

**BEFORE THE HON'BLE NATIONAL GREEN  
TRIBUNAL, CENTRAL ZONAL BENCH, BHOPAL**

**IN THE MATTER OF:  
ORIGINAL APPLICATION NO. 54/2025**

SOBRAN YADAV

----APPLICANT

//VERSUS//

STATE OF MADHYA PRADESH  
& ORS

----RESPONDENTS

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**PLACE: BHOPAL**

**COUNSEL FOR RESPONDENT NO. 4**

**DATE: 11.03.2026**

**MEENAKSHI PATIDAR**

**BEFORE THE HON'BLE NATIONAL GREEN  
TRIBUNAL, CENTRAL ZONAL BENCH, BHOPAL**

**IN THE MATTER OF:  
ORIGINAL APPLICATION NO. 54/2025**

SOBRAN YADAV

----APPLICANT

//VERSUS//

STATE OF MADHYA PRADESH  
& ORS

----RESPONDENTS

**ACTION TAKEN REPORT IN COMPLIANCE OF HON'BLE  
TRIBUNAL ORDER DATED 03.02.205 ON BEHALF OF THE  
RESPONDENT NO. 4- CHIEF MUNICIPAL OFFICER,  
MUNICIPAL COUNCIL, TIKAMGARH**

It is humbly submitted on behalf of Respondent No. 4 as under-

1. That, the issue involved in this Original Application is with respect to protection of Mahendra Sagar Talab situated in the district of Tikamgarh which falls under the Wetland Rules, 2017. The Municipal Council Tikamgarh was granted permission from the Water Resource Department to undertake the work of beautification of the lake by developing a park, pitching, walking street and tree plantation. Subsequently, the same development work was stayed by the Water Resource Department on the pretext that the work is damaging the wetland area and hence the Municipal Council has stopped the work of developing a park adjacent to the lake.
2. That, the Hon'ble Tribunal in its order dated 03.02.2026 has observed in its paragraph No. 7 as under-

*“7. We reiterate our previous order and direct the authorities concerned to protect the water bodies, identify and demarcate and protect the area by means of wire, pillars/munnars and to ensure that there should not be any encroachment within*

*wetland and encroachment, if any, must be removed within a time frame following due process of law. It is also to be ensured that there should not be any discharge of untreated water into the water bodies and in case any violation is found, the State PCB is directed to take necessary action in accordance with law, in addition to prosecution and realization of Environmental/damage as per parameters laid down by the rules. Further action taken report be filed within two weeks by State Wetland Authority, Collector Tikamgarh, CMO Tikamgarh.”*

3. That, in compliance of the above order, the Action taken report of the Municipal Council Tikamgarh is filed herewith.
4. That, the Municipal Council, Tikamgarh has taken steps to stop the release of untreated water into the Mahendra Sagar Talab, undertook the work of developing a green belt/green forest on the land allocated for developing park on directions of the District Collector, made potholes on the boundary wall for the water to pass on to the plants when there is full tank level of water and also carried on the stone pitching work alongside the lake for water Rejuvation. The detailed action taken report is filed herewith with documents in compliance of the order passed by this Hon'ble Tribunal.
5. That, an affidavit in support of the report is filed herewith.

#### **PRAYER**

In light of the foregoing facts and submissions, it is most humbly prayed before this Hon'ble Tribunal that the action taken report in compliance of order dated 03.02.2026, on behalf of the Respondent No. 4-Chief Municipal Officer, Municipal Council, Tikamgarh may be taken on record in the interest of justice and for fair adjudication of the matter.



**PLACE: BHOPAL**

**COUNSEL FOR RESPONDENT NO. 4**

**DATE: 11.03.2026**

**MEENAKSHI PATIDAR**

क्रमांक/ ~~1329~~ /न.पा./2026

टीकमगढ दिनांक 10/3/26

प्रति, 1329

The National Green Tribunal  
Central Zone Bench, Bhopal

विषय:- माननीय NGT (CZ) प्रकरण 54/2025 सोबरन यादव विरुद्ध राज्य शासन व अन्य के संबध में।

महोदय,

विषयांतर्गत संबध में निकाय में पदस्थ उपयंत्री द्वारा Action Taken Repot तैयार की गई जो निम्नानुसार है:-

1. महेन्द्र सागर तालाब में वस्ती को जो भी गंदा पानी आता है। उसको Divert कर वण्डा नाला एवं महाराजपुरा की ओर जाने वाले नाले में मिलाया गया है। बण्डा नाला शहर के विद्रावन तालाब में जाकर मिलता है एवं दूसरा नाला महाराजपुरा तालाब में जाकर मिलता है, इन नालों के अंत में STP लगाने की योजना राज्य शासन को स्वीकृति हेतु भेजी गई है। विद्रावन तालाब एवं महाराजपुरा तालाब पर STP निर्माण की डीपीआर संलग्न की गई है। (DPR के Page No. 37, 38, 50 में महेन्द्र सागर तालाब से संबंधित विवरण एवं पत्र क्र. 3279 दिनांक 06.11.2024 को डीपीआर स्वीकृति हेतु कार्यपालन यंत्री सागर को जो पत्र भेजा गया था वह Annexure R/4/1 संलग्न किया गया है।)
2. महेन्द्र सागर तालाब की बाउड्री एवं वण्ड को सुरक्षित करने के लिए निकाय द्वारा स्टोन Pitching का कार्य किया गया है। जो शासन की योजना Water Body Rejuvation अंतर्गत लिया गया है जिसकी Photograph संलग्न है। (स्टोन पिचींग की फोटोग्राफ Annexure R/4/2 संलग्न किया गया है।)
3. अमृत योजना अंतर्गत महेन्द्र सागर तालाब पर जो पार्क का निर्माण किया जा रहा था वह निकाय द्वारा प्रारंभिक स्तर पर ही रोक दिया गया है। इस पार्क का स्वरूप बदलकर Green Forest बनाया जा रहा है। इसमें वह पेड़ लगाये जायेंगे, जो वर्षा को अधिक आकर्षित करें एवं जलमग्न पर भी खराब ना हों। इसकी स्वीकृति कलेक्टर महोदय से प्राप्त कर ली गई है। (परियोजना अधिकारी जिला शहरी विकास अभिकरण टीकमगढ ने कलेक्टर महोदय द्वारा आदेशित अनुसार ग्रीन फॉरेस्ट बनाये जाने का स्वीकृति पत्र Annexure R/4/3 संलग्न किया गया है।)
4. स्थल पर पौधा रोपण की सुरक्षा हेतु Brick एवं लोहे जाली की बाउड्रीवाल बनाई एवं पौधों के लिए काली मिट्टी डलवा दी गई है। बाउड्रीवाल में बीप/पॉट हॉल भी दिये गये है, जिससे अत्याधिक तालाब भरने पर तालाब का पानी लगाये गये पौधों की सिचाई के उपयोग में आ सकें। यह पौधा रोपण कार्य तालाब के FTL के Level से ऊपर लिया गया है। (बाउड्रीवाल एवं बाउड्रीवाल पर बने पॉट/बीप हॉल की फोटोग्राफ Annexure R/4/4 संलग्न किया गया है।)

  
4 मुख्य नगर पालिका अधिकारी  
नगर पालिका परिषद टीकमगढ

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,  
CENTRAL ZONAL BENCH, BHOPAL**

**IN THE MATTER OF:  
ORIGINAL APPLICATION NO. 54/2025**

SOBRAN YADAV

---APPLICANT

//VERSUS//

STATE OF MADHYA PRADESH

---RESPONDENTS

1979  
11/3/26

A  
Ashish Jain  
Notary Public & ORS  
Tikamgarh (M.P.)

**AFFIDAVIT**

I, Ompal Singh Bhadoria, S/o Shri Dharampal Singh Bhadoria, Aged around 40 Years, Chief Municipal Officer, Municipal Council, Tikamgarh do hereby solemnly state and affirm as under-

1. That, I am the Chief Municipal Officer, Municipal Council, Tikamgarh and fully conversant with the facts of this case and hence competent to swear on this affidavit.

2. That, I am filing an Action Taken Report in the aforementioned matter before this Hon'ble Tribunal, the contents of which are true to the best of my knowledge and belief.

3. That, the contents of the report are true and correct to my knowledge based upon official records and no material fact is concealed or suppressed and is drafted on my instructions.

*[Signature]*  
DEPONENT

**VERIFICATION**

I, the above named deponent, do hereby verify that the contents of the affidavit are true and correct.

Signed and verified on this 11<sup>th</sup> day of March, 2026 at Tikamgarh.

श्री / श्रीमती...  
पिता / पति श्री...  
[Handwritten signature]  
[Handwritten signature]

*[Signature]*  
DEPONENT

**I identified by me**

Ashish Jain  
Notary Public  
Tikamgarh (M.P.)



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

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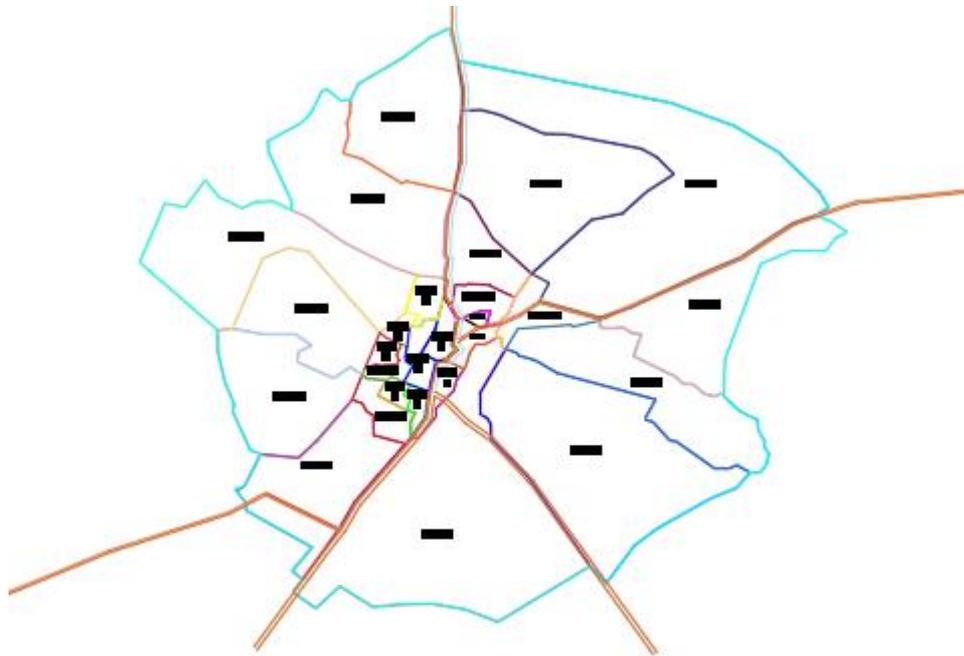
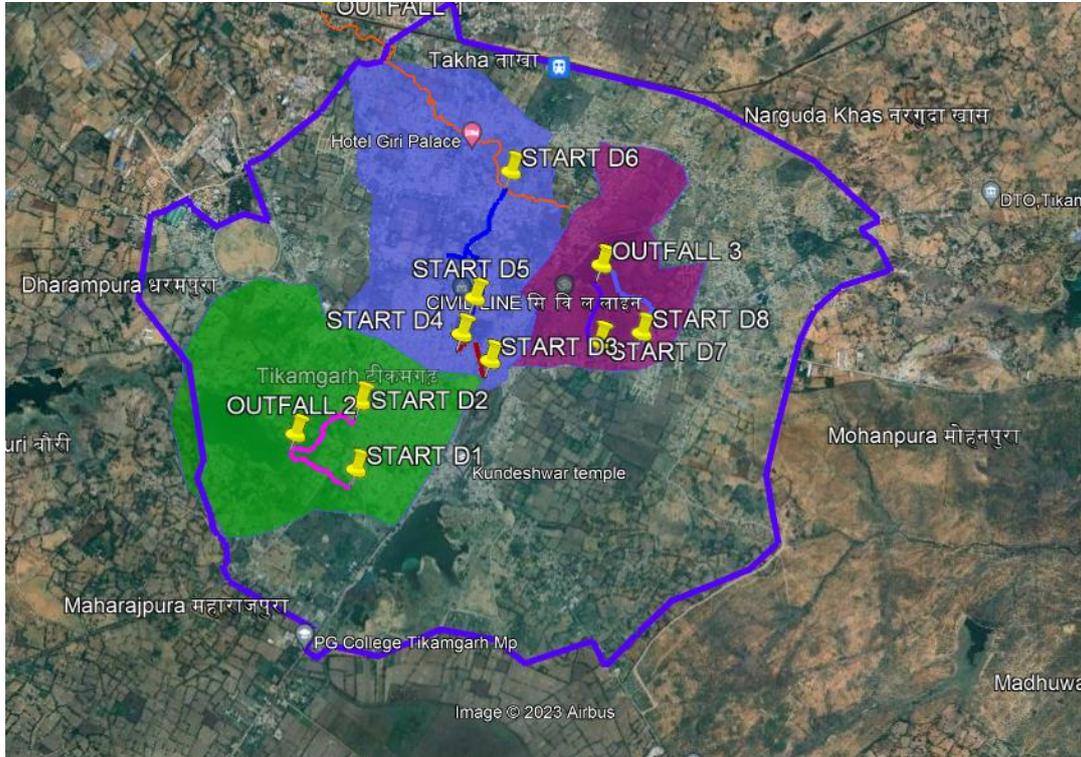


DPR- Liquid waste Management For Tikamgarh Nagar Palika

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DPR- Liquid waste Management For Tikamgarh Nagar Palika



TIKAMGARH WARD MAP



## INTRODUCTION AND SCOPE OF WORK

### 1.1 Project Background:

The Sustainable Development Goals (SDGs) place significant emphasis on sanitation, cleanliness and hygiene. There is evidence globally that better sanitation, hygiene and cleanliness helps in effective control of various vector borne diseases, parasite infections and nutritional deficiencies. There have been studies linking cleanliness and hygiene with reduction in respiratory disorders, gastrointestinal diseases (especially diarrhea), psychological issues and allergic conditions.

Swachh Bharat Mission (Urban) (SBM-U) had three major objectives: (a) achieving 100% Open Defecation Free (ODF) status, (b) ensuring 100% scientific Solid Waste Management (SWM), and (c) behavior change through 'Jan Andolan', by 2nd October 2019, in all statutory towns. The outlay of the Mission was `62,009 crores, including GoI share of 14,623 crores, and minimum State share of `4,874 crores. Balance funds (`42,535 crores) were to be generated through individual beneficiary contribution, PPP and other sources.



This Mission has achieved significant levels of success against the above objectives, with massive engagement of citizens across all categories of society. Hence forth Mission is now being extended for a period of 5 (five) years, from 1st October 2021 to 1st October 2026, as Swachh Bharat Mission (Urban) 2.0 (SBM-U 2.0), for completing the work remaining, institutionalizing 'Swachh' behavior and making it sustainable. The Government of India in partnership with States/ UTs and ULBs is committed to make all cities 'Garbage Free' under SBM-Urban 2.0 in order to contribute to the achievement of the Sustainable Development Goals (SDG) 2030, which will ultimately improve the quality of life and ease of living of urban populations, thus leading to urban transformation.

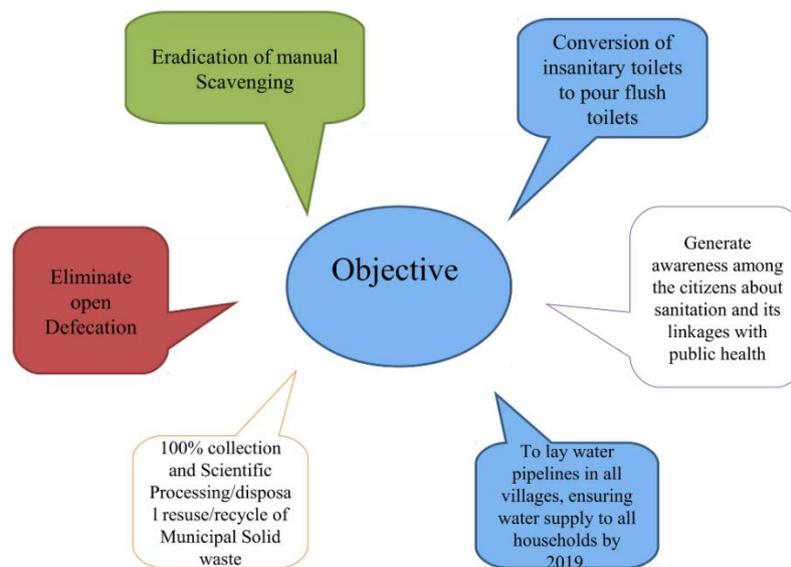


## DPR- Liquid waste Management For Tikamgarh Nagar Palika

### 1.2 Objectives of SBM- U 2.0:

SBM-U 2.0 will be implemented with a vision of achieving “Garbage Free” status for all cities. This will involve the following:

- All households and premises segregate their waste into “wet waste” (from kitchen and gardens) and “dry waste” (including paper, glass, plastic, and domestic hazardous waste and sanitary waste wrapped separately);
- 100% door to door collection of segregated waste from each household/ premise;
- 100% scientific management of all fractions of waste, including safe disposal in scientific landfills;
- All legacy dumpsites remediated and converted into green zones;
- All used water including fecal sludge, especially in smaller cities are safely contained, transported, processed and disposed so that no untreated fecal sludge and used water pollutes the ground or water bodies.



### 1.3 Components of SBM-U 2.0:

#### 1.3.1 Sustainable Solid Waste Management

- Ensuring cleanliness and hygiene in public places to make all cities clean and garbage free,
- Reducing air pollution arising out of SWM activities;



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

- Phased reduction in use of single-use plastic.

### 1.3.2 Sustainable Sanitation

- holistic Sanitation, with end-to end solutions (from discharge, containment, evacuation, transportation to safe disposal of all effluents from toilets);
- treatment of used water before discharge into water bodies, and maximum reuse of treated used water.
- eradication of hazardous entry into sewers and septic tanks, and sustaining elimination of manual scavenging through mechanization of sewer and septic tank cleaning operations;

### 1.3.3 Used water management

- desludging equipment, for scheduled and need-based desludging of all septic tanks;
- interception and diversion of drains (I&D) (including last mile connectivity for nearest sewer network).
- construction of Sewage Treatment Plants (STPs)/ STP cum Fecal Sludge Treatment plants (FSTPs) for used water treatment

### 1.3.4 Information, Education and Communication

**National Level** – A part of the overall IEC funds would be retained by MoHUA for the following:

- Hiring of professional IEC/ BCC agency (on an outsourced basis) for developing IEC strategies, collaterals, content and tools and managing Social Media outreach;
- dissemination of national level campaigns regarding various components of SBM Urban;
- promotion of national level initiatives such as Swachh Survekshan, ODF+/ODF++/ Water+ and Garbage Free certifications etc;
- organisation of national level people centric events to raise advocacy for Garbage Free India.

**State/ ULB level** – the balance funds can be utilized at State/ULB for:

- dissemination of State/ ULB level campaigns regarding various components of SBM-U 2.0, including through interpersonal communication
- empanelment and engagement of NGOs/ CBOs/ CSOs for grassroots mobilization and sensitization regarding SBM-U 2.0;
- promotion of good practices at household/ individual level, collectives, RWAs, schools/ colleges, market associations etc;
- organization of promotional events (such as 'plog' runs, mass triggering activity, competitions etc.) related to SBM-U 2.0.



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

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### 1.4 Scope of the project

Swachh Bharat urban 2.0 Scope is to make cities garbage free by 2026

### 1.5 Used water management project components:

- Sewage Treatment Plant
- Interception and diversion drains/ outfall sewer/ trunk main sewer
- Sewer & Septic tank cleaning machines
- Sewer Network
- Strengthening of Municipal drains

In this components Central funds will be released for STP, I&D , trunk main sewers, outfalls, septic tanks and cleaning equipments and components are fully funded by state government

### 1.6 Used water management Mission Implementation Strategy:

#### • City Sanitation Action Plan (CSAP) – part 2

o The CSAP Part 2 is expected to contain information on sewage management, specifically details of existing sewer networks, STPs, STP cum FSTPs, FSTPs and details of main municipal drains, etc, along with gap analysis in respective infrastructure and proposed projects along with block cost estimate, as per standard template provided at Annex 3B

#### • Broad DPR preparation approach

o Sound foundation for sanitation in ULBs using sewer network based robust used water management approach followed by Sewage treatment facility.

o Where, States/ULBs, instead decides to adopt, municipal pucca drains based used water conveyance system, as interim arrangement, followed by I&D and Used Water and Septage treatment facility.

#### • DPR Preparation approach adopting sewer network & STP

- Sewer Network in Core Sanitation Zone
- Intercepting used water from open drains to Sewer network
- Approach for Fringe Areas
- Provision for adequate Used Water Treatment Facility in each ULB



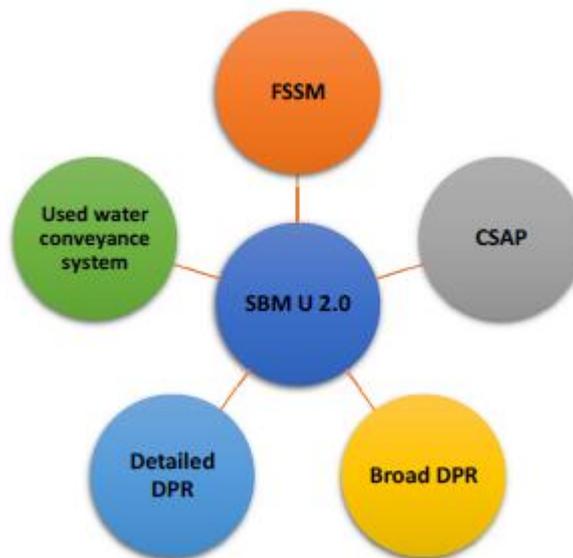
## DPR- Liquid waste Management For Tikamgarh Nagar Palika

○ STP Technology

● **Municipal pucca drains based used water conveyance system, followed by**

**I&D and Used Water Treatment Facility**

□ **Faecal sludge treatment approach**



### 1.7 Present Report

The various components of the proposed Liquid waste management mainly consists of technical and economic analysis, Draft detailed design, Base maps, topographical maps, drawings, cost estimate and O&M cost and E&S impacts till the Current stage are detailed out in the present Draft report. The draft report comprises of the following IV volumes:

Volume I- Main Report

Volume II- Detailed Designs

Volume III- Detailed Estimates

Volume IV- Drawings



DPR- Liquid waste Management For Tikamgarh Nagar Palika

## **CHAPTER-2**

### **ACTIVITY SCHEDULE**

#### **2.1 Activity 1 : Inception and Mobilization**

The activity on Inception and Mobilization comprises the Team's assignment preparatory tasks and focusing on mobilizing team members and finalizing the Work Plan for assignment implementation.

The Following Expert members constituted the Team:

<b>S.No.</b>	<b>Name</b>	<b>Position</b>
1.		Environment Engineer (Team Leader)
2.		Design Engineer
3.		Structural Engineer
4.		Mechanical Engineer
5.		Civil Engineer

#### **a. Collection of Data and Conduct Reconnaissance Survey:**

During the first few weeks period, field staff interacted with the officials, and made reconnaissance visits to the project site. During the visits, and held discussions with the concerned officials to understand and analyses the exiting situation of the municipality. The field staff held detailed discussions with concerned officials and the council in order to assess present status of ULB, understand deficiencies, needs and institutional arrangements etc. They have tried to collect documents available with ULB including base maps, and available secondary data on the city's demographics, master plan, Existing reports and other relevant documents etc

#### **b. Finalize Methodology and Work Plan:**

The methodology and work plan for preparation of the DPR was Updated and finalized based on the discussions with the officials and reconnaissance visits of ULB.

**Outputs:** The task on Inception and Mobilization will result in an **CSAP-3B** indicating approach, methodology, detailed work plan for implementation of the said Assignment along with the general discussion about macro level.

**Staff Involved:** All Field staff & Team Members



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

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### 2.2 Activity 2: CSAP-3B

During this activity the team along with field staff will collect relevant data, Carry out necessary Field Investigations, analyze & assess the data Collected, Undertake techno economic Feasibility analysis of various alternatives and preliminary costing, O&M and environment and social impacts.

#### a. Data Collection, Field Surveys.

The team will try to collect secondary level data available with various department concerned including base maps, demographics, master plan, Existing reports and other relevant documents etc. The details of the departments/Agencies and the data sort from the concerned departments detailed out in section 3.1

#### b. Field Investigations

All the surveys, field investigations, testing's etc will be conducted as per the Gol norms with latest revisions

#### Topographical Surveys:

Field Teams will Carry out detailed topographic survey of the Project area and to prepare longitudinal sections of the system, contour maps and detailing all the temporary and permanent structures met within that width. All the structures and encroachments will also be marked with enough details. Take existing levels and preparation of drain network leading to the STP. The surveys shall done along with the Municipal Engineer. Temporary Bench Marks (TBM) will be established on all salient locations.

#### Water Quality

Water analysis for the present study is very important to investigate the water quality. It will be ensured that the Sample collection points are so that the overall water quality status is studied. Based on the reconnaissance survey the initial points for collection of sample will be identified. Efforts will be made to ensure that varied site locations are identified during the field visits. Necessary Geo Technical Investigations will be carried out for the proposed structures.

### Review, analysis & Design

Analysis of Existing system records including the size, invert levels and ground levels of the Existing System; Reviewing the existing/ ongoing / proposed underground drainage arrangements in and



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

around the project area, study of the underground drainage arrangement (both existing and proposed), identifying critical bottlenecks and problems of the existing system.

### Meeting the following functional requirements:

- Sustainability
- Functionality (ease of maintenance, reliability of suggested measures)
- Cost effectiveness (maintenance, environmental benefits, balance between allowed damages vs. safety)

Based on the analysis, identification of the alternatives that may include liquid waste management system if any and Proposal of liquid waste management System in the areas where it is not existing, augmentation/extension, strengthening of existing structures etc will be done. The sewerage treatment and Disposal alternatives will be assessed and proposed.

**Output:** The output of this Activity will be **CSAP-3B** covering techno economic feasibility of various alternatives and preliminary cost etc.

**Staff Involved:** All Field staff & Team Members

### 2.3 Activity 3: Preparation of Draft Detailed Project Report

From the feasibility Report outcome the Team will compile the draft Detailed Project Report for the selected alternative including the preliminary design, drawings , estimates, survey plans, topographic maps, base maps.

**Output:** The output of this Activity will be **Draft Detailed Project Report** covering preliminary design, maps, cost estimate and implementation plans for each package.

**Staff Involved:** All Team Members

### 2.4 Activity 4: Preparation of Final Detailed Project Report

Based on the suggestions and Recommendations & Changes as Suggested by the Client the Team will finalize the Detailed Project Report including Final detailed design along with flow chart, site plan of STP, pumping station, lift stations etc. , L sections a plan of I&D network and major nala sewerage network , drawings, details of geo technical investigation, TBM details, cost estimates and BOQ. The Final DPR, Designs, etc., shall be in conformity to the IS / IRC / CPHEEO / MOUD requirements

**Output:** The output of this Activity will be Final Detailed Project Report covering Final detailed design , cost estimates and drawings

**Staff Involved:** All Team Members



## **CHAPTER -3**

### **SECONDARY DATA & FIELD INVESTIGATIONS**

#### **3.1 Collection of Data and Conduct Reconnaissance Survey:**

The team has tried to collect secondary level data available with various departments concerned including base maps, demographics, master plan, Existing reports and other relevant documents etc. The details of the departments/Agencies and the data sort from the concerned is detailed below.

#### **Secondary Data**

<b>S.No.</b>	<b>Agency</b>	<b>Particulars/Data</b>
1		Details of the Nagar parishad. Its Profile and Other Available Information, Master Plan Proposals, land use details and other Existing Data etc
2		Toposheets
3		Demographic details
4		Details of Economic Characteristic of Study Area
5		Collection of details of sewerage Master Plan Proposals in the area
6		Master Plans ,Land use etc
7		Revenue/Cadastral Maps ,Villages Maps & Other Revenue Particulars
8		

#### **3.2 Reconnaissance & Field Investigations**

##### **General:**

Reconnaissance and Field Investigations are carried out to collect the information regarding the Tikamgarh Nagar Pallika, alignment of drains, geometry of the drains, details of cross drainage structures like culverts, bridges etc., encroachment details, tank details. The team visited the site and had a glance on general alignment, geography of the area, topography of the project area, details of frequent flooding areas, details of outfalls etc.



DPR- Liquid waste Management For Tikamgarh Nagar Palika

### 3.3 Field Investigations

All the surveys, field investigations, testings etc. are being conducted as per the GoI norms with latest revisions. The Activities of field investigation are elaborated below:

#### Topographic Survey

Topographical was carried out at 30 m interval as per IS codes, and to prepare longitudinal sections of the system, contour maps and detailing all the temporary and permanent structures met within that width. All the structures and encroachments were also marked with enough details. Take existing levels and preparation of drain network leading to the STP. Further Temporary Bench Marks (TBM) were established on all salient locations, one TBM at every strategic location.

#### Water Quality Sample Collection:

Collection of water Samples & Analysis of the Samples for Water quality – Physical and Chemical components such as BOD, COD, pH, Temperature, Suspended Sediment, Nutrients., and biological components like Coliforms, e-coli etc., as per the guidelines in the project area.

#### Geo-Technical Investigations:

The geotechnical investigation was carried out as per IS codes to explore and determine the existing sub-strata conditions such as stratification, denseness or hardness of the strata, etc. and to evaluate approximate range of safe bearing capacity for the proposed structure using empirical formulas provided in the relevant IS codes. The goal of our investigation was to identify the key geotechnical issues that could potentially impact the proposed project and to develop geotechnical recommendations for design and construction of the project.



## **CHAPTER -4**

### **INTRODUCTION & PRELIMINARY ANALYSIS OF THE TOWN**

#### **4.1 Introduction**

**Tikamgarh** is a town and a tehsil in Tikamgarh district in the Indian state of Madhya Pradesh. The city serves as a district headquarters. The earlier name of Tikamgarh was **Tehri** (i.e., a triangle) consisting of three hamlets, forming a rough triangle. In Tikamgarh town there is locality still known as 'Purani Tehri' (Old Tehri). Until Indian independence in 1947, Tikamgarh, formerly called Tehri, was part of the kingdom of Orchha, which was founded in the 16th century by the Bundeli chief Rudra Pratap Singh, who became the first King of Orchha.

#### **4.2 Regional Setting**

The town Tikamgarh is located in the Sagar division in the state of Madhya Pradesh, India. As of CWBP, the population of the town is 79,106. Tikamgarh Nagar Palika is located at co-ordinates 24°46'13.86"N, 78°50"E. It has an average elevation of 349.170 m (1,145.571 ft) . Tikamgarh Nagar Palika is well connected by all means of transport viz: Roads, Railways and the nearest Airport Khajuraho is situated 125 km far from here . The State Highway **NH-12A, SH-37, SH-10** pass through Tikamgarh, and the rail route is connected to Lalitpur.

#### **4.3 Physical Characteristic/ Climate Characteristics**

The climate is warm and temperate in Tikamgarh. In winter, there is much more rainfall in Tikamgarh than in summer. The Köppen-Geiger climate classification identifies this particular weather pattern as belonging to the category of Csa. In Tikamgarh, the average annual temperature is 25.3 °C | 77.5 °F. About 963 mm | 37.9 inch of precipitation falls annually. This region, situated near the equator line, is characterized by difficult-to-define summer seasons.

The climate of this district is monsoon type. The year may be divided into four seasons with winter season starting from the month of December till February followed by the summer season from the month of March to about the middle of June. The period from about mid-June to the end of September forms the rainy season. October and November form the post-monsoon or transition season. There is a single rain gauge station in the Tikamgarh district. The average rainfall of the district is forty inches. It varies from thirty three inches to fifty four inches in different parts of the district. Generally rainfall in the district increases from northwest to southwest. Some parts of the Niwari tehsil and Mohangarh of Jatara tehsil also come in the low rainfall zone. About ninety percent



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

of the annual rainfall in this district of the Madhya Pradesh state is received during the south-west monsoon season which is from June to September. The month of July is the rainiest month.

The temperature in the district of Tikamgarh rises progressively after the month of February. The month of May is usually the hottest month with mean daily maximum temperature at about forty three degree Celsius and the low temperature being twenty nine degree Celsius. Temperature even rises to forty seven degree Celsius on some days. The district experiences a high relative humidity during the monsoon season, which is generally above seventy percent, while in the rest of the year the air is comparatively dry. The driest part of the year in this district is during the summer season when the relative humidity is less than twenty percent in the afternoons.

Data: 1991 - 2021 Min. Temperature °C (°F), Max. Temperature °C (°F), Precipitation / Rainfall mm (in), Humidity, Rainy days. Data: 1999 - 2019: avg. Sun hours

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	15.9 °C (60.7) °F	19.7 °C (67.5) °F	25.3 °C (77.5) °F	30.9 °C (87.7) °F	34.3 °C (93.7) °F	32.4 °C (90.4) °F	27.7 °C (81.9) °F	26.6 °C (79.9) °F	26.6 °C (79.9) °F	25.2 °C (77.4) °F	21.5 °C (70.7) °F	17.2 °C (63) °F
Min. Temperature °C (°F)	9.5 °C (49) °F	12.6 °C (54.7) °F	17.3 °C (63.2) °F	22.7 °C (72.9) °F	27.1 °C (80.8) °F	27.8 °C (82.1) °F	25.2 °C (77.3) °F	24.3 °C (75.8) °F	23.3 °C (73.9) °F	19.5 °C (67) °F	15 °C (59.1) °F	10.9 °C (51.6) °F
Max. Temperature °C (°F)	22.7 °C (72.8) °F	26.8 °C (80.3) °F	32.8 °C (91) °F	38.4 °C (101.2) °F	40.8 °C (105.5) °F	37.4 °C (99.4) °F	31.1 °C (87.9) °F	29.7 °C (85.5) °F	30.6 °C (87.1) °F	31.2 °C (88.2) °F	28.1 °C (82.5) °F	24 °C (75.2) °F
Precipitation / Rainfall mm (in)	10 (0)	15 (0)	9 (0)	4 (0)	7 (0)	124 (4)	315 (12)	286 (11)	157 (6)	22 (0)	8 (0)	6 (0)
Humidity(%)	59%	49%	33%	23%	25%	46%	77%	83%	77%	58%	53%	58%
Rainy days (d)	1	2	1	1	1	8	17	17	11	2	1	1
avg. Sun hours (hours)	8.8	9.8	10.7	11.4	12.0	11.1	7.6	6.8	8.5	9.8	9.6	9.2

The difference in precipitation between the driest month and the wettest month is 311 mm | 12 inch. The average temperatures vary during the year by 18.3 °C | 33.0 °F.

The month with the most relative humidity is August (82.63 %). The month with the least relative humidity is April (22.96 %). The wettest month is July (22.33 days), while the driest is December (1.07).

### 4.4 Topography and Geology:

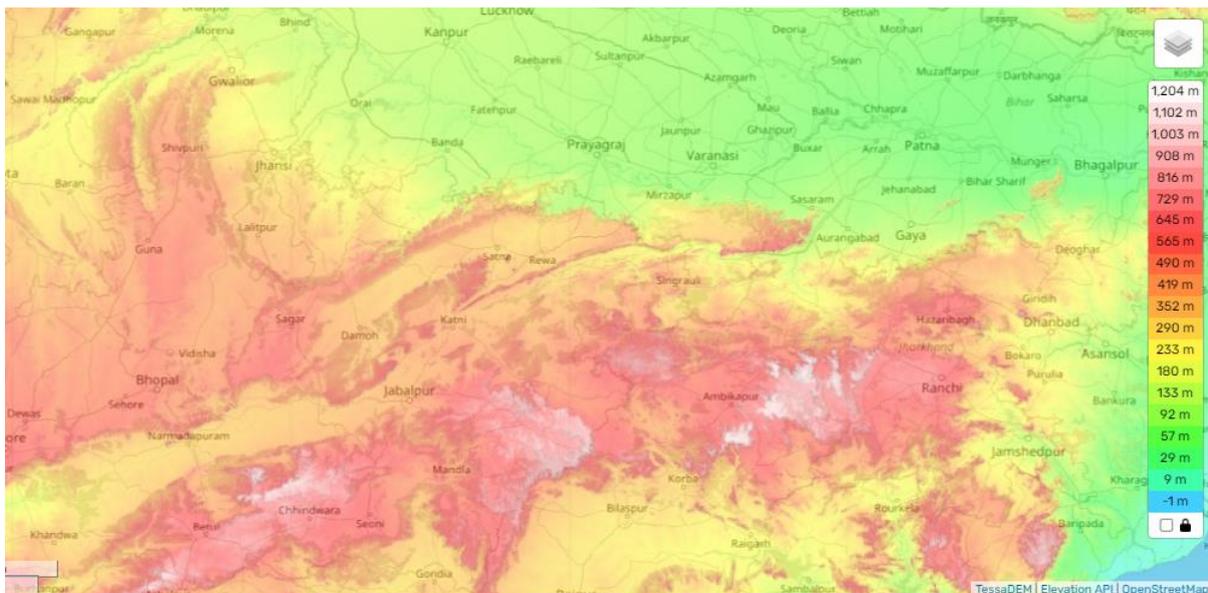
This district is situated in the northern portion of Madhya Pradesh. The district of Tikamgarh forms the north-western portion of the Sagar district. It is located on the Bundelkhand Plateau between the Jamni River, a tributary of **Dhasan River** and **Betwa River**. The district of Tikamgarh is situated in between twenty four degree twenty six minutes and twenty five degree thirty four minutes to the North Latitudes and between seventy eight degree twenty six minutes and seventy nine degree twenty one minutes to the East Longitudes.



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

The shape of the Tikamgarh district is triangular with a very irregular northern margin. The maximum length of this district is about one hundred and nineteen kilometers from North to South and the width is about eighty kilometers. The district of Tikamgarh is bounded by the district of Chhatarpur to the east, **Lalitpur district** of **Uttar Pradesh** to the West, **Jhansi district** to the North and the district of Sagar to the South. The Eastern and Western boundaries are formed by two big rivers.

Agriculture and related pursuits have always been the predominant occupation of the mainly rural area which, though not among the most fertile, has enough to reward well the tradition bound and hard working farming community of the district. The geographical environment of this district makes possible the cultivation of crops like **jowar**, urad, **wheat**, paddy, etc.



**Topographic Map**

### 4.5 Demography

As per the 2011 census, the total population of Tikamgarh is 79106 and total number of households is 15821 with an average household size of 5.00.



DPR- Liquid waste Management For Tikamgarh Nagar Palika

**BASIC DATA**

Year	Population	Average Increase	Incremental Increase	Decadal Growth rate	Percentage Increase
1971	39283				
1981	47925	8642		0.20	0.22
1991	57989	10064	1422	0.19	0.21
2001	68426	10437	373	0.17	0.18
2011	79106	10680	243	0.15	0.16

**4.6 Existing water bodies and storm water drain:**

Tikamgarh town is situated on uneven ground, surrounded by hill rocks from three sides. Main water bodies are Kunwari river passing through northern part of the town. Naturally the city's storm water network covered with streams, water bodies and river.



## CHAPTER -5 Population Projection

### 5.1 Demography

As per the 2011 census, the total population of Tikamgarh is 79106 and total number of households is 15821 with an average household size of 5.00.

### 5.2. Population growth trend:

#### BASIC DATA

Year	Population	Average Increase	Incremental Increase	Decadal Growth rate	Percentage Increase
1971	39283				
1981	47925	8641		0.20	0.22
1991	57989	10064	1422	0.19	0.21
2001	68426	10437	373	0.17	0.18
2011	79106	10680	243	0.15	0.16

Total Value of "N" Average	5	39823	2038	0.71	0.00130
		4	3	4	4
		9956	679	0.18	0.19
		(mean)	(inc. mean)	(dec. rate)	(geo. rate)
Reference population P1	79106	X	Y	$r_d$	$r_g$



DPR- Liquid waste Management For Tikamgarh Nagar Palika

**CALCULATION**

Year	Value of 'n'	Average Increase	Incremental Increase	Decadal Growth rate	Geometric method
2016	0.5	84084	84339	85806	86287
2017	0.6	85079	85406	87212	87800
2018	0.7	86075	86479	88642	89339
2019	0.8	87071	87560	90095	90905
2020	0.9	88066	88647	91572	92499
2021	1.0	89062	89741	93073	94120
2022	1.1	90057	90842	94599	95770
2023	1.2	91053	91950	96150	97449
2024	1.3	92048	93064	97726	99158
2025	1.4	93044	94185	99328	100896
2026	1.5	94040	95313	100956	102665
2027	1.6	95035	96448	102611	104464
2028	1.7	96031	97590	104293	106296
2029	1.8	97026	98738	106003	108159
2030	1.9	98022	99893	107740	110055
2031	2.0	99018	101056	109506	111985
2032	2.1	100013	102224	111301	113948
2033	2.2	101009	103400	113126	115945
2034	2.3	102004	104582	114980	117978
2035	2.4	103000	105771	116865	120046
2036	2.5	103995	106967	118781	122151
2037	2.6	104991	108170	120728	124292
2038	2.7	105987	109280	1227077	126471



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

2039	2.8	106982	110596	124719	128688
2040	2.9	107978	111819	126763	130944
2041	3	108973	113049	128841	133239
2042	3.1	109969	114286	130953	135575
2043	3.2	110964	115530	133100	137952
2044	3.3	111960	116780	135282	140370
2045	3.4	112956	118037	137499	142831
2046	3.5	1139581	119301	139753	145335
2047	3.6	114947	120572	142044	147883
2048	3.7	115942	121849	144373	150475
2049	3.8	116938	123133	146739	153113
2050	3.9	117933	124424	149145	155797
2051	4	118929	125722	151590	158529
2052	4.1	119925	127027	154074	161308
2053	4.2	120920	128338	156600	164135
2054	4.3	121916	129657	159167	167013
2055	4.4	122911	130982	161776	169941
POPULATION (INCREMENTAL INCREASE METHOD)					
	2022		90842		
	2026		95313		
	2040		111819		
	2055		130982		

**Note- Basic data given by Nagar Parishad and as per census record**

**Formulae Used**

Arithmetical Method  $P_n = P_1 + nX$



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Incremental Increase Method  $P_n = P_1 + nX + n(n+1)Y/2$

Decadal Growth Method  $P_n = P_1(1 + rd/100)^n$

Geometrical Growth Method  $P_n = P_1(1 + rg/100)^n$

Where

X is a arithmetical mean

Y is a incremental increase mean

rd is a decadal average growth ratio

rg is a geometrical average growth ratio

P1 is a reference

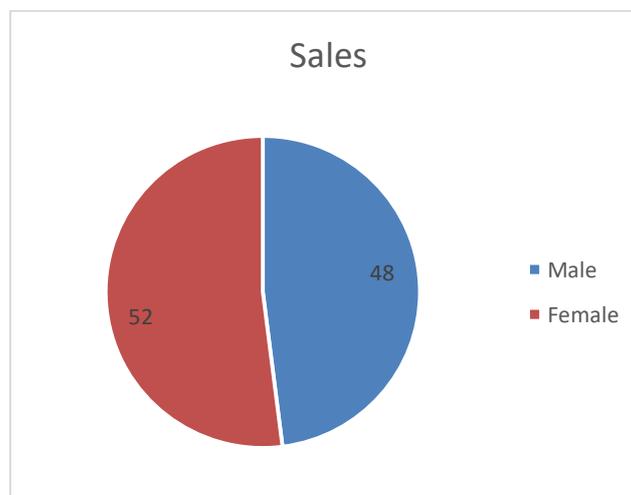
population

n is a number of decade from reference year

N is a number of decades whose data has been taken in calculation

### 5.3. Sex ratio:

As per 2011 Indian Census, Tikamgarh has a population of 79,106, of which 41,399 are males and 37,707 are females. The sex ratio is 911.

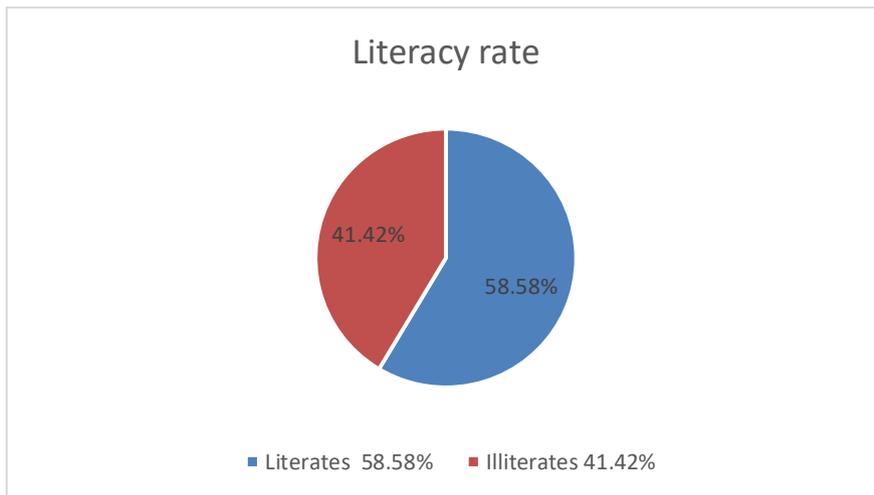




DPR- Liquid waste Management For Tikamgarh Nagar Palika

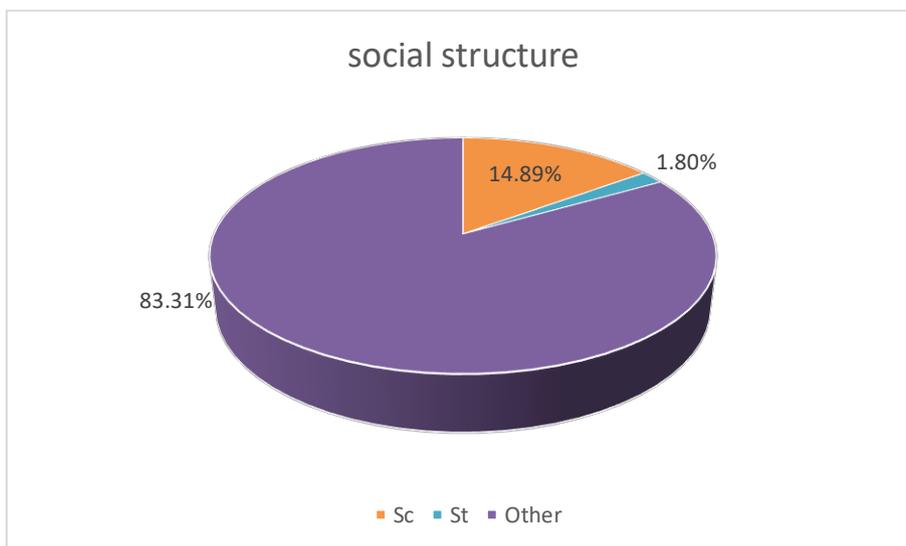
**5.4. Literacy Rate:**

In Tikamgarh, literacy rate is 58.58 % in 2011 census.



**5.5. Social Structure:**

The social structure of Tikamgarh town consist Schedule Caste (SC) 14.89 % while Schedule Tribe (ST) were 1.80 % of total town population



**5.6. Density:**

Area of is Tikamgarh Nagar Palika is core area 21 Sq. Km and population as per 2011 census is 79106 hence the density of the Tikamgarh Nagar Palika is 3767 persons per sq.km



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

### 5.7. Population projection:

Population growth characteristics of Tikamgarh Nagar Palika evaluated by looking at the past growth trends. The projections for Tikamgarh Nagar Palika have been done using Arithmetic progression Method, Geometrical progression method, Decadal Growth. Method, Graphical method and Incremental increase method. The methods of projections are discussed below.

#### BASIC DATA

Year	Population	Average Increase	Incremental Increase	Decadal Growth Rate	Percentage Increase
1971	39283				
1981	47925	8642		0.20	0.22
1997	57989	10064	1422	0.19	0.21
2001	68426	10437	373	0.17	0.18
2011	79106	10680	243	0.15	0.16

Total Value of "N"	5	39823	2038	0.71	0.00130
Average		4	3	4	4
Reference Population P <sub>1</sub>	79106	9956 (mean) X	679 (inc. mean) Y	0.18 (dec. rate) r <sub>d</sub>	0.19 (geo. rate) r <sub>g</sub>

#### CALCULATION

Year	Value of 'n'	Average Increase	Incremental Increase	Decadal Growth Rate	Percentage Increase
2016	0.5	84084	84339	85906	86287
2017	0.6	85079	85406	87212	87800
2018	0.7	86075	86479	88642	89339
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2021	1.0	89062	89741	93073	94120
2022	1.1	90057	90842	94599	95770
2023	1.2	91053	91950	96150	97449
2024	1.3	92048	93064	97726	99158
2025	1.4	93044	94185	99328	100896
2026	1.5	94040	95313	100956	102665
2027	1.6	95035	96448	102611	104464
2028	1.7	96031	97590	104293	106296
2029	1.8	96031	97590	104293	106296



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

2029	1.8	97026	98738	106003	108159
2030	1.9	98022	99893	107740	110055
2031	2.0	99018	101056	109506	111985
2032	2.1	100013	102224	111301	113948
2033	2.2	101009	103400	113126	115945
2034	2.3	102004	104582	114980	117978
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2042	3.1	109969	114286	130953	135575
2043	3.2	110964	115530	133100	137952
2044	3.3	111960	116780	135282	140370
2045	3.4	112956	118037	137499	142831
2046	3.5	113951	119304	139753	145335
2047	3.6	114947	120572	142044	147883
2048	3.7	115942	121849	144373	150475
2049	3.8	116938	123133	146939	153113
2050	3.9	117933	124424	149145	155797
2051	4	118929	125722	151590	158529
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2053	4.2	120920	128338	156600	1641.5
2054	4.3	121916	129657	159367	167013
2055	4.4	122911	130982	161776	169941
POPULATION (INCREMENTAL INCREASE METHOD)					
	2022		90842		
	2026		95313		
	2040		111819		
	2055		130982		

**NOTE:-** Basic data given by Nagar Palika and as per census record.

**Formula used**

Arithmetical Method  $P_n = P_1 + nX$

Incremental Increase Method  $P_n = P_1 + nX + n(n+1)Y/2$

Decadal Growth Method  $P_n = P_1(1 + rd/100)^n$

Geometrical Growth Method  $P_n = P_1(1 + rg/100)^n$



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Where

X is a arithmetical mean

Y is a incremental increase mean

rd is a decadal average growth ratio

rg is a geometrical average growth ratio

P1 is a reference

population

n is a number of decade from reference year

N is a number of decades whose data has been taken in calculation

### Summary of Population Projection

Population	Arithmetic	Incremental	Geometrical
Population 2022	90057	90842	95770
Population 2026	94040	95313	102665
Population 2040	107978	111819	130944
Population 2055	122911	130982	169941

Incremental increase projection method has been finalized for projection. The base year population is 90842 in 2022, prospective population of 95313 in 2026 and ultimate population of 130982 in 2055 which have been considered in the demand assessment.



## **CHAPTER-6**

### **DESIGN ASPECTS**

#### **6.1 Sewerage System**

The sewerage system or water carriage system can be separate system or combined system or partially separate system depending on domestic sewage and rain water are drained through two separate set of pipes or through single set of piping. However, the combined system is not quite suitable in tropical Indian conditions as i) heavy and concentrated rainfall occurs during the monsoon period and thus there is a large variation in the quantity of sewage during different months of the year, ii) Dry weather flow is generally a very small proportion of the total flow and hence sewers are likely to get silted up due to low velocity of flow in lean periods, iii) capital funds are limited, iv) treatment costs and pumping costs are significantly reduced in separate system due to reduction in quantity.

Hence for the Current Project area a separate Underground drainage System has been Proposed for the Collection and Conveyance of Sewerage. Further, The pipes for collection have been proposed using the Zonal pattern in which entire City/Town is divided into suitable zones and a separate interceptor is provided for each Zone.

#### **6.2 Design Criteria**

The 'Design Criteria' have been finalized primarily on the basis of recommendations of the 'Manual on Sewerage and Sewage Treatment' (2013) by CPHEEO under the ministry of Urban Development, Government of India. The Design Criteria for the major system components of the 'Sewerage Project' are described below:

#### **6.3 Per Capita Sewerage flow**

The Per capita Sewerage has been calculated as per Clause 3.5 of the CPHEEO Manual. As in arid regions, mean sewage flows may be as little as 40% of water consumption and in well developed areas; flows may be as high as 90%. However, the conventional sewers shall be designed for a minimum sewage flow of 100 litres per capita per day or higher as the case may be, Hence in the Current Case as the Municipality is a fastly developing area waste generated is assumed to be 80 % of the water supplied.



## 6.4 Estimation of Quantity of Sewage

The Total quantity of Waste water has been Estimated for the Municipality Considering the Domestic Sewerage, Sewerage from Commercial Institutions & certain flows due to infiltration of groundwater through joints. The sanitary sewers are not expected to receive storm water and industrial effluent hence are not Considered.

### Domestic Sewerage

The quantity of domestic sewage design flow is calculated by projecting present population for design year by using population projection figures and applying adopted per capita sewerage flow rate for projected population.

### Sewerage from Commercial Institutions

The industries and commercial buildings often use water other than the municipal supply and may discharge their liquid wastes into the sanitary sewers. Estimates of such flows have been made separately.

### Infiltration

Estimate of flow in sanitary sewers may include certain flows due to infiltration of groundwater through joints. Since sewers are designed for peak discharges, allowances for groundwater infiltration for the worst condition in the area should be made. The design infiltration value shall be limited to a maximum of 10% of the design value of sewage flow.

#### Ground water infiltration

	Minimum	Maximum
Litres/ha/day	5000	50000
Litres/km/day	500	5000
Litres/day/manhole	250	500



DPR- Liquid waste Management For Tikamgarh Nagar Palika

## 6.5 Design period of sewerage components

The project components will be designed to meet the following periods :

S.no.	Design Components	Design period (Year from base year )
1	Land acquisition	30
2	Conventional sewers (A)	30
3	Pumping mains	30
4	Pumping station civil work	30
5	Pumping machinery	15
6	Sewerage treatment plants	15
7	Effluent disposal	30
8	Effluent utilization	15

## 6.6 Design period

Sewerage Project may be designed normally to meet the requirement over a 30 years period. Hence the project horizons are decided as given below.

- Base year : 2026
- Intermediate year : 2040
- Ultimate Year : 2055

## 6.7 Peak Factors

The peak factors with respect to contributing population for domestic wastewater are furnished below. The peak factors are applied to the projected population for the design year considering an average per capita wastewater flow based on allocation. The flow in sewers varies from hour to hour and seasonally. However, for the purpose of hydraulic design estimated peak flows are adopted. The details of peak factor considered as indicated in Table below



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Contributory Population	Peak factor
Upto 20,000	3.0
Above 20,001 Upto 50,000	2.50
Above 50,000 Upto 7,50,000	2.25
Above 7,50,000	2.0

CPHEEO- Manual on Sewerage and Sewage Treatment (2013)

### 6.8 Sewage Treatment Plant

The selection of a particular type of treatment technology will depend upon the techno-economic feasibility of the process selected for treatment. The tech-economic feasibility can be attributed to the following parameters:

Degree of treatment required, Capital cost of the project, Operation & Maintenance cost, Power Requirement, Land Requirement, Ease of construction, Operation & Maintenance, Simplicity of system, Trouble free service, Proven process, Ability to absorb shock loads (Hydraulic / Organic), Need for skilled / unskilled staff O&M, Presence / absence of nuisance potential from mosquito / fly / odour, Ease of access to components of the system for repairs and maintenance, Safety / Hazardous conditions at the plant.

Although, the degree of treatment is set by state and central level regulatory agencies and applicable norms are to be strictly adhered selecting an appropriate sewage treatment technology requires proper consideration. Advance technology will achieve very high treatment standard and provide for reusing the treated sewage for beneficial purposes. Sewage treatment technology evaluated are listed below:

1. ASP with Extended Aeration (EAS)
2. Sequential Batch Reactor Process (SBR)
3. Moving Bed Bioreactor (MBBR)
4. Up-flow Anaerobic Sludge Blanket Process with Extended Aeration (USAB -EAS)
5. Membrane Bio Reactor (MBR)
6. DEWATS



## **CHAPTER -7**

### **SEWERAGE STATUS – STUDY AREA**

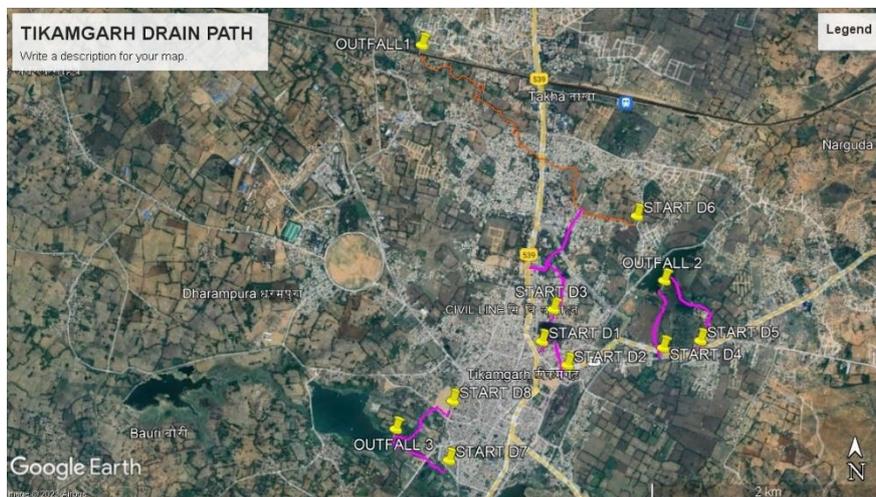
#### **7.1 Existing Sewerage System**

At present there is no underground system for town. This results in a very unhygienic state of the town as far as sewage disposal is concerned. There is no organized sewerage system in the entire town for safe disposal of the sewerage generated in the town.

The Nagar Palika Tikamgarh use Vacuum cleaners to desludge the septic tank which it cost Rs. 500/-. The receipt is also provided after payment is done. The city has 20 kl existing FSTP.

In some area's sewage water directly flows through open drains and gets drained into natural water bodies. The waste water and the effluent from the septic tanks flow through the open gutters. Where facilities are not available, flows in low level areas and get stagnated in open areas thereby creating nuisance. There is an immediate need to develop an effective sewerage system for the ULB.

#### **7.2 Major Drains:**



Tikamgarh don't have existing Underground Sewer network. The Total Length of drains under the Tikamgarh Nagar Palika judiciary of various drains existing in the town is around 8.05 Km, the all three outfalls are major type and cover a large area. The first nala is longest one with covering length of 5.1 km. It consist combine length of drains D1,D2,D3,D6 from which it has formed by merging and the second one cover a length of 1.36 km. which consist of D4,D5 . The third one is having a length of 1.56 km. Also it consist of two drains D7, D8.



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Talking about the first pond “Sail Sagar” two drains D1 & D2 merges in it and discharge their waste in a large open area and moreover the solid household waste is also dumped by locals here. It is found that across the D1 drain no. of houses were constructed above it and waste water flows below these houses and merges into “Sail Sagar”.

The D2 is pucca covered drain but it is choked/ blocked by polymeric products which needs more attention to be cleaned frequently in small regular period.

### 1<sup>st</sup> drain(D1)





DPR- Liquid waste Management For Tikamgarh Nagar Palika



2<sup>nd</sup> drain(D2)





## DPR- Liquid waste Management For Tikamgarh Nagar Palika

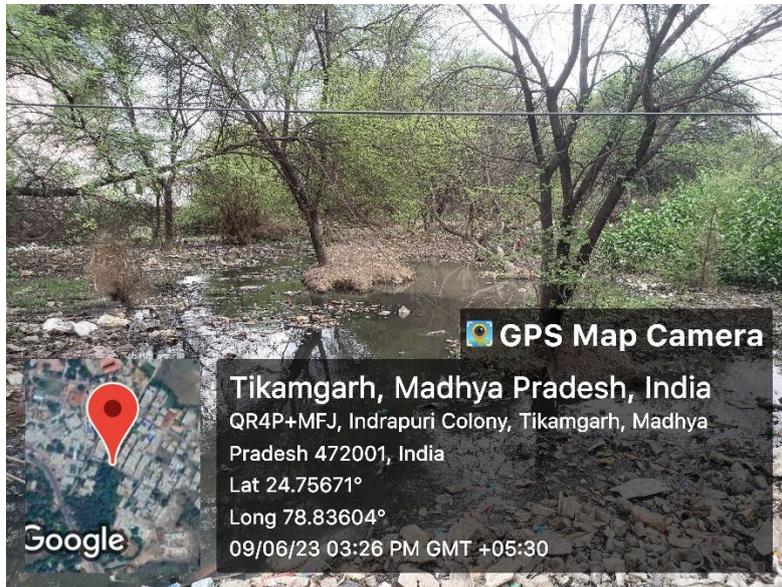


The water from “Sail Sagar” when it’s get filled or in rainy season when the water level is high, the water from this pond is get transported by a pucca drain(D3) which follows more length kachha or pucca and openly flows below the houses and get transferred to the outer side of the city.

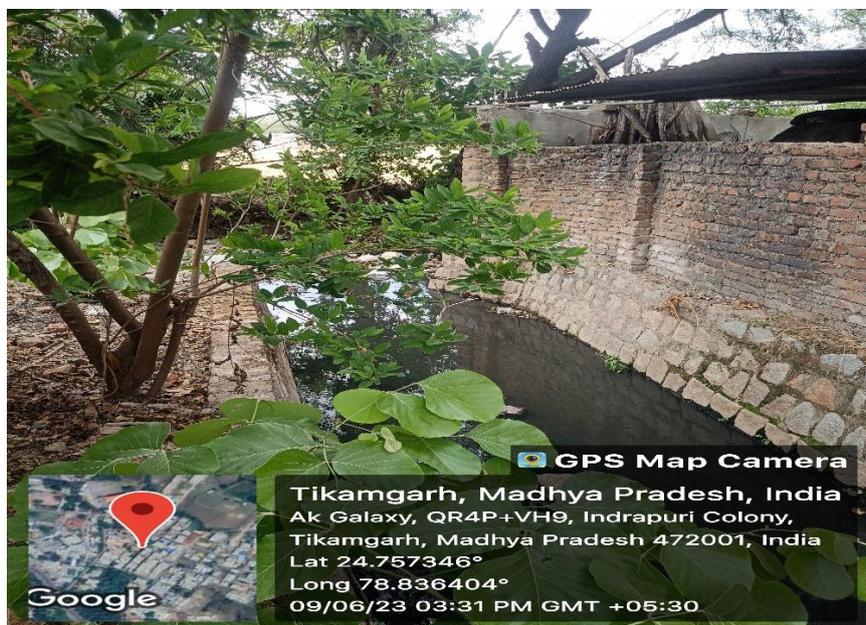




## DPR- Liquid waste Management For Tikamgarh Nagar Palika



As we can see, the whole drainage system is blocked by the plastic materials due to which the exact discharge can not be judged, also the most of these two drains are kaccha and flow openly.

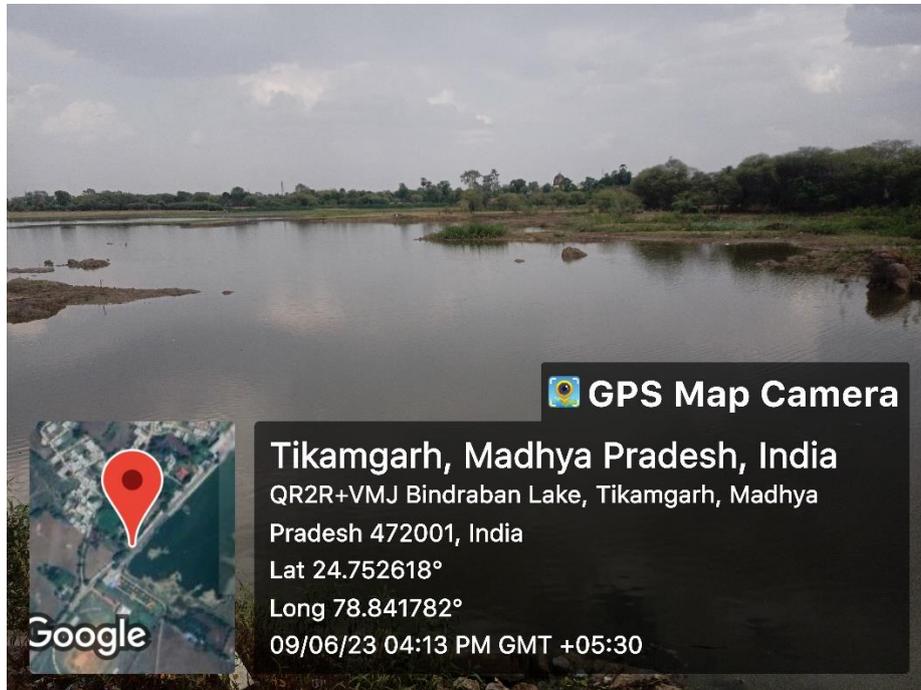


After the “Sail Sagar”, the second pond is “Vindravan Talab”. Here also the two drains D4,D5 from city discharge their waste. Due to large area this pond looks beautiful and it have



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

the option to treat the water from drain at just before discharging into it and can be convert into good seen sight.





## DPR- Liquid waste Management For Tikamgarh Nagar Palika



The third pond is “Maharajpura”. The condition of this site is very poor. It has large area but the waste which had been discharged here left huge of amount of plastic material. Further the site has very nuisance and pungent smell due to presence of remaining of dead fishes and the excreta waste generated by wild animals.



DPR- Liquid waste Management For Tikamgarh Nagar Palika





## DPR- Liquid waste Management For Tikamgarh Nagar Palika

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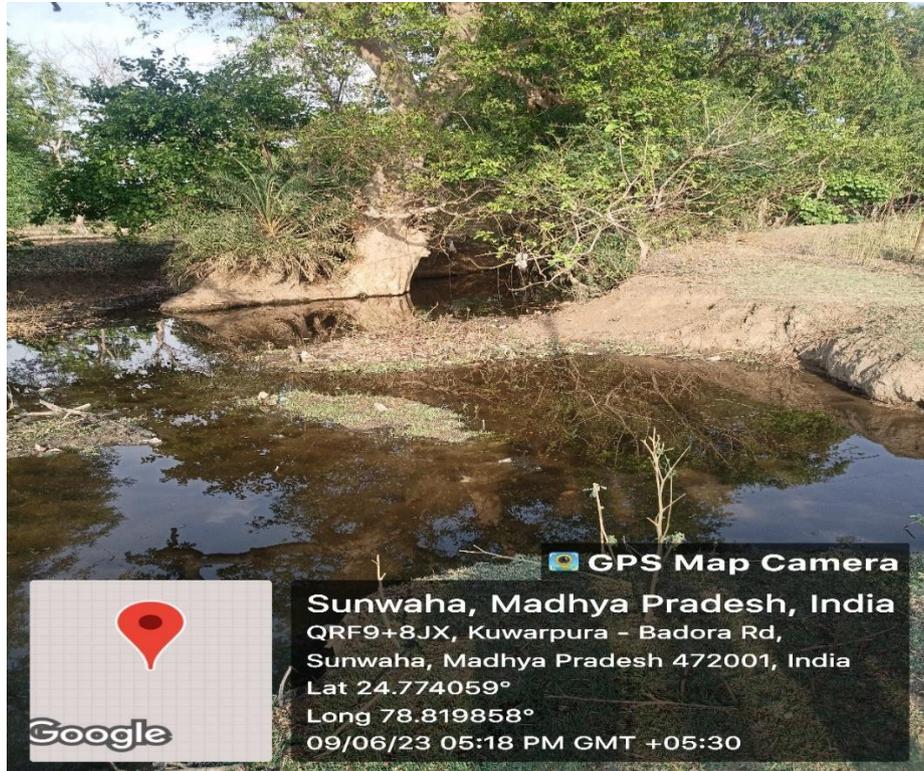


As we had seen the site condition it has been concluded that the drainage in Tikamgarh is not proper channelised and the water of these channels flow openly in residential area and below house. Also these channels are choked by plastic products. It has been observed that covered pucca drain will be difficult as it may choked frequently so it has been suggested that open pucca drains should be provided to transfer these discharge to treatment plant. In some ponds there is open space available beside it to construct a treatment plant so the waste water can be easily discharged to these pond and no other arrangements could be needed.

Now the outfall 1 which is outside the town and had been spreading in an open area outside the city. The outfall area is outside the judiciary of Nagar Palika of “Tikamgarh” so the water has to be treated before the outfall under Nagar Palika judiciary. Here some images are attached with refer to this.



## DPR- Liquid waste Management For Tikamgarh Nagar Palika





## DPR- Liquid waste Management For Tikamgarh Nagar Palika

### 7.3 Means of sewerage disposal

Presently, the total sewerage generated is being disposed into open nalas in an unscientific manner. The sewerage of major portion of the houses, from the septic tanks is being directly disposed in to open nalas (kutchra and pucca). This untreated sewerage drained into water bodies and other open land area creating an unhygienic condition and deteriorating the environment.

### 7.4 Sanitation facilities

The town is not ODF+ as per Swachh Bharat Survey. The data shows that around 80% the households have both toilets and septic tank facilities.

### 7.5 Present and Future Demand and Supply gaps:

Present estimated demand stands at 1.25 MLD (70% of water supply demand Per Capita Supply @ of 135 LPCD for base year 2026). As shown in table below, a gap of 1.25 MLD is indicated between present supply and demand, and this is likely to widen by 2026.

Demand	Base Year 2026	Prospective Year 2040	Ultimate Year 2055
Projected Population	95313	111819	130982
Water demand(@135lpcd) in MLD	12.8	15.09	17.68
Total Used water demand in MLD (80%)	10.29	12.07	14.15

### 7.6 Disposal and treatment facility:

Currently there is sewage treatment available at the Municipal level but not on the sufficient quantity. Sewerage is being directly disposed into the open drain without any treatment.



## **CHAPTER -8**

### **PROJECT PROPOSAL**

#### **8.1 Proposed Conveyance System**

Liquid waste management system for Tikamgarh Nagar palika consist of Sewerage demand 10.29 MLD (2026). Based on the analysis, identification of the alternatives that may include liquid waste management system if any and Proposal of liquid waste management System in the areas where it is not existing, augmentation/extension, strengthening of existing structures etc. will be done. The sewerage treatment and Disposal alternatives will be assessed and proposed.

Further, the city has been proposed using the Zonal pattern in which entire town is divided into three zones and a separate interceptor is provided for each zone.

#### **8.2 Salient Features of Liquid waste management system**

<b>S.NO.</b>	<b>Description</b>	<b>Proposed</b>
1	Type of system	Liquid waste management system
2	Design Period	<ul style="list-style-type: none"> <li>• Base Year : 2026</li> <li>• Intermediate Year : 2040</li> <li>• Ultimate Year : 2055</li> </ul>
3	Designed Wastewater flow	8.1 MLD (2055)
4	Total number of zones	3
5	Major Water bodies	Sail sagar, Vindravan talab, Maharajpura talab
6	Primary nalas	Major 3
7	I&D	3
8	Treatment facilities	MBBR
9	Septage conveyance	Open channel



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

### 8.3 Details of sewerage network- proposed

The liquid waste management system is designed for a total Demand of 8.1 MLD. The project area divided into 3 zones based on the ground topography. The entire town is divided into 3 zones i.e Zone-I, Zone-II & Zone-III.

As the major portion of drains of the town are kaccha type it is suggested to develop it into pucca so the waste water get effluently disposed off the town.

In Zone I Zone II and Zone-III areas, major parts of outfalls are outside the town. The liquid waste from these areas is intercepted and diverted to the Proposed STP of capacity 2.6, 1 and 4.5 MLD.

### 8.4 Sewage Treatment Plant

The degree of treatment set by state and central level regulatory agencies and applicable norms are to be strictly adhered selecting an appropriate sewage treatment technology requires proper consideration.

In order to Finalize the best Suited Technology for the Project area the following Sewage treatment technologies have been evaluated:

- i. ASP with Extended Aeration (EAS)
- ii. Sequential Batch Reactor Process (SBR)
- iii. Moving Bed Bioreactor (MBBR)
- iv. Up-flow Anaerobic Sludge Blanket Process with Extended Aeration (USAB -EAS)
- v. Membrane Bio Reactor (MBR)

Comparison of Sewage Treatment Processes is Detailed out in Annexure –III. As per the Assessment and existing Site Condition the Best Suited Technology for the Project area is Moving Bed Bioreactor

### 8.5 STP Capacity Requirement

Parameter		
STP Capacity Required	MLD	8.1
STP Capacity Proposed as per SBM guidelines 2055	MLD	8.1
Existing Capacity of STPs	MLD	2.6, 1 & 4.5



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Proposed STP capacity required to be developed now -(2.6 MLD+1 MLD+4.5 MLD)	MLD	8.1
STP Technology for 2.6 MLD STP		MBBR
STP Technology for 1 MLD STP		MBBR
STP Technology for 4.5 MLD STP		MBBR

### 8.6 Proposed STPs details:

S.NO.	STP Location	Zone	Capacity in MLD	Type of technology
1	Near railway line	I	2.6	MBBR
2	Near Vindravan talab	II	1	MBBR
3	Near Maharajpura talab	III	4.5	MBBR

### 8.7 Proposed STP design details:

Design details of 2.6 MLD MBBR

S.NO	Description	Size
1	Collection Well	2mX3mx4m
2	Inlet Chamber	1.4m X 1.4m X 1m
3	Screen Chamber (Coarse Screen) Screen Chamber (Coarse Screen)	2.0m X 0.5m X 0.9m
4	Grit Channel	5.3m X 0.6m X 1m
5	Stilling Chamber	4.5m X 3m X 2m
6	Equalization Tank	27m X 9.0m X 6.8m
7	Raw sewage pumps 2 nos.	12 hp
8	MBBR tank 1 <sup>st</sup> stage	8.75m X 17.5m X 4.0m



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

9	MBBR tank 2 <sup>nd</sup> stage	6.75m X 13.5m X 4m
10	Tube Settler	6.2m X 6.2m X 3m
11	Air blowers 2 nos.	1100 cum/hr
12	Chlorination Tank	6.2m X 2.2m X 2.7m
13	Dual Media filters & ACF	Dia. 2.8m & Dia. 3.1m
14	Treated Water Tank	8.3m X 3.3m X 3m

## Design details of 1 MLD MBBR

S.NO	Description	Size
1	Collection Well	2mX2mX2m
2	Inlet Chamber	0.9m X 0.9m X 1m
3	Screen Chamber (Coarse Screen) Screen Chamber (Coarse Screen)	2.0m X 0.5m X 0.9m
4	Grit Channel	2.05m X 0.6m X 1m
5	Stilling Chamber	3.0m X 2m X 2m
6	Equalization Tank	16.5m X 5.5m X 6.8m
7	Raw sewage pumps 2 nos.	5 hp
8	MBBR tank 1 <sup>st</sup> stage	5.5m X 11.0m X 4.0m
9	MBBR tank 2 <sup>nd</sup> stage	6.75m X 13.5m X 4m
10	Tube Settler	3.8m X 3.8m X 3m
11	Air blowers 2 nos.	1100 cum/hr
12	Chlorination Tank	3.9m X 1.4m X 3.0m
13	Dual Media filters & ACF	Dia. 1.8m & Dia. 1.9m



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

14	Treated Water Tank	5.3m X 2.1m X 3m
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### Design details of 4.5 MLD MBBR

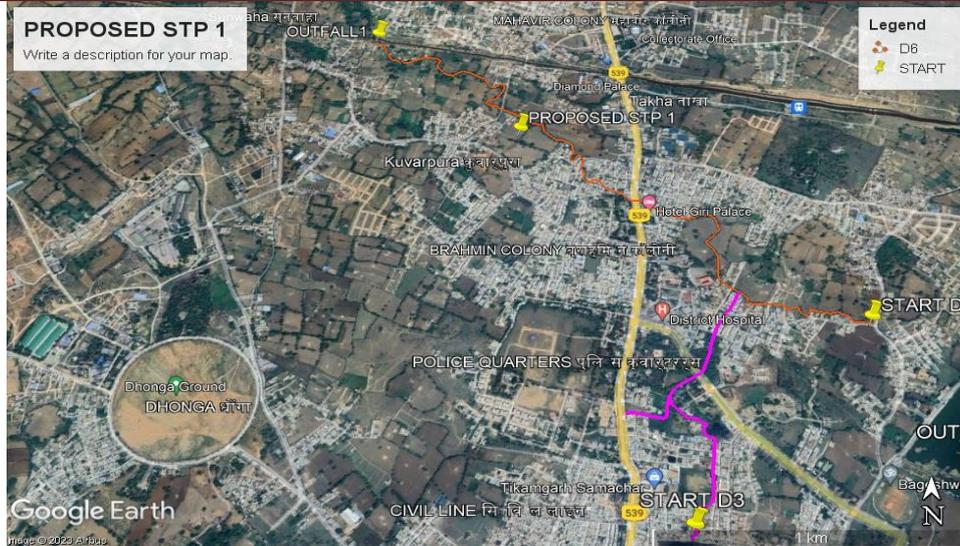
S.NO	Description	Size
1	Collection Well	3mX4mx4m
2	Inlet Chamber	1.m X 1.9m X 1m
3	Screen Chamber (Coarse Screen) Screen Chamber (Coarse Screen)	2.0m X 0.5m X 0.9m
4	Grit Channel	9.15m X 0.6m X 1m
5	Stilling Chamber	6.0m X 4m X 2m
6	Equalization Tank	36m X 12m X 6.8m
7	Raw sewage pumps 2 nos.	20 hp
8	MBBR tank 1 <sup>st</sup> stage	11.5m X 23m X 4.0m
9	MBBR tank 2 <sup>nd</sup> stage	6.75m X 13.5m X 4m
10	Tube Settler	8.1m X 8.1m X 3m
11	Air blowers 2 nos.	1100 cum/hr
12	Chlorination Tank	8.2m X 2.9m X 2.7m
13	Dual Media filters & ACF	Dia. 3.7m & Dia. 4.1m
14	Treated Water Tank	11m X 4.4m X 3m

### 8.8 Proposed I&D details:

The Total Length of existing drains in Town is around 8.05 Km, in which some portion is pucca and major portion is kaccha type.



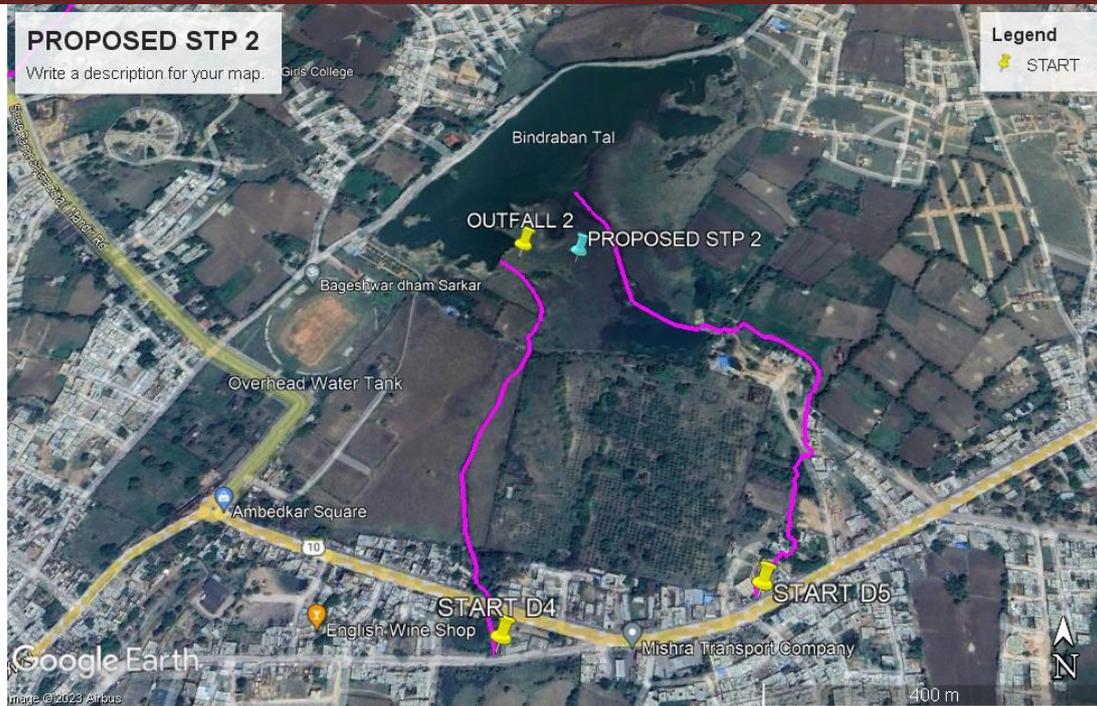
## DPR- Liquid waste Management For Tikamgarh Nagar Palika



In sail sagar talab drain D1 & D2 falls out and D1 is kaccha type. Also the waste water from the houses near to it is directly disposing their waste water which need to channelize in a specific manner and make a proper flow to the outlet drain D3. It is suggested that a pucca channel should construct along the periphery of the talab connecting to both drains and houses which are connected to it and joining it into the outlet drain D3 which further needs to be reconstructed pucca type. As the water of all the drains D1,D2,D3 are merging in the drain D4, the water must be treated in the outer region of town on drain D4 as large area can be available for easy to construct the STP and dispose off the treated water in the natural drain from where it can be used for irrigation and other purpose. A sump well and pumping station is also required to collect the waste water in peak and ordinary hours. To carry or divert the water to our sump well a obstruction has to be created in the nalas. From the sump well with the use of pumps it can be supplied to our STP with a constant discharge so that our STP effectively work and treat this waste water and make it of that quality which doesn't create an unhygienic environment. The "Sail Sagar" talab is under personal land of single or many individual so the land availability must be ensure first to construct the drain along the periphery of it.



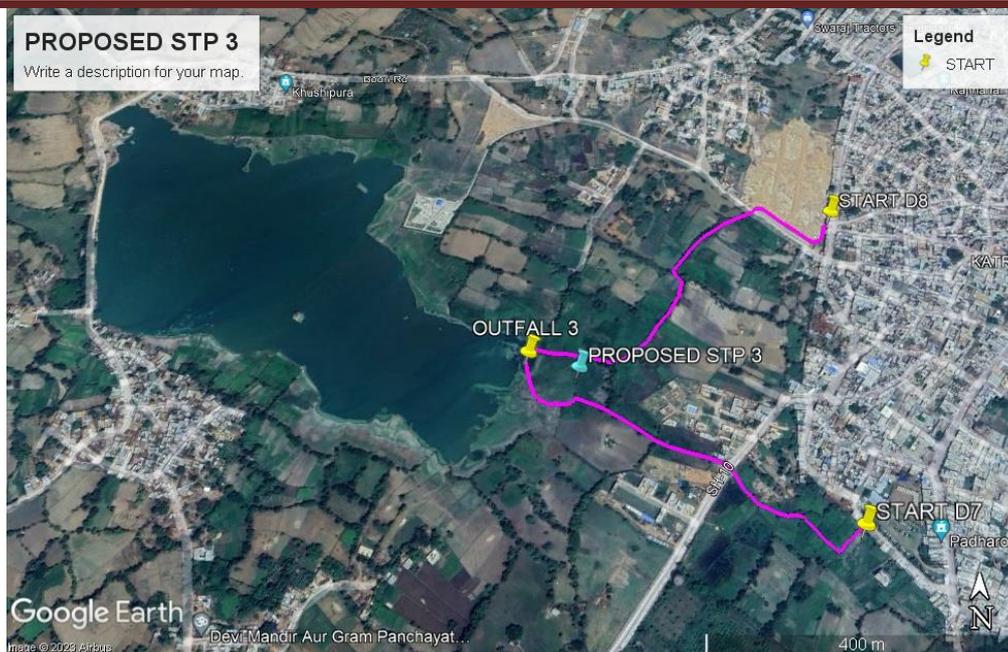
## DPR- Liquid waste Management For Tikamgarh Nagar Palika



In the “Vindravan talab” the drains D4 & D5 merge and both are kaccha type. It is needed that all the drains must construct pucca type so the water can flow with the uniform velocity and can not spread here and there area near to it when the water level get increased. A STP has been proposed near talab where both the drains are easily accessible and can be diverted easily into the STP for treatment and dispose off in the “Vindravan Talab” so that the talab or pond can be revived. A sump well and a pump house is needed here so the waste water can be transported to our STP with a constant discharge/flow all the time. Also the sitting arrangement can be provided at edges of talab for people to sit and observe the beauty of nature.



## DPR- Liquid waste Management For Tikamgarh Nagar Palika



The third STP has been proposed near the Maharajpura talab. The condition of this talab is very worse as the pungent smell is being spreaded on the nearby area because of the waste material and remaining od dead fish and other animals. The merging drains D7, D8 is also kaccha type which need to be converted into pucca type so the water can be easily diverted to STP proposed and treated. A sump well and pumping station is also required to supply a constant flow to our proposed STP even in peak and ordinary hours.



DPR- Liquid waste Management For Tikamgarh Nagar Palika

## **CHAPTER - 9**

### **COST ESTIMATE**

#### **9.1 Rates**

The Total Project cost has been arrived based on the Revised Standard Data of Government of Madhya Pradesh . The basic rates for the rate analysis are taken from the Common Standard Schedule of Rates for the year 2021-22 of Government of Madhya Pradesh. The rates not covered in SSR 2021-22 are adopted based on quotations.

#### **9.2 Project components**

Liquid waste management system planned and designed for the project area consists of sewer treatment plant, Interception and Diversion, intermittent pumping stations and necessary civil, mechanical and electrical components. Component wise summary of the cost is detailed Below

#### **9.3 Project Cost**

The proposals as outlined have been worked out into detailed cost. The cost for the proposed project of preparation of Detailed Project Reports for Liquid waste management with STPs in Tikamgarh Nagar palika is detailed below. Wherein costs of each and every element necessary for taking up the work and completing the project have been considered. Details of the various Project components have been worked out and enclosed below.

<b>S.NO</b>	<b>Description of work</b>	<b>Amount Rs in Rate</b>
1	Designing, Providing and construction, hydraulic testing, commissioning and giving satisfactorily trials of STPs	=240+100+460 =800
2	Improvement of Major Drains & Interception and Diversion of Drainage	1800
3	Construction of Collection & Intermediate Sewage Pumping stations	150
	Total Rs in Lakhs	2750
4	Gst 18 %	495
	Total (in lacs)	3245



## CHAPTER - 10

### FINANCING AND IMPLEMENTATION PLANS

For effective and time bound implementation of various components under the project, separate implementation mechanism and financial strategy have to be evolved. In the following sections a suitable implementation mechanism and financial strategy is proposed so that the project becomes self-sustaining.

The project duration period is 2 years for which the financing pattern of the same as detailed in the table:

#### 10.1 Financing

The investment required for the proposed design and development of the area Liquid waste management system for Tikamgarh Nagar palika is 33 Crores. The Tentative Financing plan would be:

- External Funding Agency / Share of GOI & State Government - 90 %
- Share of Tikamgarh Municipality - 10 %

#### 10.2 Implementation Plan

##### Project Duration/Phasing:

It is proposed to complete the project in 2 years (24 Months) duration in a phased manner, as shown below:


##### Implementing Authority:

Tikamgarh Nagar palika will be the Implementing Agency. Works will be executed by registered contractors selected through tendering process.

##### Project Management:

The overall responsibility of the project management will be with the ULB and specifically with the Engineering Wing of Tikamgarh Nagar palika. Single Combined Tender for all the Components of the Total Project Scheme is Proposed.

##### Quality Assurance:

The Quality Assurance plan will comprise of Internal Quality Control accompanied by third party Quality Control.



### Annexure-I Sewerage quantity Generation

Year	Population	Sewage Generation (W/S @ 135 LPCD)	Total Sewage Generation(MLD)
2011	79106	108	8.54
2022	90842	108	9.81
2026	95313	108	10.29
2040	111819	108	12.08
2055	130982	108	14.15



DPR- Liquid waste Management For Tikamgarh Nagar Palika

## Annexure-II

### Performance of various technologies along with various parameters of selection of suitable technology

S.no.	Process	Effluent quality	Coliform Removal	Process Reliability	Land Use	Ease of Operation	Ease of Maintenance	Energy recovery	Electrical demand	Capital Cost	Track Record
1	ASP	3	3	4	3	3	3	4	2	2	4
2	EA	4	3	4	2	4	4	1	1	3	3
3	MBBR	4	4	1	3	4	1	2	1	2	3
4	SBR	4	4	3	4	3	3	1	2	2	3
5	UASB	2	2	3	3	2	4	3	2	2	3
6	WSP	2	1	1	1	2	4	1	4	3	2
7	CW	1	1	1	1	3	4	1	4	3	2
8	TF	2	1	2	3	3	3	2	2	3	2

Source: Guidelines for Decentralized Wastewater Management Prepared by MoUD Centre of Excellence, Indian Institute of Technology Madras – Chennai, India for Ministry of Urban Development, Government of India

**Abbreviations:** ASP-Activated Sludge Process; EA- Extended Aeration; MBBR- Moving Bed BioReactor ; SBR- Sequencing Batch Reactor; UASB Up flow Anaerobic Sludge Blanket Reactor; WSP- Waste Stabilisation Pond; CW- Constructed Wetland; TF- Tricking Filter; Grading for performance: 1- Poor; 2- Average; 3- Good; 4- Very Good.



DPR- Liquid waste Management For Tikamgarh Nagar Palika

### Annexure-III

#### Comparison of Sewage Treatment Processes

parameters	Extended Aeration	UASB followed by Extended Aeration	Activated Sludge Process (ASP)	Moving Bed Bio Reactor (MBBR)	Membrane Bio Reactor (MBR)	Sequential Batch Reactor Process (SBR)
<b>Guaranteed Outlet Parameters</b>						
BOD	<30	<30	<30	<30	<10	<10
COD	<250	<250	<250	<250	<100	<100
Suspended solids	<50	<100	<100	<100	<10	<10
Total Kjeldal Nitrogen	No Treatment	No Treatment	No Treatment	No Treatment	No Treatment	<10
Total Phosphorous	No Treatment	No Treatment	No Treatment	No Treatment	No Treatment	<2
Ammonical Nitrogen	No Treatment	No Treatment	No Treatment	No Treatment	No Treatment	<2
<b>Process Operating Features</b>						
Porcess Type	Aerobic	Anaero-Aero	Aerobic	Aerobic	Aerobic	Aerobic
Automatic control of operating parameters	Not Possible	Not Possible	Not Possible	Not Possible	High automation	To achieve high efficiency, complete automation is required
Potential of Low Reinforcement Cost	Medium	Medium	Medium	Medium	High	Medium



### DPR- Liquid waste Management For Tikamgarh Nagar Palika

parameters	Extended Aeration	UASB followed by Extended Aeration	Activated Sludge Process (ASP)	Moving Bed Bio Reactor (MBBR)	Membrane Bio Reactor (MBR)	Sequential Batch Reactor Process (SBR)
Treatment Efficiency of Biological Treatment Process	85-90%. No treatment for nitrogen and phosphorous removal	85-90%. Effluent quality is not up to the mark and no treatment for nitrogen and phosphorous removal	85-90%. Requires Tertiary treatment to achieve < 10 BOD levels. No treatment for nitrogen and Phosphorous removal	85-90%. Requires Tertiary treatment to achieve < 10 BOD levels. No treatment for nitrogen and Phosphorous removal	Excellent Treatment efficiency as high as 98% and Further No Tertiary Treatment is Required	Excellent Treatment efficiency as high as 98% of BOD removal in single stage
Outlet Quality	Meets MPPCB norms but do not confirm to latest CPHEEO recommended values (BOD<10, SS<10, TN<10, dissolved P<10)	Meets MPPCB norms but do not confirm to latest CPHEEO recommended values (BOD<10, SS<10, TN<10, dissolved P<10)	Meets MPPCB norms but do not confirm to latest CPHEEO recommended values (BOD<10, SS<10, TN<10, dissolved P<10)	Meets MPPCB norms but do not confirm to latest CPHEEO recommended values (BOD<10, SS<10, TN<10, dissolved P<10)	Exceeds MPPCB Norms and also confirm to latest CPHEEO recommended values (BOD<10, SS<10, TN<10, dissolved P<10). Excellent Quality as good as crystal clear raw water. Fully fit for river/lake conservation and /or reuse.	Exceeds MPPCB Norms and also confirm to latest CPHEEO recommended values (BOD<10, SS<10, TN<10, dissolved P<10). Excellent Quality as good as crystal clear raw water. Fully fit for river/lake conservation and/or reuse.



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

parameters	Extended Aeration	UASB followed by Extended Aeration	Activated Sludge Process (ASP)	Moving Bed Bio Reactor (MBBR)	Membrane Bio Reactor (MBR)	Sequential Batch Reactor Process (SBR)
Level of Automation	No automation. Fully manual operation in most of the existing plants	No automation. Fully manual operation in most of the existing plants	No automation. Fully manual operation in most of the existing plants	No automation. Fully manual operation in most of the existing plants	High automation	Fully Automatic controlled by PLC and computer with manual override, process is being monitored on real time basis for critical process parameters
Required level of operator attention	High	High	High	Medium	Low	Low
<b>Per MLD Requirement Analysis</b>						
<b>Area Requirement</b>						
Area Requirement Sq M per MLD	1000	1200	1450	450	600	400
<b>Operation and Maintenance Cost</b>						
Power Requirement (KWh/day/MLD)	250	120	180	220	300	150
Power Cost (Lacs/Annum/MLD)	5.475	2.628	3.942	4.818	6.57	3.285
Chemical Cost (Lacs/Annum/MLD)	5.3	6.30	530	5.30	3.30	3.30
Manpower Cost (Lacs/Annum/MLD)	0.648	0.8424	0.84	0.62	0.69	0.52



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Annual Repair Cost (Lacs/Annum /MLD)	2.42	2.48	2.38	1.94	8.73	1.84
<b>Total O&amp;M Cost (Lacs /Annum / MLD)</b>	13.84	12.25	12.46	12.68	19.29	8.94
<b>Average Capital Cost</b>						
<b>Average Capital Cost (Lacs / MLD)</b>	78	70	68	90	210	140
<b>Remarks</b>	Less area requirement than ASP, power consumption is more than ASP	Less area requirement than ASP, Power consumption is Least of all processes Compared	More area is required, power consumption is more	Less area required and power Consumption less than that of EA	Area requirement is slightly more than SBR generally preferred for small capacities, more care is required during O&M replacement cost of membrane is high	Less area requirement than ASP, better quality of treated effluent Recommendation



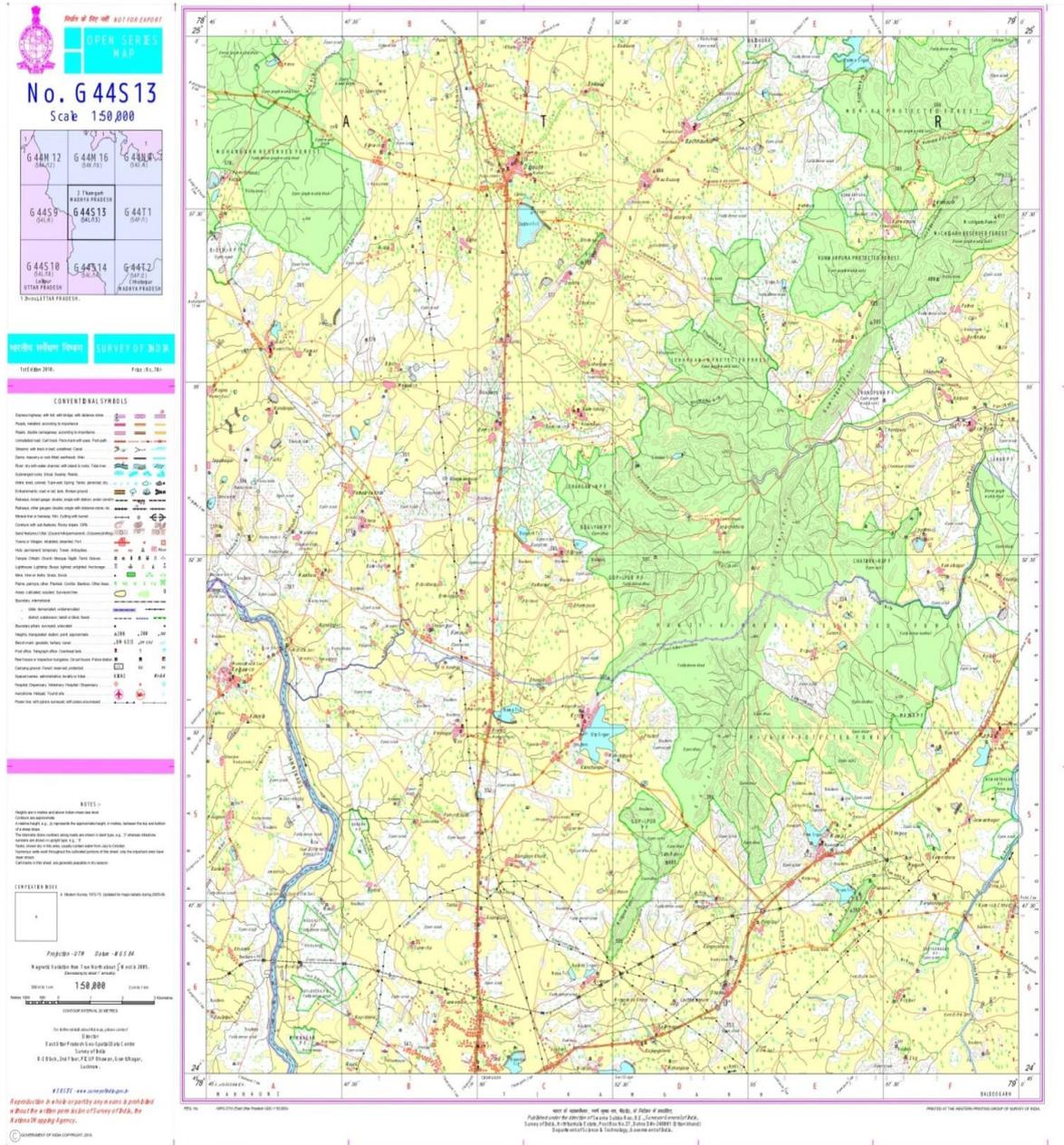
## DPR- Liquid waste Management For Tikamgarh Nagar Palika

Technology	Land requirement	Capital cost	O&M cost	Electricity required	Effluent quality	
	Ha/MLD	INR lakh/MLD	INR lakh/MLD	Kwh/ml treated	BOD,mg	TSS/SS, mg/lit
<b>Nature Based Technologies</b>						
<b>Waste Stabilization Pond (WSP)</b>	0.5 - 1.0	30 -60	0.6 -2.5	negligible	15-50	SS: 75-125
<b>Root Zone Aeration/ Constructed Wetland</b>	0.6-1.5	30-150	1.2-3.0	negligible	20-30	SS: 60-90
<b>Mechanised Treatment Technologies</b>						
<b>Extended Aeration (EA)</b>	0.15 - 0.25	90-200	7.0-12.0	180 - 225	20-30	SS: 50-100
<b>Aerated Lagoon (AL)</b>	0.27 - 0.4	40-60	1.5-3.0	15-20	25-50	SS: 40-150
<b>Sequencing Batch Reactors (SBR)</b>	0.10 - 0.15	150-300	10.0-20.0	150 - 200	<5	TSS< 10
<b>Moving Bed Biofilm Reactor (MBBR)</b>	0.04 - 0.05	170 - 230	8.0-12.0	200 - 250	<10	TSS: <20
<b>Activated Sludge Process (ASP)</b>	0.15 - 0.25	80 - 170	6.0-10.0	180 - 225	20-30	SS: 20-50
<b>Trickling Filter (TF)</b>	0.25-0.50	50-80	2.0-5.0	150-180	25-30	
<b>Up flow Anaerobic Sludge Blanket (UASB)</b>	0.2 - 0.3	40-60	2.0 -3.5	10.0-15.0	70-100	TSS: 75-100
<b>Onsite treatment Technologies</b>						
<b>Decentralised Treatment System (DTS/DEWATS)</b>	0.13 - 0.14	80 - 200	2.0 - 2.5	negligible	<30	TSS <10



DPR- Liquid waste Management For Tikamgarh Nagar Palika

Annexure-IV  
**TOPOSHEET**

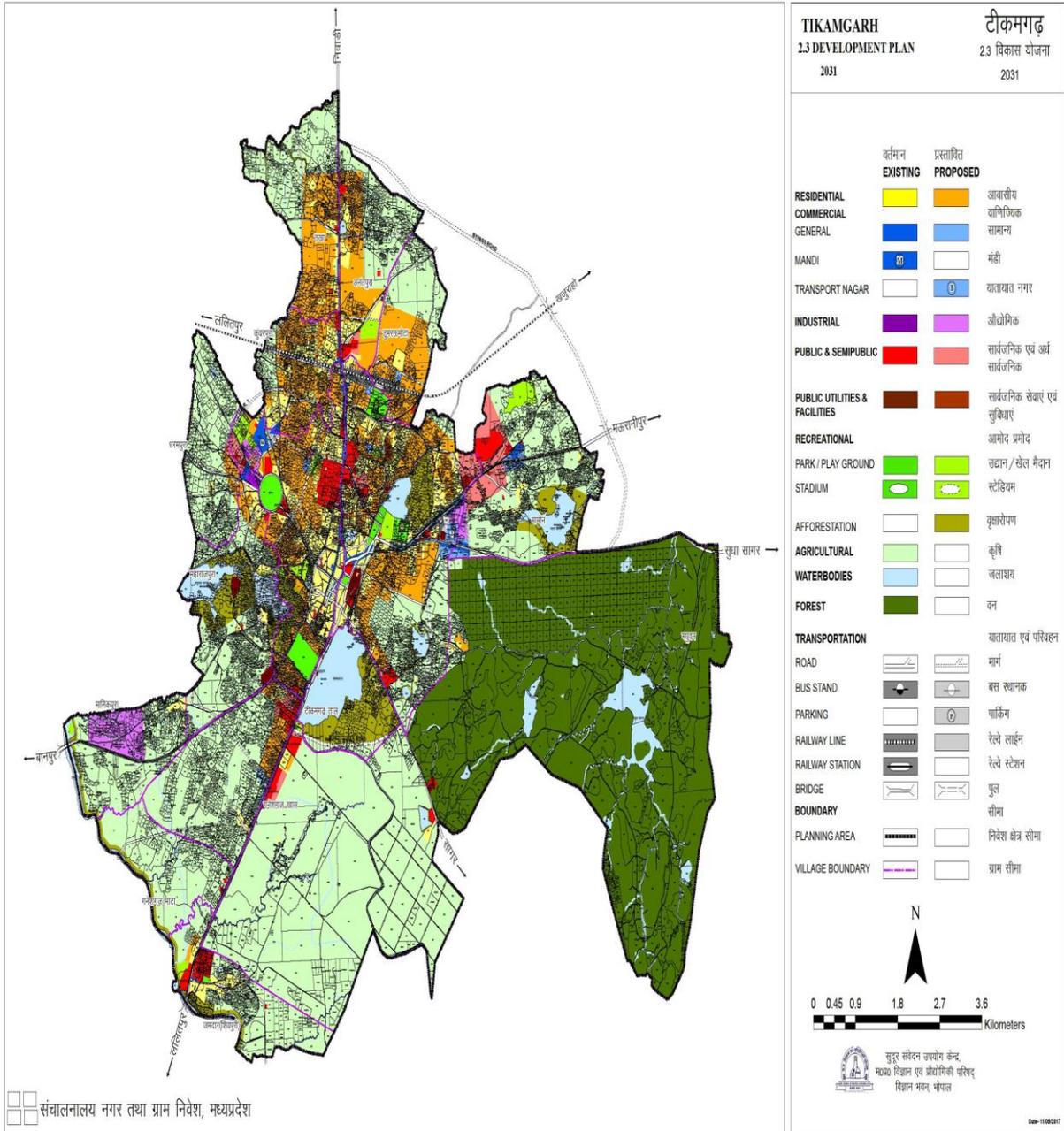






## DPR- Liquid waste Management For Tikamgarh Nagar Palika

### Annexure-V MAP OF TIKAMGARH TOWN BOUDARY





DPR- Liquid waste Management For Tikamgarh Nagar Palika

## Annexure-VI COMMUNITY TOILET LIST

कार्यालय नगर पालिका परिषद टीकमगढ़ (जिला- टीकमगढ़) (म.प्र.)  
 Email Id :- [cmotikamgarh@mpurban.gov.in](mailto:cmotikamgarh@mpurban.gov.in) ULB Code- 802130

### प्रमाणीकरण

निकाय द्वारा यह प्रमाणित किया जाता है की निकाय क्षेत्रांतर्गत कुल 04 सामुदायिक शौचालय (CommunityToilet ) है। जिसकी सूची निम्न अनुसार है।

### सामुदायिक शौचालय (CommunityToilet )

Ward No.	Community Toilet Name	Toilet ID	Zone (East, West, North, South, North east, South west)	Landmark	Type of Area(Slum, Residential, Commercial Area, Other)	Total number of Functional Seats
21	सामुदायिक शौचालय बोरी दरवाजा	802130CTB0003	East	बौरी दरवाजा	Residential	14
12	सामुदायिक शौचालय बीडी मजदूर कॉलोनी	802130CTB0004	West	ढोगा मैदान	Residential	14
21	सामुदायिक शौचालय बण्डा पुल के पास	802130CTB0003	East	बण्डा पुल	Residential	14
20	सामुदायिक शौचालय महेन्द्र सागर तालाब	802130PTB0002	North	महेन्द्र सागर तालाब	Residential/ Commercial	9
<b>Total-</b>						<b>51</b>

मुख्य नगर पालिका अधिकारी  
 नगर पालिका परिषद, टीकमगढ़ (म.प्र.)  
 मुख्य नगर पालिका अधिकारी  
 नगर पालिका परिषद टीकमगढ़



DPR- Liquid waste Management For Tikamgarh Nagar Palika

## Annexure-VII EXISTING FSTP DETAIL

कार्यालय नगर पालिका परिषद टीकमगढ़ (जिला- टीकमगढ़) (म.प्र.)  
Email Id :- [cmotikamgarh@mpurban.gov.in](mailto:cmotikamgarh@mpurban.gov.in) ULB Code- 802130

Capacity of Treatment plant can treat sludge as per the design capacity								
स्थापित व कार्यशील FSTP/STP की सूची								
क्र.	वार्ड नं.	FSTP/ STP केंद्र का नाम	Amount of Sludge generatd	क्षेत्र का नाम	ULB से दूरी	लैंडमार्क	क्षेत्रफल (वर्ग कि.मी. में)	कुल क्षमता (KLD में)
1	12	FSTP Processing plant trenching ground Tikamgarh	(230*82530/365*10) = 52.01 KLD	ट्रचिंग ग्राउंड धर्मपुरा डोगा	5 kms	ट्रचिंग ग्राउंड धर्मपुरा डोगा	0.000536 sq km	65 KLD

Hence, Designed capacity of Treatment plant is sufficient to treat amount of Faecal sludge actually generated.

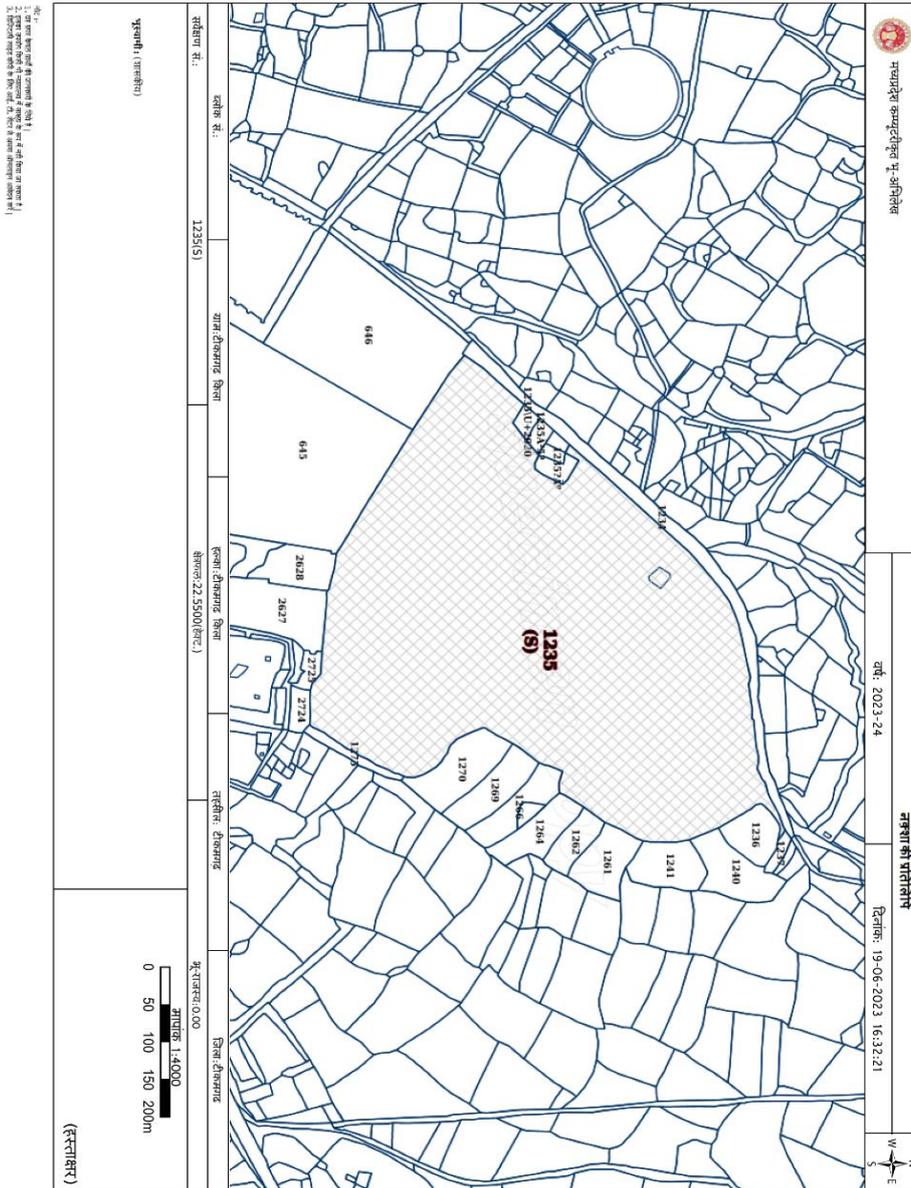
मुख्य नगर पालिका अधिकारी  
नगर पालिका परिषद, टीकमगढ़ (म.प्र.)  
मुख्य नगर पालिका अधिकारी  
नगर पालिका परिषद टीकमगढ़





## DPR- Liquid waste Management For Tikamgarh Nagar Palika

### VINDRAVAN TALAB





DPR- Liquid waste Management For Tikamgarh Nagar Palika

**MAHARAJPURA TALAB**

Map Not Available

मध्य प्रदेश कायमूदीकृत भू-अभिलेख  
**खसरा**  
 प्ररूप पत्र (निगम 6 देखिए)  
 मध्य प्रदेश भू-राजस्व संहिता (भू-सर्वेक्षण तथा भू-अभिलेख) निगम, 2020



ग्राम: महाराजपुरा		पटवारी हलका: महाराजपुरा			तहसील: टीकमगढ़			जिला: टीकमगढ़			तारीख: 2023-09-24		
भूमि के भाग की सूचीक आईडी	भूमि के भाग का प्रकार (सर्वेक्षण संख्या/ब्लॉक संख्या)	1. भूमिस्वामी का नाम, पता	2. भूमि का नाम, पता	3. भू-अधिकार का प्रकार	4. मालिक का नाम, पता	5. मालिक का नाम, पता	6. मालिक का नाम, पता	7. मालिक का नाम, पता	8. मालिक का नाम, पता	9. मालिक का नाम, पता	10. मालिक का नाम, पता	11. मालिक का नाम, पता	12. मालिक का नाम, पता
1379473817	594 (S)	1. शिवराज शर्मा, निवासी का नाम, पता	2. शिवराज शर्मा, निवासी का नाम, पता	3. भू-अधिकार का प्रकार	4. मालिक का नाम, पता	5. मालिक का नाम, पता	6. मालिक का नाम, पता	7. मालिक का नाम, पता	8. मालिक का नाम, पता	9. मालिक का नाम, पता	10. मालिक का नाम, पता	11. मालिक का नाम, पता	12. मालिक का नाम, पता
		19.8290	19.8290	0.0000									



## DPR- Liquid waste Management For Tikamgarh Nagar Palika

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नोट :-

1. यह प्रपत्र केवल प्रार्थी की जानकारी के लिये है ।
2. इसका उपयोग किसी भी न्यायालय में साक्ष्य के रूप में नहीं किया जा सकता है ।
3. डिजिटली साइंड कॉपी के लिए आई. टी. सेंटर से, लोक सेवा केंद्र से, एम. पी. ऑनलाइन से अथवा ऑनलाइन आवेदन करें ।
4. प्रविष्टियों में सुधार/संशोधन हेतु संबंधित जिला/तहसील कार्यालय में संपर्क करें ।

प्रिंट

# कार्यालय नगर पालिका परिषद टीकमगढ़ (म.प्र.)

Email - cmotikamagarh@mpurban.gov.in Phone- 07683245323

क्रमांक / 3279 / निर्माण / न0पा0 / 2024

टीकमगढ़, दिनांक 06.11.24

प्रति,

कार्यपालन यंत्री  
नगरीय प्रशासन एवं विकास विभाग  
सागर संभाग सागर (म.प्र.)

विषय:-  
महोदय,

अमृत 2.0 योजनांतर्गत लिक्विड वेस्ट मैनेजमेंट के संबंध में।

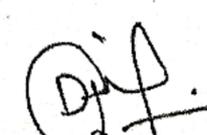
उपरोक्त विषयांतर्गत निवेदन है कि अमृत 2.0 योजनांतर्गत लिक्विड वेस्ट मैनेजमेंट की कार्ययोजना मार्श प्लानिंग एण्ड कंसलटेंट द्वारा राशि रु 32.45 करोड की तैयार कर निकाय में प्रस्तुत की। पी.आई.सी. बैठक दिनांक 19.01.2024 के प्रस्ताव क्र 29 से अनुमोदन किया गया है, प्रस्ताव की प्रति अवलोकनार्थ संलग्न है। आवश्यक कार्यवाही हेतु पत्र सादर प्रस्तुत।

संलग्न:- पी.आई.सी बैठक पत्र

  
मुख्य नगर पालिका अधिकारी  
नगर पालिका परिषद टीकमगढ़  
टीकमगढ़, दिनांक .....

पृ.क्रमांक / निर्माण / न0पा0 / 2024  
प्रतिलिपि:-

- 1.आयुक्त संचालनालय नगरीय प्रशासन एवं विकास म.प्र. भोपाल की ओर सूचनार्थ सादर संप्रेषित।
- 2.मिशन संचालक नगरीय प्रशासन एवं विकास म.प्र. भोपाल की ओर सूचनार्थ सादर संप्रेषित।

  
मुख्य नगर पालिका अधिकारी  
नगर पालिका परिषद टीकमगढ़

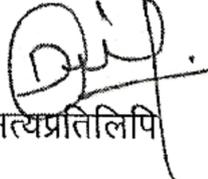
कार्यालय नगर पालिका परिषद टीकमगढ़

पी.आई.सी की बैठक दिनांक 19.01.2024

प्रस्ताव क्र. 29	संकल्प
टीकमगढ़ नगर के लिये लिक्विड मैनेजमेंट योजना पर विचार।	प्रकरण प्रस्तुत, अवलोकन किया गया अमृत 2.0 योजना अंतर्गत शासन द्वारा चयनित मार्श प्लैनिंग कंसल्टेंट लिक्विड वेस्ट मैनेजमेंट निर्माण कार्य का डी.पी.आर (कार्य योजना) तैयार कर निकाय में प्रस्तुत की गई हैं। जिसकी लागत राशि 32.45 करोड़ है। शासन की महत्वपूर्ण योजना एवं नगर के हित में यह कार्य को हेतु तैयार कार्य योजना को स्वीकृति प्रदान करते हुए कार्य की प्रशासकीय स्वीकृति सर्व सम्मति से दी जाती हैं। प्रकरण में नियमानुसार कार्यवाही करते हुए प्रस्ताव सर्व सम्मति से पारित किया जाता है।

मुख्य नगर पालिका अधिकारी  
नगर पालिका परिषद टीकमगढ़

अध्यक्ष  
नगर पालिका परिषद टीकमगढ़

  
सत्यप्रतिलिपि



Balmik Mandir Ke Paas, Anmol Villa, Baharkot Harijan Basti, Road, Dhonga, Tikamgarh, Madhya Pradesh 472001, India

Latitude  
24.72818944°

Local 12:58:15 PM  
GMT 07:28:15 AM

Longitude  
78.83181712°

Altitude 360 m  
Tuesday, 10.03.2026

## कार्यालय जिला शहरी विकास अभिकरण टीकमगढ़ (म.प्र.)

E-Mail-podudalikamgarh@mpurban.gov.in

क्रमांक / डीयूडीए / योजना / 2025 / 379

टीकमगढ़, दिनांक 26/05/2025

प्रति,

मुख्य नगर पालिका अधिकारी,  
नगर पालिका परिषद टीकमगढ़।

विषय :- महेन्द्र सागर तालाब पर नगर पालिका परिषद द्वारा भराव क्षेत्र में बनाये जा रहे पार्क के संबंध में।

संदर्भ :- आपका पत्र क्र. 1689 दिनांक 24.03.2025

---00---

आपको आदेशित किया जाता है कि महेन्द्र सागर तालाब पर निर्माणाधीन पार्क में आसपास हरित क्षेत्र विकसित किया जावे एवं हरित क्षेत्र विकसित करने के अतिरिक्त अन्य किसी प्रयोजन में न लिया जावे।

कलेक्टर महोदय द्वारा आदेशित।

परियोजना अधिकारी

जिला शहरी विकास अभिकरण

जिला टीकमगढ़ (म0प्र0)

टीकमगढ़, दिनांक 26/05/2025

पृ0क्र0 / डीयूडीए / योजना / 2025 / 380

प्रतिलिपि:-

1. कलेक्टर महोदय जिला टीकमगढ़।
2. कार्यपालन यंत्री, जल संसाधन विभाग टीकमगढ़।

परियोजना अधिकारी

जिला शहरी विकास अभिकरण

जिला टीकमगढ़ (म0प्र0)



GPS Map  
Camera Lite

Prgh+f4g, Tikamgarh, Madhya Pradesh 472001, India

Latitude

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Longitude

78.82835337°

Local 12:54:25 PM

GMT 07:24:25 AM

Altitude 357 m

Tuesday, 10.03.2026



505

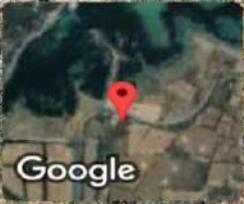
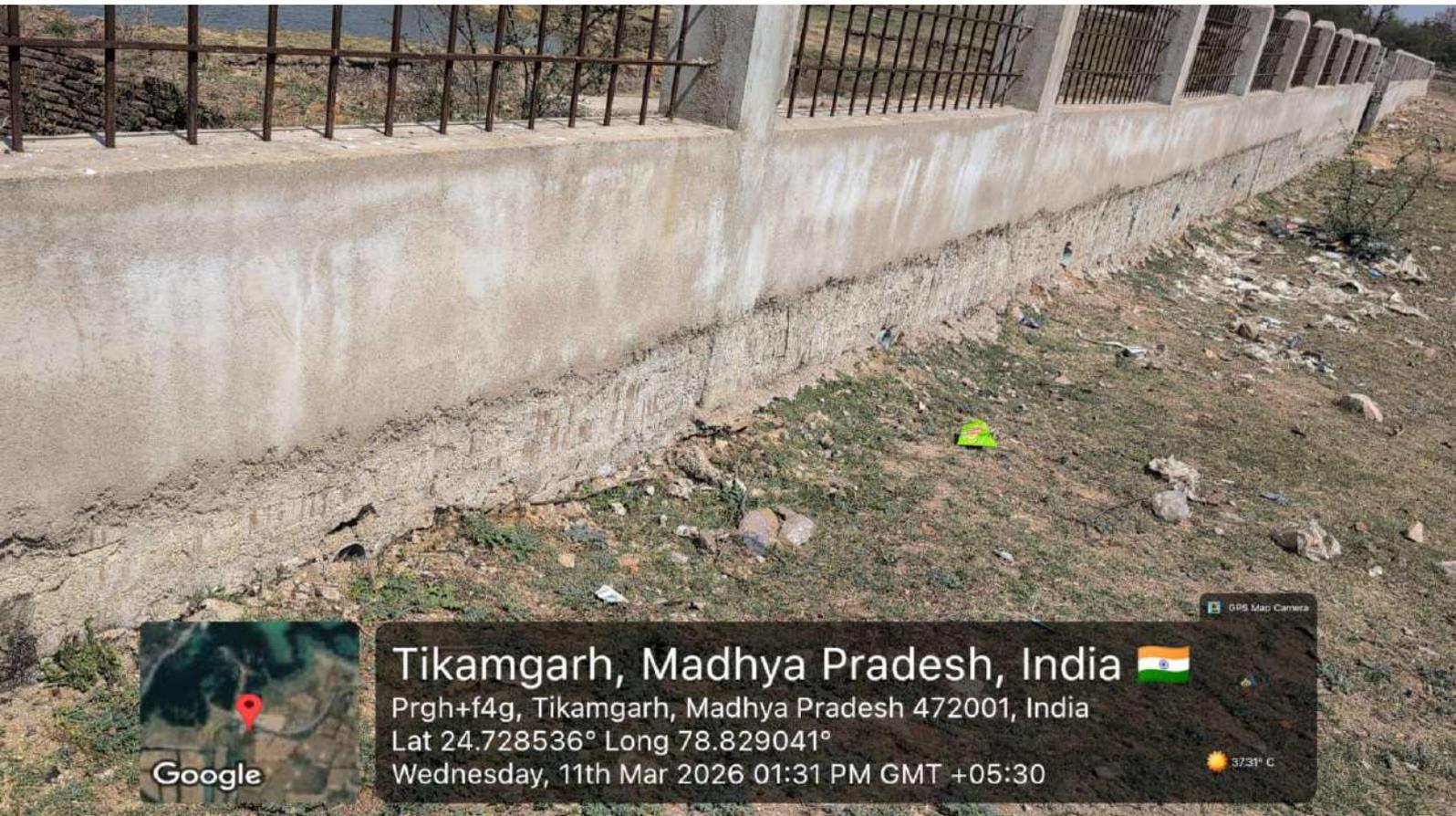


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GMT 07:25:07 AM

Longitude  
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Altitude 357 m  
Tuesday, 10.03.2026

506



Tikamgarh, Madhya Pradesh, India 

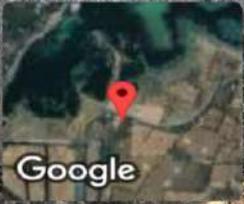
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Wednesday, 11th Mar 2026 01:31 PM GMT +05:30

GPS Map Camera

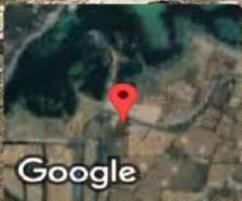
 37.31° C



Tikamgarh, Madhya Pradesh, India 🇮🇳  
Prgh+f4g, Tikamgarh, Madhya Pradesh 472001, India  
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Wednesday, 11th Mar 2026 01:31 PM GMT +05:30

GPS Map Camera

37.31° C



Google

Tikamgarh, Madhya Pradesh, India 

Prgh+f4g, Tikamgarh, Madhya Pradesh 472001, India

Lat 24.728491° Long 78.82909°

Wednesday, 11th Mar 2026 01:31 PM GMT +05:30

GPS Map Camera

 37.31° C