in census towns, compared to a 6% increase in the previous decade (1991-2001). The last decade also saw more than a quarter-fold increase in population of the four largest urban agglomerations including Bhopal and Indore. In the cities in MP, household access to piped water supply ranges between 48-80%, per capita; water supply ranges between 35 to 150 lpcd; access to underground sewerage range between nil to 40%; waste collection ranges between 85-90%, and 60-80% of rainwater runoff is effectively drained.

The development objective of the proposed Madhya Pradesh Urban Development Project (MPUDP) supported by The World Bank, is to enhance the capacity of the relevant State-level institutions to support ULBs in developing and financing urban infrastructure. To achieve the above, the project envisages the following three components, Institutional Development Component, Urban Investment Component, Bhopal-Indore Super Corridor.

The proposed Chhindwara Sewerage Project is one of the subproject under the Madhya Pradesh Urban Development project (MPUDP) funded by the GoMP and the World Bank. The components to be constructed under this project include:

1.2 Context of ESA

This report presents an Environmental and Social Assessment (ESA) of the Chhindwara Sewerage subproject under MPUDP project. The ESA identifies potential impacts on the natural environment and the social situation in Chhindwara region during construction and operation of the project. Where potential adverse effects are predicted, mitigation has been developed and its implementation is presented in an Environmental and Social Management Plan (ESMP) and Environmental Monitoring Plan (EMP)/Social Monitoring Plan(SMP).

This project has been identified as a Category B project in the World Bank classification for EIA(OP/BP4.01). This requires an EIA report and an Environmental Management Plan. According to World Bank classification for SIA (OP BP4.10/4.12) identified as a Category B.

Moreover, public consultations are required to discuss the project and the proposed Environmental/Social management plan.

1.3 Scope of ESA study

The Environmental and Social Impact Assessment to be carried out at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation and decommissioning of the Project. The scope of this ESA study covered:

- Description of the proposed Project;
- The baseline environmental conditions of the ESA study area;
- Provisions of the relevant environmental legislations;
- Public consultation through public meetings, interviews and administration of questionnaires;
- Prediction of any adverse impacts to the environment arising from the proposed Project;
- Appropriate mitigation measures; and
- Provision of an Environmental and Social Management Plan.

The output of this work led to this comprehensive Environmental and Social Impact

1.4 Objectives of ESA Study

The objectives of the ESA study are:

- To fulfill the legal requirements as outlined in EIA Notification 2006 and World Bank Safeguard requirements.
- To obtain background Environmental information of the sites and legal and regulatory issues associated with the proposed Chhindwara Sewerage project;
- To assess and predict the potential impacts during site preparation, construction and operational phases of the proposed Project;
- To make suggestions of possible alterations to the proposed design, based on the assessment findings;
- To propose mitigation measures for the potential adverse environmental impacts and safety risks;
- To allow for public participation; and
- To prepare an ESA Report including an Environmental and Social Management and Monitoring Plan.

1.5 Terms of Reference (ToR) for the ESA process

The ToR for this Environmental and Social Impact Assessment is based on the Environmental (Impact Assessment and Audit) Regulations, 2003. According to the Regulations, the Project Report should, where possible, contain description of the following:

- Description of the nature of the proposed project;
- The location of the project including the physical area that may be affected by the project's activities;

- The activities that shall be undertaken during the project construction, operation and decommissioning phases;
- The design of the project;
- The materials to be used, products and by-products, including waste to be generated by the project and the methods of their disposal;
- The potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project;
- An action plan for the prevention and management of possible accidents during the project cycle

1.6. Methodology

The ESA study was carried out based on desk review, field assessments and public consultations with the community who are likely to benefit from the project, the project affected persons and relevant Government institutions. In the course of the assignment potential impacts of all stages of the project from pre- construction, through construction and installation to operation in each region are evaluated against applicable environmental standards, regulations and guidelines, the existing environmental conditions, and issues and concerns raised by all project stakeholders. The assessment process incorporates the following key stages:

1.6.1. Desk review

A desktop study was conducted to review available published and unpublished reports, development plans and maps in order to compile relevant baseline biophysical and socio-economic information about the study area. The biophysical information was compiled on environmental aspects such as Topography, Climate, Soils, Water Resources, land use and flora and wildlife resources. On the socio-economic environment, the study compiled information on aspects such as population, education, labour force, poverty analysis and health.

1.6.2 Field visits

Field visits were conducted in the study area in order to collect site-specific information on the biophysical and socio-economic environment and to crosscheck the secondary data. While at the site, environmental data were recorded and potential impacts identified. In addition, environmental features relevant to the study were noted and photographs taken as record of key features.

1.6.3 Socioeconomic Survey

A socioeconomic survey was undertaken in all the locations that will be affected/benefitted from the project. The main sampling unit of the survey was the household. The team consulted the Corporators/Councillors, and ULB officials to identify the wards and households in the primary project's primary zone of influence and to introduce the enumerators to the households identified. The enumerators were sought within the project area. The resultant data was coded uniformly for data entry purposes. Quantitative data analyses were carried out using simple and relevant statistical methods such as average, percentage and

frequency distribution.

1.6.4 Public consultation

Public consultations were undertaken through key informant interviews and public meetings. The consultations were meant to give an indication of whether the proposed Project is welcome and the immediate perceptions that the affected parties associate with it.

i. Public meetings

The consultation process is focused on, seeking comment on key issues and concerns, sourcing accurate information, identifying potential impacts and offering the opportunity for alternatives or objections to be raised by the potentially affected parties; non-governmental organizations, members of the public and other stakeholders. Consultation helps to develop a sense of stakeholder ownership of the project and the realization that their concerns are taken seriously, that the issues they raise, if relevant, will be addressed in the ESA process. Consultation with all project stakeholders started during the Scoping stage and continued throughout the ESA process. All relevant stakeholders have been identified using the most recent and accurate information available and the consultation results including:

- i. a list of stakeholders consultation ; and
- ii. a summary of the issues and concerns raised.

Consultations with the communities were conducted in the project area with the help of the local administration especially the councillors and ULB officials. The discussions during these public meetings were centered on key emerging issues relating to the project as well as the communities. Given the large size of the project area, a total of Nine(9) meetings were held at location levels within the project area.

ii. Key Informant Interviews

One-on-one interviews with government agencies and institutions in the project area were undertaken. These interviews were conducted to augment and confirm data and information obtained using the other tools and methodologies.

1.6.5. Impact assessment and analysis

Following the identification of all project environmental aspects and potential impacts, the level of impact that may result from each of the activity-receptor interactions will be assessed. The assessment and analyses methodologies for ESA studies are based on multidisciplinary approaches and structured to allow for holistic study and assessment of the following key components of the environment in relation to the proposed Project:

1.6.5. Impact assessment and analysis

Following the identification of all project environmental aspects and potential impacts, the level of impact that may result from each of the activity-receptor interactions will be assessed. The assessment and analyses methodologies for ESA studies are based on

multidisciplinary approaches and structured to allow for holistic study and assessment of the following key components of the environment in relation to the proposed Project:

- Physical/chemical component;
- Biological/ecological component;
- Sociological/cultural component; and
- Economic/operational component.

1.7. Mitigation and monitoring

- **Mitigation:** Mitigation measures will be taken into consideration and defined during the impact assessment process. Impacts that are identified as having a significance ranking of “high” or “critical” will be analyzed in more detail to identify additional mitigation measures that are potentially available to eliminate or reduce the predicted level of impact. Potential mitigation measures that will be considered include: social and economic investment programs; engineering design solutions; alternative approaches and methods to achieving an activity’s objective; operational control procedures, and management systems. The results of the mitigation analysis and the mitigation measures included in Mitigation Plan of the Environmental & Social Management Plan.
- **Monitoring:** It will be necessary to monitor and audit the implementation of the project development and operation. Monitoring will provide the information necessary for feed back into the environmental & social management process and will assist in identifying where additional mitigation effort or where alteration to the adopted management approach may be required. The monitoring plan will be included in Monitoring Plan of the Environmental & Social Management Plan.

1.8. Reporting and documentation

A comprehensive ESA Project Report containing the findings has been for consideration and approval. In preparing the Project Report, the ESA team paid attention to the following issues as specified in the second schedule of the Environmental (Impact Assessment and Audit) Regulations, 2003:

- Ecological considerations including: Biological diversity, sustainable use, and ecosystem maintenance;
- Social consideration including: Economic impacts, social cohesion or disruption, effect on human health, communication, and effects on culture and objectives of culture value;
- Landscaping including: views opened up or closed, visual impacts (features, removal of vegetation, etc.), compatibility with surrounding area, and amenity opened up or closed e.g. recreation possibilities;
- Land use including: effects of proposal on current land uses and land use potentials in the Project area, possibility of multiple use, and effects of the proposal on surrounding land uses and land use potentials; and
- Water including: water sources (quantity and quality) and drainage patterns/drainage systems.

CHAPTER 2

PROJECT DESCRIPTION

2.1. Description of Project Area

2.1.1. Background

Chhindwara, the administrative headquarters of Chhindwara District, comes under the Jabalpur Administration Division of Madhya Pradesh. It is the largest city in the district. The population of Chhindwara city was 1, 38,266 as per the 2011 census. The municipal area of Chhindwara is about 11.33 sq km. Vide Urban Administration and Environment Department Government of Madhya Pradesh notification 28 F 1-14 /2014/18-3 dated 5.9.2014; 24 adjoining villages has been merged in the municipal area. The area of these 24 villages is 98.94 sq km. As per 2011 census, population of these villages was 77552. Hence the new municipal area of Chhindwara town is 110.27 sq km and population as per 2011 census is 215843. As in many other cities, the infrastructural facilities in Chhindwara such as water supply, sewerage (sewage collection, treatment and disposal) and storm drainage have not kept pace with the rapid increase in the population.

Chhindwara is well connected with other parts of the country by road and rail. National Highway 69 (NH 69) goes through Chhindwara. It connects Nagpur (128km) in Maharashtra to Obedullaganj near Bhopal in Madhya Pradesh. The city is connected with other parts of the country primarily through roads. The state highway SH-26 connects Chhindwara to other prime areas in the state. Through the network of state highways it is connected with Bhopal (277km), and Jabalpur (196km). The state highway connects Chhindwara to other important towns of region such as Parasiya, Seoni etc. Though it is an important city; Chhindwara has to depend on Nagpur for air linkage which is approximately 130 km from the city.

Chhindwara is well connected to the National Capital Delhi and State Capital Bhopal through rail. A proposed broad gauge line to Nagpur is expected to improve the connectivity in the region.

2.1.2. Objective of the Project

The prime objective of this assignment is to improve and scale up existing urban infrastructure development schemes within a comprehensive and coherent strategic development framework in order to ensure optimal linkage of urban utilities and benefit of resources to the citizens of the Chhindwara.

This assignment should aim to catalyze the thinking for wastewater management and lead stakeholders for systematic development of urban infrastructure. The thrusts of the assignment will be toward the field surveys and feedback from comprehensive stakeholder consultation and field identification process.

The intent of the sub project is to ensure that comprehensive, technically and financially viable system for:

1. Sewerage system for core city and 7 adjacent villages and

2. Sewerage Management in 17 villages of Chhindwara.

This report deals with the preparation of Detailed Project Reports (DPR) of Sewerage System of CMC area.

Figure 2.1: Key Plan for Chhindwara City

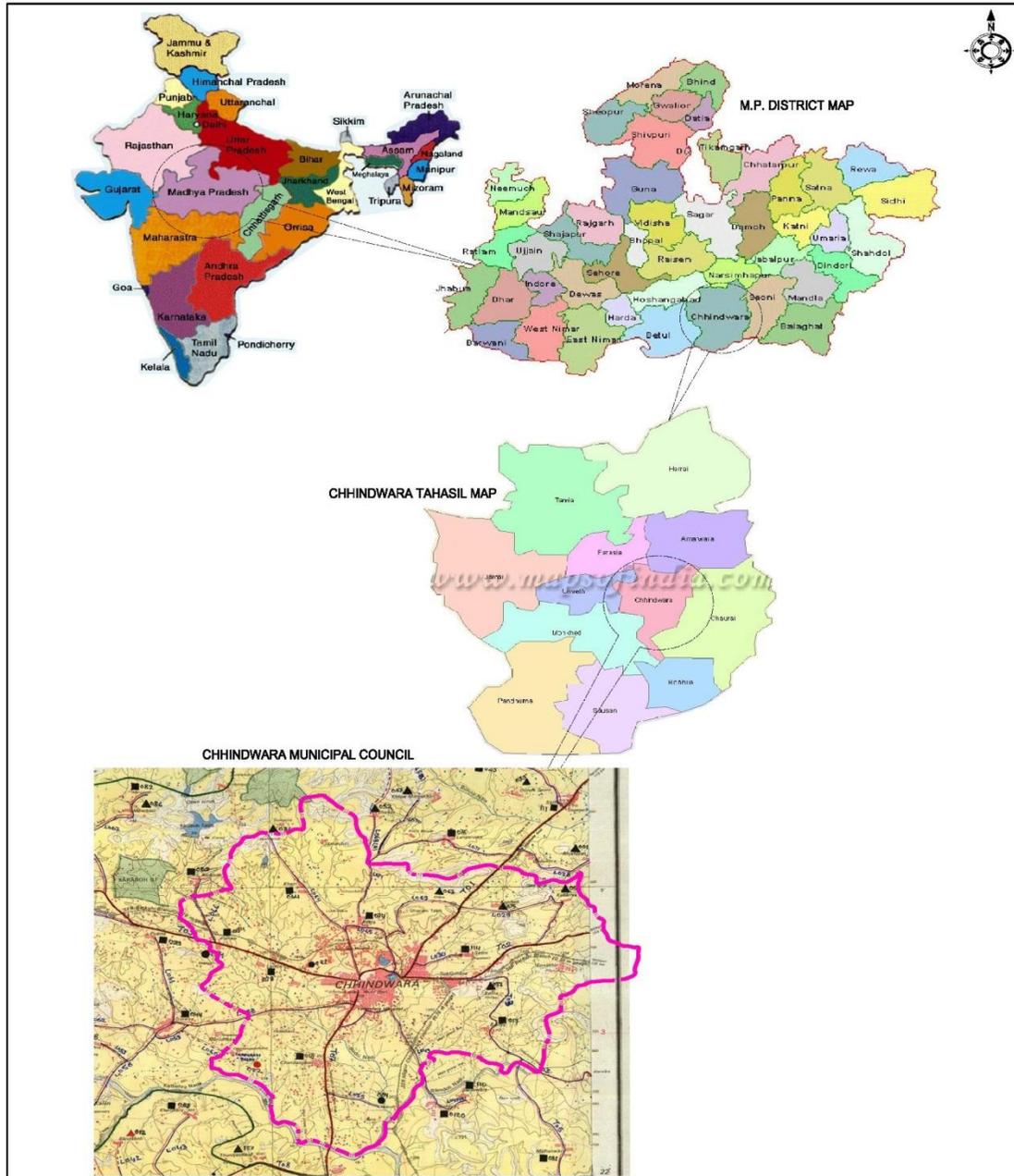
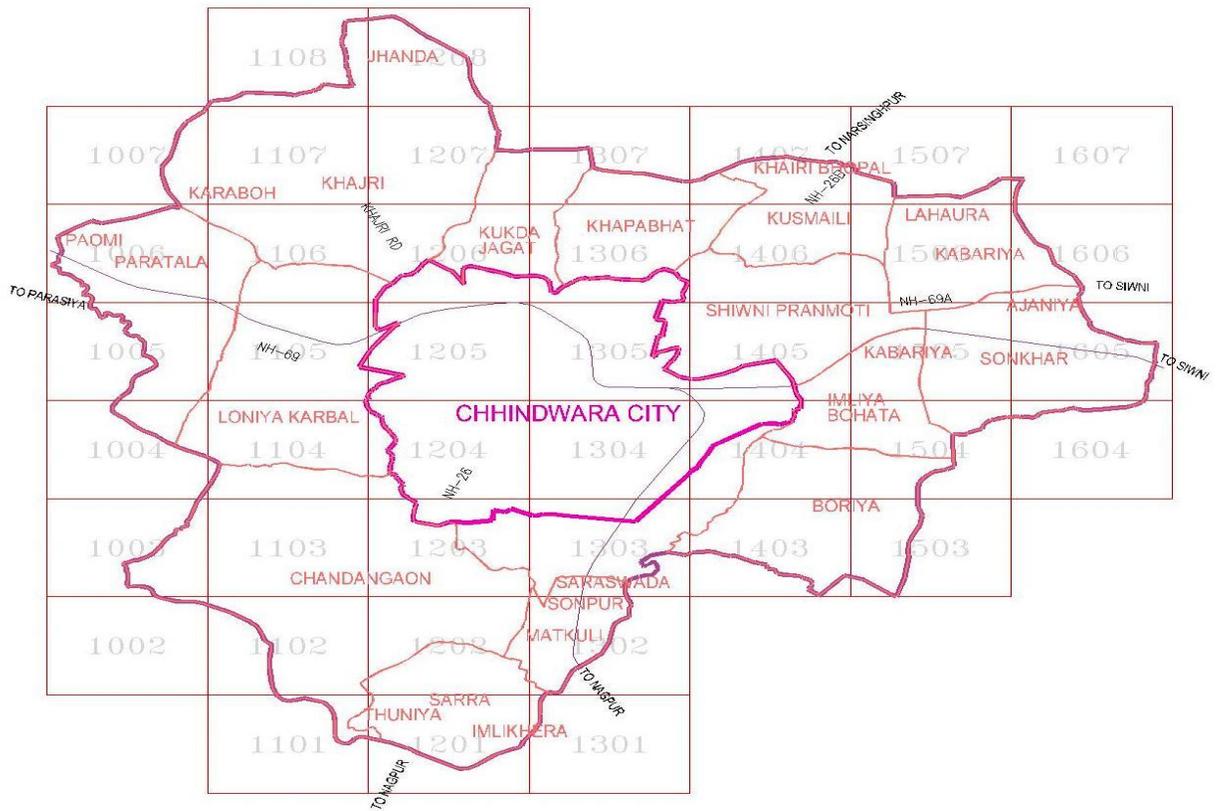


Figure 2.2: Chhindwara Municipal Area



EXISTING WATER SUPPLY AND SANITATION SYSTEM

2.1.3. Brief Description of Existing Water Supply Scheme of CMC Area

The total potable water demand for the city of Chhindwara is met by surface water sources and Tube wells. Kanhargaon dam on Kulbehra River being the main source, supplies 90% of the total demand, balance being procured from boring and wells. The existing storage capacity is 9.4 ML and collective capacity of the water treatment plants is around 18 MLD. Presently, the per capita water supply is varying from 70 to 100 lpcd in different areas depending upon the existing storage SR and efficiency of distribution network. The coverage of the population at present is 79% in the core area and 7 adjacent villages. A water supply augmentation scheme for Chhindwara municipal township excluding newly added 17 villages is under progress for total water requirements for the year 2042 (ultimate design period) under UIDSSMT scheme of MoUD, GOI. The execution of the scheme is 99% complete and it is likely to be commissioned by the end of August 2016. The total capacity of the newly developed Water Supply System is based on 135 lpcd rate of water supply.

CMC has envisaged another water supply augmentation scheme under AMRUT for the remaining 17 villages so as to provide water to its citizen @ 135 lpcd.

2.1.4. Brief Description of Existing Sanitation Facilities and Disposal System

There is no formal existing sewerage scheme in the city and newly added area covered under our scope of project. The sewage from the houses is conveyed to the individual septic tank for treatment. The effluent from the septic tank of individual houses discharges into open channels along the roads and finally drain through Nalla either to the lakes or to nearby Nalla. This creates an unhygienic condition in the area. The sewerage scheme should be implemented, failing which problems will be posed to the environment of the town affecting the Public health and the commercial activities. Besides, sewage will pollute the ground water, which is an important source of water.

1) Toilets:

- At present 43560 properties are in CMC area out of which 39204 properties are having their own toilet in their premises. Approximately 36000 properties are having toilets with septic tank facility. The effluent from Septic Tank is discharged to road side open drains. The average size of each septic tank is between 1.5m x1.0m and 3.0m x1.8m with depth ranging from 2m to2.5 m. Under the ongoing state government scheme, work of 4356 nos of toilets is being constructed in slum as well as in town area.
- There are total 29 spots of open defecation in the city, slum and developed areas.
- As there is ongoing scheme of construction of individual toilets in CMC area including slum area there is no need to construct public toilet. The ongoing scheme in all areas is being implemented by various NGOs under various schemes.
- CMC is implementing LCS scheme in City. Also in newly added areas some LCS scheme is going on. Total 3185 no. of individual toilets is being constructed in city as well as in slum areas.
- There are 11 public toilet blocks in the city which have total 107 seats capacity. Presently, there is no additional requirement of public toilets in CMC area. There is no public or community toilet in newly added areas. There is need to repair and maintain the existing public toilets in city area and this can be done under CMCs own fund.

- NGO's are involved in the motivation process to the citizen for prevention of open defecation in the city.
- There are 24 notified slums in the City.
- There are about 5065 properties having total population of 20260 in the slum area.

Table 2.1: Existing percentage of coverage by services in old CMC area

Sr. No.	Description	Population	Percentage
1	Population 2011	215843	
2	Population using Individual toilets	196020	93%
3	Population using public toilets	1070	1%
4	Population in Slum using individual toilets	12288	61%

Details of existing and ongoing sanitation system in Town area, slum area and developed area is collected from CMC office and respective villages during site visit.

CMC has identified all the houses within its limits which do not have individual toilets and has taken up the responsibility of constructing toilets for such families at individual household level. CMC envisaged a scheme under the State owned 'Mukhya Mantri Shahri Swachhata Mission' which later on was merged with the National Level Mission "Swachhh Bharat Mission". CMC has already started constructing individual toilets and aims to have Individual toilets at each HH level, by the end of the Year 2017.

2.Sewerage System:

- Presently there is no sewerage system in City.
- There is no STP in Town
- Sewage is being discharged in Storm water drain
- Effluent form Public Toilet, individual toilet is being discharged to storm water drain
- There is no ongoing work of sewerage system in city.

3. Septage Management

Table 2.2 : Details of Septage Management

Sr. No.	Description	Details
1	Existing practice of Septage management,	Mechanical
2	No. of Cleaning vehicle	1 Tractor + 1 Mud pump tanker
3	Septic Tank cleaning interval: Once in a year or two year and so on	Once in a year or two Years
4	No. of Septic Tank in city	18000 approx.
5	No. of septic tank desludged in a day	3 Nos. approx.
6	Desludging Agency (CMC/Private)	CMC
7	Existing disposal method (in Nalla or designated disposal site, etc.)	trenching ground or open dumping
8	Land availability for septage disposal	Land is available for proposed 4. No bio digester

2.2. Need of Project

To sustain the high rate of growth in the town the sewerage system is an important component of the infrastructure that needs to be developed on priority. There is also ground water pollution posing a danger of cross-contamination for the water supply mains. In areas where there are no toilets, there is considerable open defecation posing a threat to public health. In all the area raw sewage is discharged into Nallas and drains which is a danger to public health and also offends water pollution control regulations. The poor sewerage infrastructure will also retard the further development of the city. It is therefore necessary to provide a comprehensive sewerage scheme covering all parts of the CMC and ensuring that the sewage is adequately treated before disposal into water courses, also there is need to implement comprehensive Septage Management service for the City as well as surrounding developed areas and villages.

2.3. Proposed Project

Sewage Generation / Loading

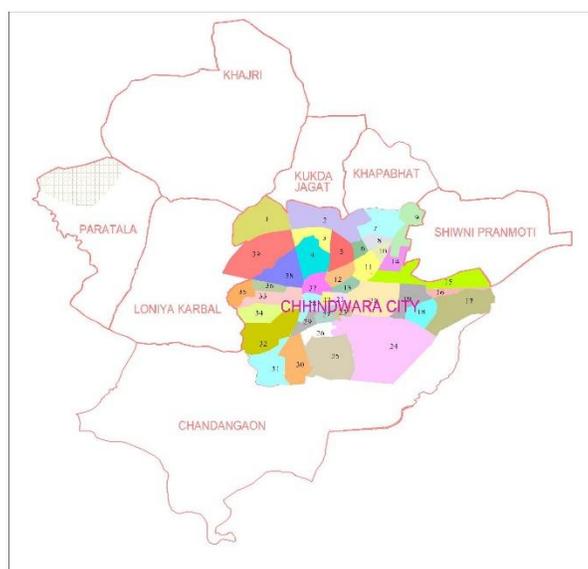
The unit wastewater is determined considering the proposed improvements to the Water Supply System, the usage from ground water sources and an appropriate return factor. Infiltration is also considered and converted to a unit rate.

Table 2.3: Per Capita Sewage Generation (for Core area and 7 villages)

a)	Total per capita water supply	135 Lpcd
b)	Sewage generation at 80% of the total water supply	108 Lpcd
c)	Add for infiltration (10% of wastewater quantity)	10.8 Lpcd
d)	Total unit sewage rate being admitted to system	118.8 Lpcd

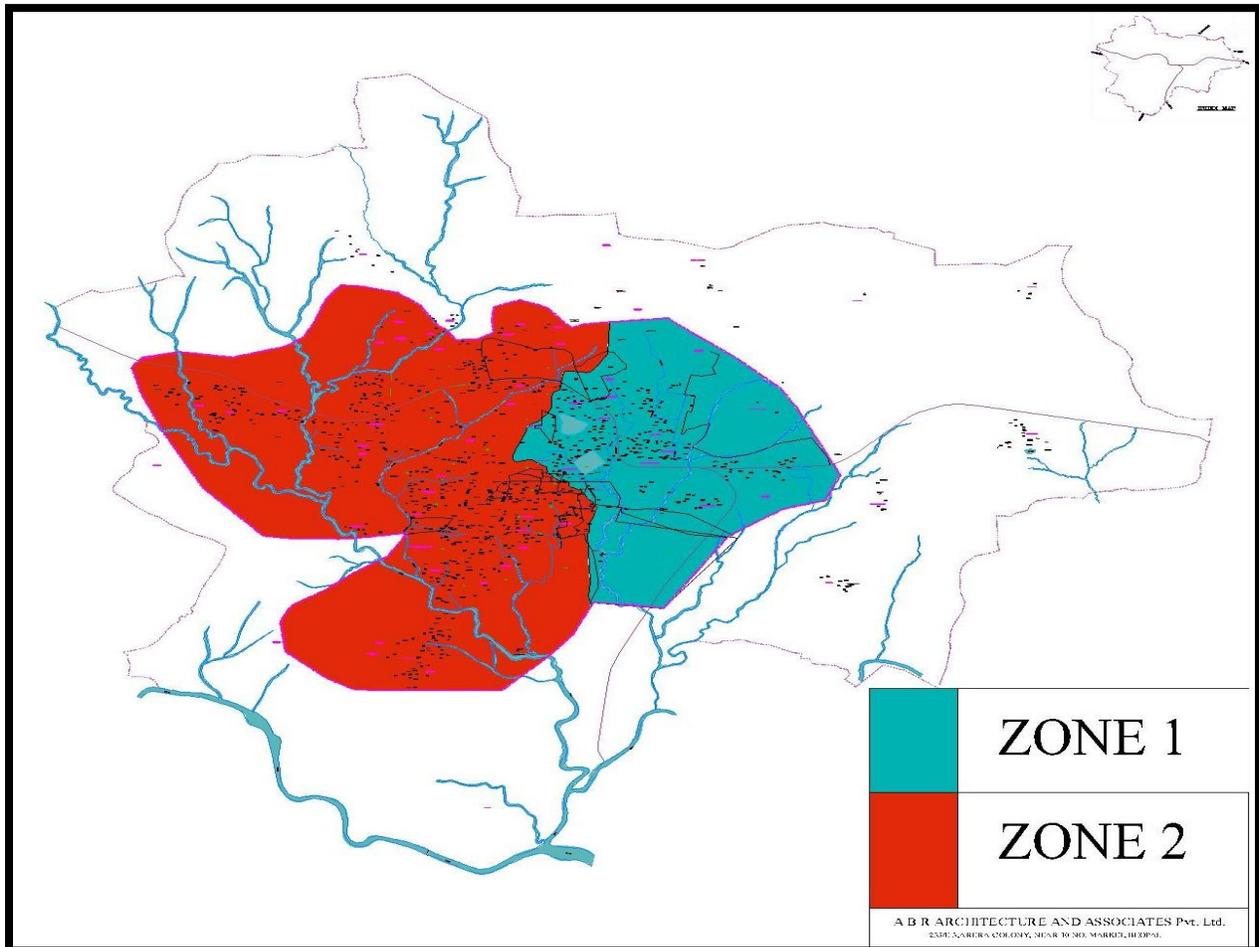
Due to topography and sparse distribution of population, whole CMC area cannot be provided with sewerage system without compromising depths or high numbers of SPS. Additionally, population density is very low in outer areas that will lead to solid deposition inside sewers. Hence, only part of the villages that can be connected to city sewerage by gravity is considered. Hence, the proposed "Sewerage Network and STP" project of Chhindwara Municipal Corporation envisages dividing whole town in two clusters-- 1) Core city and 7 adjacent villages, and 2) 17 villages merged with CMC in January 2015.

Figure 2.3: Clustering of Chhindwara Municipal Area from Sewerage point of view



It is proposed to set up 27 MLD capacity sewage treatment plant (STP) in first cluster which is further divided in two zones based on the topography and from the point of view of techno-economical collection system and easy maintenance and operation. The DPR envisages construction of Sewage Pumping Station (SPS1) to pump the Sewage collected from Zone 1 to the main trunk leading to STP.

For sewage collection the whole considered area has been divided into two zones. Zone 1 design population in the year 2048 is 1,15,020 and Zone 2 population is 1,75,899. Considering the techno economics of material, pipe up to 300 mm has been taken as DWC and above 300 mm NP-3 concrete pipe has been taken. The minimum diameter of pipe taken is 150 mm and cover taken is 1.0 m minimum. Total network length is 266 km; out of which 150 mm diameter pipe is 135 km, 200 mm diameter pipe is 99.2 km, 250 mm pipe is 5.3 km and from 300 to 1000 mm the pipe length is 26.22 km. The maximum diameter of pipe is 1000 mm and depth is 4.8 m. At every 30 m length and change in alignment manhole has been proposed. At certain point where self-cleaning velocity during initial period is much less than desirable 0.6 m/s; flushing system is proposed to be constructed. From SPS 1 pumping main of DI K-9 of 450 mm; 550 m length will run up to MH 4905, from where it will flow up to SPS 2 through gravity. From SPS 2 it will be pumped to STP by pumping main of DI K-9 of 750 mm.



Land for low cost sanitation like Waste Stabilization Pond is not available in the Chhindwara town. Looking the land imprint and modular approach and quality of effluent as per guide line issued by the Central Pollution Control Board, New Delhi and techno economic LCC analysis, SBR technology has been proposed. The Sewage generation in this cluster is as under:

Table 2.4: Sewage Generation in cluster 1

Sewage Generation (MLD)	2018	2033	2048
Zone 1	9.38	11.38	13.57
Zone 2	13.11	16.73	20.75
Total In Catchment Area	22.50	28.11	34.32

In this cluster of the CMC, 90 % households have septic tank. Hence Septage management in houses, which cannot be covered under sewerage system due to their location or topography, has also been taken in the present project.

The DPR also envisages septage management in second cluster of 17 villages which are further divided in 4 groups. It is proposed to construct Bio Digesters (4 in numbers) at various locations, so that the Sewage collected from the septic tanks or otherwise need not travel long distances. Care has been taken that the bio digesters are located at such locations which are not on narrow lanes.

2.4 Brief on suitability of the proposed components

The Sewage Treatment Plant is essential to treat the waste water especially the Black water collected through Sewerage Network. This is an important component of any Waste Water Management.

2.4.1 Site Selection for the Proposed STP

A detailed study of various options for the selection of land for STP was conducted. After detailed investigations, the land at Koladhana near Bodri Nallah in ward no. 33 with Khasra No. 678 having an area of 5.54 hectares, was selected. The various reasons for selction of the proposed site are:

- a) The land is at the tail end of the sewerage collection network and follows the general slope of the town. Thus excessive pumping is not required.
- b) The site is adjacent to natural drain which will be the escape channel for the effluent treated water. Thus, flow of effluent water does not need lengthy escapes.
- c) The land has no vegetation or species of plants except for 2-3 trees of Dates. Thus, no vegetation uprooting is involved at this site.

- d) The habitation is more than 100 meters away from the proposed site. However, the technology for treatment will be selected so as not to affect the habitation around the site.
- f) This is Nazul (Government) Land and hence, no acquisition is required.
- g) The availability of land is sufficient for the STP.
- h) The proposed land is above flood levels of past 50 years.
- i) The general slope of the land is conducive to construction of STP.

2.4.2 Selection of Sewage Treatment Method:

A detailed comparative study has been done to arrive at the proposed Treatment Technology. Comparison of various technologies is given under:

Table 2.5: Comparison of Various Sewage Treatment Technologies

Process Technology Type	Land Requirement Hectare /MLD	Effluent Quality	Surrounding Environment Conditions	Distinct Advantage
Waste Stabilization Pond (WSP)	0.80 to 1.5	BOD: 30-50 mg/L SS: 75-125 mg/L Fecal Coli forms: 4 Log-5 Log units Color: Greenish	Odor in winter months, mosquito problems.	Very easy operation & Maintenance
Up flow Anaerobic Sludge Blanket UASB	0.18 to 0.3	BOD: 30-40 mg/L SS: 75-100 mg/L Fecal Coli forms 4 Log-5 Log units Color: Greenish	Less nuisance compared to WSP	Less operation & maintenance cost. Energy Recovery
Activated Sludge Process: Conventional (ASP)	0.15 to 0.25	BOD: 10-20 mg/L SS: 20-50 mg/L Fecal Coli forms. 4 Log- 5 Log units Color: Colorless	Less odor or vector nuisance compared to UASB	Less capital cost compared to recent advanced technologies
Sequencing Batch Reactor (SBR)	0.03 to 0.05	BOD: 5-10 mg/L SS: 10-30 mg/L Fecal Coli forms. 3 Log -4 Log units Color: Colorless	No odor or vector problem, Aesthetic sense, Modular Units	Excellent effluent quality Less Area requirement Less moving Parts

Moving Bed Biofilm Reactor (MBBR)	0.045 to 0.065	BOD: 20-40 mg/L SS: 30-80 mg/L Fecal Coli forms 3 Log -4 Log units Color: Less Color	Require equalization tank Inferior quality effluent compared to SBR	Less area requirement compared to ASP but more than SBR
Membrane Bioreactor (MBR)	0.08 to 0.10	BOD<5 , SS<10 Fecal Coli forms: nil Color: Colorless	Excellent compared to all existing STP technologies.	Highest effluent quality for reuse Very high Life cycle cost.

Final Selection of Technology: Looking to the land needs and CPCB standards for effluent treated water, SBR has been proposed as the preferred technology.

2.4.3 Sewage Pumping Station

After detailed investigations and studies, the whole of the core area and adjacent 7 villages have been divided into two zones so as to follow the contours of the project area. However, to economize the capital cost as well as the Operation and maintenance, the DPR envisages pumping the sewage collected in zone I and pump it to the STP which is combined for both the zones. The Sewage Pumping Station has been proposed at Khasra No. 991, having area of 4.45 hectares, the land being in possession of the CMC. The land proposed is devoid of any vegetation or trees. Hence, green area will be lost due to this proposal. All the aspects considered for site selection for STP, have also been considered in this case. There is no significant activity near this area, which may be temporarily or permanently affected due to SPS.

2.4.4 Septage Management (Bio Gas Digester)

The outskirts of the Chhindwara spread over more than 80% of the Municipal Area will not be covered through Sewerage Network. More than 90% of the houses in these areas have individual toilets. CMC is already running a programme to provide individual toilets to 100% of the households. However, the habitats on the outskirts, i.e., 17 villages are dispersed in small pockets, making sewerage network highly uneconomical and unmanageable. Therefore, the DPR envisages Septage Management through 4 bio gas digesters to be constructed in the four directions of the town. The sites for these bio gas digesters are as under:

- i) Khasra No. 87 having area of 1500 sqm at Village Sarra
- ii) Khasra No. 170/1 having area of 1500 sqm at Village Poama (Jamaidhana)
- iii) Khasra No. 225/2 at Village Sonpur

iv) Khasra No. 129 having area of 5870 sqm at Village Khapbhata

The sites selected for these Bio Gas Digesters are devoid of any natural vegetation except for some shrubs. The site selection for these sub components is based on the following parameters:

- a) The septage carrier has to travel minimum distance. In this case, the maximum distance to be travelled by a septage carrier vehicle will be 7 km.
- b) The septage carrier has to travel minimum distance within the habitation.
- c) The locations have no significant activity within a radius of 100 m.
- d) The locations have easy access to the main roads.
- e) There is no significant green area affected by this sub component.
- f) The locations and land availability are such that in future, STPs can be constructed here.
- g) The lands are government land and no acquisition is required.

2.4.5 Collection Network

The collection network is proposed to be laid in the RoW of existing roads. Due care has been taken to fix the alignments so as not to do any harm to vegetation or existing structures.

The above discussion illustrates the main components and the criteria for selection of locations and preferred technologies. However, the care while executing the project, will be taken to work according to the provisions of EMP and SMP illustrated in the coming chapters.

CHAPTER 3 LEGAL, POLICY AND ADMINISTRATIVE FRAMEWORK

3.1. Regulatory Framework - Environmental

Implementation of the subproject will be governed by the National and State of Madhya Pradesh environmental acts, rules, regulations, and standards. These regulations impose restrictions on activities to minimize/mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether national, state or municipal/local. Compliance is required in all stages of the subproject including design, construction, and operation and maintenance.

The summary of environmental regulations and mandatory requirements for the subproject is shown below:

Table 3.1: Applicable Environmental Regulations for Sewerage Scheme

Law	Description
EIA Notification	EIA Notification of 2006 and 2009 (replacing the EIA Notification of 1994), set out the requirement for environmental assessment in India. This states that Environmental Clearance is required for certain defined activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts. Category A projects requires Environmental Clearance from the National Ministry of Environment and Forest. Category B projects require Environmental Clearance from the SEIAA.
Water (Prevention and Control of Pollution) Act of 1974, Rules of 1975, and amendments	Control of water pollution is achieved through administering conditions imposed in consent issued under provision of the Water (Prevention and Control of Pollution) Act of 1974. These conditions regulate the quality and quantity of effluent, the location of discharge and the frequency of monitoring of effluents.
Environment (Protection) Act, 1986 and CPCB Environmental Standards.	Emissions and discharges from the facilities to be created or refurbished or augmented shall comply with the notified standards
Air (Prevention and Control of Pollution) Act of 1981, Rules of 1982 and amendments.	The subprojects having potential to emit air pollutants into the atmosphere have to obtain CTE under Section 21 of the Air (Prevention and Control of Pollution) Act of 1981 from WBPCB before starting implementation and CTO before commissioning the project. The occupier of the project/facility has the responsibility to adopt necessary air pollution

Forest (Conservation) Act, 1980 and Forest Conservation Rules, 2003 as amended	As per Rule 6, every user agency, who wants to use any forest land for non-forest purposes shall seek approval of the Central Government.
Ancient Monuments and Archaeological Sites and Remains Rules of 1959	The Rules designate areas within a radius of 100 meters (m) and 300 m from the “protected property” as “protected area” and “controlled area” respectively. No development activity (including mining operations and construction) is permitted in the “protected area” and all development activities likely to damage the protected property are not permitted in the “controlled area” without prior permission of the Archaeological Survey of India (ASI). Protected property includes the site, remains, and monuments protected by ASI or the State Department of Archaeology.
Land Acquisition Act of 1894	Private land acquisition is guided by the provisions and procedures in this Act. The District Collector or any other officer designated will function as the Land Acquisition Officer on behalf of the Government. There is a provision for consent award to reduce the time for processing if the land owners are willing to agree on the price fixed by the Land Acquisition Officer.
Madhya Pradesh State Water Policy, 2003	Prepared in accordance with the National Water Policy, it states that “for environmental balance, skillful and planned management of all types of developmental activities, economic use on equitable basis and in view of the prime importance of water for all human and other living beings, an effective and sound water policy is necessary”. Policy is detailed in 17 sections dealing with different aspects of water resources. No. 7 deals with Water Allocation Priorities, and according to which drinking water supply shall have the highest priority followed by irrigation, power, tourism, etc. Water Resource Department is nodal department for permitting different uses of water resources. Policy also states that “clear provision for reservation of drinking water shall be made in irrigation projects”
Social-Acts, notifications, policies and guidelines	
The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RTFCTLARR Act 2013)	The Act provides for enhanced compensation and assistances measures and adopts a more consultative and participatory approach in dealing with the Project Affected Persons. As and when the rules for implementation of the Act are finalized, the processes and procedures of this Act will be complied with The RTFCTLARR Act 2013 .

<p>The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014</p>	<p>GOI recently enacted the act that specifically aims to protect the rights of urban street vendors and to regulate street vending activities. It provides for Survey of street vendors and protection from eviction or relocation; issuance of certificate for vending; provides for rights and obligations of street vendors; development of street vending plans; organizing of capacity building programmes to enable the street vendors to exercise the rights contemplated under this Act; undertake research, education and training programmes to advance knowledge and understanding of the role of the informal sector in the economy, in general and the street vendors, in particular and to raise awareness.</p>
<p>The Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.</p>	<p>An Act to recognise and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded; to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forestland</p>

3.2. World Bank Safeguard Policies: The Bank requires environment and social assessment (ESA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making.

Table 3.2: World Bank Safeguard Policies

World Bank Safe Guard Policies	Objective	Applicability	Safeguard Requirements
OP 4.01 Environmental Assessment	The objective of this policy is to ensure that Bank financed projects are environmentally sound and sustainable.	The environmental issues will be addressed adequately in advance. An integrated Environmental Screening and Environmental Assessment (EA) with Environmental Management Plan (EMP) will be developed to manage environmental risks and maximize environmental and social benefits wherever it is applicable.	EIA and/or EMP required.
OP 4.04 Natural Habitats	The policy recognizes that the conservation of natural habitats is essential for long-term sustainable development. The Bank, therefore, supports the protection, maintenance and rehabilitation of natural habitats in its project financing, as well as policy dialogue and analytical work. The Bank supports and expects the Borrowers to apply a precautionary approach to natural resources management to ensure environmentally sustainable development	This policy may be triggered by the Project due to activity requiring forest/ wildlife lands, locating close to the natural habitats with the potential to cause significant adverse impact or degradation of natural habitats whether directly (through construction) or indirectly (through human activities induced by the project).	EIA and EMP required
OP 4.36 Forests	This policy focuses on the management, conservation, and sustainable development of forest ecosystems and resources. It applies to project that may have impacts on (a) health and quality of forests; (b) affect the rights and welfare of people and their level of dependence upon forests and projects that aim to bring about changes in the management, protection or utilization of natural forests or plantations, whether they are publicly, privately or community owned. The Bank does not support the	Impact of construction activities on Forest areas required to be taken care of. Generally diversion of reserve forest will be avoided, however the roadside trees along state highways being declared as protected forest, and roadside tree felling will attract the provision of Forest (Conservation) Act. The forest related issues, avoidance/ minimization of forest loss and its management should be integrated with EA study and EMP.	Forest land diversion Application has to be prepared and submitted to forest department. The issue of forest loss and its mitigation/compensatory measures is required to be

	significant conversion or degradation of critical forest areas or related critical natural habitats.		integrated in EIA study and EMP.
OP/BP 4.12 Involuntary Resettlement	The objective of this policy is to avoid or minimize involuntary resettlement where feasible, exploring all viable alternative project designs. Furthermore, it intends to assist displaced person in improving their former living standards; community participation in planning and implementing resettlement; and to provide assistance to affected people, regardless of the legality of title of land	There will be need for limited land acquisition resulting in: relocation or loss of shelter, loss of assets or access to assets; loss of income sources or means of livelihood. This policy applies to all components of the project that result in involuntary resettlement, regardless of the source of financing including projects that are carried out, or planned to be carried out, contemporaneously with the project.	Resettlement Action Plan in consultation with the community and project authorities
OP/BP 4.10 Indigenous People	This policy aims to protect the dignity, right and cultural uniqueness of indigenous people; to ensure that they do not suffer due to development; that they receive social and economic benefits	This policy may be triggered if there are indigenous people in the project area; when potential adverse impacts on indigenous people are anticipated; and if indigenous people are among the intended	Indigenous people development Plan
OP/BP 4.11 Physical Cultural Resources	This policy aims at assisting in the preservation of cultural property, historical, religious and unique natural value-this includes remains left by previous human inhabitants and unique environment features, as well as in the protection and enhancement of cultural properties encountered in Bank- financed project.	This policy may be triggered by sub-projects where cultural property, historical, religious and unique natural value-this includes remains left by previous human inhabitants and unique environment features may be affected due to project.	Application has to be prepared and submitted to Archaeological department in case any impact is envisaged due to the project.

CHAPTER 4

BASELINE ENVIRONMENT PROFILE

Baseline Study

This chapter deals with the existing environmental settings in and around the project site. The baseline details recorded would form the basis for the potential impacts due to the proposed STP project. A description of the existing environmental condition of the proposed project with reference to prominent environmental attributes is discussed below:

4.1. Environmental Profile of Chhindwara Sewerage Scheme components

The subproject components locations are in subproject town and their surroundings. None of the components of the proposed sub project located on any forest land, private land or any sensitive area. There are neither protected areas, like wildlife sanctuaries, national parks, nor there are any historically, archeologically protected areas in the vicinity. Towns are densely populated in the core/old town areas with narrow lanes, and small and closely built houses, while most of the areas are undeveloped and are still under agricultural use. Commercial areas are along the main roads, which are generally congested with activities, pedestrians and traffic. Site environmental Features of proposed Sewerage Scheme components are presented in following table:

Table 4.1: Site Environmental Features of Proposed sub project components

S. No	Components	Detail of Location and Environmental features	Site Photographs
1.	STP and SPS2	<p>A detailed study of various options for the selection of land for STP was conducted. After detailed investigations, the land at Koladhana near Bodri Nallah in ward no. 33 was selected.</p> <p>The land has no vegetation or species of plants except for 2-3 trees of Dates. Thus, no vegetation uprooting is involved at this site. This is Nazul (Government) Land and hence, no acquisition is required. The proposed land is above flood levels of past 50 years.</p>	

<p>2.</p>	<p>SPS 1</p>	<p>Two number of SPS has been proposed. One for each Zone. From SPS 1 it will be pumped to Manhole No 4905. From Manhole no 4905 it will flow into SPS 2. From SPS 2 it will be pumped into STP. The land is in possession of the ULB and hence, no acquisition is required</p>	
<p>3.</p>	<p>Bio digester- Total four digester has been proposed for the septage management</p>	<p>The location of the bio digester at ward no 35 village sarra ,ward no 48 munda tola poama, ward no 24 jamaidhana Sonpur and ward no 9 Khapabhat . (other locations photographs attached in annex) The sites selected for these Bio Gas Digesters are devoid of any natural vegetation except for some shrubs. The lands are Nazul (Government) lands and hence, no acquisition is required.</p>	

Fig. 4.1: STP and SPS site



4.2 Physical Environment

4.2.1. Meteorology

Chhindwara has a sub-tropical climate. A hot summer and general dryness characterize the climate of the area, except during the southwest monsoon season. The year may be divided into four seasons. The cold season, December to February is followed by the hot season from March to about the middle of June. The period from the middle of June to September is the south-west monsoon season. October and November form the post monsoon or transition period.

The normal annual rainfall of Chhindwara district is 1139.3 mm. The district receives maximum rainfall during south-west monsoon period i.e. June to September. About 85.7 % of the annual rainfall falls during monsoon season. Only 14.3 % of the annual rainfall takes place between Octobers to May period. Thus, surplus water for ground water recharge is available only during the southwest monsoon period.

The normal maximum temperature noticed during the month of May is 44.0 C and minimum during the month of December 9.80 C. The normal annual mean minimum and maximum temperatures has been worked out as 18.20 C and 30.60 C respectively.

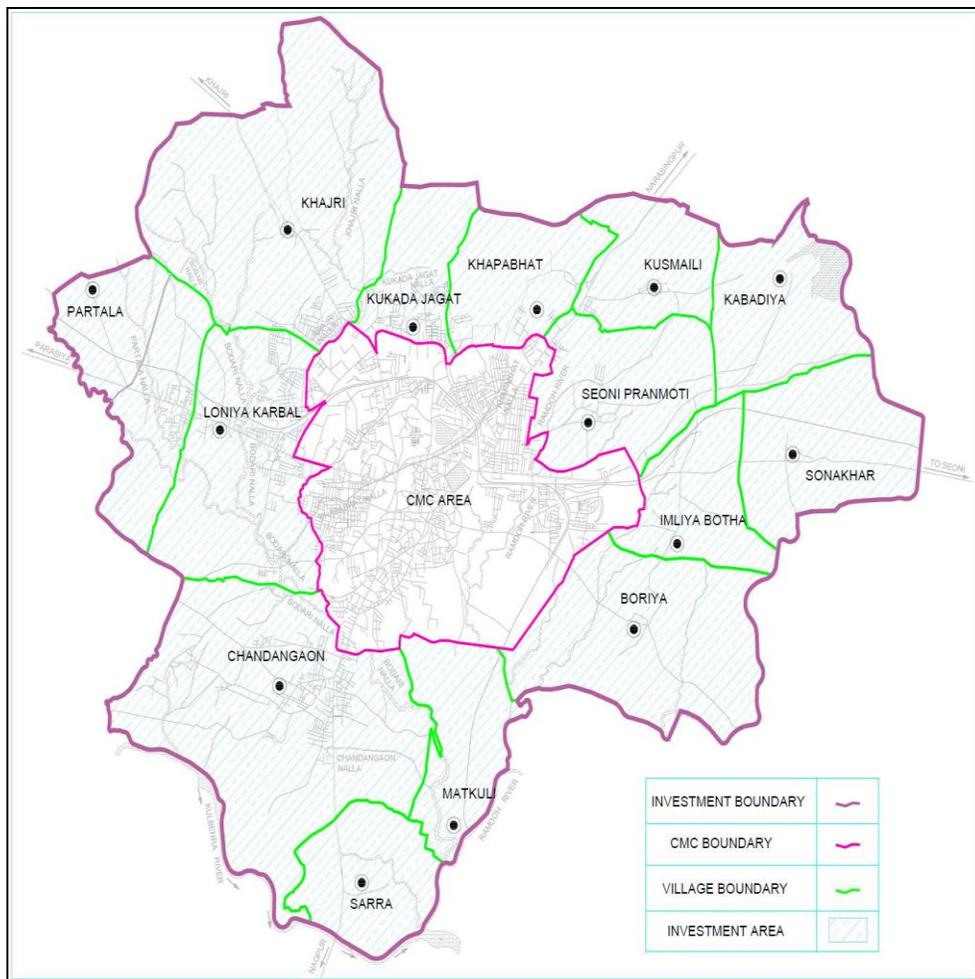
During the south-west monsoon season, the relative humidity generally exceeds 87% (August month) and the rest of the year is drier. The driest part of the year is the summer season, when relative humidity is less than 33%. May is the driest month of the year.

The wind velocity is higher during the pre-monsoon period as compared to post- monsoon period. The maximum wind velocity, 9.5 km/hr observed during the month of June and minimum, 3.3 km/hr during the month of November. The average annual wind velocity in is 5.4 km/hr.

4.2.2. Topography

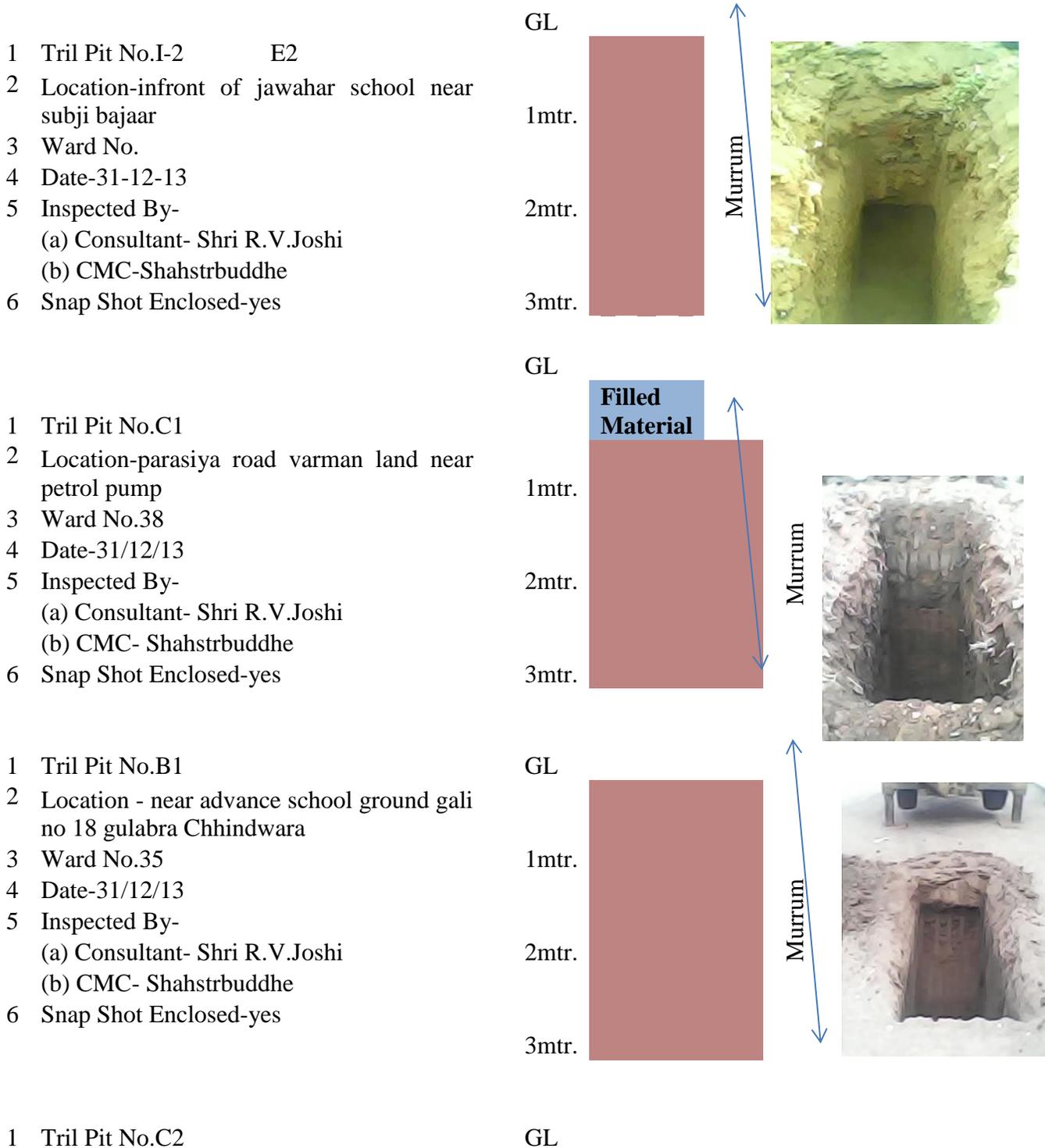
The northern part of the Chhindwara city is hilly. Natural Slope of the CMC area is north to south with the levels with reference to MSL varying from 695 m to 644 m. In the eastern part of the City, the topography is sloped towards the Bodari Nalla and in the southern side towards Kulbehra River (which passes from South to East of the City).

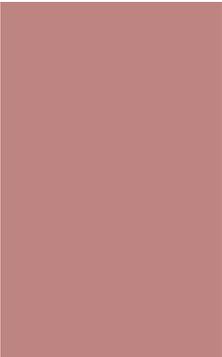
Sewage collection is effected by gravity and therefore accurate topographic survey of the project area based on street levels is of prime importance to the design of the system and its subsequent efficient performance. A topographic survey has been carried out for city area and a contour map has been prepared. The general slope of the town is in south west direction. The sewerage network and the location of STP are envisaged in accordance to the general slope of the town. Natural drains or water channels also play an important role in deciding the alignment of sewerage network. Based on the general slope and natural drainage pattern, the whole core town and the 7 villages (adjacent to core town and within municipal limits) have been divided in two zones. The sewage from zone I will be pumped through Sewage Pumping station and transported to the STP.



4.2.3. Geology

Located in the southern region of Madhya Pradesh, Chhindwara lies in the upland trough of Kulbehra River. The area has sandy loam soil. Archaeans are exposed in parts of Chhindwara. A few trial pits are shown below indicating the soil strata:



<p>2 Location-near back side of durga temple verman land mohan nagar</p> <p>3 Ward No.38</p> <p>4 Date-31/12/13</p> <p>5 Inspected By-</p> <p style="padding-left: 20px;">(a) Consultant- Shri R.V.Joshi</p> <p style="padding-left: 20px;">(b) CMC- Shahstrbuddhe</p> <p>6 Snap Shot Enclosed-yes</p>	<p>1mtr.</p> <p>2mtr.</p> <p>3mtr.</p>		<p>Murrum</p> 
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4.2.4. Air Environment:

There are no major air polluting sources in the project area and generally the air quality in the area is found to be good.

4.2.5. Noise Levels:

Noise is considered to be one of the aspects of pollution, which also leads to the degradation of the social environment and also poses health and communication problems. The impact of noise sources on surrounding community depends on characteristics of noise the time of day at which noise occurs, the location of the noise source and the loudness and duration of exposure. The assessment of noise is carried out by considering various factors like damage to hearing ability, physiological disturbance, annoyance and general community responses.

Table 4.2: Ambient Air Quality Standards in respect of Noise

Area code	Category of area zone	Day Time (limit in DB)	Night time (limit in DB)
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence zone	50	40

4.2.6. Water Environment:

Water and Wastewater Sampling and Test Reports

Quality analysis of household sewage discharging into the street sewers and of the receiving water bodies at major wastewater outfalls has been carried out. The plan showing location of collected samples is enclosed as Annexure 1. These samples were tested for PH, COD ,BOD, Suspended solids, Ammonical nitrogen, Total Nitrogen Sulphides, Phosphorus, Oil and Grease, Grit Phosphates, E- Colie, Fecal coli form, Calcium, Magnesium, Hardness (Temporary and Permanent) and Silica to assess level of contamination. The analysis results of the individual samples are enclosed in the Annexure 1.

Table 4.3: Location of Sampling of Water and Wastewater

Sr. No.	Description	Location of sampling
A	Water Sample	
1.	Sample A	Nalla Near Railway Station
2.	Sample B	Local Nalla near Adarsh Colony Parasiya Road
3.	Sample C	Local Nalla near Kaladham Village
4.	Sample E	Chotta Talab
B	Waste Water Sample	
1.	Sample 1	Sagar Besa, Near Bada Talab
2.	Sample 3	Choukse Colony, near Panchshil Nagar
3.	Sample 4	Mateshwari Colony, Subhash Nagar
3.	Sample 5	Near Masjid Gandhi Ganj

4.2.7. Ground Water Scenario

As per the studies conducted by Central Ground Water Board (Data taken from its website) Ground water occurs under phreatic and semi-confined to confined conditions. Alluvium, weathered granites/gneisses, lower Gondwana sandstones, weathered, fractured and jointed massive basalts and vesicular basalts form the major phreatic aquifers; and weathered, fractured granites are noticed as main water-bearing zones at deeper levels. It is observed that the discharge of dug wells tapping alluvium and vesicular basalt ranges between 80 and 235 m³/day respectively and jointed massive basalts and weathered gneisses range from 44 to 177 m³/day and from 61 to 77 m³/day respectively. Water bearing fractured zones is encountered between the depths of 71.00 and 176.00 m bgl at deeper levels. The discharge in weathered, fractured granite at deeper levels ranges from 0.2 to 10.00 l/s.

Water level data, including historical data, are essential for not only to know the present ground water conditions but also for forecasting future trends in response to ground water reservoir operations. Pre and Post monsoon depths to water level maps are reproduced.

Pre- monsoon: Pre monsoon depth to water levels range from 8 to 20 m bgl. The long-term water level trend (2001 to 2010) shows declining trend ranges from 0.02 to 0.2 m/year (Pre-monsoon). A large-scale withdrawal of ground water for irrigation purpose is observed.

Post- monsoon: During post monsoon period, water levels ranges from 0 .70 to 15.00 m bgl. Water level fluctuation between pre and post monsoon period ranges from 0.30-to7.60 m.

The entire Chhindwara district, command and Non Command areas, falls under Safe Category, except Chhindwara block which is falling under Semi -Critical category where stage of ground water development is 93%.

The EC value of water samples ranges between 280-1600. Nitrate value of water samples ranges between 1-243 and Fluoride between.09-.97 in phreatic aquifer. Ground water in phreatic aquifer is potable but excessive fluoride (1.60-20.00 Mg/l) is noticed in deeper aquifers.

4.3. Biological Environment

The flora and fauna identified in the study area are commonly found and not specific to the region due to the absence of forest in the study area. Moreover, there are no National Parks, Wild life sanctuaries, Bird sanctuaries within 03 Km. radius of the project site. There is no rare and endangered species in the area. The prominent tree species include shrubs of Babool, Dates trees, etc. The prominent species among the fauna include Crow, sparrow and squirrel and street dog.

4.4. Socio economic profile of Chhindwara

The population of Chhindwara is approximately 175052 people (2011 census).out of total population of town the male are 89396(51.07%) and female are 85656 (48.93%).Scheduled Caste population comprises 22408 (12.80%) whereas tribal population constitutes a mere 19111(10.92%) of the total population. Chhindwara town has average literacy rates of 138805, (79.29%) with male and female of 42.27% and 37.01% respectively.

Chhindwara Municipal Area has been divided into 45wards for development and administrative purposes. the new municipal area of Chhindwara town is 110.27 sq kmThe old municipal area of Chhindwara has 39 wards. The total households of Chhindwara city are 37255.The density distribution shown in table below:

Density Distribution of Chhindwara town

The population of Chhindwara is not spread uniformly. The population density of Chhindwara is about 393 ppha. Wards 28, 29, 33 and 39 are the highly dense wards with average population density of 2,184, 3,655, 2,341 and 1,121 respectively. These wards are part of the old city, whereas the wards 8, 18, 20 and 35 are the least dense populated wards.

Average Household Size

The total number of households in Chhindwara city were about 23,727 as per the 2001 census. With the total population of 122,247, the average household size of Chhindwara is about 5.2 which is slightly higher than the District Urban average. The average household size of the city shows a downward trend from 1981 to 2001 at a faster rate than the average of the District.

Table 4.4: Average Household Size: Chhindwara

HH size	1981	1991	2001	2011
District Total	5.5	5.6	5.2	5.3
District Urban	5.3	5.4	5.1	5.4
Chhindwara Municipal Corporation	5.6	5.4	5.2	5.3
Source: Census Data				

Sex Ratio

the sex ratio in Chhindwara has also shown a positive increase, from 899 in 1981 to 923 in 2001. There was a decrease in the sex ratio at the district level during the same period. However, the urban areas in the district have shown a reverse trend during the same period.

Table 4.5: Sex Ratio: Chhindwara

Year	City	District	District Urban
1981	899	965	899
1991	905	953	906
2001	923	952	925
2011	950	966	966
Source: Census Data			

The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 930 girls per 1000 boys compared to figure of 925 girls per 1000 boys of 2001 census data.

Table 4.6-Child proportion(0-6 yrs)

child proportion	Boys	Girls
13.02%	13.08%	12.96%

Social Composition

Social Composition of town is representing the percentage of Scheduled Caste and Scheduled Tribe out of the total population. As per census 2001, 7.6% and 9.1% of the total population are SC and ST respectively, which is also represented in **Table.3-7**

Table 4.7: Social Composition in Chhindwara Town

Social Composition	Population	Male	Female	Percentage of population
SC	22408	11344	11064	6.85
ST	19111	9602	9509	1.03
Others	133533	154106	154479	92.11
Total Population of Town	210886			100

(Source: Census, 2011)

Literacy Rate

The literacy rates in the Chhindwara City have shown an upward trend from 1981 to 2001. The literacy rates have increased from 62% in 1981 to 75% in 2001. However, the female literacy

rate has increased at a faster rate from 52% to 70% as compared to the increase in male literacy levels from 70% to 80% in the same period.

Table 4.8: Literacy rates: Chhindwara City

Year	Total	Males	Females
1981	62%	70%	52%
1991	68%	75%	60%
2001	75%	80%	70%
2011	79%	83%	76%
<i>Source: Census Data</i>			

The district level literacy rate had a rapid increase from 28% in 1981 to 55% in 2001 when compared to the district level urban area literacy rate increase from 53% to 71% in the same period. The rapid increase in literacy rates at the district level in the last decade was mainly due to the implementation of schemes such as Sarva Siksha Abhiyaan and Mid Day Meal Program especially in the rural areas. The presence of the educational institutions and the Government's initiatives for improvement of the female education forms the important factor for the rapid increase in the literacy rates among females in the District as well as the City.

Religion

Table 4.9. Religious composition

Population	Hindu (%)	Muslim (%)	Christianity (%)	Sikh (%)	Buddhist (%)	Jainism (%)	others (%)	not stated (%)
175052	92.01%	4.82%	0.23%	0.11%	1.17%	0.37%	1.23%	0.05%

(Source: Census, 2011)

Other Demographic Indicators

Chhindwara has a gender disparity in literacy of about 22%. The city has a Crude Birth Rate (CBR) of 23 per 1,000 population and on the other hand a very high Infant Mortality Rate (below 5 years) of 191 per 1,000 population (National average of 68 per 1000 population in 2000). Table 4-10 summarizes the various demographic indicators for Chhindwara.

Table 4-10: Other Demographic Indicators

Indicator	Value for the year 2001-02
Infant Mortality Rate	93 Number per 1000

Gender Disparity in Literacy	22 %
Under 5 Mortality Rate	191 Number per 1000
Crude Birth Rate	23 Number per 1000
Total Migrants	559 Number in 1000
<i>Source: Indicus Analysis</i>	

Occupational structure

Occupational structure of the populace is the primary indicator of nature of economy and economic base of the town. Occupational structure of the Municipal area has been shown in. The workforce participation of Chhindwara was 30% in 2001 which is very low as compared to District level rate of 42%.

Table 4.11: Category-wise Classification of Workforce in Chhindwara, 2001

S no	Category	No of persons		Percentage	
		2001	2011	2001	2011
1	Main Workers				
I	Cultivators	416	1180	1.2%	
ii	Agricultural Laborers	253	2012	0.7%	
iii	Manufacturing and Processing in HH industries	771	1638	2.3%	
iv	Other services	32,640	49386	95.8%	
<i>Sub-total of main workers</i>		34,080	54216	27.9%	
2	Marginal Workers	2,235	5147	1.8%	
3	Non workers	85,932	115689	70.3%	
Total Population		122,247	175,052	100.0%	
<i>Source: Census 2001</i>					

The female WPR (workforce participation rate) in the City is only 10% in 2001 when compared to the District rate of 33%. The marginal workforce in the city has increased from 1.1% in 1981 to 6.2% in 2001 wherein the marginalization of the female workforce has been from 4.8% to 14.3% during the same time.

Table4.12: Occupational Distribution of Workers in Chhindwara

Area	Total Population	Total Workers			WFPR
		Main Workers	Marginal Workers	Total Workers	
Municipal Area	175052	54216 (30.97%)	5147	59363 (33.91%)	30

Table 4.13(A): Occupational Structure of Chhindwara (2011)

Area	Total Population	Total Workers	Total Main Worker				
			% Workers	Male Workers	% Male worker	Female Workers	% female worker
Municipal Area	175052	59363	33.91%	45674	76.94%	13689	23.06%

(Source: Census 2011)

Table 4.13 (B): Occupational Structure of Chhindwara (2011)

Area	Total Population	Total Marginal Workers	Total Marginal workers				
			% Marginal Workers	Male Marginal Workers	% Male Marginal worker	Female Marginal Workers	% female Marginal worker
Municipal Area	175052	5147	2.94%	3024	1.73%	2123	1.21%

(Source: Census 2011)

It can be observed from **Table 4.12**, 31% of the working population are main workers having full time employment showing less employment level in town. Out of the total main workers 23.06% are female workers in Chhindwara town as shown in **Table 4.13(A)**.

Table 4.14: Male-Female Workers in Chhindwara (2011)

Area	Main Workers			Non Workers(district)		
	Male	Female	Total	Male	Female	Total
Municipal Area	45674 (76.94%)	13689 (23.05%)	59363 (100%)	43722 (37.79%)	71967(62.21%)	115689 (66.09%)

(Source: Census 2011)

Category of main workers in any area is an actual representative of the important economic activities of the town and thus the same has been shown in **Table 4.16** to understand the economic base of the town. The non workers population of city is 66.09%.

Table 4.15: Category of Main Workers in Chhindwara (2011)

Type of Workers	Cultivators	Agricultural Labourers	Household Industry	Other Workers	Total Workers
Main Workers	1180	2012	1638	54533	59363

MarginalWorkers	110	612	500	3925	5147
TotalWorkers	1290	2624	2138	58458	64510

(Source: Census 2011)

It can be observed that 2012 of the main workers are engaged in primary activities in which are mainly agricultural labourers and 1638 are engaged in household industries. It is evident from the **Table** that majority of the main workers are categorised into ‘Other Workers’ category which includes other than agricultural and household industry workers. ‘Other Workers’ includes workers engaged mainly in manufacturing industries, trade and commerce, construction activities, transport and communication and other service activities. Thus majority of population is engaged in secondary and tertiary sector activities in Chhindwara town.

Land use pattern

Out of the 69.73 sq km of planning area, only 9.78 sq km (14.03%) of area is the developable area, about 5.02 sq km (7.20%) of the area consists of water bodies, hilly areas, forest land etc. which cannot be developed and about 54.93 sq km (78.77%) falls under arable land.

Table.4.16: Land use pattern (Proposed Land use –Chhindwara city,2021)

S no	Land use	Area (in hectare)		Percentage		
		Within City	Planning area	Within City	Planning area	Total
1	Residential	311.0	119.0	27.4%	41.3%	30.3%
2	Commercial	25.0	21.0	2.2%	7.3%	3.2%
3	Institutional	13.0	15.0	1.1%	5.2%	2.0%
4	Semi Public areas	89.0	86.0	7.9%	29.9%	12.3%
5	Public Utilities	24.0	5.0	2.1%	1.7%	2.0%
6	Entertainment	74.0	2.0	6.5%	0.7%	5.3%
7	Traffic & transportation	154.0	40.0	13.6%	13.9%	13.7%
8	Water bodies, etc	35.0	-	3.1%	-	2.5%
9	Agricultural, etc	408.0	-	36.0%	-	28.7%
	Total	1,133.0	288.0	100.0%	100.0%	100.0%

Source: Chhindwara Master Plan

Industrial activity

The Chhindwara region consists of mainly the resources from the forests. Most of the industries in the city and its surrounding areas are small scale and cottage industries which depend on the forests for their raw materials. About 60% of the units in the city deal with bakery items, hosiery and radium cloths, leather, wood and electrical items.

Table 4.17: Types of industries operating in Chhindwara

S no	Type of Unit	Numbers	Percentage
1	Food and bakery items	15	6.8%

2	Hosiery and Radium Cloth	91	41.4%
3	Handlooms	1	0.5%
4	Wood items	20	9.1%
5	Paper	16	7.3%
6	Leather and Plastic	4	1.8%
7	Rubber and Plastic	3	1.4%
8	Chemicals	1	0.5%
9	Adhatu and Khanij	3	1.4%
10	Dhatu Utpad	2	0.9%
11	Construction	15	6.8%
12	Workshops	49	22.3%
Total		220	100.0%
<i>Source: Chhindwara Master Plan</i>			

Out of the total industries in the City, the household and cottage industries are more in number and they provide maximum employment opportunities in the city. The small and cottage industries are mainly in the Khajri, Agro Complex Sukaldhana industrial area. However, few industries are spread across various locations in the city. These medium and small industries provide about 25% of the total employment in the city.

HousingGaps

Table-4.18: Houses

Category	Census2001	Census 2011
Number of Households	30528	39941
Household size	5.4	5.3

There are a total of about 39,941 Census households in Chhindwara as per the 2011 census. Out of these, 29,319 are being used as residential houses (owned, rented and others) and the rest are used for other purposes.

The housing units in the core city are generally a very old stock, with little or no renewal over the last several years. This compounded with narrow/ encroached roads and poor drainage and lighting can pose serious health hazards and disaster.

Table 4.19: Type and Number of census Houses in Chhindwara

Type of Usage	Numbers
Residential	28,118
Residence-cum other use	805
Other uses	6,664
Vacant Houses	4,354
Total Census Houses	39,941

Source: Housing Tables, Census 2011

Unorganised Commercial Streets

Chhindwara is an important centre for the trade in the district. Around 132 villages and other centres in the District depend predominantly on the city for daily business. The trade and commerce activities in the city can be divided into two broad activities, namely organised and unorganised markets. Presently, there are around 8 small local level markets functioning in the city, which cater to the daily needs of Chhindwara and adjacent areas. Also street shopping has developed along some major roads and in the vacant spaces across various locations in the city.

The trade and allied activities in the City take place mainly in Budhwari Bazaar, Itwari Bazaar, Golgunj, Mata Mandir and areas near Gunj, which are established along the main roads and the busy roads in the City. The wholesale and the retail activities take place simultaneously in few areas. The commercial activities in the City have developed near the old city areas and most of these activities are unregulated or unorganised. These areas are the busiest areas in the city, mainly due to the narrow roads, no available open spaces in the city. Table 4.21- presents the locations and type of the markets in the city.

Table 4.20:- Type and location of various markets in Chhindwara

S no	Location	Type of Market
1	Gunj Area	Grain Market
		Cloth Market
		Grass Market
		Iron
2	Gol Gunj	Books & Stationery
		Readymade Garments
3	Budhwari Bazaar	Grocery & vegetable market
		Medicines
4	Choti Bazaar	Gold, Silver, jewellery, utensils
5	Bel Bazaar	Electrical & Scrap market
6	Near Bus Stand	Transport services
7	Near Chota Talab	Wood & Furniture

S no	Location	Type of Market
		Auto spare parts
8	Near Hospital	Unauthorised shops

BPL population and Identified Slums of Chhindwara

BPL Population

A total of 19,282 households have been identified as BPL households in Chhindwara as in 2010 and there were about 11,271 in the year 2004 (a considerable growth of 71% in the last six years). Considering 5.1 as average HH size the total 19,282 HHs constitute about 98,338 which is about 72% of the population in the City. However, according to the 2004-05 estimates of the city, about 52,339 people fall under the category 'Below Poverty Line'.

Table 4.21. Below poverty line population

District	Below poverty Line				
	Population	Population below poverty line	% of Population below poverty line	Number of Households below poverty line (based on Avg. HH size)	Number of Households below poverty line (based on Avg. HHD size of BPL hhd)
Chhindwara	1392132	367012	26.4	77622	72515

Source: State planning commission

Ward Wise Slum areas

The slums have sprung up in low ill-drained areas, pits, drainage lines, level crossings, waste lands, scrub lands and nalas in contrast to the surrounding areas. Thirteen wards have been identified as the Slum wards in the City.

Table 4.22: Slum Locations in Chhindwara

S no	Locality	Ward no	Ownership	Year		No of HHs	Area (acre)
				Settlement	Notification		
1	Indira Nagar	7	Revenue	1985	-	350	
2	Rambagh	10	Private	1939	-	40	1.38
3	Kailash Nagar-Chunabhata	10	Govt.			285	
4	New Bel Bazaar	2	Govt.			305	
5	Sankatmochan Slum	9	Govt.	1995	2000	200	1
6	NIIT Tekdi	15	Govt.	2001	2004	100	0.45
7	Near Warehouse	15			2003	12	
8	Basodi Mohalla	17	Govt.	1988	1992	115	
9	Basodi Mohalla	16				40	
10	Sukludhana Water Tank	17	Govt.	1990	1995	225	2

ESA Report: Chhindwara Sewerage Scheme

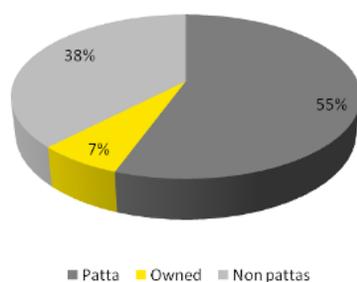
S no	Locality	Ward no	Ownership	Year		No of HHs	Area (acre)
				Settlement	Notification		
11	Koladhana	30	Govt.	1996		30	0.25
12	Koladhana Gondi Mohallah	30	Govt.	1997		40	
13	Slum adjacent to Vivekanand Colony	31	Revenue	1980	1984	45	
14	Chapakhana Kumhari Mohallah	23	Revenue		1980	128	
15	Karmkar Colony	23	Revenue			265	
16	Harijanpura	34	Govt.			40	
17	Pataleshwar	19				180	
18	Chaudababa	18	Trust	1980	1984	370	
19	Shivnagar Colony near PWD Office	4		1990	1995	150	1.25
20	Near Bada Talab	4	Govt./Pvt.	1980	1988	60	0.5
21	Gondi Mohalla	11				50	0.5
22	DT Burman's Land	38				275	2.5
23	Mohan Nagar Nai Abadi	39	Revenue			50	
24	Krishna Nagar Behind ITI	1	Govt.			65	
	Total					3,420	

Source: chhindwara municipal corporation

There are about 3,420 slum households spread across 24 slum pockets across the city. These slums are mainly formed on the unattended government or revenue land.

Social Security Scheme

There are total 24 slum pockets in Chhindwara city with about 3,420 slum households. Out of these households only 55% of the households have pattas and ownership of land is with only 7% of the households. Only in 4 slum pockets in Chhindwara city all the households have pattas. More than 30% of the slum pockets are notified in Chhindwara city and almost all slum areas were notified within a short duration of time from their settlement.



CHAPTER 5

ASSESSMENT OF ANTICIPATED IMPACTS

5.1 Introduction

This Chapter identifies and discusses both positive and negative impacts associated with the proposed Project and their mitigation measures. The anticipated impacts and corresponding mitigation measures are discussed in Phases namely: design, construction, operation and decommissioning Phases. This chapter focuses on the prediction and assessment of impacts on the various environmental components due to the project activities. Based on the magnitude and duration of the project activities and the environmental attributes of the receiving environment presented in earlier chapter on environmental setting, the nature, duration and extent of impact are assessed. Minor project impacts have also been identified and basis for their insignificance has been provided. Wherever relevant, the EMP also addresses the minor impacts and provides environmental mitigation or environmental enhancement measures.

5.2. Environmental Impact

In the proposed Sewerage Scheme, direct and/or indirect impacts are generated which are rather short-term as they are felt and manifested during the actual performance of the construction activities. It is expected that impacts from these types of activities will cease once the contractor completes the project and demobilizes from the site. Following table shows the influence area of the proposed sub project components:-

Table 5.1: Influence area details of proposed Chhindwara Sewerage Scheme

S.No.	Components	Influence Area	Explanation
1.	STP and SPS2	100 m dia	<ul style="list-style-type: none"> Influence area of STP covers 100 m dia , but there is no habitate, no noticeable aquatic life and flora & fauna present in the influence area Detail of construction impacts explained in section 5.2.2
2.	SPS 1	50 m dia	<ul style="list-style-type: none"> Influence area of SPS covers 50 m dia , but there is no Sensitive area at the proposed site
3.	Sewer Network	1.5 m in each side of sewer network	<ul style="list-style-type: none"> Excavation along the roads, hauling of construction materials and operation of equipment on-site can cause traffic problems. Roads in the core/old town area of Chhindwara are very narrow. However, most of the roads are used by pedestrians and two wheelers, and four wheelers vehicles are very limited. Potential impact is negative but short term and reversible by mitigation measures. Detail of construction impacts explained in section 5.2.2

5.2.2. General Impacts during sub project cycle

1. Positive Impacts

(i). Employment opportunities: With the construction of the proposed Project, there will be employment opportunities for both skilled and unskilled workers. This will be beneficial both from the economic and social point of view. Economically, it means abundant unskilled labour

will be used in production. Several workers including casual labourers, plumbers and engineers are expected to work on the site for a period of time. Semi-skilled, unskilled and formal employees are expected to obtain gainful employment during the period of construction. With labour intensive construction technologies, the project will provide employment for youths and provide support to the GoMP initiatives on creation of jobs.

(ii). Creation of a market for construction: The Project will require materials, some of which will be sourced locally and some internationally. These include plant (pump sets, switch gear, instrumentation) pipes, valves, cement, sand and chemicals. This will provide a ready market for suppliers in and outside the project area.

1. Negative impacts during construction

The following negative impacts are associated with the construction of the proposed Project:

(i). Interference with the physical setting: The proposed project could result into the following negative impacts to the physical setting:

- Changes in the local topography during site grading, development of treatment systems and laying of sewers among others;
- Blockage of natural drainage system at valley crossings;
- Excavation for creation of access routes and related structures; and

Mitigation:

- The design shall in no way propose to implement developments that will hinder drainage, change the topography or introduce physical changes that are not in harmony with the physical setting of the Project area;
- The structures to be developed should be aesthetically acceptable to blend in with the surrounding. These structures should not form or end up being used by the resident population as access or bridges;
- The proponent shall as much as possible complete the works in such a way that natural aesthetics shall be retained at the locations;
- Restoration shall be undertaken to ensure that the original setting is as much as possible retained.

(ii). Interruption of existing installations on the pipeline route: The various installations will cross, move in or move along installations among them:

- Property accesses;
- Roads
- Underground utilities e.g. electricity and telephone links; and
- Fences and structures.

These services are critical and have implications with spillover effects on the social and economic performance.

Mitigation:

- Formal request for permission to cross, break in and build the sewer network should be sought from affected property owners and the relevant institutions such as MPEB;

- Formal engagement should be done with key land and other property owners neighboring the sewer ;
- Ensure dissemination of relevant information to each of the affected parties;
- A work plan with clear responsibilities for each party should be developed to ensure smooth execution of the construction.

(iii). Noise generation: Construction of the proposed Project will most likely result in noise emissions as a result of the machines that will be used e.g. excavation equipment and construction vehicles delivering materials to site. Significance of noise impacts depends on whether the Project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if the Project would result in the following:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels (more than 3 dBA) in the project vicinity above levels existing before the project; and
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing before the project.
- The Proponent through the Contractor shall put in place several measures that will mitigate noise pollution arising during the construction phase.

Mitigation

- Install portable barriers to shield compressors and other small stationary equipment where necessary;
- Use of quiet equipment (i.e. equipment designed with noise control elements);
- Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible;
- Provision of appropriate personnel protective equipment;
- Construct mainly during the day; and
- Consider labour based construction methodologies.

(vi). Dust emissions: Dust will be emitted during excavation and related earthworks. Air-borne particulate matter pollution is likely to occur during the route clearance and excavation. This is likely to affect site workers, in extreme situations leading to respiratory problems.

Mitigation:

- Minimizing the number of motorised vehicles on use;
- Provide scour checks on over-15% slopes or when working in loose soils;
- Use predetermined tracks;
- Avoiding machinery working in seasonally marshy areas, pans and floodplains;
- Wet all active construction areas as and when necessary to reduce dust;
- Undertake staff training and allocate roles to trained/responsible staff members.

(v). Disposal of spoil: Project construction will involve earthworks and excavation. This will result in the generation of some spoil materials. But there will be little carting away of excavated material. The soils may affect the surrounding environment if not adequately disposed.

Mitigation:

- Maximize the re-use of excavated materials in the works as far as feasible to ensure that no permanent spoil dumps are created;
- Properly dispose off the spoil in the identified by the design team and approved by the confirmed land owners;
- Care should be taken to avoid spoil location in land that could otherwise be used for productive purposes.

(vi). Solid waste generation: Solid wastes generated from the construction activities are excess excavated earth (spoils), discarded construction materials, cement bags, wood, steel, oils, fuels and other similar items. Domestic solid wastes may also be generated from the workers' camp. Improper waste management could cause odor and vermin problems, pollution and flow obstruction of nearby watercourses and could negatively impact the landscape.

Mitigation:

- Construction waste should be recycled or reused as much as possible to ensure that materials that would otherwise be disposed off as waste are diverted for productive uses;
- The Proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal;
- Minimization of solid waste during construction of the proposed Project through use of durable, long-lasting materials that will not need to be replaced often, thereby reducing the amount of construction waste generated over time;
- Skips and bins should be strategically placed within the campsite and construction site, they should also be adequately designed and covered to prevent access by vermin and minimize odour. They should also be emptied regularly;
- Measures to ensure that waste materials from the Project are disposed at suitable sites will be taken. These will include engaging only reputable truckers and conducting appropriate spot checks to verify that disposal are done in accordance with the requirements of MSW rules;

(vii). Vegetation loss: The construction of the proposed project will involve clearing of vegetation cover especially in proximity to proposed developments. During construction, a small amount of vegetation will be cleared to give way for the proposed sewer and sewage treatment plants. Not only may vegetation be lost, but also faunal habitats may also be lost or at least partly destroyed. In addition, the removal of areas of vegetation could mean that the same degree of interception will no longer occur, and consequently increased run-off might be expected. However, the significance of the vegetation loss during the site clearance is minimal.

Mitigation:

- The Contractor will ensure proper demarcation of the Project area to be affected by the construction works;

- Strict control of construction vehicles to ensure that they operate only within the area to be disturbed by access routes and other works;
- Retention of trees and shrubs, where possible on the potential sites for screening of the visual impact;
- Where the proposed route requires the removal of any vegetation, care will be taken to minimize the destruction or damage of trees.
- Replanting of destroyed trees in cleared areas where works are complete.

(viii). Workers accidents and hazards: Construction workers are likely to have injuries and hazards as the construction works unavoidably expose workers to occupational health and safety risks. The workers are also likely to be exposed to risk of accidents and injuries resulting from accidental falls and injuries from hand tools and construction equipment.

Mitigation:

- To reduce the workers accidents and hazards the Proponent will develop and commit the Contractors to Site Occupational Health and Safety rules
- All construction workers should be advised of the dangers associated with construction work;
- Workers should be provided with suitable personal protective equipment (PPE);
- Provision of adequate sanitary facilities to workers;
- Train all workers on Safety Health and Environment (SHE) with an aim of improving awareness;
- Where construction activities interfere with the movement of traffic, the site should be signed and controlled by trained flagmen/flag women and lit by night.

5.3. Social impacts

The study has predicted and evaluated anticipated impacts using acceptable standard methods of impact prediction and evaluation. The significance of impacts is subjective, and expert judgments were used. Public participation and consultation with a wide sector of the community were conducted to reduce uncertainty. Table 5-1 below summarizes the anticipated environmental problems observed which may be created by the project.

Table 5-2: Summary of social impacts

social impact	Impact/ No impact	Direct/ indirect	Temporary /permanent	Major/ Minor	Occurrence	
					Design and Construction	Operation
loss of dwelling land and structure	No impact	indirect	Temporary	minor	Y	

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loss of agricultural land and structure	No impact	indirect	Temporary	minor	Y	
loss of commercial/ industrial/ Institutional land and structure	No impact	-	-	-	-	
loss of access to common resources and or facilities	impact	direct	temporary	minor/major	Y	
losses to host communities	No impact	-	-	-	-	
impact on indigenous people	No impact	indirect	temporary	minor	Y	Y
any induced development	No impact	-	-	-	-	
impact on CoI (linear corridor)	impact	direct	temporary/permanent	minor	Y	Y
Employment opportunities	Positive	Direct/ Indirect	Permanent/ Temporary	Major	Y	Y
Creation of awareness	Positive	Direct	Permanent	Minor	Y	
Creation of markets for construction material	Positive	Direct	Permanent	Minor	Y	
Increased environment quality	Positive	Direct	Permanent	Major	-	Y
Improved performance and living standards of the residents within the project area	Positive	Direct	Permanent	Major	-	Y
Creation of Wealth	Positive	Direct	Permanent	Minor	-	Y
Reduced exposure to health risks and improved nutrition	Positive	Direct	Permanent	Major	-	Y
Sustainability of the Sewer System Service Providers	Positive	Direct	Permanent	Major	-	Y

Enhanced gender and participation in development	Positive	Indirect	Permanent	Minor	-	Y
Education benefits to girl child	Positive	Indirect	Permanent	Minor	-	Y
Interference with the physical setting	Negative	Direct	Permanent	Minor	Y	Y
Interruption of existing installations on the pipeline route/or drains	Negative	Direct	Permanent	Major	Y	-
Landtake	Negative	Direct	Permanent	Major	Y	-
Accidental spills and leakages	Negative	Direct	Temporary	Minor	Y	-
Worker accidents and hazards	Negative	Direct	Permanent	Major	Y	Y
Immigration and settlement	Negative	Direct	Temporary	Minor	Y	-
Growth of unplanned settlements	Negative	Indirect	Temporary	Minor	Y	-
Child labour	Negative	Direct	Temporary	Minor	Y	-
Indigenous people participation	Positive	Direct	Permanent	Major	Y	Y

Positive impacts during planning and design phase:

Employment opportunities

With the planning and design phase of the proposed Project, there will be employment opportunities especially for professionals. Those involved in planning and design include engineers, surveyors, valuers, environmentalists and sociologists among others. Those employed will improve their living standards from the fees they will be paid for their services.

Creation of awareness

During the planning and design phase of the proposed Project, the community will be informed of the Project and their views sought on the Project. In this way, awareness will be created for both the community and the Proponent. The Proponent will also be in a position to put into practice the useful advice from the community when planning and designing the Project.

Further, there will be enhanced interaction between key parties including government and private institutions in the Project area. The key players in this process shall include Officials, relevant departments and the local community in the Project area. The administration will also be of vital importance in the disclosure.

Negative impacts during planning and design phase

The Consultant will mobilise a large team of skilled and unskilled human resource to undertake the surveys and other studies required to complete the designs. Among the activities to be undertaken are excavations for beacons and control stations establishment. These studies shall however not allow for large scale destruction and disturbance of vegetation and soils.

Mobilisation of the skilled and non-skilled labour and the process of disclosure and consultations among the residents and other stakeholders shall however lead to heightened expectations and speculations.

With the foregoing, it is envisaged that there will be minimal to no negative impacts during the planning and design stage.

Mitigation:

Impacts during this phase of the project are not significant. However, the Design Team shall take necessary measures to document any concerns and address them as they occur. In that regard, the Design Team shall incorporate an Environmental Expert in the team and take time to sensitise and alert the residents of the ongoing.

Positive impacts during construction phase

Employment opportunities

With the construction of the proposed Project, there will be employment opportunities for both skilled and unskilled workers. This will be beneficial both from the economic and social point of view. Economically, it means abundant unskilled labour will be used in production. Socially these people will be engaged in productive employment and minimise social ills like drug abuse and other criminal activities. Several workers including casual labourers, plumbers and engineers are expected to work on the site for a period of time. Semi-skilled, unskilled and formal employees are expected to obtain gainful employment during the period of construction. With labour intensive construction technologies, the project will provide employment for youths and provide support to the Government initiatives on creation of jobs.

Creation of a market for construction

The Project will require materials, some of which will be sourced locally and some nationally based on standards. These include plant (pump sets, switch gear, instrumentation) pipes, valves, cement, sand, hardcore and chemicals. This will provide a ready market for suppliers in and outside the project area.

Negative impacts during construction

The following negative impacts are associated with the construction of the proposed Project.

Interference with the physical setting

The proposed project could result into the following negative impacts to the physical setting:

- Changes in the local topography during site grading, development of treatment systems and laying of pipes among others;
- Blockage of natural drainage system at road crossings;
- Excavation for creation of access routes and related structures; and
- Development of informal business depending on the intensity of labour import.

Mitigation:

- The design shall in no way propose to implement developments that will hinder drainage, change the topography or introduce physical changes that are not in harmony with the physical setting of the Project area;
- The structures to be developed should be aesthetically acceptable to blend in with the surrounding. These structures should not form or end up being used by the resident population as access or bridges;
- The proponent shall as much as possible complete the works in such a way that natural aesthetics shall be retained at the locations;
- Restoration shall be undertaken to ensure that the original setting is as much as possible retained.
- Damages to public utilities shall be restored within time limits.

Interruption of existing installations on the sewer line route

The various installations will cross, move in or move along installations among them:

- Property accesses;
- Roads
- Underground utilities e.g. electricity and telephone links; and
- Fences and structures.

These services are critical and have implications with spillover effects on the social and economic performance.

Mitigation:

- Formal request for permission to cross, break in and build the existing water pipeline should be sought from affected property owners and the relevant institutions .
- Formal engagement should be done with key land and other property owners
- Ensure dissemination of relevant information to each of the affected parties;
- A work plan with clear responsibilities for each party should be developed to ensure smooth execution of the construction.

CHAPTER 6

STAKEHOLDER AND PUBLIC CONSULTATION

6.1 Background

Public consultation is useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives and designing viable and sustainable mitigation and compensation plans. Extensive public consultation meetings for the Chhindwara Sewerage Project took place while undertaking EA and SIA studies. The main objective for the consultation process was to involve the community at the very early stages so as to identify likely negative impacts and find ways to minimize negative impacts and enhance positive impacts of the project.

6.2 Objectives of the Public Consultations

The overall goal of the consultation process is to disseminate project information and to incorporate the views of the project beneficiaries and Project Affected Persons (PAPs) in the design of the mitigation measures and a management plan. The specific aims of the consultation process are to:

- Improve project design and, thereby, minimize conflicts and delays in implementation;
- Facilitate the development of appropriate and acceptable entitlement options;
- Increase long term project sustainability and ownership;
- Reduce problems of institutional coordination;
- Make the resettlement process transparent; and
- Increase the effectiveness and sustainability of income restoration strategies, and improve coping mechanisms.
- An important element in the process of impact assessment is consulting with stakeholders to gather the information needed to complete the assessment. The main objectives of community consultations were to:
 - Provide clear and accurate information about the project to the beneficiary community;
 - Obtain the main concerns and perceptions of the population and their representatives regarding the project;
 - Obtain opinions and suggestions directly from the affected communities on their preferred mitigation measures; and
 - Identify local leaders with whom further dialogue can be continued in subsequent stages of the project.

6.3. Public consultations scheduled

Public sensitization and inclusion meetings were held within the wards of the project area from 28th April 2016 to 30th April 2016 with the help of respective local administration and the elected representatives. A total of 11 meetings were held as shown in **Table 6-2** below, with enthusiastic community members. The attendance lists and minutes of meetings are presented in **Appendix 5**.

Table 6-1: Public consultation meetings during SIA

S. No.	Date	Venue	Number of Participants		
			Total	M	F
1.	28-4-2016	Ward No. 01	24	15	09
2.	28-4-2016	Ward No. 03	18	10	08
3.	28-4-2016	Ward No. 04	20	12	08
4.	29-4-2016	Ward No. 08	22	14	08
5.	29-4-2016	Ward No. 12	25	15	10
6.	29-4-2016	Ward No. 17	28	20	08
7.	28-4-2016	Ward No. 24	23	12	11
8.	28-4-2016	Ward No. 34	29	15	14
9.	30-4-2016	Ward No. 38	26	16	10
10.	30-4-2016	Ward No. 41	21	11	10
11.	30-4-2016	Ward No. 45	27	20	07
Total			263	160	103

Table 6-2: Public Consultation Details

S. No.	Ward no.	Location	Date	Participants	Issues Raised/Discussed	Suggestion from Participants	Mitigation Measures
1	Ward no.01	at Gayatri nagar	28.04.16	Local Residents, Shopkeepers and Public representative of ward- 01 Total -24 Participants	The Sewerage Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> Ward is not having sewer network. Existing Household toilets mainly based on Septic tanks. The adverse effect of flowing sewer into the open nallahs of city. The Consultants Team raise the issue for the connection existing toilets with the sewer line will be laid. Operation and Maintenance of Sewerage system for 30yrs 	The people welcomed the project ,some showed dis consent who have their household toilets based on septic tanks. The main suggestion of participants was: <ul style="list-style-type: none"> The community gave suggestion regarding connection with chamber. They will take connection only when they get sufficient water through out the year. Community showed concern on the tariff and connection charges. The suggestion from people came that ,not to impose charges immediately after connection, let the system gets start properly than people 	It is being in other Project of water supply that 135LPCD given to the whole population through out the year. Suggestion are noted down. The decision will be taken by local body representatives this has been discussed with them

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						get convinced and get ready to pay.	
2	Ward No. 03	Lalbahadur Shastri	28.4.16	Local Residents, And public representative of ward 03 Total 18 Participants	The Sewerage Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> • Whole ward is not having sewer network. Existing Household toilets mainly based on Septic tanks and adverse effect of flowing sewer into the open drains of city. • The Consultants Team raise the issue for the connection existing toilets with the sewer line will be laid. • For Safety of Local Traffic as well as to reduce the traffic congestion during implementation . 	The main suggestion of participants was: <ul style="list-style-type: none"> • Project welcomed by the people as this ward is facing open defecation problem too. • Shown concerned of connection charges and monthly tariff for maintenance • Peoples also demanded for proper traffic signage for speed limits for minimising the accident • 	The suggestion was noted down and forwarded to the high official for proper compliances The costing incorporated in Detailed project report. 1.Asconnection policy of state under draft stage suggestion/problem of the community people helps in finalizing the draft policy.
3	Ward no. 04	at Lokmany a Tilak	28.04. 2016	Local Residents, and public representative of ward- 04 Total -20 participant	The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> • The Consultants Team raise the issue for the connection existing toilets with the sewer line will be laid. 	The main suggestion of participants was: <ul style="list-style-type: none"> • Provision of Drain in Built-up Section to eliminate the issue of road side water-logging • For Safety of Local 	The suggestion was agreed and Incorporated <ul style="list-style-type: none"> • Proper traffic signage shall be provided for speed limits. • Proper EMP shall be finalize to minimize Dust and noise Pollution

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					<ul style="list-style-type: none"> Besides above issues the following issues discussed with the community Road Side Water logging due to implementation. Effect of Noise and DustPollution during construction and after construction. Safety of Local traffic and pedestrian in Built-up Zone 	<p>traffic and pedestrian in Built-up Zone, footpath should be provided.</p> <ul style="list-style-type: none"> Adequate provision for minimizing the Dust and Noise Pollution during 	<p>during Construction work in Built-up Zone.</p> <ul style="list-style-type: none"> Proper Improvement of Major Cross Junction on main roads included in design for minimising the Traffic Congestion as well to minimise the Noise, Dust and air pollution in Built-up Section.
4	Ward no. 08	behind Khan Bhai house,Kh arati bazar	29.04. 2016	<p>Local Residents, And public representative of ward 013</p> <p>Total 22 Participants</p>	<p>The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders.</p> <ul style="list-style-type: none"> For Safety of Local Traffic as well as to reduce the traffic congestion which interns reduce the noise and air pollution The Consultants Team raise the issue of open defecation is major problem in ward. During rainy season it flows into the river and pollute water. Briefed about the connection to sewerage network 	<p>The main suggestion of participants was:</p> <ul style="list-style-type: none"> Peoples also demanded for proper traffic signage for speed limits for minimizing the accident <ul style="list-style-type: none"> people showed concerned on the issue of open defecation ,health problem is common The people who can afford the hiked water tariff gave consent ,but those are from low income group reacted on this issue and demanded subsidy. 	<p>The suggestion was noted down and forwarded to the high official for proper compliances</p> <p>The costing incorporated in Detailed project report.</p> <p>1.As water policy of state under draft stage suggestion/problem of the community people helps in finalizing the draft policy.</p> <p>2.Ground level views help in proper implementation of project</p>

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5	Ward No. 12	Dr. Shyamaprasad Mukherji	29-4-16	Local Residents, And public representative of ward 12 Total-25 Participants	The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> Besides above issues the following issues discussed with the community No land acquisition for project and avoid damaged to public utilities and structures coming under the alignment. damage restoration remain the part of contractor Safety of Local traffic and pedestrian in Built-up Zone 	The main suggestion of participants was: <ul style="list-style-type: none"> Provision of Drain in Built-up Section to eliminate the issue of road side water-logging Community shown concern ,after damage of public utilities or structure no body comes to restore nor even pay any compensation to major damages. 	The suggestion was agreed and Incorporated <ul style="list-style-type: none"> Proper EMP shall be finalize the contractor part during Construction work in Built-up Zone. In EMP the compensation for temporary damage to public utilities remain the part of contractor for restoration to minimise the Noise, Dust and air pollution in Built-up Section.
6	Ward No. 17	at Dr. B. R. Ambedkar	29.04. 2016	Local Residents, And public representative of ward 17 Total -28 Participants	The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> Whole ward is not having sewer network. Existing Household toilets mainly based on Septic tanks and adverse effect of flowing sewer into the open drains of city. The Consultants Team raise the issue for the connection existing toilets with the sewer line will be laid. 	The people welcomed the project ,some showed dis consent who have their household toilets based on septic tanks. The main suggestion of participants was: <ul style="list-style-type: none"> The community gave suggestion regarding connection with chamber. They will take connection only when they get sufficient water through out the year. Community showed 	The suggestion was noted down and forwarded to the high official for proper compliances <ul style="list-style-type: none"> It is being in other Project of water supply that 135LPCD given to the whole population through out the year. Suggestion are noted down. The decision will be taken by local body representatives this has been discussed with

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					<ul style="list-style-type: none"> • For Safety of Local Traffic as well as to reduce the traffic congestion during implementation . 	<p>concern on the tariff and connection charges. The suggestion from people came that ,not to impose charges immediately after connection, let the system gets start properly than people get convinced and get ready to pay.</p>	<p>them.</p>
7	Ward No. 24	at Mahatma Gandhi marg	28.04. 2016	<p>Local Residents, And public representative of ward 24</p> <p>Total 23 Participants</p>	<p>The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders.</p> <ul style="list-style-type: none"> • Besides above issues the following issues discussed with the community • No land acquisition for project and avoid damaged to public utilities and structures coming under the alignment. • damage restoration remain the part of contractor • The Consultants Team raise the issue for the connections with sewer network and for proper operation and maintenance of system for 30yrs 	<p>The main suggestion of participants was:</p> <ul style="list-style-type: none"> • Community shown concern ,after damage of public utilities or structure no body comes to restore nor even pay any compensation to major damages. • People asked for Connection charges to sewer network. 	<p>The suggestion was agreed and Incorporated</p> <ul style="list-style-type: none"> • Proper EMP shall be finalize the contractor part during Construction work in Built-up Zone. • In EMP the compensation for temporary damage to public utilities remain the part of contractor for restoration <p>Queries are noted down .The decision will be taken by local body representatives this has been discussed with them</p>

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8	ward no.34	At Mahavir Nagar	28.04.16	Local Residents, Shopkeepers and Public representative of ward- 34 Total -29 Participants	The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> • Whole ward is not having sewer network. Existing Household toilets mainly based on Septic tanks and adverse effect of flowing sewer into the open drains of city. • The Consultants Team raise the issue for the connection existing toilets with the sewer line will be laid. 	The people welcomed the project ,some showed dis consent who have their household toilets based on septic tanks. The main suggestion of participants was: <ul style="list-style-type: none"> • The community gave suggestion regarding connection with chamber. They will take connection only when they get sufficient water through out the year. •Community showed concern on the tariff and connection charges. The suggestion from people came that ,not to impose charges immediately after connection, let the system gets start properly than people get convinced and get ready to pay. 	The suggestion was noted down and forwarded to the high official for proper compliances <ul style="list-style-type: none"> • given reply by official that in water supply scheme 135lpcd water will be given to whole town • maintenance cost gives exact tariff to be fixed on yearly or monthly basis.As connection policy of state under draft stage suggestion/problem of the community people helps in finalizing the draft policy. <p>2.Ground level views help in proper implementation of project</p>
9	Ward No. 36	at Dr. Radhakri snanbazar	30.04. 2016	Local Residents, And public representative	The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> • For Safety of Local Traffic as 	The main suggestion of participants was: <ul style="list-style-type: none"> • Peoples also demanded for proper traffic signage 	The suggestion was noted down and forwarded to the high official for proper compliances <p>The costing incorporated in</p>

				of ward 36 Total-26 Participants	well as to reduce the traffic congestion which interns reduce the noise and air pollution <ul style="list-style-type: none"> • The Consultants Team raise the issue of septic tank disadvantages and told about for proper operation and maintenance of sewer system for 30yrs 	for speed limits for minimizing the accident <ul style="list-style-type: none"> •The people showed concern on the pollution issue but raise connection charges and tariff for taking connection to the sewer network.some people asked about the tariff /charges of connection 	Detailed project report. <ul style="list-style-type: none"> • .As connection policy of state under draft stage suggestion/problems of the community people helps in finalizing the draft policy.
10	Ward No. 41	at Lonia Karbal	30.04. 2016	Local Residents, And public representative of ward 41 Total-21 Participants	The Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders. <ul style="list-style-type: none"> • Besides above issues the following issues discussed with the community • No land acquisition for project and avoid damaged to public utilities and structures coming under the alignment. • damage restoration remain the part of contractor • The Consultants Team raise the issue for the connections with sewer network and for proper operation and maintenance of system for 30yrs 	The main suggestion of participants was: <ul style="list-style-type: none"> • Provision of Drain in Built-up Section to eliminate the issue of road side water-logging • Community shown concern ,after damage of public utilities or structure no body comes to restore nor even pay any compensation to major damages. • People asked for Connection charges to sewer network 	

11	Ward No. 45	at Chandan gaon	30.04. 2016	Local Residents, And public representative of ward 45 Total-27 Participants	<p>The Sewerage Project Background, Environmental, Social, traffic safety issue and benefit from the project were explained to the Stakeholders.</p> <ul style="list-style-type: none"> • Whole ward is not having sewer network. Existing Household toilets mainly based on Septic tanks and adverse effect of flowing sewer into the open drains of city. • The Consultants Team raise the issue for the connection existing toilets with the sewer line will be laid. • For Safety of Local Traffic as well as to reduce the traffic congestion during implementation . 	<p>The main suggestion of participants was:</p> <ul style="list-style-type: none"> • Project welcomed by the people as this ward is facing open defecation problem too. • Shown concerned of connection charges and monthly tariff for maintenance • Peoples also demanded for proper traffic signage for speed limits for minimising the accident 	<p>The suggestion was noted down and forwarded to the high official for proper compliances</p> <p>The costing incorporated in Detailed project report.</p> <p>As connection policy of state under draft stage suggestion/problem of the community people helps in finalizing the draft policy.</p>
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Key recommendations came out during Stakeholders Consultations are summarized below:-

- Scheduled castes, woman headed households and other vulnerable social groups affected by the project needed to be identified. They require special consideration for resettlement/rehabilitation on priority basis.
- Efforts should be made to prevent loss of access to livelihood .
- Community should be consulted before the drawings of the design and Alignments are finalized.
- Safety is an important issue especially for children, women and cattle and therefore utmost safety measures must be provided during civil construction works. Accidents need to be controlled through various safety measures. Trauma vans and emergency facilities on the road should be provided.
- The participants emphasized the provision of diversions and aligning the way in the interest of community safety and environmental protection, repeatedly.
- Special care should be taken if any structure came in the alignment in case of removing or shifting the sacred trees, temples, mosques and other places of cultural and historical significance (by following the rituals and customs of community concerned).
- During excavation damage to public utilities or private structure .like damage to septic tank/underground water tanks must be repaired by ULB or contractor with in time limit or compensation to be given as per market rate.

Women's Participation in Consultations and out comes

The participation of women in FGDs during the census survey was encouraging. Out of 10 FGDs conducted with different stakeholders specially in the slum areas the women members were turned up only at twelve locations due to non-availability of time as they are working as construction labour/domestic maid servants. Few details are annexed on **Annexure- 6** Some of their specific concerns are summarized below.

- FGD conducted in Slum areas where no facilities of individual toilet or community toilets. The women have to go out for defecation due to it they faces many health problems. In Chhindwara the town got the target of construction of individual toilets specially in slum areas under Swatch Bharat Abhiyan.
- Women have to get up early morning as the day begin they face problem in going out for defecation.
- Women discussed many health issues & unhygienic environment for them and their family members
- Working women livelihood get hampered due to continuous illness.
- Adolescent girls also discussed their health problem and violence issues when they go out in night.
- Women gave consent of construction of individual toilet through Swatchh Bharat mission and connect it to sewer line
- The working women and girl students face lot of problem.

- FGD done with women having individual toilets at home, they are safe from above problem but showed concerned on the bad odour remains all around due to septic tank.

During FGD some other concerned/issues raised regarding project by the women group:

- Women from poor families concerned was that they will get job opportunity during construction work as casual labour or at office. so that they get regular wage during implementation period .
- Some women demanded to operate individual / family enterprise by opening small tea stalls, shops/eateries to provide meals to the construction officials /temporary labourers coming from outside. This will enhance their family income as well as their entrepreneurial skill, which may be useful in future.

Chapter 7

ENVIRONMENTAL MANAGEMENT PLAN

7.1 Overview

The EMP presented in this Chapter summarizes the key impact elements identified and the remedial measures, the actions to be taken by various parties and the monitoring activities. An indication of the time scale for implementation and cost involved is also provided. The EMP can be further expanded during implementation with documented procedures and guidelines for work practices so as to be as responsive to the situations that various Contract Parties will encounter. The Parties should formulate procedures and practices and maintain records. The implementation of the EMP should be done within the provisions of the law and for the ultimate benefit of the people in the Project area. The effectiveness of the EMP shall be monitored and assessed during spot checks, formal inspections and at the end of the Project when an overall audit of the works shall be carried out.

A Construction Environmental Management Plan is a practical and achievable plan of management to ensure that any environmental impact during the design, planning and construction phase are minimized. An Operational Environmental Management Plan is focused on sound environmental management practices that will be undertaken to minimize adverse impacts on the environment through normal operation of a facility. The management plan further identifies what measures should be taken in the event of emergencies or incidents during the operation of the facilities.

Table 7.1 Generic Environmental Guidelines / Management Plan for Low impact category Investments

Activity		Potential Negative Impact/Concern	Duration of impact	Mitigation Measures	Responsible agency
<i>Sewerage and Sanitation Investments</i>					
<i>A. Design and Development Phase</i>					
Sewerage	Accidental leakages/ bursts	<ul style="list-style-type: none"> • Due to accidental burst or leakage of sewers, flooding of the nearby areas could take place • Backlogging due to unexpected heavy flow rates 	Temporary	<ul style="list-style-type: none"> • Designing sewers with adequate capacity and flow velocity • Regular inspection and maintenance of the sewers 	PMU and Design consultant
Sewage Pumping Station	Pumping of sewage from District SPS1 to STP	<ul style="list-style-type: none"> • Noise and odour nuisance to surrounding areas. 	Permanent	<ul style="list-style-type: none"> • Selection of appropriate location away from sensitive locations such as schools and hospitals. However, if appropriate location is not available then extra precautions can be taken. • Ensure that the pumping station is within a noise reducing structure or in an enclosed space (such as concrete/brick structure) • Use of less noise generating equipment with regular maintenance. • Tree plantation around SPS • Solid waste should not be kept for more than 24 	PMU and Design consultant

				hours and herbicide should be sprayed.	
B. Construction phase					
Sewerage (laying of sewers)	Excavation, cutting, back filling and compaction operations	Damage to underground utilities like water, gas line, electricity and telephone conduits, etc due to construction activities.	Temporary	<ul style="list-style-type: none"> • Review all available drawings, notes, and information on the existing underground lines and structures in determining the location of the existing facilities. • Concerned authorities should be informed and their assistance sought to remove, relocate and restore services of these utilities prior to commencement of construction. • All these underground utilities encountered in excavating trenches carefully shall be supported, maintained and protected from injury or interruption of service until backfill is complete and settlement has taken place. • Minimize time for replacement operations; and appropriate scheduling as necessary especially for water supply line. 	<ul style="list-style-type: none"> • Contractor • PMU • PMC
		Accidents/ damages due to erosion/ sliding of vertical sides of	Temporary	<ul style="list-style-type: none"> • Maintaining the excavation by Shoring 	<ul style="list-style-type: none"> • Contractor • PMU

		excavated trenches while places the pipes		<p>trench sides by placing sheeting, timber shores, trench jacks, bracing, sheet piling materials to resist pressures surrounding the excavation</p> <ul style="list-style-type: none"> • Exposed surface will be resurfaced and stabilized by making the sloping sides of trench to the angle of repose at which the soil will remain safely at rest. 	<ul style="list-style-type: none"> • PMC
		Dust Generation due to excavation, cutting, back filling and compaction operations	Temporary	<ul style="list-style-type: none"> • The dust levels in sewerage project town are already above the permissible limits, further this construction activity may increase the dust causing nuisance to local residents and vendors. • Dust is generated due to the disturbance of soil and roadways. It is recommended to minimize dust generated by wetting all unprotected cleared areas and stockpiles with water twice a day, especially during dry and windy 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

				<p>periods. Water tankers will carry the water and labourers will spray on the dusted land</p> <ul style="list-style-type: none"> • Additionally, it is recommended to wet and cover excavated material transported by trucks. 	
		Noise and vibration disturbances to residents and businesses	Temporary	<ul style="list-style-type: none"> • Noise is a temporary nuisance caused due to construction activity. It is recommended that construction activities be carried out only during normal working hours after providing prior intimation to local residents and shop keepers. • Construction works near schools and colleges should be carried out during vacations and works near hospitals should be completed on priority basis (in shorter time period with alternate provision of traffic, accessibility of 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

				<p>exit/entry gates etc.).</p> <ul style="list-style-type: none"> • Wherever possible, the use of less noise generating equipment for all activities is recommended. • Construction noise is not only a nuisance for the local community, but can also be a health hazard to construction workers due to prolonged exposure. Provision of protective equipment like ear muffs and plugs for operating personnel is recommended. • It is recommended that where feasible, a sound barrier be provided in inhabited areas, particularly if there are sensitive zones like hospitals, schools etc. 	
		Temporary flooding due to excavation during monsoons or blockage of surface drains	Temporary	<ul style="list-style-type: none"> • Ensure that excavated soil material is stored on the higher lying areas of the site and not in any storm water run-off channels or any other areas where it is likely to cause erosion or where water would 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

				<p>naturally accumulate causing flooding.</p> <ul style="list-style-type: none"> • The areas where excavated soil will be stockpiled must be bordered by berms to prevent soil loss caused by rain. • Excess soil is to be transported to dumping location within 24 hrs of completion of task in vehicles which have top cover that will prevent dust dispersal. 	
		<p>Increased traffic inconvenience (emissions, congestions, longer travel times, blockage of access)</p>	<p>Temporary</p>	<ul style="list-style-type: none"> • Since most of the roads in the project area are narrow there will be some traffic congestion, hence alternate traffic routing must be adopted in consultation with concerned traffic police authorities. • Traffic dislocations also have some adverse impact on trade and commerce, hence works at business and market area must be completed earlier. • Care should be taken to minimize congestion and negative impacts at schools and hospitals 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

				<ul style="list-style-type: none"> • Provide temporary crossing/ bridges to 	
		Settlement of backfilled area after construction	Temporary	<ul style="list-style-type: none"> • The backfilling material shall be free from petroleum products, slag, cinders, ashes and rubbish, or other material. • Backfilling activity should follow the construction schedule, as recommended by the DPR, which estimates that a 1 km stretch of construction work is to be completed in approximately 3 days. • Proper compaction as per the soil condition and retain the original level/ alignment and grade as it was before the work commenced. 	<ul style="list-style-type: none"> • Contractor • PMU • PMC
		Spillage of fuel and oil	Temporary	<ul style="list-style-type: none"> • Store tanks and drums for excess capacity; forbid pouring into soils or drains; enforce adequate equipment maintenance procedures • Excess soil is to be transported to dumping location in vehicles which have top cover that will prevent dust dispersal 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

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Sewage pumping station	Excavation	Damage to top soil due to excavation activities.	Temporary	<ul style="list-style-type: none"> To prevent excessive disturbance of natural vegetation, the top soil excavated should be stored and utilized for re-vegetation after completion of work. Topsoil and subsoil must be placed on opposite sides of the trench and must be kept separate throughout construction and rehabilitation. 	<ul style="list-style-type: none"> Contractor PMU PMC
		Construction waste	Temporary	<ul style="list-style-type: none"> All the associated construction waste should be properly managed by storing and disposing off at identified refusal sites. 	<ul style="list-style-type: none"> Contractor PMU PMC
		Soil erosion during excavation/ filling operation (while constructing foundation of structure)	Temporary	<ul style="list-style-type: none"> Proper stock piling of excavated soil and must be bordered by berms. Shoring trench sides by placing sheeting, timber shores, trench jacks, bracing, piles, or other materials to resist pressures surrounding the excavation 	<ul style="list-style-type: none"> Contractor PMU PMC
		Dust Generation due to construction activities	Temporary	<ul style="list-style-type: none"> Excavated material transported by trucks will be covered and/or wetted to prevent dust 	<ul style="list-style-type: none"> Contractor PMU PMC

				<p>nuisance.</p> <ul style="list-style-type: none"> • Suppressing dust generation by spraying water on stockpiles 	
General: Air Environment due to all construction activities		Air pollution due to particulate matter emissions from excavation, construction material handling, transportation of materials	Temporary	<ul style="list-style-type: none"> • Providing curtains (polysheets/ sheets) all around the site to control dust spreading beyond the site. • Sprinkling of water at regular intervals to control dust especially places where soil is stockpiled. • <input type="checkbox"/> Preventive maintenance of construction equipment and vehicles to meet emission standards 	<ul style="list-style-type: none"> • Contractor • PMU • PMC
General: Noise Environment due to all construction activities		Noise hazards	Temporary	<ul style="list-style-type: none"> • Noise attenuation with sound proof insulation for noise generation sources like pumps, generators or using less noise making equipment • <input type="checkbox"/> Proper maintenance of construction equipment and vehicles to keep them with low noise. 	<ul style="list-style-type: none"> • Contractor • PMU • PMC
General waste during construction		Nuisance due to solid waste disposal	Temporary	<ul style="list-style-type: none"> • Ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises must be 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

				<p>collected in rubbish bins and disposed of weekly at registered refuse facility sites.</p> <ul style="list-style-type: none"> • Toilet facility must be provided at construction site and should be maintained properly. Toilets must be emptied regularly at treatment plants and every effort must be made to prevent the contamination of surface or sub-surface water 	
General: safety during construction		Safety hazards to labours and public	Temporary	<ul style="list-style-type: none"> • Comply with the Occupational health and Safety act of India • Ensure that the contact details of the police or security company and ambulance services nearby to the site. • Ensure that the handling of equipment and materials is supervised and adequately instructed. • Erect warning signs/ tapes and temporary barriers and/or danger tape, marking flags, lights and flagmen around the exposed construction works warn 	<ul style="list-style-type: none"> • Contractor • PMU • PMC

				<p>the public and traffic flow of the inherent dangers.</p> <ul style="list-style-type: none"> • Provide adequate safety precautions such as helmets, safety shoes, gloves, dust masks, gumboots, etc. 	
Construction camps (if adopted)		Nuisance due to absence of facility of sanitation and solid waste management	Temporary	<p>Labour camps are not required, if the labours are from the native place. If labours are not from native place, than following measures must be undertaken:</p> <p>1) The camps must be not be in an environmentally sensitive area such as in close proximity to a watercourse, on a steep slope or on erosive soils.</p> <p>2) Camp sites will have adequate provision of shelter, water supply, sanitation and solid waste management as far as practicable.</p>	<ul style="list-style-type: none"> • Contractor • PMU • PMC
<i>C. Operation phase</i>					
Sewer line	Leakage/ overflows	Water pollution and possibility of mixing with water supply line	Permanent	There is a temporary concern of leakages and overflows leading to flooding of adjacent areas in the town (screening checklist). However this can be mitigated and	<ul style="list-style-type: none"> • PMU • O & M contractor

				<p>managed by:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Regular monitoring of sewer line and manholes for visible leakages/ overflows. <input type="checkbox"/> Immediate repair operation for the damaged portion of sewer line. <input type="checkbox"/> De-siltation of blocked sewers/ manholes with sewage pumping machines-storing and disposal at appropriate refusal area after treatment. <input type="checkbox"/> Ensure proper covering of manhole and avoid dumping of solid waste to prevent chocking of sewer line. 	
Sewage pumping station		Noise pollution from operation activities	Permanent	<ul style="list-style-type: none"> <input type="checkbox"/> Proper handling and regular maintenance of operating machines including pumps, generators, air diffusers, noise monitoring, etc. 	<ul style="list-style-type: none"> • PMU • O & M contractor • CMC
Sewage pumping station	Solid waste	Contamination of water resources, blockage, bad odour, Health hazard and public nuisance	Permanent	<ul style="list-style-type: none"> <input type="checkbox"/> Solid waste should not be kept for more than 24 hours <input type="checkbox"/> Solid waste can be disposed at disposal sites, preferably a sanitary landfill 	<ul style="list-style-type: none"> • PMU • O & M contractor • CMC
General Waste	Sanitary conditions at construction	Contamination of water resources, blockage of storm drains, bad odour, Health hazard and	Temporary	<ul style="list-style-type: none"> <input type="checkbox"/> Ensure regular monitoring of provision of water supply, excreta and 	<ul style="list-style-type: none"> • PMU • O & M

	camps and site.	public nuisance		solid waste management. <input type="checkbox"/> Waste should be emptied regularly at disposal area until the work is completed. <input type="checkbox"/> Maintaining proper hygienic environment in and around camps and site by regular surveillance and monitoring of waste.	contractor <ul style="list-style-type: none"> • CMC
General Safety	Workers exposed to toxic gases in sewers and hazardous materials in sewage during maintenance work Workers exposed to	<input type="checkbox"/> Serious/health/ safety hazards <input type="checkbox"/> The toxic gases are likely to contract communicable	Temporary	<input type="checkbox"/> During cleaning/ maintenance operation, the sewer line will be adequately vented to ensure that no toxic or hazardous gases are present in the line. <input type="checkbox"/> Gases present in the sewer line should be analysed for hazardous/toxic gases before commencing cleaning operation.	<ul style="list-style-type: none"> • PMU • O & M contractor • CMC

7.2. Monitoring and Evaluation

Monitoring is an important tool in establishing the success or failure of a project in regards to compliance to environmental safeguards. Evaluation is also important in assessing the achievement of the mitigation measures set out in the Environmental Management Plan, performance and efficiency of the project in regards to ESMP. Monitoring and evaluation process will involve the assessment of the following benchmarks

- The implementation process of guidelines stipulated in the ESMP
- Evaluate impact of the project to the environment and social setting of Chhindwara Town
- Monitoring of the involvement of the community through public consultations in decision makings and the implementation of the project

Project implementation involves various interventions to achieve the objectives of providing safe, clean and adequate on sustainable basis and improving health and sanitation conditions in the city. Simultaneously, to protect and improve the environmental conditions to achieve the goal, various mitigating measures would be taken up.

Table 7.2 Environmental Monitoring Plan

Env. Component	Stage	Institutional Responsibilities					
		Parameter	Standards/Methods	Locations	Frequency	Implementation	Supervision
Air Quality	Construction	PM ₁₀ µg /m ³ , PM _{2.5} µg/m ³ , SO ₂ , NO _x , CO	CPCB	Sewer Construction Sites	Once in every season (except monsoon)	Contractor through approved monitoring agency/Lab	PMU and PMC
	Operation	PM ₁₀ µg /m ³ , PM _{2.5} µg/m ³ , SO ₂ , NO _x , CO		Sewer Construction Sites	Once in a year except monsoon for first 5 years.	Contractor through approved monitoring agency/Lab	
Meteorology	Construction	Rainfall, humidity, Wind Speed, Wind direction, Temperature	USEPA's Meteorological Monitoring Guidance for Regulatory Modeling Applications	One location within City	Once in every season	Contractor through approved monitoring agency/Lab	PMU and PMC
	Operation	Rainfall, humidity, Wind Speed, Wind direction, Temperature					

Noise Levels	Construction	Leq dB (A) (Day and Night) Average and Peak values	Ambient Noise Standard CPCB	Sewer Construction Sites	Once in every season (except monsoon)	Contractor through approved monitoring agency/Lab	PMU and PMC
	Operation	Leq dB (A) (Day and Night) Average and Peak values		Sewer Construction Sites	Once in a year except monsoon for first 5 years.	Contractor through approved monitoring agency/Lab	PMU and PMC
Soil	Construction	Physical Parameter: Texture, Grain Size, Gravel, Sand, Silt, Clay; Chemical Parameter: pH, Conductivity, Calcium, Magnesium, Sodium, Nitrogen, Absorption Ratio	Consider the following methods: IS-2720 (Various part); Soil Chemical Analysis by M.L. JACKSON. Soil Test Method by Ministry of agriculture	Sewer Construction Sites and SPS	Once in every season	Contractor through approved monitoring agency/Lab	PMU and PMC

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	Operation	Physical : Texture, Grain Size, Gravel, Sand, Silt, Clay; Chemical Parameter: pH, Conductivity, Calcium, Magnesium, Sodium, Nitrogen, Absorption Ratio	Consider the following methods: IS-2720 (Various part); Soil Chemical Analysis by M.L. JACKSON. Soil Test Method by Ministry of agriculture	Along sewer construction sites, SPS	Twice in a year (Pre- monsoon and Post monsoon) for first 5 years,	Contractor through approved monitoring agency/Lab	PMC, UPJN and SPMG
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Table 7.3 Cost information of EMP

Phase	Component of EMP	Mitigation measure	Cost included in the DPR (Yes/no/not clear)	Cost in Rupees (or Details if provided in DPR)	Remarks
Design and Development	Provision for accidental leakages / bursts in SPS	Proper drainage arrangements to prevent water stagnation/ flooding in SPS site area	Yes (not specific but included as a part of associated construction activity)	DPR for Sewerage system	The proposed DPR includes these activities
	Location of SPS	Appropriate siting, and enclosing within building to reduce noise and odour nuisance to surrounding area	Yes	DPR for Sewerage system	The proposed SPS will be indoor which will prevent noise and enclosed nature and appropriate cleaning and maintenance will prevent odour nuisance
Construction	Excavation, Cutting and filling operations	Review of existing infrastructure, shoring trenches, reinstatement/ resurfacing	Yes	DPR for Sewerage system	The proposed DPR includes these activities
	Damage public utilities	Proper reviewing of existing drawing s of utilities, informing concern authorities and reinstatement of public utilities	Yes	DPR for Sewerage system	The proposed DPR includes these activities
	Dust generation	Water sprinkling on excavated material to suppress dust and provision of top cover when transported through vehicles	No	Water tanker: Rs. Approximately Rs. 28,80,000 /- Top cover for dumper truck: Rs. 33750/-	According to DPR 80Km stretch in each zone will be completed in 3years. This means approximately 75 m will be covered per day. 750 L of water will be consumed for 75 m using sprinkler average 2 times a

					<p>day Labour cost-Rs. 150/day Rs. 300/tanker+ Rs150/ labourer = Rs. 450 Per meter cost = Rs. 450/75m = Rs 6/- Total cost for 80 Km= Rs. 480000 Keeping a 2 day margin for construction and reinstatement of the site 2x480000= Rs. 960000/- For 240km stretch: Rs. 28,80,000/- Top cover: Approximately 30 Sqm of top cover may require for each vehicle. Assuming 5 such vehicle involved in transporting excess soil to dumping location (considering construction schedule and max excavated earth disposal). Hence 5 trucks* required top cover 30 Sqm* Cost of Tripol cover at Rs. 75/ Sqm</p>
	Noise and vibrations	Usage of sound barriers or sheets.	No.	Rs. 9,29,850/-	<p>As per the schedule, the construction in 2 zones each has to be executed in 36 months For providing sound barriers like GI sheets, 4Km out of 80 Km of stretch of sensitive zones in sewer work is considered assuming excavation, construction and backfilling activity will take place simultaneously at different stretches.</p>

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					Considering 302 GI sheet of 3'x 8' would cover 75m length (both sides) of construction activity daily. (150 sheets are needed of for one side of 150 m stretch, so for 2 sides 300 sheets and 2 more sheets to enclose one open side of the barricading; 150 m is taken as a safer option as it will not be possible to shift the barrier to another site same day) Hence 302 sheets* Cost of GI sheet Rs.1000 per sheet (Rs.70-100 per Kg)* labour cost (two labours at avg. rate of Rs. 150 per day) = Rs. 309950 And for 240 Kms = Rs. 9,29,850/-
	Temporary flooding or , water logging	Alternate traffic re-routing, Ensuring storage of excavated soil material on the higher lying areas	Yes	DPR for Sewerage system	
	Increased traffic inconvenience	Traffic re-routing	Yes	DPR for Sewerage system	
	Safety hazards to workers and residents	Putting fences or other barricades to demarcate the area	No	Rs. 16875	Assuming a stretch of 75m per day, 150 rods will be used, @ Rs. 75/- per rod.
Labour camps (if adopted)	Health hazards and nuisance due to absence of facility for sanitation or solid waste management	Sanitation	No	Cost of construction of pit and toilet building & cleaning approximately Rs. 15,12,000/-	Total no. of labour is estimated assuming 35% of total project working for 36 months .The labour camps can be divided into 1camps for each zone, for appropriate management and maintenance work. So per

					<p>day each camp will have around 950 labourers A toilet with septic tank is been suggested for sanitation facility at labour camps. Septic tank of capacity 45 m³ will be used. For 950 labourers 63 m³ of total pit capacity would be needed. Hence 2 pits will be needed. Cost of one pit is Rs. 1,20,000. Cost of 2 pits would ne Rs. 2,40,000/- For this 3 toilet buildings of 15 closets will be needed. Cost of one toilet building is Rs. 80,000. So for 3 toilet building total cost is Rs. 2,40,000. Therefore, total cost of toilet construction at one camp site would be Rs 4,80,000/- For constructing toilet at 3 camps expenditure would be Rs. 14,40,000/- Cleaning of pit cost Rs 4000/- . And after 9 months cleaning is needed so thrice cleaning is needed. So for 2 pits X 3 camps X 3 times cleaning the cost will come as Rs.72000/-</p>
		Water Supply	No	Approximately Rs. 1213821/-	<p>As estimated 950 labourers will be at one camp, so approximately 190 families will be placed at one camp. Around 10 standposts will be needed at one camp. One</p>

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					standpost construction cost is Rs 6250/-. So for 3 camps total cost will be Rs 187500 for construction. At the rate of 135 LPCD, 128250L of water is needed for each camp. At the rate of Rs 2.5KL, the cost of water provisioning would be Rs 320.65 per day. Total cost for 36 months would be Rs 342106.875 and the total cost for all camps would be Rs 1026320.625. Total cost of construction and provisioning would be Rs 1213820.625
		Dust bins	No	Approximately Rs. 200000/-	Solid waste generation: Generally about 200 grams of solid waste is generated per 5 persons every day. Hence two cluster dustbin (one for biodegradable waste and one for non-biodegradable waste of 1 cum size at the rate of Rs. 2000/-) may handle solid waste generated.

Table 7.4 Cost of Environmental Monitoring Plan

Item	Location	Season	Year	Total no. of samples	Unit Cost	Total Cost	
Environment Monitoring during Construction Stage							
Air quality Monitoring	8	3	3	72	7,000.00	504,000.00	
Metrological data	1	4	3	12	5,000.00	60,000.00	
Noise / vibration	8	3	3	72	2,000.00	144,000.00	
Soil analysis	8	2	3	48	5,500.00	264,000.00	
Travel and Transportation of monitoring Team	Lumpsum						240,000.00
	Sub total						1,212,000.00
Environment Monitoring Cost (Operation Stage)							
Air quality Monitoring	8	1	5	40	7,000.00	280,000.00	
Metrological data	1	1	5	5	5,000.00	25,000.00	
Noise / vibration	8	1	5	40	2,000.00	80,000.00	
Soil analysis	4	2	5	40	5,500.00	220,000.00	
	Sub-Total						605,000.00
Travel and Transportation of monitoring Team			Lumpsum			400,000.00	
TOTAL for Environmental Monitoring						2,217,000.00	
Total Cost of EMP and Environmental Monitoring (Total of Table 7.3 and Table 7.4)						90,03,296 Say 90 Lakhs	

SMP Monitoring & Evaluation

The compensation and R&R assistance will be paid prior to taking over of land and affected assets. In case if the land owner refuses to accept the compensation or is not available for taking over of the compensation or R&R assistance is not paid for any other reasons, the assessed compensation and assistance amounts will be transferred to interest bearing escrow account before taking over of the land and assets. This will be ensured that money is available as soon as the land owners come forward to receive compensation.

The budget estimates and its sources will be reflected in RAPs and included in the cost of the project. Therefore, while appraising the project financially, necessary grant for viability as well as for meeting the cost of RAP would be considered by MPUDC within the framework for appraisal criteria. As per MPUDC institutional framework the responsibilities of RAP will be defined during implementation and operation phase.

Table 7.5 : Resettlement Action Plan

Sr.	Impact Category	Yes/ No	Entitlement Framework as per RFCTLARR Act	Social Management Measures	Estimated Cost in INR
1.			Impacts to Title holders (Loss of Private Properties)		
A	Loss of Land (agricultural, homestead, commercial or otherwise)	No	Compensation as per RFCTLARR Act, 2013 criteria provided in paragraph 26 of the Act 1.One time grant not exceeding Rs. 5,00,000/- for each affected household or annuity policy that shall pay Rs.2000/- per month for 20 years with appropriate indexation to Consumer Price indexation.	I. No.of HHs (with valid title) to be given developed plots and house II. No.of HHs to be given cash compensation = III. No. of squatters to be given developed plots and house = IV. No .of HHs to be given shifting allowance = V. No. of HHs to be given transitional assistance =	not applicable
B	Loss of residential structure	No	The Compensation for the structure will be paid as per the provisions of the RFCTLARR Act 2013 . 1. Cash compensation as per the Market Value of the structure and 100 % solatium. 2. Each affected family having cattle will be provided one time financial assistance of Rs. 25,000 . 3. Provision of alternative house or Minimum of Rs. 1,50,000 financial assistance in Urban Areas. Provision of House in case of rural area as per IAY specifications or equivalent cost of the house.	i. No.of HHs (with valid title) to be given alternative land = ii. No.of HHs (with valid title) to be given cash compensation = iii. No. of individuals to be given cash compensation = iv. No. of individual tenants / leaseholder / sharecroppers to be given cash assistance = v. No. of individuals to be given notice for harvesting = vi. No. of individuals to be	not applicable

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			<p>4. Transportation cost of Rs. 50,000/-</p> <p>5. Right to salvage affected materials</p>	<p>given cash compensation for non-perennial crops =</p> <p>vii. No. of individuals to be paid cash compensation for perennial crops =</p> <p>viii. No. of individuals to be paid cash assistance for loss of agricultural labour =</p>	
C	Loss of Commercial structure	No	<p>The Compensation for the structure will be paid as per the provisions of the RFCTLARR Act 2013.</p> <p>1. Cash compensation as per the Market Value of the structure and 100 % solatium.</p> <p>2. One time grant to artisan, small trader and certain others shall get a one-time financial assistance of Rs. 25,000/-</p> <p>3. Transportation cost of Rs. 50,000/-</p> <p>4. Right to salvage affected materials</p>	<p>i. No. of units (with valid title) to be given alternative land = ...</p> <p>ii. No. of units (with valid title) to be given cash compensation =</p> <p>iii. No. of units (with valid title) to be given livelihood assistance =</p> <p>iv. No. of tenants to be given livelihood assistance =</p> <p>v. No. of tenants to be given shifting assistance =</p> <p>vi. No. of squatters to be given developed plot and built shop =</p> <p>vii. No. of squatters / encroacher to be given cash compensation =</p> <p>viii. No. of squatters to be given shifting assistance =</p> <p>ix. No. of squatters to be given livelihood assistance =.....</p>	not applicable

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				x. No. of employees to be given livelihood assistance =	
D	Impacts to tenants (residential / commercial/agricultural)	No	<p><u>Residential</u></p> <ol style="list-style-type: none"> Each affected family that is displaced due to land acquisition shall be given a monthly subsistence allowance equivalent to Rs. 3000/- per month for a period of one year from the date of award. One time financial assistance of Rs. 50,000 as transportation cost for shifting of the family, building materials, belongings and cattle. Right to salvage affected materials <p><u>Commercial</u></p> <ol style="list-style-type: none"> One time financial assistance of Rs. 50,000 as transportation cost for shifting of the family, building materials, belongings and cattle. One time grant to artisan, small trader and certain others shall get a one-time financial assistance of Rs. 25,000 <p><u>Agricultural Tenants</u></p> <p>In case of agricultural tenants advance notice to harvest crops or compensation for lost crop at market value of the yield determined by agricultural department</p>	<ol style="list-style-type: none"> No. of HHs to be provided CPRs No. of HHs to be provided amenities 	not applicable
E	Impacts to trees, plants and standing crops,	Yes	The Collector for the purpose of determining the value of trees, plants and standing crops attached to the land acquired, use the services of	<ol style="list-style-type: none"> Money to be spent on restoration of losses due to resettlement = nil 	as per collectorate rate

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				compensation = nil vi. No .of squatters to be given livelihood assistance = 30	
C	Encroached Structure	yes	<ul style="list-style-type: none"> • Cash compensation for the affected structure as per the Market Value • One time shifting assistance of Rs. 5000/- for Kiosks • Right to salvage material. 	No. of vendors=20	1,00000
3.	Loss of Income Livelihood	No	Subsistence allowance equivalent monthly minimum agricultural / industrial wages for 3 months		not applicable
4.	Impact to Vulnerable Displaced People	No	<p>Training for skill development. This assistance includes cost of training and financial assistance for travel/conveyance and food. One adult member of the affected household, whose livelihood is affected, will be entitled for skill development.</p> <p>Additional assistance for SC/ST and other vulnerable households whose livelihood/loss of shelter is impacted by the project will be paid additional one time assistance of Rs. 5000 in case of non-title holder families.</p>	no.of HHs	not applicable
5.	Unidentified Impacts	Yes	Unforeseen impacts encountered during implementation will be addressed in accordance with the principles of this policy		1, 000,000
			Total		2,350,000

2. Monitoring and Evaluation

Monitoring is an important tool in establishing the success or failure of a project in regards to compliance to environmental and social safeguards. Evaluation is also important in assessing the achievement of the mitigation measures set out in the Environmental Social Management Plan, performance and efficiency of the project in regards to ESMP. Monitoring and evaluation process will involve the assessment of the following benchmarks

- The implementation process of guidelines stipulated in the ESMP
- Evaluate impact of the project to the environment and social setting of Chhindwara Town
- Monitoring of the involvement of the community through public consultations in decision makings and the implementation of the project

Project implementation involves various interventions to achieve the objectives of providing safe, clean and adequate drinking water on sustainable basis and improving health and sanitation conditions in the villages. Simultaneously, to protect and improve the environmental conditions to achieve the goal, various mitigating measures would be taken up.

7.3. Project implementation and Monitoring Agencies

Urban Development and Environment Department (UDED) of Government of Madhya Pradesh (GoMP) will be the Executing Agency for the Program, responsible for management, coordination and execution of all investment program activities. Implementing Agency will be the Madhya Pradesh Urban Development Company (MPUDC) of GoMP, which will implement this program via a Project Management Unit (PMU) at Bhopal, and Project Implementation Units (PIUs) at project towns. PMU will appoint contractors to build infrastructure and PIUs will coordinate the construction. PMU and PIUs will be assisted by Program Management Consultants (PMC).

Table 7.6: Organizational Roles

Level	Organization	Role
State	UDED	Monitor and evaluate the works and execution of EMP
State	MPUDC (PMU)	Appraisal and approval of sub-projects and variations Execution Financing and monitoring Forwarding Grievances Procurement of services of consultants Procurement of Centralized Goods and Works (with ULB's consent)
	Empowered Committees	Review and appraise sub-Projects Approval of sub-projects and variations Approval and clearances for various activities

		including the contracts etc.
	Project Management Consultants	Help in Project Execution and Preparation Supervision Quality Control
	Panel of Consultants	Consultancies required of MPUDP at state and ULB level
	MPUDC (PIU)	Implementation through contractors and ensure effective implementation of safeguards through rigorous monitoring Obtaining various clearances and approvals required and essential for project implementation Implementation, supervision and progress monitoring of reforms consolidation activities Implementation, supervision and progress monitoring of sub project activities Implementation, supervision and progress monitoring of all Community Awareness and Participation activities
District Level	District Collector (Revenue)	Transfer of Government Lands, Grievance Redressal in case any.
City level	Council	Overall monitoring of EMP In case of any grievance, bring it to the notice of appropriate authority through Mayor/Chairman / Commissioner/ Chief Municipal Officer
	ULB	Support in Implementation Assistance in obtaining necessary government approvals and orders for implementation of project Implementation, supervision and progress monitoring of reforms consolidation activities Implementation, supervision and progress monitoring of town planning activities Implementation, supervision and progress monitoring of all Community Awareness and Participation activities

Vulnerable Group (SC/ST) in Chhindwara

Distribution of Scheduled Tribes in Madhya Pradesh in Relation to India

1. The tribal population of Madhya Pradesh increased to 15,316,784 in 2011 from 12,233,474 in 2001. The decadal growth rate during this period is 25.20 percent. The trends in the population of the Scheduled Tribes by residence (total, Rural and Urban) for Census Years 1961- 2011 shows that the percentage of Scheduled Tribes Population in the Rural Areas (11.3 percent) much higher than Urban Population (2.8 percent). In Madhya Pradesh certain areas have been declared as scheduled area as Specified by the Scheduled Areas under the Sixth Schedule of Indian Constitutions¹. List of Schedule Areas in Madhya Pradesh is provided in **Appendix 5**.
2. Government of Madhya Pradesh has a dedicated Tribal Welfare Department; their role is limited to awarding stipends, running residential schools, hostels and implementing other central schemes for development of Schedule Tribes. They have no role in land acquisition or rehabilitation and resettlement. Safeguards related to land acquisition and resettlement and rehabilitation as outlined in the LARR Act, 2013 is also applicable for the tribal community or the indigenous people of the land and this has been adopted by the State Government of Madhya Pradesh. The regulations outlined for adverse social impacts and risks are also applicable for the tribal community. The LARR Act, 2013 provides some additional benefits to the affected SC/ST people. The provisions and benefits that are listed here is deemed appropriate for urban projects.
3. According to the Census of India 2011, 8.61 percent of the Indian population is classified as ST. In comparison to the national figure, Madhya Pradesh has 14.7 percent of its populations classified as ST. The major tribes of Madhya Pradesh are classified in **Appendix 6**.
4. The social composition of Chhindwara given in table below state that out of total population of Chhindwara town SC and ST comprises of 6.85% and 1.03% respectively.

Table 8-1: Social Composition in Chhindwara Town

Social Composition	Population	Male	Female	Percentage of population
SC	22408	11344	11064	12.80
ST	19111	9602	9509	10.92
Others	133533	68450	65083	76.29
Total Population of Town	175052			100

(Source: Census, 2011)

¹Scheduled areas are autonomous areas within a state, administered federally, usually populated by a predominant Scheduled Tribe.

Table 8-2. Wardwise detail of Indigenous people population of Municipal Corporation Chhindwara are as follows:-

S.no	Ward no.	Total HHs	Total population of ward	Total population (Schedule Tribe)	Male	Female	Total population (Schedule caste)	Male	Female
1	01	690	3104	449	222	227	558	296	262
2	02	1286	5914	502	289	213	968	558	410
3	03	739	3292	447	228	219	342	171	171
4	04	900	4081	757	360	397	559	295	264
5	05	857	4066	188	87	101	236	126	110
6	06	668	3008	383	197	186	621	331	290
7	07	923	4307	322	170	152	430	226	204
8	08	625	2907	287	138	149	889	448	441
9	09	607	3462	1014	387	627	176	67	109
10	10	690	3437	363	184	179	627	313	314
11	11	634	3076	143	74	69	151	76	75
12	12	575	2893	57	30	27	51	21	30
13	13	457	2371	11	6	5	6	3	3
14	14	482	2447	59	26	33	81	38	43
15	15	872	4332	294	140	154	587	300	287
16	16	757	3693	406	202	204	956	465	491
17	17	1030	4871	388	191	197	966	478	488
18	18	989	4609	561	293	268	702	365	337
19	19	662	2917	376	185	191	513	245	268
20	20	975	4587	276	134	142	279	149	130

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21	21	650	3108	39	19	20	28	15	13
22	22	511	2956	2	1	1	75	30	45
23	23	678	3669	54	24	30	178	84	94
24	24	807	4107	87	43	44	1823	895	928
25	25	585	2583	166	91	75	220	98	122
26	26	857	3929	127	68	59	196	97	99
27	27	676	3601	49	27	22	271	131	140
28	28	429	2425	37	16	21	11	6	5
29	29	659	2980	80	42	38	181	95	86
30	30	730	3234	635	326	309	184	98	86
31	31	674	2780	344	194	150	199	94	105
32	32	552	2351	230	120	110	224	118	106
33	33	1092	4736	275	136	139	508	251	257
34	34	891	3936	182	85	97	534	269	265
35	35	815	3567	319	166	153	591	306	285
36	36	868	3850	138	68	70	392	188	204
37	37	595	3316	114	107	7	45	43	2
38	38	923	4337	210	78	132	566	261	305
39	39	771	3452	648	328	320	658	321	337
40	40	1618	7338	2544	1303	1241	955	473	482
41	41	582	2646	1138	582	556	430	210	220
42	42	1323	5997	1145	592	553	644	334	310
43	43	3718	16896	2005	1003	1002	2658	1360	1298
44	44	665	3054	813	411	402	994	525	469
45	45	168	830	447	229	218	145	71	74

coming under ward 1	3388	14989	1617	844	773	3147	1609	1538
Total	40643	190041	20728	10446	10282	25555	12953	12602

Source: Census 2011

As Chhindwara district is not coming under the scheduled V declared by Government of Madhya Pradesh. (**Appendix -6**) Social Impact screening done on different aspects no negative impact of project on Indigenous people. project is coming under category C. No IPP plan required for IPs but strategy should be planned for the active participation of Indigenous people.

8.3. Public Consultation

During the entire planning phase, an effort has also been made to help people understand the positive impacts and benefits from the project for them in terms of better connectivity and linkage with the surrounding areas, reduction in the problems, minimization of health risks through provisions of good services of quality supply, underpasses, median control and other design interventions, improvement in the economy of the people, better access to health, education facilities in the region. The process has helped in building confidence amongst the Indigenous people of different wards and mainstreamed them in the process and making them partners in the project. For consultation the wards selected on the basis of highest population of SC/ST in BMC. During consultation process it was ensured the participation of Indigenous people also. The Number of Indigenous people participated in consultation given in table ward wise given below:

Table 8.3: Participation of ST/SC population during Public Consultation

WARD no.	SC/ST Household		
	Total	M	F
02	17	07	10
08	20	15	05
16	19	14	05
17	15	08	07
24	22	12	10
40	27	13	14
43	28	18	10
44	30	25	05
TOTAL	148		

Key issues of consultations with vulnerable group:

- Few people having individual toilets with septic tanks, they haven't showed willingness in project as they have view that Sewer connection damage their tanks in Chhindwara Municipal Corporation.
- People complaint about contaminated water due to leakage in septic tanks of some houses.
- No provision of community toilets in slums ,the problem of open defecation faced by women .
- Those having individual toilets demanded connection to their toilets.
- Safety measured during excavation must be ensured as some working couples leave their small children at home.

8.4. STRATEGY FOR TRIBAL PEOPLE'S PARTICIPATION

- i) Consultations and information disclosure are an integral part of IPP preparation in order to ensure that the priorities, preferences, and needs of the tribal groups have been taken into consideration adequately. With that objective in view, a strategy for consultation with tribal communities and their leaders will be developed so that these are conducted in a participatory manner.
- ii) The affected / Beneficiaries IPs will be actively engaged in all stages of the project cycle, including project preparation, and feedback of consultations with the IPs will be reflected in the project design, followed by disclosure. Their participation in project planning will inform project design, and the TPs should be convinced of their benefits from the project. The awareness material prepared will be translated into the local language of the IPs and made available to them before implementation of the project.
- iii) Local CBOs/tribal community representatives will be involved in IPP implementation and resolving all issues related to the IP through consultation and facilitation by the ULB and PMU. The PMU/ULB will ensure adequate flow of funds for consultation and facilitation of planned activities within IP.
- iv) The Schemes running by government of Madhya Pradesh for Vulnerable people, there participation will be ensured during project period.
- v) One project information disclosure (PID) brochure will be prepared, translated into a language understandable to the tribal people, and distributed among them. Budget included in SMP.
- vi) Project Monitoring Indicators will be designed to monitor project impact as beneficiaries to the IPs. The regular participation of IPs ensured through the monitoring Indicators.

CHAPTER 9

CONCLUSION AND RECOMMENDATIONS

The Environmental Social Assessment (ESA) Study was carried out based on field assessments and public consultations with the community who are likely to benefit or to be affected by the proposed Project and the Proponent in compliance with the World Bank environmental policies and EIA Notification 2006. The project report of the proposed sub-project for Chhindwara City after environment and social analysis concludes that the project have overall positive benefits on the life and environment of the people. There has been no reported land acquisition or livelihood losses to be caused under this project. As per environmental and social management framework guidelines of MPU DP, Environmental and Social Assessment, with a Generic Safeguard Management Plan was conducted for addressing possible issues/ concerns arising from proposed project.

The sewerage network will provide improved environmental conditions due to the contained handling of wastes, leading to improved public health conditions and will likely reduce the average medical expenses of the residents in the project areas. Because of the sewer line connection, all the waste water will be collected and directed to treatment plant, which only after treatment will be disposed off to the river, hence decreasing the pollutant load in the river. Connection to sewer lines enhance the aesthetic value of the area, as there will be more cleanliness and no wastewater discharge to open area. This will also lead to appreciation in the property value. This will eventually lead to increase in standard of living of the people in the project site.

There are no environmentally sensitive areas (like forest, sanctuaries etc.) in or near sub-project area. Also there are no archeological and historical protected areas/ sites within or near the town. There is no land acquisition nor any involuntary resettlement required in the project. During implementation only temporary disruption (damage to public utilities/temporary structure etc.) is assumed this can be avoided. No negative impact on vulnerable group.

Hence the impact identified are mostly related to construction and operation phase.

The subproject is unlikely to cause significant adverse impacts because: (i) most of the individual components involve straightforward construction and operation, so impacts will be mainly localized; (ii) in most cases the predicted impacts are likely to be associated with the construction process and are produced because the process is invasive, involving excavation, obstruction at specific construction locations, and earth movements; and (iii) being located mainly in the already constructed facilities and built-up area will not cause direct impact on terrestrial biodiversity values. The potential adverse impacts that are associated with design, construction, and operation can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures.

Stakeholder consultations, and interviews helped to understand the general perception of public towards the project and it can be determined that the people of the project site are happy and welcome such an initiative for their betterment. It was also pointed out that the large overall environmental benefits of the project such as prevention of discharge of

untreated sewage into water bodies or nallahs, improvement in sewerage collection and treatment, prevention of untreated liquid waste infiltrating into ground water and soil, improvement in quality of life, human dignity and increased productivity greatly outweigh the temporary inconveniences faced during the implementation stages.

Annexure 1: Screening Checklist of Chhindwara Sewerage Project

CHECKLIST FOR SUBPROJECTS IN PROPOSED MADHYA PRADESH URBAN DEVELOPMENT PROJECT

Part A

Name of the Department/cell: **Urban Development and Environment Department (UDED)**

Name of the City/Municipality: **Chhindwara Municipal Corporation**

Name, Address and Telephone of the Officers Responsible

(i)Commissioner: Sh S.B. Singh

(ii)Engineer: Sh. N.S. Baghel

Name of the proposed sub project: **Sewerage Augmentation Scheme Chhindwara (M.P)**

Name of the proposed site: **Chhindwara**

Proposed utility sub component/functions at the site: STP/SPS/Sewerage line eg...Intake point/STP/WTP/Rising main/Distribution main/ distribution line etc..

Current land use of the proposed site(s): **Details of land use will be submitted with EIA/SIA report of town.**

Part B
(Please tick mark in the appropriate column and provide relevant information in Col.6)

Sl. No	Social Screening Questions	Probable social Impacts				Extent/Number/Remarks
		Yes	No	Possible		
1	2	3	4	5	6	
1	Is land in the possession of Municipality? What is the area?		No		The proposal of land transfer of sites given to revenue department. Transfer of land under process.	
2	Is the current ownership status of the proposed site clear? Who is the current owner?	Yes			Revenue land	
3	Is there any land transfer formalities to be completed before using the site for		No		Transfer of land under process.	

fz

	proposed function?				
4	Will there be loss perennial crops (yielding and/or fruit bearing and other trees)?	No			
5	Will the project displace residential structures (Houses)?	No			
6	Will the project displace commercial structures (shops workshops, factory and other establishments)?	No			
7	Will there be loss of structures other than buildings? (Compound wall/gate/water tanks/ slabs/ wells/ septic tanks, etc.			possible	During excavation the septic tanks on road encroachment or road ROW may get damage.
8	Are any cultural properties (place of worship, religious structure memorial, monument, cemetery, etc.) affected or displaced?	No			
9	Are any community properties (hand pump, well, tap, chabutra, community hall etc.) affected or displaced?			possible	During excavation/laying of Sewer line in lanes
10	Are any tenants running enterprises or operating from the structures that would be displaced?	No			
11	Are there any tenants residing in the structures that would be displaced?	No			
12	Are there residential squatters within the proposed site boundary?	No			The residential squatters are found in project wards
13	Are there commercial squatters/vendors/Hawkers within the proposed site boundary?	No			
14	Will there be loss of incomes and livelihoods of employees of affected establishments / structures?	No			

fz

15	Will people lose access to common facilities, services, or natural resources?			Possible	During excavation possibility of damages to common facilities
16	Will there be loss of existing access to private properties and services?		No		
17	Is there any Tribal community members residing in group / cluster in close proximity to the site?			possible	Tribal community members resides in wards in scattered form.
18	Is there possibility of any conflict/Grievances by the surrounding land users due to proposed activities on the site?		No		
Possible Impacts					
S. No	Environmental Aspect	Yes	No	Possible	Extent/Affected Number/ Remark
19	Does the site currently have any important environmental features like trees, water courses, etc.?	Yes			Few trees & shrubs
20	Are there any ecologically sensitive areas –e.g. mangroves or other protected areas – within close proximity (~50m) of the site?		No		
21	Are there any sensitive human receptors – E.g. school or hospital – within close proximity (~50m) of the site?		No		
22	Does the access to the candidate site pass through or close to any sensitive receptor – human or ecological – mentioned above?		No		

Ans

23	increase the potential for noise, air and/or water pollution?	No		
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 N.S. Baghel
 Executive Engineer,
 Chhindwara Municipal Corporation
 Date _____

Part C

S.No	Other Questions	Answers/Remarks
1.	Who are the targeted beneficiaries of this project?	Target beneficiaries are residents of wards covered under project, slums coming under these wards & commercial centers coming under wards.
2.	Does this project and its sub components require any land acquisition? If yes, where and how much?	No, all sites have revenue land only formal transfer of land on ULB name is required.
3.	Does this project and its sub components require displacement of people or negative impact on their livelihood	No impact
4	Does this project require dismantling of buildings and structures?	No dismantling proposed
5	Is there any likelihood of this project to pass through tribal inhabited areas?	As Indigenous people are the part of project area scattered in different wards(as per census 2011, Total ST population in different wards is 19111 and SC population 22408 persons out of total population 175052.
6	Is there any public resistance expected for the project or any of its sub component? If yes, what is your plan to manage the same?	No public resistance .
7	Do you foresee any specific issues for women, which should be managed under the project	No issues.

NOTE: If the response is yes to any of the above follow up question would be in which place and sub component.

Appendix 5

List of Tribal Communities in State of Madhya Pradesh as Provided by Ministry of Tribal Affairs, Government of India

1. Agariya
2. Andh
3. Baiga
4. Bhaina
5. Bharia Bhumia, Bhuinhar Bhumia, Bhumiya, Bharia, Paliha, Pando
6. Bhattra
7. Bhil, Bhilala, Barela, Patelia
8. Bhil Mina
9. Bhunjia
10. Biar, Biyar
11. Binjhwar
12. Birhul, Birhor
13. Damor, Damaria
14. Dhanwar
15. Gadaba, Gadba
16. Gond; Arakh, Arrakh, Agaria, Asur, Badi Maria, Bada Maria, Bhatola, Bhimma, Bhuta, Koilabhuta, Koliabhuti, Bhar, Bisonhorn Maria, Chota Maria, Dandami Maria, Dhuru, Dhurwa, Dhoba, Dhulia, Dorla, Gaiki, Gatta, Gatti, Gaita, Gond Gowari, Hill Maria, Kandra, Kalanga, Khatola, Koitar, Koya, Khirwar, Khirwara, Kucha Maria, Kuchaki Maria, Madia, Maria, Mana, Mannewar, Moghya, Mogia, Monghya, Mudia, Muria, Nagarchi, Nagwanshi, Ojha, Raj, Sonjhari Jhareka, Thatia, Thotya, Wade Maria, Vade Maria, Daroi
17. Halba, Halbi
18. Kamar
19. Karku
20. Kawar, Kanwar, Kaur, Cherwa, Rathia, Tanwar, Chattri
21. (Omitted)
22. Khairwar, Kondar
23. Kharia

24. Kondh, Khond, Kandh
25. Kol
26. Kolam
27. Korku, Bopchi, Mouasi, Nihal, Nahul Bondhi, Bondeya
28. Korwa, Kodaku
29. Majhi
30. Majhwar
31. Mawasi
32. Omitted
33. Munda
34. Nagesia, Nagasia
35. Oraon, Dhanka, Dhangad
36. Panika [in (i) Chhatarpur, Panna, Rewa, Satna, Shahdol, Umaria, Sidhi and Tikamgarh districts, and (ii) Sevda and Datia tehsils of Datia district]
37. Pao
38. Pardhan, Pathari, Saroti
39. Omitted
40. Pardhi, Bahelia, Bahellia, Chita Pardhi, Langoli Pardhi, Phans Pardhi, Shikari, Takankar, Takia [In (i) Chhindwara, Mandla, Dindori and Seoni districts, (ii) Baihar Tahsil of Balaghat District, (iii) Betul, Bhainsdehi and Shahpur tahsils of Betul district, (iv) Patan tahsil and Sihora and Majholi blocks of Jabalpur district, (v) Katni (Murwara) and Vijaya Raghogarh tahsils and Bahoriband and Dhemerkheda blocks of Katni district, (vi) Hoshangabad , Babai, Sohagpur, Pipariya and Bankhedi tah sils and Kesla block of Hoshangabad district, (vii) Narsinghpur district, and (viii) Harsud Tahsil of Khandwa district]
41. Parja
42. Sahariya, Saharia, Seharua, Sehria, Sosia, Sor
43. Saonta, Saunta
44. Saur
45. Sawar, Sawara
46. Sonr

Appendix 6.

List of Schedule Areas in Madhya Pradesh as Specified by the Scheduled Areas under the fifth Schedule of Indian Constitutions

1. Jhabua district
2. Mandla district
3. Dindori district
4. Barwani district
5. Sardarpur, Dhar, Kukshi, Dharampuri, Gandhwani and Manawar tahsils in Dhar district
6. Bhagwanpura, Segaon, Bhikangaon, Jhirniya, Khargone and Meheshwar tahsils in Khargone district
7. Khalwa Tribal Development Block of Harsud tahsil and Khaknar Tribal Development Block of Khaknar tahsil in Khandwa district
8. Sailana and Bajna tahsils in Ratlam district
9. Betul tahsil (excluding Betul Development Block) and Bhainsdehi and Shahpur tahsils in Betul district
10. Lakhanadone, Ghansaur and Kurai tahsils in Seoni district
11. Baihar tahsil in Balaghat district
12. Kesla Tribal Development Block of Itarsi tahsil in Hoshangabad district
13. Pushparajgarh, Anuppur, Barhi, Kotma, Jaitpur, Sohagpur and Jaisinghnagar tahsils of Shahdol district
14. Pali Tribal Development Block in Pali tahsil of Umaria district
15. Kusmi Tribal Development Block in Kusmi tahsil of Sidhi district
16. Karahal Tribal Development Block in Karahal tahsil of Sheopur district
17. Tamia and Jamai tahsils, patwari circle Nos. 10 to 12 and 16 to 19, villages Siregaon Khurd and Kirwari in patwari circle no. 09, villages Mainawari and Gaulie Parasia of patwari circle No. 13 in Parasia tahsil, village Bamhani of Patwari circle No. 25 in Chhindwara tahsil, Harai Tribal Development Block and patwari circle Nos. 28 to 36,41,43,44 and 45B in Amarwara tahsil Bichhua tahsil and patwari circle Nos. 05,08,09,10,11 and 14 in Saunsar tahsil, Patwari circle Nos. 01 to 11 and 13 to 26, and patwari circle no. 12 (excluding village Bhuli), village Nandpur of patwari circle No. 27, villages Nikanth and Dhawdikhapa of patwari circle no 28 in Pandurna tahsil of Chhindwara district.

Annexure 5: List of Participants with Photographs of various meetings held during the SIA study, in Chhindwara District

Ward No. 01	
1	Smt Shashi bai
2	Mr Somlan kondare
3	Mr Jitendra dehriya
4	Mr Rajendra malvi
5	Mr Pramod soni
6	Smt Uhra bai
7	Smt Ramsita malviya
8	Smt Rekha Bai
9	Mr Krishna malvi
10	Smt Anuradha
11	Smt Sunita verma
12	Smt Rupmati simgha
13	Mr Solochan velpmshi
14	Smt Babli dakriya
15	Smt Rani toyre
16	Smt Suhama bai
17	Mr Ramjad bamhi
18	Mr Guruprasad malviya
19	Mr Bharat deriya
20	Mr Satyanarayan
21	Mr Naval dehriya
22	Mr `Bharat varma
23	Mr Lalu chanh
24	Mr Kaneheya malviya
25	Mr Ramkumar
26	Mr Ashok vastvar
27	Mr Champu fulkar
28	Mr Deepak ji
29	Mr Sant kumar
30	Mr Chchkesh
31	Mr Ganesh malviya
32	Mr Sitaram dehriya
33	Mr Prem velvanshi
34	Mr Rajkumar dehriya



Ward No. 03	
1	Mr sulara sekha
2	Mr Sukbul sekha
3	Mr Jfar khan
4	Mr jfar Aali
5	Mr Asfak Aali
6	Mr Mohamat wakilsahp
7	MrAslam khan
8	Mr saheet khan
9	Mr Aslam Aasu Aali



10	Mr naden khan	
11	Mr hmeth khan	
12	Mr mohmat Aasup shap	
13	Mr moshin khan	
14	Mr najit sah	
15	Mr javed khan	

Ward No. 08

1	Mr deve lal sahu
2	Mr yuvraj ptva
3	Mr ghadesh parsad sahu
4	Mr rahul sunak
5	Mr sdan sahu
6	Mr Alok kawat
7	Mr ram
8	Mr jagdesh patel
9	Mr skaram patel
10	Mr ramchandrvach
11	Mr kaneya sahu
12	Mr rvendr sahu



Ward No. 24

1	Mr yogesh belee
2	Mr nimeechand ghoyal
3	Mr dinesh choba
4	Mr Aannd dugh
5	Mr mohsih qurase
6	Mr chiku pal
7	Smt Vndna
8	Smt juti bele
9	Smt Aanjale jaen
10	Smt rupale belee
11	Smt laxmi sahu
12	Smt perte jane
13	Mr thajas bela
14	Me Tikaram sahu



Ward No. 34

1	Mr mee javed
2	Mr M. JI .Qureshi
3	Mr Asrnvaj
4	Me Eajuk khan
5	Mr Aantra khan
6	Smt nasu khan



7	Mr sdap khan
8	Mr abujar khan
9	Mr yusup khan
10	Mr sdap vach
11	Mr Aman kha
12	Mr seraile kha
13	Mr Ajhar kha
14	Mr mo sajet
15	Mr jetu kuswa
16	Mr Aakit kushwa
17	Mr moreehan kha
18	Me umesh

Ward No. 38

1	Mr devesh dharke
2	Mr ram nath
3	Mr shyam yadaw
4	Nitesh madrha
5	Narayan chovitdur
6	Narendra shrivastav
7	Mr Gajendra panwar
8	Mr Hemant godere
9	Mr Ratnakar tijare
10	Mr Bavan chouvitkar
11	Mr Ajay panwar
12	Mr Jagendra aldak
13	Mr Vikash jamkar
14	Mr Rajesh kumar varma
15	Mr Sunil gorve
16	Mr Divakar thakre
17	Mr Munna patel
18	Mr Sanjay pateliya
19	Mr Deepak mandra
20	Mr Vimlesh bhalavi
21	Mr Baba chouvitkar
22	Mr Rajaram baghel
23	Mr Parmika tiwari
24	Smt Shobha pandekar



Ward No.41

1	Mr sanjy nimane
2	Mr suresh nunahariya
3	Mr vijay schafal
4	Mr mnoj kashap
5	Dr hithash misra
6	Mr vinod despand
7	Mr kishor yvekar
8	Mr L. K. jain
9	Mr jeetendsa rcei



10	Mr J. L. mehra	
11	Mr santhnu pagarya	
12	Mr nikhel patrdar	
13	Mr shanker tiware	
14	Smt Aaneta bhagel	
15	Mr mohan kumar bhati	

Ward No.45

1	Mr Tarun karde	
2	Mr hemant pdharekar	
3	Mr kusal kundhu	
4	Mr keshor dorka	
5	Mr suresh malviya	
6	Mr bhavane prsad messra	
7	Mr jidendr pawar	
8	Mr murli karadh	
9	Mr Aanel kradh	
10	Mr santosh karu	
11	Mr B.R.Jharbad	

Ward No. 12

1	Mr S.B. sontakke	
2	Mr rajiv	
3	Mr sanjay jaen	
4	Mr mnesh sahu	
5	Mr dinesh sahu	
6	Mr raju pawar	
7	Mr mukesh kumar jaen	
8	Mr maneesh yadaw	
9	Mr mnoj devdhare	
10	Mr ghaghan gupta	
11	Mr Aabhinw thakur	
12	Mr Aanel mavi	
13	Mr Vinod malvi	
14	Mr Namdewrav bhawsar	
15	Mr raju patk	
16	Mr tharun malviya	

Ward No. 17

1	Mr Umesh malvi	
2	Mr mnesh nirmalkar	
3	Smt tivedhi yadv	
4	Smt dhanno bai	
5	Mr Aanesh vishvkrma	
6	Smt rhesadi	

7	Smt Asman sare	
8	Smt Anjuma qurase	
9	Smt bharti malvi	
10	Smt bimla malvi	
11	Smt vipteya yadaw	
12	Mr shakr udareya	
13	Smt Chandra ulke	
14	Smt nfesha khan	
15	Smt nsam khan	
16	Smt babeta nermalkar	
17	Smt Dthuthu nermalkar	

Annexure 6: FGDs scan report

सामुहिक परिचर्या
(सिंचक विभाग एवं पर्यावरणीय विभाग)
दिनांक 30/05/16 समय _____

स्थान : उदर वार्ड वार्ड : 02
पिन : 480013

जमीन के इलाका संवेक्षणकर्ता के इलाका

क्र.सं.	नाम	इलाका
1	शशी बार्द आंबवी	कावे
2	लोभमान कोनार	सुखी
3	श्री लाल उदरीया	सिंचक
4	राजेश आंबवी	सुखी
5	परमेश सोनी	धुमकेरु सेव
6	उदर वार्ड	उदर
7	रामसोनी आंबवीया	बागवतिया
8	रेखा वार्ड	सुखी
9	कुल आंबवी	कुल आंबवी
10	अनुराधा	अनुराधा
11	सुनीला वर्मा	सुनीला
12	राममती लोमहा	राममती
13	श्री लाल उदरीया	सुखी
14	बबली उदरीया	सुखी
15	पानी वार्ड	सुखी
16	रुडामा वार्ड	सुखी
17	रमेश वर्मा	राममती वार्ड

[Signature]
संवेक्षणकर्ता के इलाका

सामुहिक परिचर्या

वार्ड : 02 स्थान : _____ जल / विभाग : _____
दिनांक : 30/05/16 समय : 2: PM कार्य प्रगति : 100%

1. परिष्कार का विवरण

ए. पानी / सीवेज कनेक्शन ठीक होगा ।
बी. पानी / सीवेज कनेक्शन लेने के लिए कनेक्शन दर _____ होती ।
सी. पानी / सीवेज सुविधा उपलब्ध के लिए पत्रिका दर _____ होती ।

2. समुदाय द्वारा प्रस्तावित कार्य -> प्रोजेक्ट दिनांक 30/5/16 को वार्ड 02 में वेकड आयोजित कि आई मिलने संभूट कर निम्न कृति करे उद्ये
 ① इस वार्ड के सिंचक लाईन से एक बन्दा नामा जाला है जिसमे केकट पानी वेकड से अलग भंडार होवे कि इस वार्ड के लोगो को वीमती प्राप्त होती है
 ② इस में 75% शौचालय नहीं होने के कारण सभी लोगो संभूट कर लक्ष्मी ही की लीवेज लाईन उभरे लेना मीया, नाने लह भोग्य को ली वार्ड में बिभी होना बंद हो जायगी
 उभ वार्ड के लोग सभी लीवेज उभरे ले लुके को लीया है।

<p style="text-align: center;">सामुहिक परिचय</p> <p style="text-align: center;">(सक विभाग एवं उपविधि पत्र)</p> <p style="text-align: center;">दिनांक 08/06/16 समय _____</p> <p>स्थान : _____ कार्ड : 38</p> <p>जिला : <u>छिन्दवाड़ा</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">पट्टी के द्वारा</td> <td style="width: 50%; text-align: center;">सहभागियों के द्वारा</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>क्रमांक</th> <th>नाम</th> <th>सहभागिता</th> </tr> </thead> <tbody> <tr><td>1</td><td>विमान ल. खलम (मैथिली)</td><td>Sam/...</td></tr> <tr><td>2</td><td>-/-</td><td></td></tr> <tr><td>3</td><td>-/-</td><td></td></tr> <tr><td>4</td><td>-/-</td><td></td></tr> <tr><td>5</td><td>-/-</td><td></td></tr> <tr><td>6</td><td>-/-</td><td></td></tr> <tr><td>7</td><td>-/-</td><td></td></tr> <tr><td>8</td><td>-/-</td><td></td></tr> <tr><td>9</td><td>-/-</td><td></td></tr> <tr><td>10</td><td>-/-</td><td></td></tr> <tr><td>11</td><td>-/-</td><td></td></tr> <tr><td>12</td><td>-/-</td><td></td></tr> <tr><td>13</td><td>-/-</td><td></td></tr> <tr><td>14</td><td>-/-</td><td></td></tr> <tr><td>15</td><td>-/-</td><td></td></tr> <tr><td>16</td><td>-/-</td><td></td></tr> <tr><td>17</td><td>-/-</td><td></td></tr> </tbody> </table> <p style="text-align: right; margin-top: 20px;"> सहभागियों के द्वारा</p>	पट्टी के द्वारा	सहभागियों के द्वारा	क्रमांक	नाम	सहभागिता	1	विमान ल. खलम (मैथिली)	Sam/...	2	-/-		3	-/-		4	-/-		5	-/-		6	-/-		7	-/-		8	-/-		9	-/-		10	-/-		11	-/-		12	-/-		13	-/-		14	-/-		15	-/-		16	-/-		17	-/-		<p style="text-align: center;">सामुहिक परिचय</p> <p>कार्ड : _____ स्थान : _____ जिला : _____</p> <p>दिनांक : _____ समय : _____ समय अवधि : _____</p> <p>1. परिचय का विवरण</p> <p>ए. पानी / सीवेज कनेक्शन लेना होगा।</p> <p>बी. पानी / सीवेज कनेक्शन लेने के लिए कनेक्शन दर _____ होगी।</p> <p>सी. पानी / सीवेज सुविधा उपभोग के लिए वार्षिक दर _____ होगी।</p> <p>2. समुदाय द्वारा उठाया गया मुद्दा</p> <p>3. मुख्य सड़क पर स्थिति</p>
पट्टी के द्वारा	सहभागियों के द्वारा																																																								
क्रमांक	नाम	सहभागिता																																																							
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पट्टी के द्वारा	सहभागियों के द्वारा																																																								
क्रमांक	नाम	सहभागिता																																																							
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16	-/-																																																								
17	-/-																																																								

सामुहिक परियोजना
(नगर विद्यालय एवं जलकमी योजना)
दिनांक 30/05/16, समय 12-12.30

स्थान : ज्यामी विद्युत्काम वार्ड वार्ड नं. 33 (मनमोहन मणारी)

विभाग : विद्युत् वार्ड

क्रमांक	नाम	सहकारिता के हस्ताक्षर
1	श्रीमान - यशम निमरी	
2	श्रीमान - सुधीर सुमहारीय	
3		
4	श्रीमान - अशोक	
5	श्रीमान - अशोक	
6	श्रीमान - अशोक	
7	श्रीमान - अशोक	
8	श्रीमान - अशोक	
9	श्रीमान - अशोक	
10	श्रीमान - अशोक	
11	श्रीमान - अशोक	
12	श्रीमान - अशोक	
13	श्रीमान - अशोक	
14	श्रीमान - अशोक	
15	श्रीमान - अशोक	
16	श्रीमान - अशोक	
17	श्रीमान - अशोक	

सहकारिता के हस्ताक्षर

सामुहिक परियोजना

वार्ड : 33 स्थान : ज्यामी जिला : चिंदवाड़ा

दिनांक : 30/5/16 समय : 12-12.30 समय अवधि : 45 मिनट

1. परिचय का विवरण

ए. यही / सीकेएन कनेक्शन देना होगा ।
बी. यही / सीकेएन कनेक्शन देने के लिए कनेक्शन दर _____ होगी ।
सी. यही / सीकेएन शुद्धि उपकरण के लिए अधिक दर _____ होगी ।

2. अनुभव द्वारा उदाहरण क्या मुझे भ्रान्त दिमक 30/5/16 वार्ड 33 के वार्ड भ्रान्तजोस कि गरी (सुधाय डरा भिम्न सुहे उदाये गये)

① इस वार्ड में पहिले शौचालय वाले है पर शौचालय का बन्द पानी मजदोरे में भिमे कि वमह ले करु भाई

② वार्ड में Road के तरफ से मजदोरे वसो है मजदोरे गरी वानी करु अता है रमू बीम लमी लीकेज यमह

3 मुझे मजदोरे वम दिमक ले पहमत है

सुधाय डरा भिम्न है की लीकेज गरीन 5 मने ले मम हने वार्ड में जो सुधाय भासी है वर लाव वम हो जायगी

वार्ड के लोग लीकेज मजदोरे से मजदोरे के लीके भिम्न है

सामुहिक परियोजना
(नगर विद्यालय एवं जलकमी योजना)
दिनांक 01/06/16, समय _____

स्थान : _____ वार्ड नं. 33 (मनमोहन मणारी)

विभाग : विद्युत् वार्ड

क्रमांक	नाम	सहकारिता के हस्ताक्षर
1	श्रीमान - अशोक	
2	श्रीमान - अशोक	
3	श्रीमान - अशोक	
4	श्रीमान - अशोक	
5	श्रीमान - अशोक	
6	श्रीमान - अशोक	
7	श्रीमान - अशोक	
8	श्रीमान - अशोक	
9	श्रीमान - अशोक	
10	श्रीमान - अशोक	
11	श्रीमान - अशोक	
12	श्रीमान - अशोक	
13	श्रीमान - अशोक	
14	श्रीमान - अशोक	
15	श्रीमान - अशोक	
16	श्रीमान - अशोक	
17	श्रीमान - अशोक	

सहकारिता के हस्ताक्षर

सामुहिक परियोजना

वार्ड : 33 स्थान : _____ जिला : _____

दिनांक : 01/06/16 समय : _____ समय अवधि : _____

1. परिचय का विवरण

ए. यही / सीकेएन कनेक्शन देना होगा ।
बी. यही / सीकेएन कनेक्शन देने के लिए कनेक्शन दर _____ होगी ।
सी. यही / सीकेएन शुद्धि उपकरण के लिए अधिक दर _____ होगी ।

2. अनुभव द्वारा उदाहरण क्या मुझे भ्रान्त दिमक 1/6/16 को वार्ड 33 के वार्ड भ्रान्तजोस कि गरी भिम्न वार्ड के लोगो में भिम्न सुहे उदाये

① C.C. रोड होने के कारण दिन में काम नहीं हो

② लीकेज योजना का काम रात में क्या जाय

क्या कि रात में जोना जो जाय है लीकेज वमह

3 मुझे मजदोरे वम दिमक ले पहमत है

वार्ड के लोग लीकेज योजना ले पहमत है

रव वार्ड में लीकेज योजना ले पहमत है

है पर इमक ममह रात में क्या जाये म्हा कि ममह लीकेज का बहापेवानी ममह लीकेज मुझे ले कम ममह ले इल लीके रात में म्हा म्हा म्हा

सामुहिक परिचर्चा
(केक विभाग एवं प्राथमिक चरण)
दिनांक 30/5/16 समय _____

स्थान : विश्वनाथपुर मे वार्ड : 5A - (सुन्दरी नगर)
जिला : खिड़वाडा

बर्तमान के इलाका बर्तमान के इलाका

क्रमांक	नाम	पता
1	श्रीमान S.B. Santakke	
2	श्री. राजीव	
3	श्री. राजीव	
4	श्री. राजीव	
5	श्री. राजीव	
6	श्री. राजीव	
7	श्री. राजीव	
8	श्री. राजीव	
9	श्री. राजीव	
10	श्री. राजीव	
11	श्री. राजीव	
12	श्री. राजीव	
13	श्री. राजीव	
14	श्री. राजीव	
15	श्री. राजीव	
16	श्री. राजीव	
17	श्री. राजीव	

बर्तमान के इलाका

सामुहिक परिचर्चा

वार्ड : 5A इलाका : सुन्दरी नगर जिला : खिड़वाडा
दिनांक 30/5/16 समय 2 PM समय अवधि 45 मिनट

1. परिचर्चा का विवरण

ए. कमी / सीवेज कनेक्शन लेना होगा ।
बी. कमी / सीवेज कनेक्शन लेने के लिए कनेक्शन दर _____ होगी ।
सी. कमी / सीवेज सुविधा उपभोग के लिए परियोजना दर _____ होगी ।

2. समुदाय द्वारा उठाया गया मुद्दा : आज दिनांक 30/5/16 को वार्ड 5A में केक आभेरीयल फंडिंग अभियान सुरु हुआ है।

① इस वार्ड के लोग के बाहर में लगी के बाहर शौचालय है।
② लीवेन बॉटल से लगी नौगा से बहात है कमी।

3. मुख्य समस्याएँ एवं विचार : लीवेन बॉटल से बहात रहने से लकड़वा दूदा लकड़वा है कि वार्ड में लगी के बाहर शौचालय लेने के कारण नमीयों में गन्हा पानी पड़ेने के कारण से बहुत बुरा हो रही है बहुत बुरा बूटो के बीच लगी नौगा लीवेन बॉटल से बहात के वीरे लकड़वा है।

सामुहिक परिचर्चा
(केक विभाग एवं प्राथमिक चरण)
दिनांक 1/06/16 समय _____

स्थान : _____ वार्ड : 17
जिला : खिड़वाडा

बर्तमान के इलाका बर्तमान के इलाका

क्रमांक	नाम	पता
1	श्रीमान श्रीमान साहू	
2	श्री. राजीव	
3	श्री. राजीव	
4	श्री. राजीव	
5	श्री. राजीव	
6	श्री. राजीव	
7	श्री. राजीव	
8	श्री. राजीव	
9	श्री. राजीव	
10	श्री. राजीव	
11	श्री. राजीव	
12	श्री. राजीव	
13	श्री. राजीव	
14	श्री. राजीव	
15	श्री. राजीव	
16	श्री. राजीव	
17	श्री. राजीव	

बर्तमान के इलाका

सामुहिक परिचर्चा

वार्ड : 17 इलाका : _____ जिला : खिड़वाडा
दिनांक 1/06/16 समय 3 PM समय अवधि 45 मिनट

1. परिचर्चा का विवरण

ए. कमी / सीवेज कनेक्शन लेना होगा ।
बी. कमी / सीवेज कनेक्शन लेने के लिए कनेक्शन दर _____ होगी ।
सी. कमी / सीवेज सुविधा उपभोग के लिए परियोजना दर _____ होगी ।

2. समुदाय द्वारा उठाया गया मुद्दा : आज दिनांक 1/06/16 को वार्ड 17 केक आभेरीयल फंडिंग अभियान सुरु हुआ है।

① शौच नालीयों होने से लीवेन बॉटल होती है।
② इस वार्ड में शौच नालीयों होने से लकड़वा नालीयों में बहात है।
③ लीवेन बॉटल से बहात है कि लीवेन बॉटल बाहर में बहात है कि लीवेन बॉटल बाहर में बहात है कि लीवेन बॉटल बाहर में बहात है।

सामुहिक परिचर्चा

(विशेष विचार एवं प्रतिक्रिया सत्र)

दिनांक 31/06/2016 - समय 10.00 AM

स्थान: नोकराबाग पार्क जंक्शन एम.जी. रोड - 6

विकास: खिन्दावाडा

क्रमांक	नाम	इलाका
1	Sudakar Sahu	मोहडा
2	Sakubala memsq	मोहडा
3	Jitpalkhan	मोहडा
4	Jalkhatali	मोहडा
5	Hafsaik Bahl	मोहडा
6	Muhammad Wajid Sun	मोहडा
7	Basim Khan	मोहडा
8	बशीर खान	मोहडा
9	विठ्ठल शंकर आ.ए. - 33*13 7777	मोहडा
10		
11	नीम खान	मोहडा
12	प्रदीप खान (मोहडा रोड)	मोहडा
13		
14	Muhammad Wasim Khan	मोहडा
15		
16	मोहरीण खान	मोहडा
17	मनीम खान	मोहडा
18	अमर खान	मोहडा

(18) अमर खान


 अधिकारी के इलाका

सामुहिक परिचर्चा

दिनांक 06 स्थान Work in Hand / विभाग _____

दिनांक 31/6/2016 समय 10.00 AM समय अवधि 45 Min

1. परिचर्चा का विवरण

ए. पानी / सीवेज कनेक्शन लेव होगा।

बी. पानी / सीवेज कनेक्शन लेव के लिए कनेक्शन दर _____ होगी।

सी. पानी / सीवेज सुविधा उपभोग के लिए वार्षिक दर _____ होगी।

2. अनुदान द्वारा उठाया गया मुद्दा - साफ दिनांक 31/6/16 को एडिक्ट 6 के अंतर्गत आयोगित की गयी। अनुदान द्वारा निम्न मुद्दे उठे

- 1- गली योग्य
- 2- गल्लगी रोड के बीच में फैलना
- 3- रोड का पानी नबि में बहता है तथा गल्लगी योग्य है रकम पानी
- 4- गल्लगी का पानी खाने पानी में बहने से कदम खाना

3 मुद्दों पर चर्चा करने के बाद

अनुदान द्वारा सहायता देने में भीतर बाधन निरहरी पतिन तथा सभी लोग को बंधन देने का निर्णय हुआ है तथा ऑफिस गली रोड से जोड़कर फैलती है उन योग्य हो जाती है जिससे पानी रोड पर बहता है वह पानी को निष्कलन में प्रवेश हो जाती है तथा सभी लोगों को सहायता देने में भीतर बाधन होने से हमारा अहम मुद्दा हो जायगा

Annexure 7: Draft ESA consultation details





Photographs of Draft ESMF Consultation

Publicity of the Disclosure consultations at Chhindwara

Minutes of Meeting

छिन्दवाड़ा नगर में विश्व बैंक के वित्त पोषण से प्रस्तावित सीवरेज योजना के तकनीकी, पर्यावरणीय एवं सामाजिक पक्षों का जन साधारण के समक्ष डिस्क्लोजर
दिनांक 11.07.2016 अपरान्ह 3:00 बजे
स्थान – देव इन्टरनेशनल सभाकक्ष छिंदवाड़ा

छिंदवाड़ा नगर में विश्व बैंक के वित्त पोषण से प्रस्तावित सीवरेज योजना के तकनीकी पर्यावरणीय एवं सामाजिक पक्षों एवं प्रबंधन से जनसामान्य को अवगत कराने के लिए श्रीमति कांता योगेश सदारंग महापौर छिंदवाड़ा की अध्यक्षता में बैठक सम्पन्न हुई। इस विचार गोष्ठी में जनसामान्य के साथ ही नगर के प्रमुख जन भी उपस्थित रहें। इनमें विशेष उपस्थिति थी।

1. श्रीमति अनुसूईया उइके, पूर्व सांसद राज्यसभा
2. श्री धर्मेन्द्र मिगलानी अध्यक्ष नपानि छिंदवाड़ा
3. श्री कन्हईराम रघुवंशी पूर्व अध्यक्ष नपा छिंदवाड़ा
4. श्री विजय पाण्डे पूर्व उपाध्यक्ष नपा छिंदवाड़ा
5. श्री जीपीसिंह सांसद "लोकसभा" प्रतिनिधि
6. श्री जयचंद जी जैन समाज सेवक

गोष्ठी में उपस्थित की सूची संलग्न है। गोष्ठी में स्थानीय समाचार पत्रों के प्रतिनिधि भी उपस्थित रहें।

श्री कमलेश भटनागर, तकनीकी अधिकारी म.प्र. आर्बन डेव्लपमेंट कंपनी म0प्र0 शासन ने सभी उपस्थितों का स्वागत करते हुये सभा को अवगत कराया कि इस विचार गोष्ठी में जनसामान्य को विभिन्न माध्यमों से आमंत्रित किया गया।

योजना के तकनीकी पक्षों को संक्षेप में प्रस्तुत करने के उपरांत योजना के पर्यावरणीय एवं सामाजिक पक्षों (ESA, EMP, SMP)का विस्तृत प्रस्तुतीकरण किया गया। श्री कमलेश भटनागर ने पर्यावरण एवं सामाजिक मैनेजमेंट फंमवर्क तथा मैनेजमेंट प्लान व शिकायत निवारण पर विस्तृत

29

प्रस्तुतीकरण देते हुये जन सामान्य को इस विषय में विस्तृत चर्चा के लिए आवाहन किया। उन्होने बताया कि योजना का क्रियान्वयन म0प्र0 अर्बन डेलपमेंट कंपनी द्वारा किया जायेगा। जन सामान्य ने भी चर्चा में बढ चढकर हिस्सा लिया। चर्चा के दौरान प्राप्त महत्वपूर्ण सुझाव निम्नानुसार है :-

1. श्री प्रसून श्रीवास्तव, एडवोकेट ने कहा कि नगर के जल क्षेत्रों को सीवरेज से बचाने के लिए यदि कुछ अंश भूमि भी देनी पड़े तो वे सहर्ष तैयार है।
2. श्री आर0एस वर्मा पत्रकार ने पाईप लाईन डालने के बाद रोड रिसोर्ट तत्काल किये जाने का सुझाव दिया ताकि नागरिकों को व्यवसाय/आवागमन में न्यूनतम असुविधा हो।
3. श्री विपिन यादव ने सुझाव दिया कि शिकायत निवारण समय सीमा पर नही होने के दृष्टि में उसके लिए जिम्मेदारी निर्धारित की जाये।
4. श्री जी0पी0सिंह ने सुझाव दिया कि नगर निगम उनके सड़क निर्माण के नवीन कार्यों एवं सीवरेज योजना के बीच समन्वय स्थापित कर नियोजित ढंग से कार्य करें ताकि नागरिकों को असुविधा तथा अनावश्यक व्यय न हों।
5. श्री विलास नरोटे ने सुझाव दिया कि नगर के सभी क्षेत्रों को योजना में सम्मिलित किया जाये।
6. श्री राजेश सोनी नेता प्रतिपक्ष ने सुझाव दिया कि नगर में अनियोजित ढंग से कार्य न किया जाये। उनके अनुसार कार्य की रूपरेखा पूर्व से तैयार की जाकर नागरिकों को बताई जाये।
7. श्री अभिनव सूर्यवंशी ने सुझाव दिया कि एफिसियेंट स्लज डिस्पोजल के लिए उचित प्रावधान किये जावें।
8. श्रीमति अनुसुईया उईके, श्री जी0पी0सिंह, श्री कन्हैराम रघुवंशी एवं श्री विजय पाण्डे को संयुक्त सुझाव था कि योजना के क्रियान्वयन की समय

सारणी तैयार कर आम जनता को विभिन्न प्रचार माध्यमों से अवगत कराया जायें ताकि उन्हें असुविधा न हों।

9. श्रीमति कांता योगेश सदारंग महापौर ने सुझाव दिया कि यदि किसी नागरिकों की संपत्ति को योजना कियान्वयन के कारण नुकसान पहुंचें तो उसके लिए समाधान कारक कार्यवाही समय सीमा में की जायें।

श्री कमलेश भटनागर ने सभा को अवगत कराया गया कि ESMF Disclosure ^{हिन्दी} एवं इंग्लिश में नगरीय निकाय नगरीय प्रशासन एवं विकास, आदि की वेबसाईड पर किया जायेंगा। शिकायत निवारण की प्रक्रिया के लिए भी नागरिकों को विभिन्न माध्यमों से सूचित किया जायेगा। समस्त उपस्थित सदस्य Erioment and social Management Framework से अवगत हुये तथा प्रावधानों से सहमत हुये। सभा धन्यवाद के साथ समाप्त हुई।


(कमलेश भटनागर)
तकनीकी अधिकारी
म0प्र0अर्बन डेवलपमेंट कंपनी म0प्र0


(एस0बी0सिंह)
आयुक्त
नगर पालिक निगम छिंदवाड़ा

पत्रकार: एवं गणमान्य नामांकित
 शीवर धर्मेन्द्र शर्मा ई-मेल: 3 वर्षे 30/11/2016

000 कार्यालय नगर पालिक निगम छिन्दवाड़ा 000

क्र	नाम	हस्ताक्षर
1	गोविंदचौलीम पत्रवाल	
2	सदीपाले-जोधन	
3	Rohinangru Agniwala	
4	Sumit Kumar Raj Purohit	
5	शिवराज पट्टाण	
6	जितेन्द्र शाह	
7	महेन्द्र जी भाटी	
8	मंगल मंद मराठी	
9	अनील शर्मा	
10	सचिन कोठे	
11	मिलेश चौधरी	
12	भाई शर्मा	
13	C.B. Suryawanshi	
14	मनोज शर्मा	
15	डा. शरद कासोड SHO (Health)	
16	शरद जामठ 9425871089	
17	डॉ. अजय शर्मा 950226244	
18	अरवि शर्मा	
19	अरवि राजपूतजी	
20	सुभाष मालवी	
21	कुमाल शर्मा	
22	अजय शर्मा	
23	सोहन सुसोनी	
24	अनील पाटिल नगर उपाय	
25	अनिल पाटिल नगर उपाय	
26	Bharti Thakur S.W.O Forest	
27	संजय बापुसा	
28	सुमीत कावरा	

विष्णु सोनी

[Signature]

29	सुशील पांडे	Sushil Pandey
30	दिलीप अहिरवार	DAE 8869250029
31	विमल ठाकुर	DAE
32	राजीव बिन्दा	JK
33	शिव अमरसिंग	EC
34	वीरेंद्र साहू	VP
35	रघुवीर अहिरवार	DAE
36	विमल ठाकुर	DAE
37	Manoj Athankar CSOA	MAH
38	N.S. Baghel EE	
39	B.S. Manwane AE	
40	Deepak Potankar	DAE
41	Ghanashyam Thakur	Thakur
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उपनिषद

000 कार्यालय नगर पालिक निगम छिन्दवाड़ा 000
सीवर लाईन प्रोजेक्ट बैंक दिनांक 11.07.2016

उपनिषद के हस्ताक्षर

क्र०	पद अध्यक्ष/पार्षद	वार्ड क्रमांक	निर्वाचित व्यक्ति का नाम	पावती
	2	3	4	5
1	महापौर		श्रीमति कांता योगेश सदारंग	
2	अध्यक्ष		श्री धर्मन्द्र मिगलानी किशनलाल मिगलानी	
3	पार्षद	1	श्री कैलाश भारती	
4	पार्षद	2	श्री संतोष राय	
5	पार्षद	3	श्रीमति प्रतिभा सुनील तिरगाम	
6	पार्षद	4	श्रीमति संध्या ओमप्रकाश चौरसिया	
7	पार्षद	5	श्रीमति रामकुमारी यादव	
8	पार्षद	6	श्री सै० असगर वासु अली	
9	पार्षद	7	श्री सचिन वानखेड़े	
10	पार्षद	8	श्रीमति उमा सूर्यवंशी	
11	पार्षद	9	श्रीमति शीला जयलाल कुमरे (जंगली)	
12	पार्षद	10	श्री शिवराम पन्द्राम	
13	पार्षद	11	श्री रामकिशन पहाड़े	
14	पार्षद	13	श्रीमति "अन्नू अरोरा"	
15	पार्षद	14	श्रीमति गौरा ठाकुर	
16	पार्षद	15	श्री दीपक मिगलानी	
17	पार्षद	16	श्री गोविंद उइके	
18	पार्षद	17	श्रीमति वर्षा रामचन्द्र बाघ	
19	पार्षद	18	श्री अभिलाष गोहेर	
20	पार्षद	19	श्री अभिनय मनोज कुशवाह	
21	पार्षद	20	श्रीमति दीपा हरिनारायण माहारे	
22	पार्षद	21	श्री शिव मालवी	
23	पार्षद	22	श्री राजकुमार बघेल (राजू)	
24	पार्षद	23	श्रीमति सरिता मनोज चौरे	
25	पार्षद	24	श्रीमति ताफी/झनका यादव	