Joint Committee Inspection Report(interim)

In the Matter of

Original Application No.25/2023
'Sachin Dave Vs Union of India &Ors'

w.r.t.

Hon`ble National Green Tribunal Central Bench, Bhopal Order dated 17thAugust, 2023

Date of Visit: 16th to 17th September, 2023
Location: Indore, MP

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Introduction and Background

An application was filed by Sh. Sachin Dave in Central Zone Bench, Bhopal and same was accepted by Hon'ble NGT in O.A. No. 25/2023 titled as SachinDaveVsUnionofIndia&Others. The said application allegedpollution and degradation of River Kshipra on account of discharge of untreated effluent domestic & industrial and encroachment of the river Kshipra. The Hon'ble Tribunal called for factual and action taken report vide order dated 20.4.2023 and directed to constitute a Joint Committee consisting of:

- One representative from Water Resource Department Of MP
- One representative of MPPCB

The committee was directed to visit the place and submit the report within six weeks. The said committee submitted report on 11.08.2023.Subsequently, Hon'ble Tribunal has heardthecaseon dated 17/08/2023and after perusalof report submitted by District Magistrates Ujjain, Dewas, Indore & RatlamfollowingOrderwaspassed:

(4) In general, Report is that there is no encroachment as alleged; noindustrial effluent is being discharged in River Shipra but still categoryofriverwaterisverylowandunfitforbathingordrinkingpurposesand atsomeplaces,evenforagriculturepurposes.Reasonforsuchdeteriorationof waterquality ofRiverShipracould notbeexplainedbythe officers who are present. In respect of some industries engaged inmanufactureandproduction ofchemicals, pharmaceutical, leatheretc.,wefindthatReportsaysthereareZLDs,butthereisnocrosschecksteps or material placed before us as to how much residue is being produced bythem everyday and in what manner, such residue is being disposed,particularly,consideringthefactthatresiduegeneratedinpharmaceutical industries, chemical industriesandleatherindustriesisofseriouslyhazardousnature.

(5) Reports, therefore, are inadequate, incomplete, lack relevant informationand cross checking and fails to give a wholesome picture of entire facts.Infact,severalquestionsremainunanswered.

(6). In these facts and circumstances, we find it appropriate to obtain

freshReportsbyappointingdifferentCommitteesforeachdistrict.Thefollowi ngCommitteesareconstituted,separately,foralltheDistricts:

(i) ……
(ii) ForDistrictIndore:Mr.HasilJain,Advocate(Enrolmentno.D/2880/20 13), a representative from CPCB, a representative fromIntegratedRegionalOffice,MoEF&CCandDistrictMagistrate,In dore.
(iii) ….
(iv) ……

Hon'ble NGT directed the said Committee to submit factual report before next date of hearing i.e. 4.10.2023 and named the District Magistrateas the nodal agency for coordination. The order of the Hon'ble Tribunal dated 17.8.2023 is enclosed as **Annexure-R1**

Accordingely the joint committee has been constituted and the committee comprised of the following officers:

1. Sh.Hasil Jain Advocate Commissioner (Enroll. D/2880/2013)
2. Ms. Priya Patel Deputy Collector, Indore as Collector representative
3. Sh. Vishvbandhu Meena, Scientist-D, MoEF&CC, Bhopal
4. Dr. Anoop Chaturvedi, Scientist-B, CPCB, Bhopal

In compliance of Hon'ble Tribunal's order dated 17.8.2023 a meeting of all committee members has been organised through video conferncing on September, 14, 2023. During the said meeting committee members interacted with each other andfound that the Kanh river is the tributary of the river Kshipra and Kanh river carries the sewage of the entire Indore Municipal Area and discharges in to river Kshipra which meets it atUjjain disctrict. Further the following points were discussed.

1. To collect number and status of STPsin operation and collect status of drain how may swage drain still directly discharging the water in Kanh river.
2. To collect data related to STP construction. Gap in sewage treatment and generation, status of encroachments if any.
3. To collect water samples at various locations of river Kanh and also samples

from STP and CETP.

4. Status of industrial effluent treatment in Sanwer industrial area
5. Finalization of the date of field visit.

Thereafter, the joint committee visited Indore area during 16th and 17thSeptember 2023 to assess and verify the factual aspects and arrive at wholesome picture of the issue as mentioned order dated 17.8.2023 of the Hon'ble Tribunal.

For better coordination and fairness, the committee informed to the Applicant Sh. Sachin Dave well in advance regarding the proposed visit. A meeting was held at conference hall of Collector office Indore on 16.9.2023 by the Joint Committee members along with Sh. Sachin Dave and his collegues and senior officers of other relevant departments to discuss the issues highlighted in the Application. The relevant issues were also discussed with officials of Municipal Corporation Indore and Regional Office of MPPCB who were also present during the meeting. The attendance sheet of Member and stakeholders present during meeting is enclosed as **Annexure- R2.** During the meeting it wasdecidedtovisitthefollowinglocationsandalsocollectwatersamplesfrompro minent locations:

(i) Origin point of River Kshipra at Ujjaini, and then through its course at Sonwaya, Aranya Kund, Semiliya Chau and Indore-Bhopal highway
(ii) Kanh & Saraswati Rivers at Krishnapura Kshatri
(iii) Sewage Treatment Plant and Kanh River at AzadNagar
(iv) Industrial Area Sanwer Road Indore
(v) M/s Ruchi Soya at Mangliya
(vi) Common Sewage & Effluent Treatment Plant (CSETP), Sector-F, Industrial Area Sanwer Road, Indore
(vii) Bhorasala/ Narvar Nallah, Industrial area Sanwer Road, Indore

FINDINGS AND OBSERVATION

On the day of visit on 16.9.2023 and 17.09.2023 ,due to heavy and continuous rainfall, the scheduled survey and monitoring work of committee for Indore area got so badly affected that work could not be completedas planned and because of

heavy rainfall the River Kshipra and Kanhwere flowing above the high flood level and most of the point and non-point sources of water pollution weresubmerged. Hence proper and true assessment of water quality and its level of deterioration could not be monitored. However, for tentative estimation few water samples collected from River Kshipra and Kanh, STP, CETP and industrial outlet.

The point source is STP outlet, CETP outlet, Industrial and un-treated sewer drains and non-point sources includes activity going on in catchment area of river i.e. commercial establishments, dairy farms, soak pits, use of chemicals in agriculture fields etc.

BRIEF OF KSHIPRA RIVER-

It originates at place called Ujjaini at Indore District. This place is the Narmada -Kshipra link project, and the river after its genesis flows throughvillages Sunwaya, Kakukhedi, junabawalia, Arniakund, semliachau. It leaves Indore district at Semlia Chau and then forms boundary of Indore and Devas district till it reaches Ujjain District.

The committee visited the River Stretch and found the following with regard to issue of Encroachment and River water Quality:

Encroachment of River Kshipra at Indore Stretch- As stated above the river Kshipra originates at Ujjaini (eastern side of Indore District) and since it is seasonal river, its flow is less at places in the upper stream of river. Sonwaya has less flow with few metres of width (Photographs annexed) , but when the river reaches Arniya Kund it expands up to 50 ft and thereafter continue to maintain e flow till Semlia Chau. The Committee visited the course of river till SemliaChau and did not find any encroachment on the river bed. The fact has also been ascertained by the local villagers at Arniya Kund. The copy of the Panchnama attached as **Annexure-R3**

Therefore as per discussion held with local villagers and farmers there is no noticeable encroachment or any permanent type of construction in this stretch.

Committee also requested with applicant to show any spot which is encroached but applicant also told that in this particular stretch of Kshipra in Indore region no encroachment and discharging of sewage activity reported however possibility of sewage discharge from sub-urban and village area of Indore may not be ruled out

Quality of Kshipra River stretch of Indore: To assess the water quality of river Kshipra in Indore region the water sampling for point source and non-point source has been carried out.

However due to excess rains during survey work it seems very less variation in the water quality of Kshipra as river flowing above the high flood level and most of the point and non-point sources are submerged at that time hence proper assessment of water quality and its level of deterioration could not be monitored.

Domestic Water Pollution: Sewage management systems especially in rural area of Indore are reported to be managed at the community and individual level with the provision of septic tanks and sludge treatment through FSTPs. However the issue of solid waste management require proper collection and disposal especially from river bank at villages. It was observed that soak pits and septic tanks provided in rural areas for treatment of domestic waste water.

Industrial Water Pollution: During visit it was observed that there is no industrial activity carried out at the stretch of Kshipra river in Indore region hence the possibility of entering of industrial effluent in to river does not be arise.Kanh river is carrying the industrial effluent as well as un treated domestic waste water which ultimately join the Kshipra river near Ujjain and thus the main source of pollution load increase.

Agricultural Water Pollution: It was observed that in Indore region agriculture activity carried out at both the bank of river Kshipraand generally wheat and Soyabeen crop is being cultivated and for better yield farmers generally used fertilizers and other chemicals. If quantity of these chemicals is excess than it will mix with the nearby water body through run-off water in monsoon season. Water quality is further affected due to the overuse of chemical fertilizers and pesticides.

The water samples collected from the locations as given below:

S.no.	Location details	Remarks
01	Kshipra river at Arniya kund near to origin point	No industrial activity and no discharging of raw sewage observed during visit. However due to high flood condition and high turbulence in water flow turbidity was very high.
02	Kshipra river at Semaliya Chau to mid point	
03	Kshipra river at Indore-Bhopal road bridge	Huge flow was observed and at this area residential area developed at both side of bank.

River Water quality Analysis

S. No.	Parameters	Unit	River Kshipra at Arniya kund	River Kshipra at Semeliya Chou	River Kshipra at Indore-Bhopal Bridge	Remarks
1	Temperature	Centigrade	26	26	26	On the basis of the analysis results it can be concluded that none of the parameter is showing abnormal values. However due to high turbulence in water suspended solids are more.
	DO	mg/l	7.20	7.40	9.10	
2	pH	pH unit	7.45	7.54	7.64	
3	Conductivity	uS	151	152	176	
4	Total Suspended Solids	mg/l	69	262	379	
5	Total Dissolved Solida	mg/l	81	84	94	
6	COD	mg/l	22	18	20	
7	BOD	mg/l	4.0	3.5	4.0	
8	Chloride	mg/l	12	11	16	
9	O & G	mg/l	BDL	BDL	BDL	

10	SO4	mg/l	14	24	35	
11	Faecal Coliform	FC/100 ml	17	20	15	
12	Total Coliform	TC/100 ml	110	120	94	
13	Copper	mg/l	0.044	0.052	0.059	
14	Zinc	mg/l	0.040	0.060	0.030	
15	Lead	mg/l	BDL	BDL	BDL	
BDL-Below Detection limit						

Based on the above analysis values of river Kshipra it can be concluded that the TSS and TDS values increased gradually in downstream of the river w.r.to u/s water quality due to high turbulence in water and mixing of runoff water from its catchment area. The COD, BOD and Chloride values also not showing significant variation. Presence of FC/TC indicate that runoff water carrying the pathogens from its catchment hence mixing of sewage or cow dung was may not be ruled out. On the basis of "designated best use" (DBU) the river water quality may be consider for "B"category. The details of categorisation given below.

The water quality management in India is accomplished under the provision of Water (Prevention and Control of Pollution) Act, 1974. Since the natural water bodies have got to be used for various competing as well as conflicting demands, the objective is aimed at restoring and/or maintaining natural water bodies or their parts to such a quality as needed for their best uses. Thus, a concept of "designated best use" (DBU) was developed by CPCB. According to this concept, out of several uses a water body is put to, the use which demands highest quality of water is termed as "designated best use", and accordingly the water body is designated. Primary water quality criteria for different uses have been identified. A summary of the usebased classification system is presented in table below:

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6mg/l or more Biochemical Oxygen Demand 5 days 20C 2 mg/l or less

Designated-Best-Use	Class of water	Criteria
Outdoor bathing (Organised)	B	Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4mg/l or more Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	D	pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25C micro mhos/cm Max.2250 Sodium absorption Ratio Max. 26 Boron Max. 2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

Brief of Kanh river

Note: The word "river" for Kanh is a misnomer as its catchmentarea is residential and industrial area and in non seasonal period only receives sewage from residential areas (illegal or illegal) and from open drains (11 major nallah and various smaller nallas).

Kanh River originates from Bilawli Talab Limbodi, Indore and flows through Indore City. Kanh River passes through Indore City and meets Kshipra River at Ujjain after flow of 72 kilometers from its origin. Saraswati River originates from Footatalab Rau Indore and enters the city from western side and joins River Kanh at Sanjay Setu/Krishnapura Kshatri in Indore.

Generally, the water quality of River Kanh comes under polluted category as per DBU because domesticwastewater of City and partially un treated effluent of industries is still mixing in River Kanh through different nallas and due to this reason water quality is being deteriorated, but due to flood condition in river Khan during visit seems to be not representative hence samples not collected as it will not give true picture and re-sampling is proposed after settlement of water level and return of normal condition of river. CPCB also classified Kanh river under polluted river category and the

water quality from Indore to Sanwer is very bed.

SEWAGE DESIGN ANALYSIS-

a. As per the info from the IMC provided at the time of meeting,The Indore Municipal area generates around 367.8 MLD of sewage as per the info by IMC during meeting and the presentation given. As per the said presentation the total treatment done is 367 MLD(same as generation). The copy of the presentation is annexed as **Annexure R-4**. However as per the DPR prepared under Namani Gange Project the total sewage generation is going to be 510 MLD in 2025 and 675 MLD by 2040.

b. The said figure of 367.8 MLD currently, is inherently faulty as it do not take into account the illegal colonies whichdoes not have IMC supply as the info on supply of water to around 910 illegal colonies and their population is not available with the IMC. However the reply by IMC submits that almost all illegal colonies are covered by sewage pipelines. The IMC further claims to have tapped the 7370 major and minor nallahs. The said fact needs to be verified in further visits . Because if all colonies are having sewage pipelines then how come there is substantial discharge into various nallahs which still have sewage flow reaching Kanh river.

c. The Committee is of the view that the estimate of 367.8 MLD does not show true picture. The actual sewage generation is higher because the Kanh river still has substantial sewage flowing in it.

d. The committee has sought information from the IMC about the estimated illegal Ground water extraction but the same is not available with IMC.

e. The IMC area has drainage collection only through existing pipeline network system and the STPs collect sewage from these pipelines only. Any inefficient and open drainage is not treated and goes into Kanh river.

f. There is gap in the total actual generation of the Sewage and the existing Treatment capacity in contrast to the claim of IMC. However, IMC has already proposed 10 STPs with total 195 MLD capacity to be executed in the next 18 months under Namami Gange Project. Further under Amrit 2.0, the IMC has

proposed around 115 MLD total capacity of STP keeping in mind projected population in the year 2040.

Observations and suggestions–

There is doubtabout the 100% coverage of existing generation of sewage. However Committee could not verify it as due to heavy rainfall during the visit, the sewers and nallah flowing into the Kanh river could not be inspected since rainwater appeared to be flowing all over. And further sampling could also be not possible.

Further, the Committee is of the following view-

Firstly, the STPs collect only from existing pipeline network and anything going untreated in the Kanh river at its origin or midway point will never get treated and will flow all across the city creating bad odour and unpleasantness.

Secondly, the STPs are inefficient as there is gap between the Capacity and inlet quantity of sewage as discussed in succeeding paragraphs. The said information has been sourced from the MP PCB. Therefore the total capacity on paper is not getting utilized and thus further increasing the gap between the generation and treatment.

Thridly, theIMC has not suggested anything about local level treatment through smaller STPs which could be installed at community level with responsibility upon RWAs, Builders, Multi story residential complexes etcwhich could unburden the existing pipeline network and also could have potential to solve the problem of waste water generation from illegal colonies. In this manner the financial burden on IMC will also be relieved.

Fourthly ,IMC could think over monitoring the quality of Kanh river at various points over the entire stretch of the KAnh river and then accordingly plan the solution. At present there is no mechanism to check the quality of the Kanh river at various points.

Fifthly ,The RO MPPCB should ensure monitoring of all the industries located at the catchment of the river Kanhon counts of ETP and STP and necessary action should be taken as per law for not meeting the prescribed standards.

STATUS OFSEWAGETREATMENTPLANTS AND GAP:

As per the info from the MP PCB Indore-

Water supply in Indore city is about 500 M.L.D and 80 MLD by individual tube well. Approx 425 M.L.D. domestic waste water is generated. Indore Municipal Corporation has installed 10 STPs (Total capacity 412.5 MLD) at different locations for the treatment of domestic waste water. Details of STPs with their locations as given by IMC are as follows :

S.No.	Name of STPs	Capacity (In MLD)	Average Inlet Qty. Month May23 (In MLD)	Gap in Treatment in STPs (In MLD)
1	Kabitkhedi	245	218.15	26.85
2	Kabitkhedi	78	69.89	8.11
3	Kabitkhedi	12	9	3
4	Pratiksetu	8	7.09	0.91
5	Hukmakhedi	7	5.42	1.58
6	Radhaswami	6	4.76	1.24
7	Nahar bhandara	11	10.91	0.09
8	Ajad Nagar	35	15.57	19.43
9	Harshddhi (Smart City)	10	5.63	4.37
10	Pipliyahana	0.5	0.19	0.31
	Total	**412.5**	**346.61**	**65.89**

About 80-90 MLD domestic waste water is getting into Kanh river without treatment.

Apart from above, some other areas like Nepania, Talawali Chanda, Jakhya, Kalindi Gold, Karol Bagh, Gold City, Mangalia, Singapore Township, Kailaudhala, Venmont Park, Royal Green etc. which are within IMC limit sewage treatment plants (STPs) are not installed so far for treatment of domestic wastewater of these areas and approx 16-20 MLD untreated domestic wastewater is discharged into Kanh River through different nallahs. IMC has proposed to install more STPs for treatment of domestic wastewater of above areas.

The Committee decided to visit STPs at 02 locations randomly so Azad Nagar&CP Shekhar STP whicharehaving35 and 10 MLDtreatment capacity respectively were visited.Observations atSTPsareasfollows:

1. **SewageTreatmentPlantat AzadNagar (35 MLD)**:

Indore Municipal Corporation has installed 35MLD wastewater treatment plant, plant is run by M/sLC Infra Projects Private Limited.The STP found operating. Treated water found discharging in Kanh River. Sample of treated effluent was collected during inspection and analysis report is given. It was observed due to high flood condition back flow of river comes in treated water tank, however it is abnormal condition hence water.

2. SewageTreatment Plant Harsiddhi (10 MLD):

Indore Municipal Corporation has installed 10MLD waste water treatment plant based on SBR technology, plant is run by M/sLC Toshiba Water Solutions Private Limited. The STP found operating. Due to back flow of water from river to STP sampling could not be done. The chlorination and OCEMS system found installed.

01.	STP at Azad nagar near zoo (35 MLD)	Due to back flow of river at the time of visit no discharge from the STP was observed, however STP was operational.

Proposed Action Plan to control discharge of domestic wastewater in Kanh River by Indore Municipal Corporation :

1. Municipal Corporation Indore has proposed to install 10 more STPs and 02 CETPs at different locations. Municipal Corporation Indore has submitted details of proposed STPs/CETPs with work under progress & proposed under Amrit -2, Namami Gange Phase-1, Namami Gange Phase-2 vide their letter no. 287 dated 27/06/2023 proposed STPs/CETPs are as follows :

I. Work under progress

S.No	Location	Capacity of STP in MLD
1	near Sirpur lake	20

II. Proposed work under Amrit-2 Yojna

No.	Location	Capacity of STP in MLD
1	Garipipaliya	80
2	Chota Bangagda	35

III. Work proposed Under Namai Gange Phase-1

No.	Location	Capacity of STP in MLD
1	Kanadia area	40
2	Kila Maidan	35
3	Kabitkheri	120

IV. Work proposed Under Namai Gange Phase-2

No	Location	Capacity of STP in MLD
1.	Near Laxmi Memorial Hospital	35
2.	North Toda	35
3.	Mhow Naka	40
4.	Near Choitram Hospital	35
5.	CETP at Village Kumhedi	10
6.	CETP at Palda	10

SOLID WASTE MANAGEMENT BY INDORE MUNICIPAL CORPORATION :

1. The Population of Indore City is about 29,96,000. Indore City is divided in 85 wards and in 19 administrative zone.

2. Solid waste collection per day is approx 1175 Ton, out of which about 675 TPD is wet waste and about 500 TPD is dry waste and plastic waste.

3. Municipal Corporation has arrangement of door-to-door collection, segregation of MSW at source, transportation facilities, transfer points, waste treatment and disposal facilities.

4. IMC has installed 550 TPD Bio CNG Plant for wet waste treatment, 300 TPD dry waste processing and 44 & 100 TPD decentralized Material Recovery Facility (MRF) and sanitary landfill site at Devguradia. IMC has installed 100 TPD Construction & Demolition waste treatment plant also at Devguradia and 20 & 15 TPD decentralized Bio CNG plants at Choithram Mandi &Kabitkhedi.

5. In this way IMC has collected all kind of waste and disposed properly, no solid waste is disposed around bank of River Kanh except from the illegal slums at the banks of the river.

INSPECTIONOFINDUSTRIALAREASANWERROADINDORE:

01	CETP at Sanwar Industrial area (4 MLD)	The CETP was not in operation only aeration system found functional. However as informed by municipal corporation treated water is being sent to another STP of 245 MLD located at Kabitkhedi.

Committee has visited Industrial Area Sanwer Road, Indore. TheArea is divided in 06 sectors i.e. A, B, C, D, E & F. Mostly small scaleindustriesarelocated inthisarea.There are total of 345 registered industries in this area. The list was however not been provided to the Committee.

As per the information received from the MPPCB, the industries which generate industrial waste water have installed Pre Effluent Treatment Plant and sent their partially treated Effluent to CETP located for industrial area for further treatment and disposal. The CETP has been installed by the Indore Municipal Corporation. As per the information given, it has come to notice that IMC has laid down pipeline network for collection of waste water in industrial area Sector- C,E & Fand from the remaining area like Sector- A,B. D waste eater is conveyed through tankers. The Joint Committee considers this as bone of contention and thus appears to be an eyewash to trick authorities into believing that the effluents are being disposed of properly.

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It has been observed that at many places pipeline was choked or damaged and leakage/seepage of wastewater meets to nallahandwhichultimatelymeetstheKanhRiverandaffectthewaterquality ofthe Kshipra River.

Kumedi & Bardari is located adjacent to the Sanwer Road Industrial Area. These areas are located adjacent to the Industrial Area Sanwer Road and here also some industries are established and operating. Wastewater of the industries at Kumedi and Bardari is also sent to CETP through tankers fortreatment.

There is a nallah passing through Sanwer Road Industrial Area i.e. Narvar Nallah which comes from up-stream of Industrial Area and passes through the Industrial Area, afterthat it meets to Kanh River after flow of approx 10 kilometers. Domestic effluent from the colonies located at up-side of the industrial area is discharged

into this Nallah and Industrialeffluent to someextentalsomeetsto this nallah due to damaged pipelines which carry industrialeffluentfromindustrytoCETP.

Another nallah namely Bhorasala Nallah originates from Bhorasala Village which passes through Village-Kumedi and ultimately meet Narvar Nallah at downstream of Kumedi. This nallah also carry waste water from Colonies located in nearby areas.

OBSERVATION

a. Indore Municipal Corporation has installed CSETP capacity 4MLD (1MLDindustrial+3MLD domestic) for treatment of industrial wastewater. CSETP was found partially operating it has been observed that there is no adequate facility for measurement for wastewater coming into CSETP and quantity of treated waste water sending to STP for further treatment. Quality measurement of treated effluent prior to sending it to Kabitkhedi STP has also been not found adequate. Water sample of treated wastewater has beencollected, report is given in further para. Treated water of CSETP has been sent for further treatment in 245 MLD STP located at Kabitkhedi. The water sample although collected during visit for checking the compliance with the norms, however excess rain in the area has affected the results and have diluted the inlet water quality.Thus true picture could not come out.

b. CETP is not having Zero Liquid Discharge (ZLD) arrangement for disposal of treated effluent, like Ultra filtration, Reverse osmosis, Multi Effect Evaporator (MEE) & ATFD Dryer and treated water is not being reused by the member unit again.

c. CETPisnot found operatingproperlyandwastewateris claimed to be pumpedto245 MLD STP, however there is no record of pumping, no flowmeter to measure the quantity of effluent sent to STP fortreatment, no proper record of effluent coming via tankersand pipelines. Pipeline laid earlier for collection of industrial effluent was also reported damaged and chocked at

many places and waste water is spilled out to surface water drains/local drains of industrial area which meets tonallah passing through industrial area (i.e.Narvar Nallah). There is no check whether industry has disposed their partially treated effluent to CETP pipeline.

d. Capacity of CETP along with conveyance system according togeneration of wastewater quantitatively and qualitatively has not been assessed so far. CETP was receiving wastewater from industrieslocated very far areas from CETP location up to 10 kilometers also. There is no check on the industries sending their effluent by tanker to CETP is it actually receiving or not.

e. There is no measuring device at outlet of CETP to measure the quantity of industrial effluent being sent into the 245 MLD STP and quantity of wastewater discharged into the River Kanh/reuse in other purposes.

f. The treated waste from this CETP is being sent back to STP at Kabitkhedi. The rationale behind such an arrangement could not be explained by the IMC officers. Therefore there is no Zero Liquid Discharge facility available.

g. At the time of visit the CETP was not working due to rainfall but the Industries were running and the IMC officers could not explain about where this huge untreated industrial effluents being generated by Industries were going.

h. On asking about how the solid waste from the industries like Plastic is being carried upto the CETP, the IMC officers pointed to the same pipeline network. This arrangement thus was apparently absurd. And on further questioning about clogging of the pipes through the solid waste, the IMC officers could not give satisfactory explanation.

i. For ruling out any deviation andeyewash, the committee asked for various data like amount of effluent generated from each

industry, , how many tankers have GPS facility, any method of tracking the movement of tankers. However the IMC officers were clueless and shaked their heads irresponsibly.

j. It has been stated that around 92 industries use tanker facility for carrying out the transfer of effluents from Industries upto CETP.

k. There seems to be no action plan for replacing this arrangement of Tanker system with connecting with new pipelines.

l. There is no record of amount of Effluent generated from each industry and its tallying with the amount of effluent received at the CETP. This lack of data leaves serious data about deliberate diversion and leakage of untreated industrial effluent which anyway would ultimately be going to Kanh river.

m. The hazardous waste generated after treatment was lying in the open shed at the CETP where the rain water is seeping out the waste from the shed area into the adjoining field.Thus there is violation of Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016.

n. The nallah at the industrial area is untapped and possibility of Effluent going in to this Nallah cannot be ruled out.

o. The RO MPPCB Indore has no control over the proper functioning of the CETP as it is under the control of the Municipal Commissioner. And thus fixing accountability for all aforesaid deviations is practically difficult.

Recommendations-

a. The Sanwer industrial area was setup on the existing sewer pipeline network and thus a separate network exclusively for the industries is required to be setup. Moreover the old pipelines are broken and damaged at various places and the effluents are leaking at various places.

b. There should be GPS installation and tracking of all tankers registered for carrying out the transfer of effluents from the Industries upto the CETP.

c. The amount of Effluents generated from all industries should be recorded individually and should match with the Effluents received at the CETP.

d. The solid waste generated from the industries should be collected and treated separately.

e. The Treatment facility should be Zero Liquid Discharge and the waste water generated should be put to reuse by the Industries there.

f. The existing nallah in the Sanwer Industrial Area should be closed as it prompts the wrong doers to discharge their waste into it.

g. The extreme situations must call for extreme measures and thus the Industries must be closed during the period the CETP is not working. For instance during rainfall the CETP was not found working and the industries were discharging there effluents illegally intoKanh River.

h. With the development of new STPs under Namami Gange etc., the Sanwer Industrial Area and its CETP should be delinked from domestic sewage treatment and CETP should exclusively be operated for treating Industrial Effluent only. The mixed treatment is preventing the efficient treatment of industrial effluent.

i. From the point of view of ensuring compliance, the Committee is of the view that the responsibility of running the CETP should be transferred to the association of industries itself rather than upon the Commissioner of IMC. The said transfer is necessary from the standpoint of fixing accountability as the Industries at present has no accountability w.r.t.proper working of CETP. On one hand the Industries at present have no interest in proper running of the CETP and on the other hand the Municipal Commissioner would rarely follow the instructions and directions of the RO MPPCB Indore.

PRODUCTS (OLD NAME M/S RUCHI SOYA) MANGALIYA, INDORE :

This is vegetable oil refinery having total capacity of solvent extraction plants – 3750 TPD and refineries – 750 TPD. Industry has consent for solvent extraction of seeds–1125000 MT/Year and refined oil – 225000 MT/Year.

The industry has primary, secondary and tertiary treatment based Effluent treatment plant having Oil & Greece Trap, Equalization Tank, Screen Chamber, Primary Settling Tank, Aeration Tank, Clarifier, Flash Mixer, Treated Water Collection Tank, Reverse Osmosis (RO) systems for treatment and disposal of wastewater. Industry has installed Multi Vapor Re-compression (MVR)/Evaporator for treatment and disposal of wastewater generating from acid oil manufacturing unit. Treated effluent from RO is reused in boiler cooling etc. in the factory.

Treated effluent is reused within premises and plantation, green belt development.No wastewater discharge outside premises and therefore no discharge of effluent into Kanh River. The water sample also collected from outlet of the unit and found complying w.r.to consent condition.
However, the Hazardous waste was stored into shed where rainwater was draining out the hazardous waste into the surrounding area.
The drums containing the liquid alum chemical used for water treatment was not stored properly and the leakage was found around it.

01.	M/s Ruchi Soya Mangliya Indore	The unit found operational but due to overflowing of nearest talab plant premises also affected. ETP of 120 KLD found operational.

Treated Water Quality Analysis

S. No.	**Parameters**	**Unit**	**M/s Ruchi Soya ETP**	**Azad nagar STP outlet**	**CETP outlet at**	**Remarks**

			outlet		**Sanwer road**	
1	Temperature	Centigrade	25.2	26	25.8	On the basis of the analysis results it can be concluded that none of the parameter is showing abnormal values.
2	pH	pH unit	7.53	7.65	7.39	
3	Conductivity	uS	2026	603	1290	
4	Total Suspended Solids	mg/l	38	12	11	
5	Total Dissolved Solida	mg/l	1016	324	658	
6	COD	mg/l	73	21	53	
7	BOD	mg/l	13	03	10	
8	Chloride	mg/l	99	74	259	
9	O & G	mg/l	1.8	1.2	1.8	
10	SO4	mg/l	80	34	62	
11	Faecal Coliform	FC/100 ml	--	70	--	
12	Total Coliform	TC/100 ml	--	220	--	
13	Copper	mg/l	BDL	BDL	BDL	
14	Zinc	mg/l	0.020	0.010	0.060	
15	Lead	mg/l	BDL	BDL	BDL	
BDL-Below Detection Limit						

The above all treated water samples complying the standard of treated water discharged at the time of visit.

Conclusion:

In the view of the above inspection and survey by the committee it can be concluded that River Kshipra is not getting polluted from Indore stretch as in this area there is no industrial cluster located at the bank of Kshipra and encroachment was also not observed in visited stretch which is also accepted by applicant also.

The Kanh river passes through Indore city, as the river is non-perennial in nature, during monsoon season, the river carries good discharge whereas in non-monsoon season, it mostly remains dry and carrying only city sewage. River Kanh is major culprit for Kshipra River pollution which joins it at Ujjain.The IMC submitted the proposed action plant to bridge the remaining gap between generation and

treatment of waste water.

The proposed recommendation regarding design analysis of the STPs in the IMC area should be incorporated in the strategy of IMC. The 195 MLD capacity of proposed STP should be completed in time bound manner of 18 months as suggested by the IMC officials. There are serious flaws and loopholes which are leading to serious violations in the working of CETP at Sanwer Industrial Area and the recommendation/suggestion made herein must be considered by the IMC.

Due to rainfall, the major purpose of the visit could not be achieved, which is the sampling from all the STPs and CETP and few random locations to check the true water quality. And hence second visit is proposed for finalizing the report and to complete the remaining work.

The present report be considered as interim as the sampling exercise is incomplete which is major part of the exercise to check the quality of river water at different points.

The Joint Committee hereby submits the interim report in compliance of the order dated 17.08.2023 (O.A. No. 25/2023 CZ) for consideration and appropriate orders of the Hon'ble Tribunal.

DATED. 03.10.2023

District Collector, Indore	Hasil Jain Adv Commissioner	Dr Anoop Chaturvedi Scientist, CPCB	VishvBandhu Meena, Scientist MoEFCC, Bhopal

Annexure R-1

Item No.03

BEFORE THE NATIONAL GREEN TRIBUNAL
CENTRAL ZONAL BENCH, BHOPAL

(By Virtual Mode)

Original Application No.25/2023(CZ)

Sachin Dave — Applicant(s)

Versus

Union of India & Ors. — Respondent(s)

Date of hearing: 17.08.2023

CORAM: HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

For Applicant(s) : Mr. Sachin Dave, applicant in person

For Respondent(s): Mr. Sachin K. Verma, Advocate for State of M.P. and BMC
Ms. Parul Bhadoria, Advocate for MPPCB
Mr. Manish Singh, PS, WRD
Mr. Chandra Mohan Thakur, Member Secretary, MPPCB
Mr. R.S. Mandloi, DM, Ratlam

ORDER

1. This Original Application was filed, alleging huge pollution and degradation of Shipra River on account of discharge of untreated effluent (municipal, domestic and industrial) and encroachment on Flood Plain Zone and other No Construction/No Development Zone of river. Tribunal by order dated 20.04.2023 found it appropriate to obtain a factual Report constituting a Joint Committee comprising representative from Water Resources Department thorough Additional Chief Secretary and representative of Madhya Pradesh Pollution Control Board.

2. The matter came up on 13.07.2023, when we found that Joint Committee has not submitted Report. This was not appreciated by this Tribunal and it recorded its displeasure in order dated 13.07.2023.

However, it granted further a month's time to Joint Committee to submit its Report. Tribunal also required District Magistrates of Ujjain, Indore, Devas and Ratlam to submit separate Reports with regard to status of River Shipra in their respective districts which would include encroachment status, discharge of industrial effluents, municipal and domestic sewage and measures of treatment of such discharge undertaken by respective bodies, agencies or individuals, as the case may be.

3. Today, Joint Committee has submitted Report. Four separate Reports have been submitted by respective District Magistrates of Ujjain, Indore, Devas and Ratlam.

4. In general, Report is that there is no encroachment as alleged; no industrial effluent is being discharged in River Shipra but still category of river water is very low and unfit for bathing or drinking purposes and at some places, even for agriculture purposes. Reason for such deterioration of water quality of River Shipra could not be explained by the officers who are present. In respect of some industries engaged in manufacture and production of chemicals, pharmaceutical, leather etc., we find that Report says there are ZLDs, but there is no cross check steps or material placed before us as to how much residue is being produced by them everyday and in what manner, such residue is being disposed, particularly, considering the fact that residue generated in pharmaceutical industries, chemical industries and leather industries is of seriously hazardous nature.

5. Reports, therefore, are inadequate, incomplete, lack relevant information and cross checking and fails to give a wholesome picture of entire facts. In fact, several questions remain unanswered.

6. In these facts and circumstances, we find it appropriate to obtain fresh Reports by appointing different Committees for each district. The following Committees are constituted, separately, for all the Districts:

(i) **For District Ujjain:** Mr. Rahul Khurana, Advocate (Enrolment no. D/2183/2008), a representative from CPCB, a representative from Integrated Regional Office, MoEF&CC and District Magistrate, Ujjain

(ii) **For District Indore:** Mr. Hasil Jain, Advocate (Enrolment no. D/2880/2013), a representative from CPCB, a representative from Integrated Regional Office, MoEF&CC and District Magistrate, Indore.

(iii) **For District Devas:** Mr. Tarunesh Kumar, Advocate (Enrolment no. D/2427/2010), a representative from CPCB, a representative from Integrated Regional Office, MoEF&CC and District Magistrate, Devas.

(iv) **For District Ratlam:** Mr. Ashish Singh, Advocate (Enrolment no. D407-B/2005), a representative from CPCB, a representative from Integrated Regional Office, MoEF&CC and District Magistrate, Ratlam.

7. Concerned District Magistrates shall be the Nodal agency for co-ordination and compliance.

8. Registry is directed to supply relevant copy of letter petition, Tribunal's orders and Joint Committee Report etc. to all the above Advocates Commissioners appointed by Tribunal.

9. Madhya Pradesh State PCB shall pay Rs. 75,000/- each to all the Advocates Commissioners as their professional fee and also bear other expenses relating to transportation, boarding/lodging, photography etc. If

Advocate Commissioner has to undertake any journey to concerned District or any other place regarding this matter, travelling and other expenses and other facilities of the status of Joint Secretary to Govt. of India shall be paid/made available to them.

10. All these expenses and fees of Commissioners shall be borne by Madhya Pradesh PCB from the amount collected under the head of Environmental Compensation.

11. The said Committees shall submit reports before the next date of hearing.

12. List this case on 04.10.2023.

Sudhir Agarwal, JM

Dr. Afroz Ahmad, EM

August 17, 2023
Original Application No.25/2023(CZ)
MK

उपस्थिति पत्रक

मा. राष्ट्रीय हरित अधिकरण सेन्ट्रल जोनल बेंच के प्रचलित प्रकरण क्रमांक 25/2023 (सचिन दुबे विरुद्ध म.प्र. शासन व अन्य) के मा. एन.जी.टी. द्वारा नियुक्त कोर्ट कमिश्नर के इन्दौर के निरीक्षण के पूर्व आयोजित बैठक - ~~का उपस्थिति~~ के विभिन्न विभागों के अधिकारियों का उपस्थिति पत्रक : दिनांक 16-09-2023

क्र.	अधिकारी का नाम पद नाम	विभाग का नाम	हस्ता.	मोबाइल नं.
1.	Hasil Jain Adv Commissioner.		[signature]	7838707338
2.	Vandana Sharma	CEO ZP.	[signature]	7987020512
3.	Priya Verma Patel	DC Indore	[signature]	8319037676
4.	Roshni Vardhman	JC Indore	[signature]	9589817293
5.	Vikas Raghuwanshi	NT Kshipra	[signature]	8120241511
6.	Krishna Ninama	SDO forest	[signature]	7065470540
7.	Yachana Dixit	Tsh Khudail	[signature]	8982070693
8	Jitendra Solanki	NT Khudail	[signature]	7000091844
9	Rajesh Rathore	R.I.	[signature]	9826393042
10	P. S. Baghel, R I Shipra	R.I.	[signature]	7000366083
11.	Vishwa Bandhu Meena	MoEF&CC R.O. Bhopal	[signature]	8527202235
12	Dr Anoop Chaturvedi	CPCB, Bhopal.	[signature]	9424439755

क्र.	अधिकारी का नाम व पद नाम	विभाग का नाम	हस्ताक्षर	मोबाइल नं.
13	मुकेश वर्मा, पंचायत अधिकारी	जिला पंचायत	[signature]	9826068773
14	KUSUM Mandloi verma	CEO JP Sanwer	[signature]	9691195171
15	Priyanka Tagore	CEO JP Indore	[signature]	9589170733
16	Dharmjeet Singh	BC/SBM Indore	[signature]	9424555965
17	S.R. Aske	Agriculture (SADO)	16/9/23	7999670459
18	Rajesh Dhare	SADO सांवेर	[signature]	9826056523
19	Ramlal Khedekar	RI	[signature]	98936-22434
20	Abhishek Sharma	IMC	[signature]	8368075184
23	Sachin Kumar Sahu, SRF	CPCB, Regional Directorate, Bhopal	[signature]	
24	Sunil Gupta EE	IMC	[signature]	7440443347
25	S.N. Dwivedi	RO, MPPCB Indore	[signature]	9827210458
26	Sachin Deo. रसायनज्ञ	रसायनज्ञ	Sachin	9827308286
27	S.K. Jain Scientist	MPPCB Indore	[signature]	942545416
28	Atul kotiya	M.P.P.C.B., Indore	[signature]	98935-55466

ग्राम अरन्या

दिनांक 17/9/23

पंचनामा

हम पंच ग्राम अरन्या के होकर यह पंचनामा लिखते है कि आज दिनांक को NGT की टीम द्वारा ग्राम अरन्या में सिप्रा नदी का मौका निरक्षण माननीय NGT के प्रचलित प्रकरण क्र 25/2023 सचिन दुबे v/s भारत संघ व अन्य में पारित आदेश ~~दिनांक~~ 20/4/23 एवं 13/7/22 के पालन में मौका निरक्षण किया गया मौके पर पाया कि सिप्रा नदी के किनारे दोनो तरफ किसी प्रकार का अतिक्रमण नहीं है मौके पर ग्राम बावलिया अरन्या के निवासी उपस्थित है।

अतः पंचनामा लिखा गया सो सही।

सचिन व्यास (बावलियाखुर्द) 7879555554

विक्रम सिंह (बावलिया खुर्द) 9009047808

पारसराम [illegible] अरनिया खुर्द 9169112327

रघुनाथ सिंह अरन्या 07548555514

INDORE MUNICIPAL CORPORATION

SEWERAGE WORK REVIEW MEETING

INDORE MUNICIPAL CORPORATION

SEWERAGE SYSTEM, INDORE CITY

Introduction

- Indore is the largest city of Madhya Pradesh in terms of its population. As per Census records, population of Indore city in 2011 is 19, 64,086 and the population of Indore metropolitan region is 29,39,974 after inclusion of 29 villages.

- The City is administered by Indore Municipal Corporation for provision of civic facilities and is spread over a geographic area of **276 sq. km**. In year 2014, on date 20th November Government of Madhya Pradesh merged 29 villages into IMC limits, thus increasing the jurisdiction of IMC. IMC area is divided in **19 administrative zones & 85 wards.**

- The water utility is managed by Indore Municipal Corporation (IMC), in addition to being responsible for all its maintenance, construction and operation, is also responsible for sewage collection, treatment and disposal, road service and construction, town planning and all the main utility services to the population.

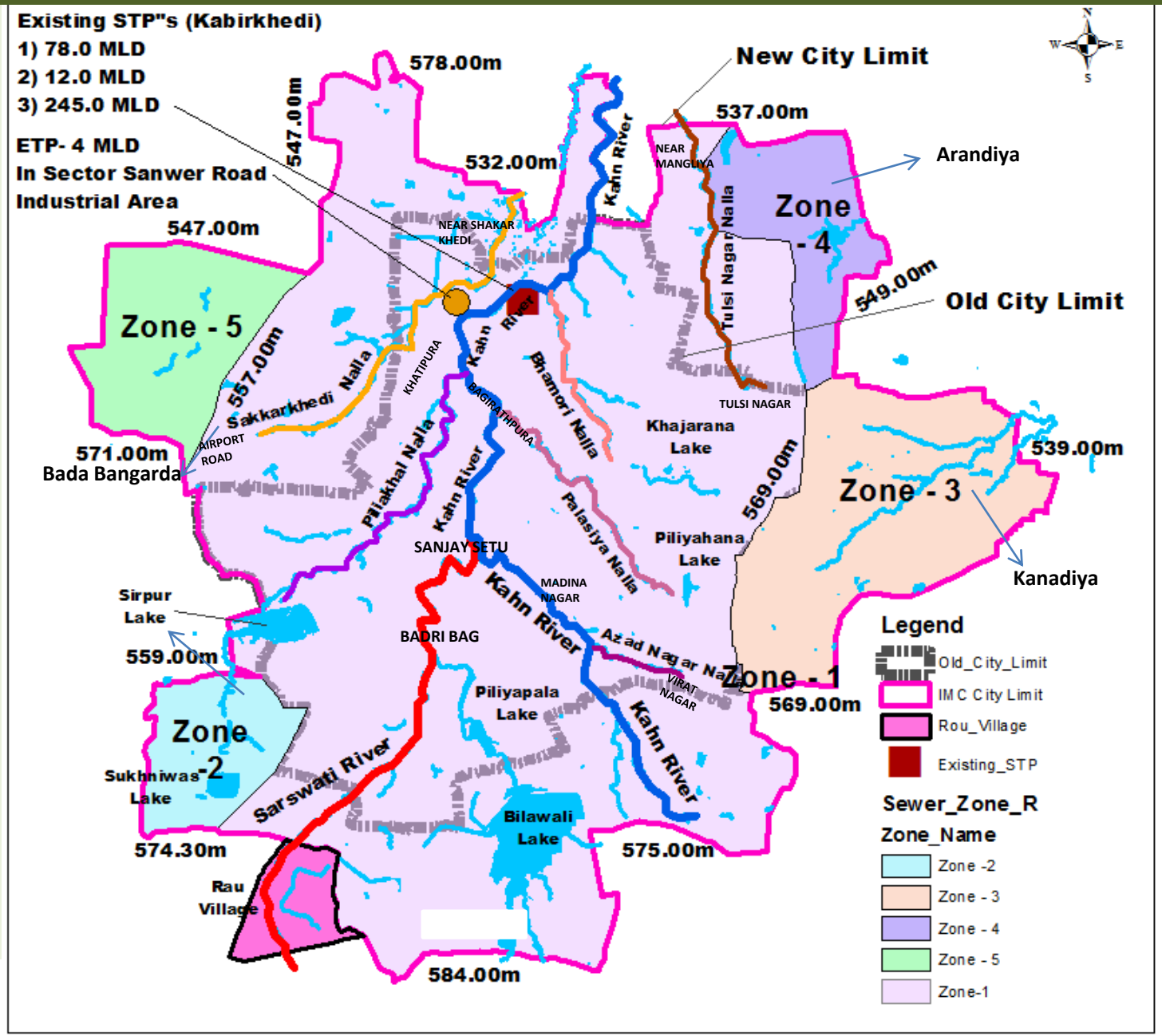
Indore City Map showing Kanh River, Saraswati River & 06 Major Nallas with Zones

RIVERS

1. Kanh River-21.3 km (Origin from Asarawad Khurd)
2. Sarswati River - 12.4 km(Origin from Machla Ki Pahadi ,Rau talab to Sanjay setu)

MAIN NALLAS

1. Bhamori Nalla- 7.55 km (Khajrana talab-Kabitkhedi)
2. Palasia Nalla- 8.60 km(Pipliyahana talab-Bhagirathapura)
3. Piliakhal Nalla- 11.70 km (Sirpur talab-hatipura)
4. Azad Nagar- 3.7 km (Virat Nagar-Madina Nagar)
5. Tulsi Nagar- 9.20 km (Scheme no 134-Mangliya)
6. Narwal Nalla- 16.60 km (Bijasan-Sakkarkhedi)

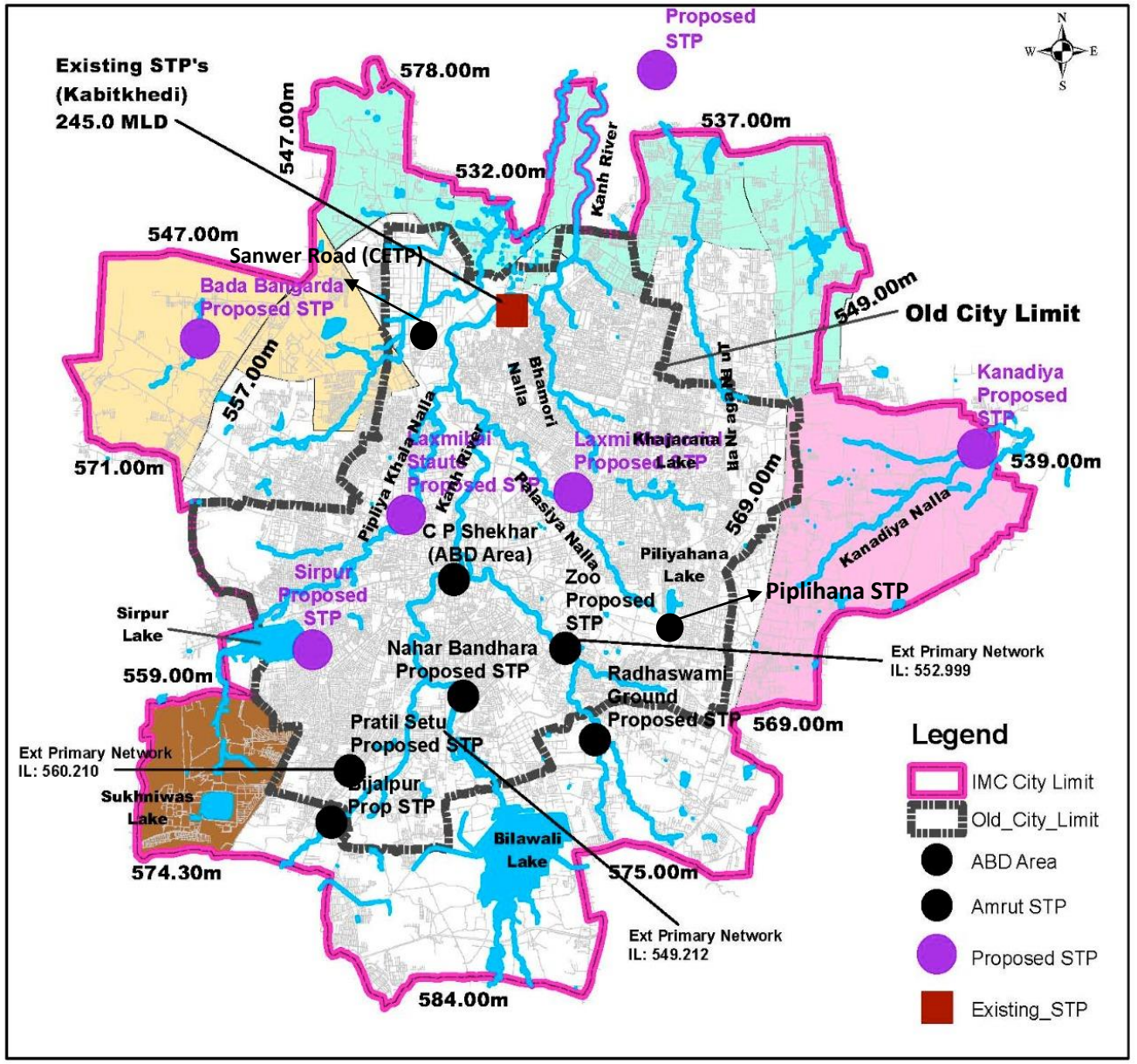


Existing Sewerage System

- Total Sewerage generation in city limits – **367.8** MLD.
- Total Sewerage network in city limits –**2180.1** KM.
- Total Sewer Manhole in city limits – **201354 Nos.**
- Total Treatment Capacity –**416.5 MLD**
- Total Treatment – **367 MLD**
- Old existing STP **–** 245, 78 & 12 MLD STP at Kabitkhedi
- Newly Constructed decentralized STP: SBR = 35,11,10, 8,7 & 6 MLD and AGBBR = 0.5 MLD at various location in city
- IMC has Commissioned **10** nos. STP including **07** Nos. of Newly constructed STP and trapped total **1746** nos. major outfalls & **5624** minor outfalls which was fall into River & six nallas.
- 01 no. CETP **04 MLD** at Sawer road Sector -F

Existing STP

Sr. no	Name of STP	Capacity
1	Kabitkhedi SBR	245 MLD
2	Kabitkhedi UASB	78 MLD
3	Kabitkhedi UASB	12 MLD
4	**Sanwer Road (CETP)**	**04 MLD**
5	Zoo STP	35 MLD
6	Nahar Bhandra	11 MLD
7	Pratik Situ	8 MLD
8	Bijalpur Talab STP (including Rau village)	7 MLD
9	Radhswami Ground	6 MLD
10	At CP Shekhar	10 MLD
11	At Piplihana Talab	0.5 MLD
	Total	**416.5 MLD**



Trapped River / Nalla Outfalls from year 2019 to 2021

S.No.	Name of River/ Nalla	Prop. Network M	Laid Sewer Network M	Nos. Of Major Outfall	Trapped on till Dated	Trapped Individual Outfalls
	River					
1	**Kanh River** (Origin from Asarawad Khurd) - 21.3 km	68760	68760	208	**208**	5624
2	**Sarswati River** (Origin from Machla Ki Pahadi ,Rau talab to Sanjay setu) - 12.4 km	62284	62284	225	**225**	
	Nalla					
1	**Bhamori Nalla-** 7.55 km (Khajrana talab-Kabitkhedi)	12373.8	12373.8	216	**216**	
2	**Palasia Nalla-** 8.60 km(Pipliyahana talab-Bhagirathapura)	13596	13596	345	**345**	
3	**Piliakhal Nalla-** 11.70 km (Sirpur talab-hatipura)	16792	16792	398	**398**	
4	**Azad Nagar-** 3.7 km (Virat Nagar-Madina Nagar)	18641.1	18641.1	85	**85**	
5	**Tulsi Nagar-** 9.20 km (Scheme no 134-Mangliya)	3500	3500	88	**88**	
6	**Narwal Nalla-** 16.60 km (Bijasan -Sakkarkhedi)	42200	42200	181	**181**	
	Total	**238147**	**238147**	**1746**	**1746**	**5624**

Total Outfall Trapped = **7370 nos**.

All this outfall are geotagged and marked on GIS based map with unique coding

Completed Sewerage Projects

- **Primary Sewer Network under JNNURM - 163.05 KM**

East, West, Central Zone by IMC and BRTS By IDA

- **Sewerage Network taken up under Simhasth-2016**
  - Trapping sewers outfalls of Kanh & Saraswati Rivers – 27.15 km
  - Trapping sewers outfalls of 6 Nallas of City– 24.45 km
- **Sewerage Network laid under AMRUT Project**
  - Sewer line for proposed Decentralized STP's (5 no.) – 117.6 km
  - Sanwer Road Industrial Area and old city area – 86 km
  - Trapping sewer outfalls of 3 Nallas of City – 27 km
- **STPs under AMRUT Project**
  - Nahar Bhandara :- 11 MLD
  - Pratik Setu :- 8 MLD
  - Zoo :- 35 MLD
  - Radhaswami Ground :- 6 MLD
  - Bijalpur talab :- 7 MLD
- **STP under Smart City Mission**
  - CP Shekhar Nagar :- 10 MLD
- **IMC fund**
  - Pipliyhana Talab:- 0.5 MLD
- **Reused network from Existing 245 MLD & AMRUT 5 nos STP**

Achievements

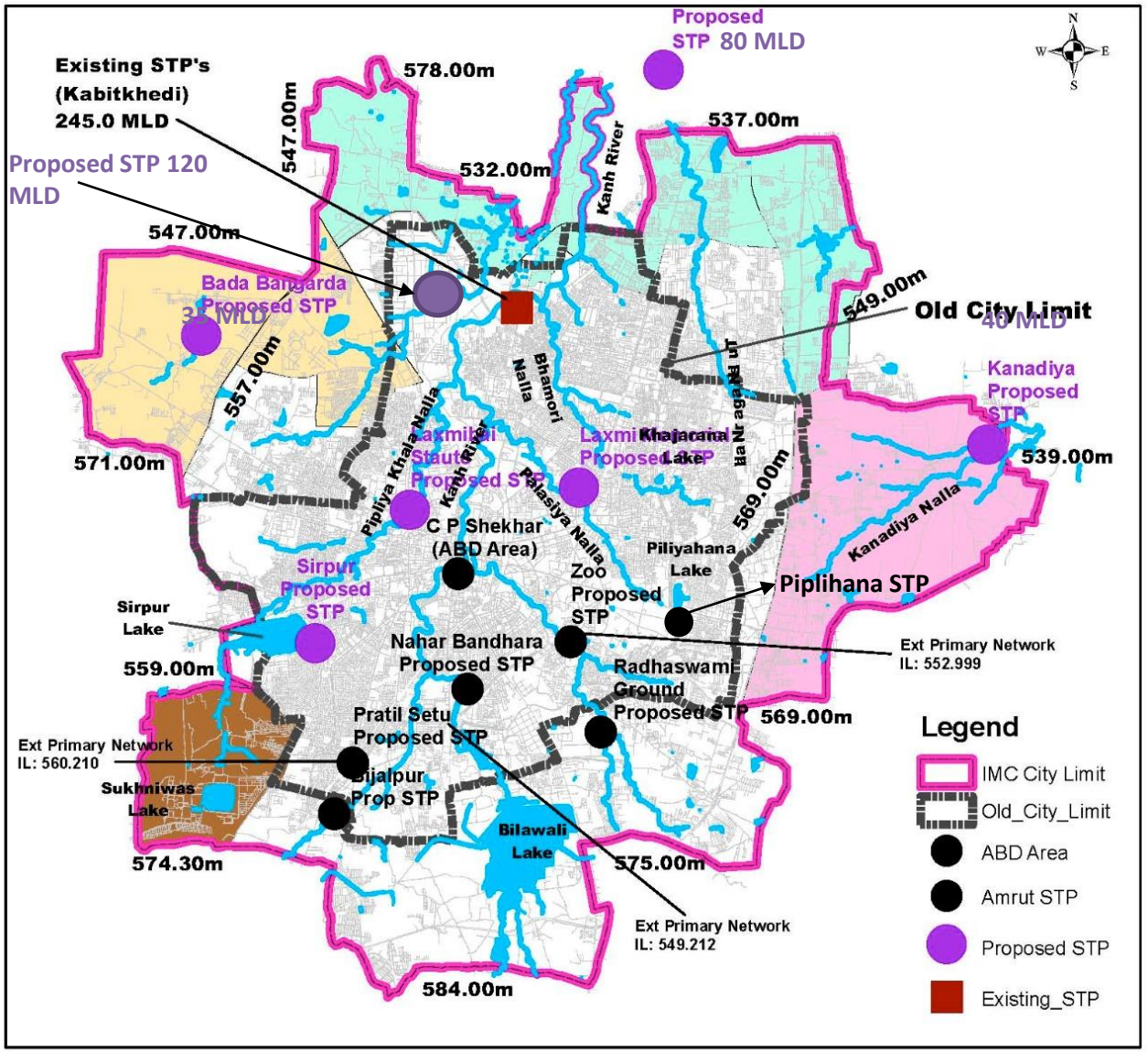
- In year **2019-2021** IMC has completed **07** nos. decentralize STP of Total capacity is about **77.5** MLD in city limits.
- IMC has laid & Commissioned total **289.35** KM Sewer Network and trapped total **1746** nos. major outfalls and **5624** nos. minor sewer outfalls in River & six nallas.
- Resulting of above work the generated **360** MLD sewer collecting through close sewer networks and treating on **11** nos STP & CETP.
- 30% Treated water used in Irrigation, Gardens, Cleaning of roads, Construction work etc. and remaining water released into River and fill Ponds for maintain water level.
- As a result of the above work the aquatic life of river and ponds have been revived.

Proposed Sewage Treatment plants For Year 2040

(Proposed under AMRUT-2.0 and Namami Gange and IMC Funded)

Proposed Treatment Plant and capacities

1. 120 MLD (78 MLD and 12 MLD STP Upgradation) **(NMGC)**
2. 80 MLD (50 MLD for Indore city + 30 MLD for nearby villages: Kalod Hala, Jakhya village , (near Mangliya on Tulsi nagar) **(AMRUT-2.0)**
3. 40 MLD (kandiya village) **(NMGC)**
4. 35 MLD (Bada Bangarda) **(AMRUT-2.0)**
5. 35 MLD (Laxmi Bai Statue) **(NMGC)**
6. 35 MLD (Laxmi Memorial Hospital) **(IMC Funded)**
7. 20 MLD STP (Sirpur Lake) (**IMC Funded**) in Progress
8. Laying of 215 km. Sewer network in 29 nos. of villages.



INDORE MUNICIPAL CORPORATION

Sewerage project AMRUT - 01

Atal Mission for Rejuvenation and Urban Transformation

Project Brief Package -01

- **STPs -** Survey, Investigation, Engineering, procurement, construction, testing & commissioning of 5 nos. STPs including SCADA i.e.
    1. Zoo – **35mld** Capacity,
    2. Nahar Bhandara – **11 mld** Capacity,
    3. Pritik setu- **8 mld** capacity,
    4. Radhaswami – **6 mld** capacity,
    5. Bijalpur Talab – **7 mld** capacity,
- **Sewer Network** - Survey, Investigation, Engineering, providing, laying, jointing, testing & commissioning of sewerage network of above 5 STPs i/c trapping of secondary outfall sewerage meeting to nallas and rivers
- **Reuse Work -** Reuse of 13 mld effluent of existing 245 mld STP by constructing one OHT and pipe line complete plus ten years operation & maintenance

Sewerage Package - 1

Name Of Project	**Construction of 5 nos. STP and Collection Network of New 5 nos. STP's & Reuse Network of 13 MLD Treated Water Of existing 245 MLD STP by construction of one OHT of capacity 3 ML and pipe line network**
Project Cost	**Revised Cost Rs. 211.16 Cr.**
Construction Agency	**M/s. LC Infra. Projects Pvt. Ltd. (Laxmi Construction), Ahmedabad**
Work Order No.	**05/2017-18 dated 28.12.2017.**
Project ID	**MAD-IND-002**
Project Start Date	**28.12.2017**
Project End Date	**31.03.2021**
Current Status	**Commissioned / Completed**
Physical	**100% Completed**
Financial	**Final Bill is in Progress**

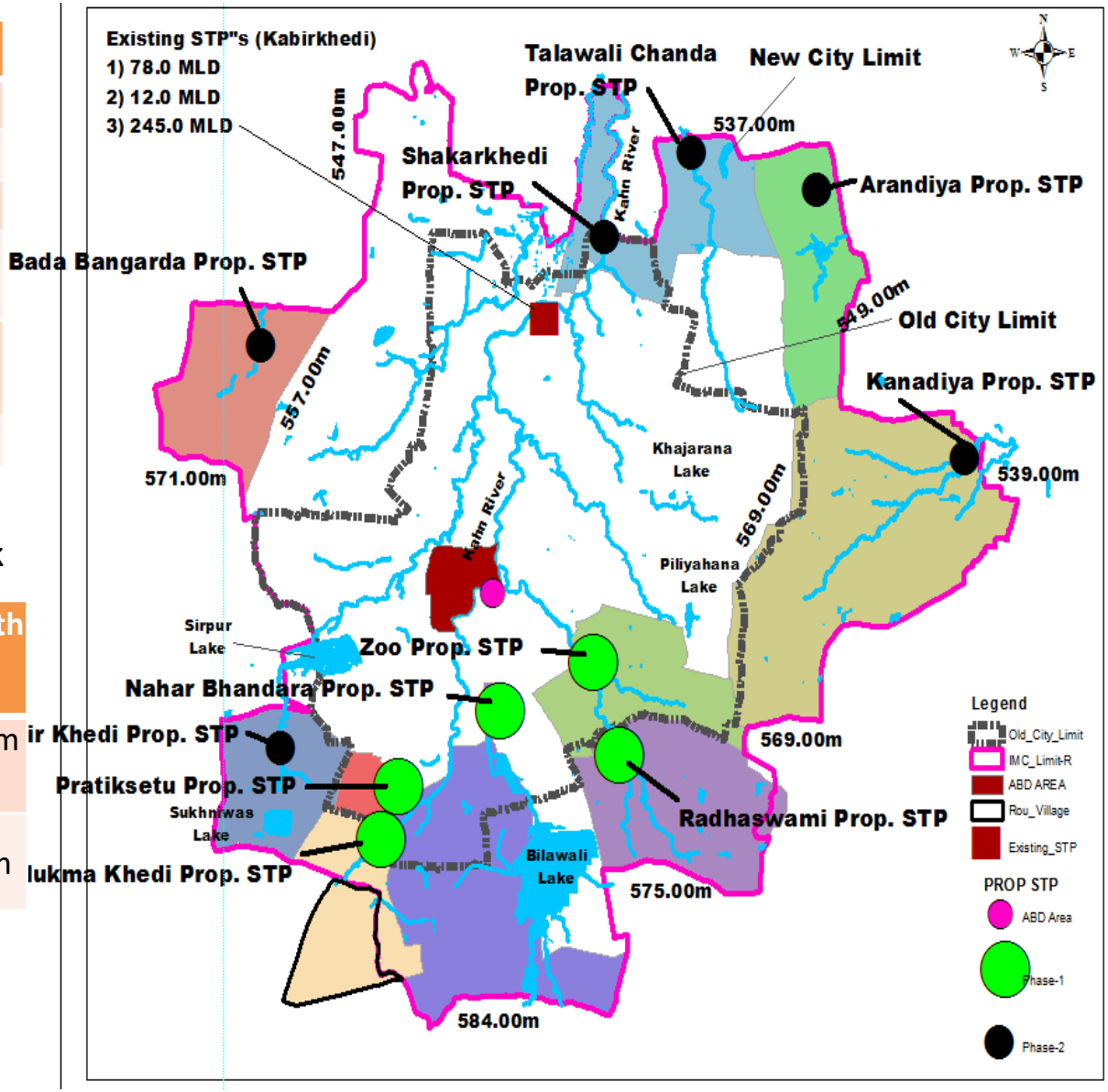
Completed STPs & Network work under AMRUT

Completed STPs

Sr.no	Name of STP	Capacity
1	Zoo STP	35 MLD
2	Nahar Bhandra	11 MLD
3	Pratik Situ	8 MLD
4	Bijalpur Talab STP (including Rau village)	7 MLD
5	Radhswami Ground	6 MLD
	Total	**67.0 MLD**

Completed of Sewer & Reuse Network

Sr.n	Network	Total Length	Laid length
1	**5 nos STPs Sewer Network**	117.61 km	117.61 km
2	**Ruse Water Network**	73.68Km	73.68 Km

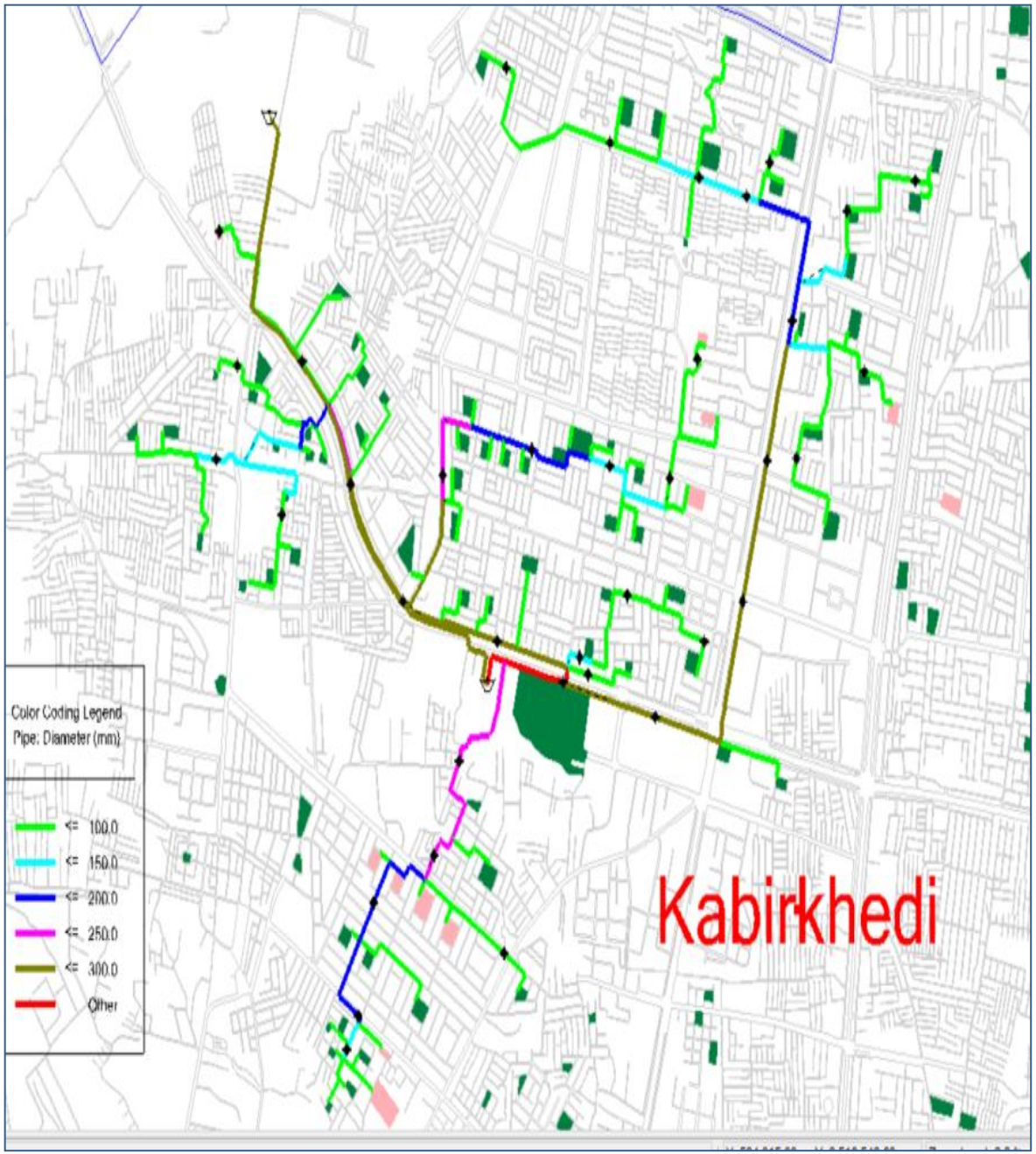


AMRUT Indore, Madhya Pradesh

Reuse System of Treated water

Water Reuse work completed and Water Reuse OHT supply water into Re-use Network

1. OHT :- 3 ML (1 nos.) , Sumps – 05 nos
2. Reuse network :- 73.68 KM
3. Distribution to Covering 175 nos. of gardens
4. Hydrant connected – 60 nos.
5. Supplying water to Indore Metro, construction , road cleaning, etc.



Reuse of Treated water in Gardens, Lakes & Hydrant

AMRUT Indore, Madhya Pradesh

After Commissioning of 08 & 07 MLD Pratik Setu & Bijalpur STP Outcome

Before Saraswati river
at
Amitesh nagar

After Saraswati river
at
Amitesh nagar

Initiatives Considered in the Project

- Construction of **05** No. STP of total Capacity **67** MLD i/c all Electro Mechanical works & its sewerage networks.
- Procurement and laying of **117.60** Km Sewer Line
- Tapping of All Outfalls in decentralized areas.
- Construction One OHT at Meghdoot Garden for Reuse of Treated water and **34.72** KM pipe line.
- Construction of **05** No. Sump cum pump Houses for Reuse of treated water & **38.95 KM** distribution network and covering total - **175** Gardens in the city area

Benefits / Outcomes in the Project

- Covered **100%** sewer & tapped over **230 nos**. of Major existing Sewer Outfalls.
- Constructed **05 nos**. of Decentralized STPs to Treat Sewer.
- **30%** of treated water is using by IMC in different utilities like Road Cleaning, Toilet cleaning, Agriculture and constructions works.
- All Nallas are dry and Only Strom water flowing into them on Rainy season.
- The aquatic life of Saraswati & Kanh rivers is born back.
- Gardens are irrigating by treated water.
- Reduce drinking water demand by using treated water.
- Earn revenue by selling Treated water to other agencies.
- Indore got awarded by first water plus city in India.

Project Brief Package - 02

- Sewerage network for tapping of secondary sewage outfalls discharging the sewage in main three nallas of city, namely
  - Bhamori Nalla,
  - Piliakhal Nalla,
  - Palasia Nalla of city & connect into the primary sewerage network,
- Sewerage network for Sanwer road Industrial Area
- Un Sewered area – Sewerage network in other areas within old Indore Municipal area including allied work etc.
- House Service Connections - 5000 nos. HSC work

Sewerage Package - 2

Name Of Project	**Providing, laying, jointing, testing & commissioning and allied works ,trapping of Secondary Sewerage outfalls discharging the sewage in main three nallahs of city namely Bhamori, Piliakhal, Palasia of city & connect into the primary sewerage network.**
Project Cost	**Revised Cost Rs. 97.19 Cr**.
Construction Agency	**M/s. N.P. Patel & Company, Ahmedabad**
Work Order No.	**06/2017-18 dated 24.01.2018.**
Project ID	**MAD-IND-002**
Project Start Date	**24.01.2018**
Project End Date	**31.03.2020**
Current Status	**Commissioned / Completed**
Physical	**100% Completed**
Financial	**100% Completed**

Sewerage Network

Description	Total length (mtrs)	Total Quantity laid upto date (mtr)	Remaining Quantity (Mtr)	Sewer Outfalls	Nos of House Service Connection	Remarks
Bhamori Nalla.	6886.63	6886.63	Completed	52	5	Completed
Palasiya Nalla & Kanh River	14102.12	14102.12	Completed	146	25	Completed
Piliya Khal Nalla.	15056.05	15056.05	Completed	128	440	Completed
Industrial Area	34564.10	34564.10	Completed	0	108	Completed
Polo Ground	6889.21	6889.21	Completed	0	156	Completed
Laxmi bai Nagar	2836.15	2836.15	Completed	0	59	Completed
Sirpur	4786.70	4786.70	Completed	0	958	Completed
Total	85120.96	85120.96	0	326	1751	

Initiatives Considered in the Project

- Laying of Sewer network for three major nallas of city i.e. Bhamori, Piliakhal, Palasia of city total – 27.90 KM.
- Sanwer road Industrial Area effluent Collection System up to Existing 4 MLD CETP total – 37.83 KM
- Laying of Sewer pipe lines where there is no sewerage system in old city area (like polo ground, Laxmi bai industrial area, Khjarana area, etc.)
- House service connection of sewer network on above works total 5000 nos.

Benefits / Outcomes in the Project

- Covered 100% sewer & tapped over 326 nos. of Major existing Sewer Outfalls.
- Water flowing into the river are Sewer free.
- All Nallas are dry and Only Strom water flowing into them on Rainy season.
- Indore got awarded by first water plus city in India. Indore got awarded by first water plus city in India

AMRUT Indore, Madhya Pradesh

AMRUT Indore, Madhya Pradesh

स्वच्छ सर्वेक्षण 2021

स्वच्छ भारत
एक कदम स्वच्छता की ओर

नई सोच, नया अंदाज
नईदुनिया
इंदौर, गुरुवार 12 अगस्त, 2021
www.naidunia.com

कोरोना के बाद की वैश्विक अर्थव्यवस्था 6

आत्मविश्वास से लबरेज स्टार्ट-अप्स 8

इंदौर बना देश का पहला वाटर प्लस शहर

नंबर 1 स्वच्छता में जुड़ा एक और सितारा

इसलिए मिली उपलब्धि: कान्ह-सरस्वती नदियों और उनसे जुड़े नालों में गंदे पानी को मिलने से रोका

यह होगा फायदा: 6000 अंकों के सर्वे में वाटर प्लस के 700 अंक जुड़ेंगे

लगाएंगे 'जीत का पंच'

अब आगे क्या: इंदौर ने सर्वे के तहत 1100 अंकों की सेवन स्टार रेटिंग के लिए भी दावा पेश किया

देश के 250 शहरों में हम बने अव्वल

यह है वाटर प्लस सर्वे

स्वच्छता सर्वे में किसके कितने अंक

कुल अंक : 6000

मुख्यमंत्री ने कहा-आपके अनुशासन पर पूरे प्रदेश को गर्व

सेवन स्टार के लिए दावा पुख्ता

INDORE MUNICIPAL CORPORATION

Sewerage System AMRUT 2.0

DRA CONSULTANTS LTD.
Urban | Water | Efficiency

Atal Mission for Rejuvenation and Urban Transformation

Existing Sewerage Networks and STP

Existing Sewerage Networks and STPs Details:

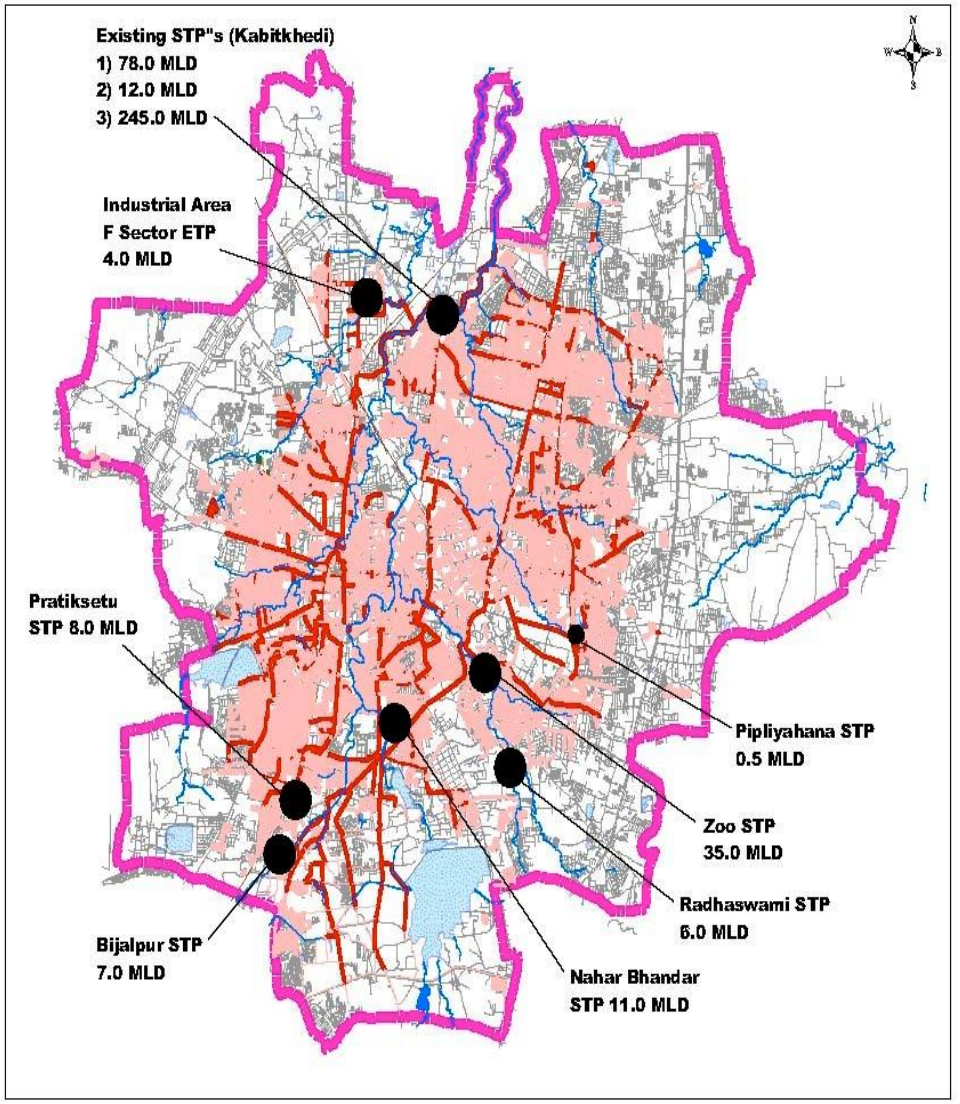
i. Total sewerage network i/c primary and Secondary sewerage system = **2180** km

ii. Treatment capacity:

- SBR = 322 MLD (245+35+11+10+8+7+6)
- UASB= 90MLD (78+12 MLD)
- AGBBR=0.5 MLD

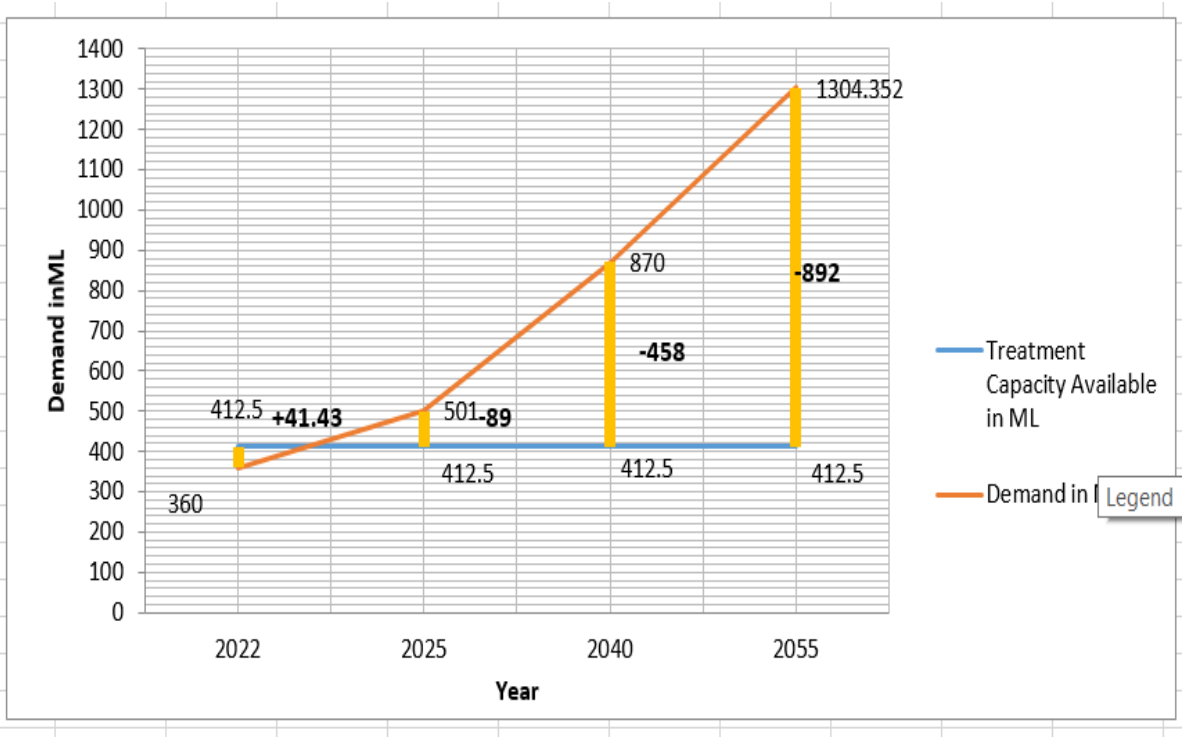
Total Treatment Capacity= **412.5** MLD

Effluent Treatment Plant (ETP)= **4** MLD



Population & Sewer generation Projection

Population projection has been done by all stipulated method given in CPHEEO and accordingly adopted as calculated by graphical method and development of similar cities. The pattern is matching with Pune city. The projected population resemble with already projected population of sewage project report approved in JNNURM project, ADB project.



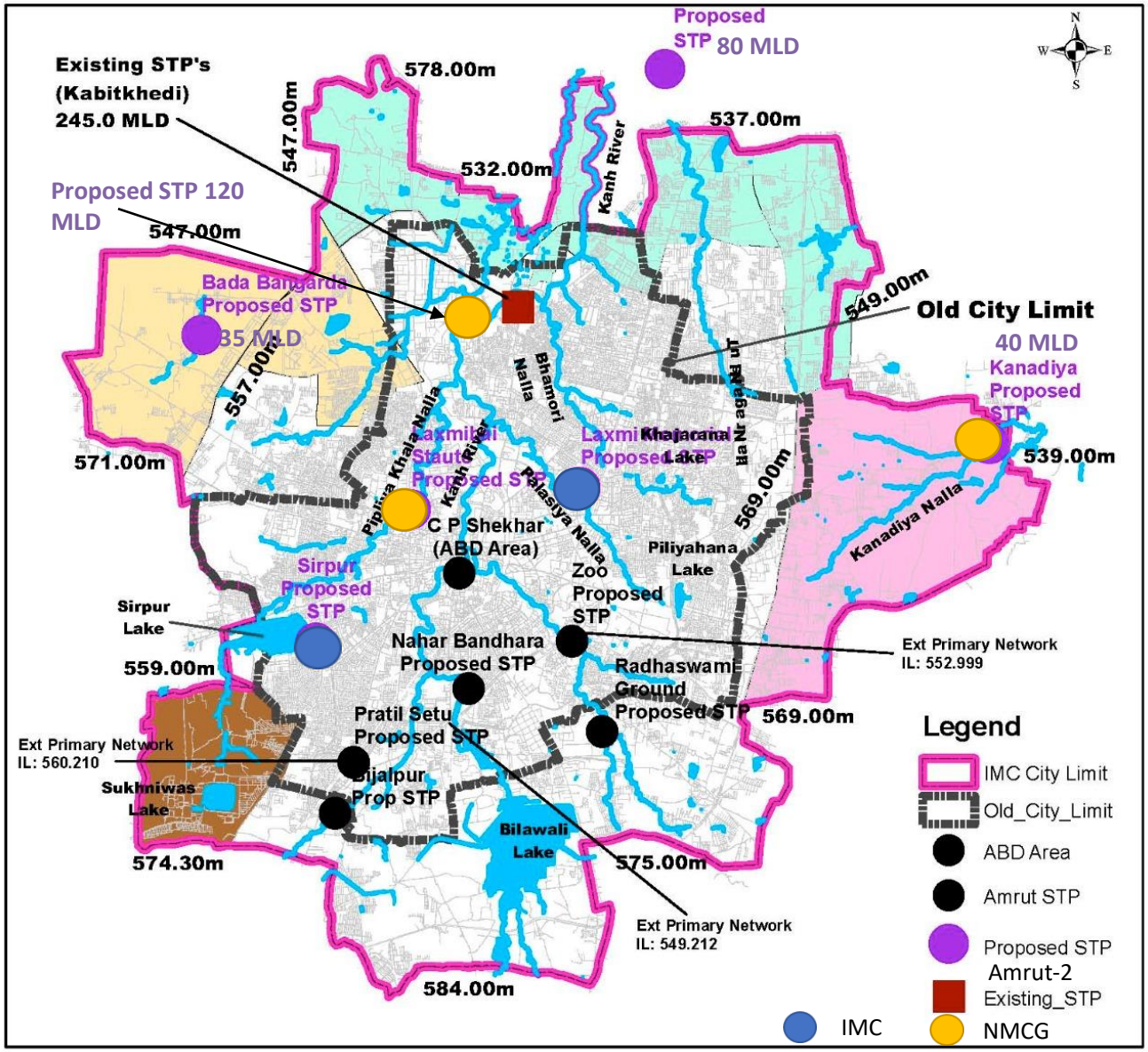
Year	2022	2025	2040	2055
Total Population (in Lakhs)	29.5	35.50	58.70	90.07
Sewer generation in ML	362.00	501	870	1304
Existing Treatment capacity in ML	412.5	412.5	457.5	412.5
+Surplus/-deficit	+50.5	-89.0	-458	-892

Sewerage Treatment plants Proposed under AMRUT 2.0

Proposed Treatment capacity under AMRUT-2.0

1. **80 MLD** (50 city + 30 MLD near by village Kalod Hala, Jakhya village , (near mangliya on Tulsi nagar)
2. Chhota/Bada bangarda = **35 MLD**

Total :- 115 MLD



Cost of Sewerage Action plan for AMRUT -2

Sl. No.	Description	QTY.	Unit	Cost (In Rs.)	Cost (In Cr.)	Remarks
1	**STP Construction at various locations**					
A	80 MLD (50 city + 30 MLD near by village Kalod Hala, Jakhya	1	Nos.	810400000	81.04	
B	Bangarda Proposed STP (35 MLD) with development of Tigraya badhsha lake in PPP mode by reuse water	1	Nos.	580800000	58.08	
2	**Online monitoring equipment's**	2	job	5000000	0.5	
3	Construction, testing & commissioning of HT electric line as suggested by MPPKVVCo.Ltd, Electrical substation, Transformer i/c all other electrical appurtenances, instruments etc. complete for STPs.	2	Nos.	32600000	3.26	
4	**Network of Shakkarkhedhi, Lasodiya & Talwali Chanda, Bhangarh, Bangarda , Gandhi Nagar**	130	km	880000000	88	
5	Pumping machinery for reuse tank	2	Nos.	6065982	0.61	
6	RCC GSR capacity 0.1 ML (bearing capacity of soil , 8 MT/Sqm)	2	Nos.	1661458	0.17	As PPP project we will provide only VGF gap to MPIDC , which we are getting from Central Govt. 30% of project cost , MPIDC will invest remaining capex and purchase secondary treated water @ 1.5 Rs. /KL from IMC
7	RCC OHT capacity 0.5 ML & staging height 21 mtrs (bearing capacity of soil , 8 MT/sqm)	2	Nos.	10289366	1.03	
8	**Reuse Distribution system for proposed 2 nos STPS**	30	km	78000000	7.8	
9	**Tertiary treated Plant of 20 MLD at 245 MLD Existing Plant in PPP mode with MPIDC**	1	Nos.	300000000	30	
10	**Pipeline for Tertiary treated Water to be given to Pritampur and pumping machinery MPIDC**	40	km	840000000	84	
11	House service connection (317884, house hold= (township connection-3815 , individual-127154 , total connection=89365nos.)	93450	Nos.	366043650	36.60	
12	Replacement of old sewerage lines in old City area.	120	km	802500000	80.25	
	Sub total			4713360456	471.34	
	GST 18%			848404882.1	84.84	
	Total Amount in Rs.			**5561765338**	**556.17**	

STATUS OF DPR AMRUT 2.0

1. Land is identified for STPs.
2. Survey work completed.
3. Reuse discussion is going on with MPIDC.
4. PPP option for Tigrayia Badshah lake option study in progress
5. DPR is Under preparation.

INDORE MUNICIPAL CORPORATION

Sewerage System Namami Gange

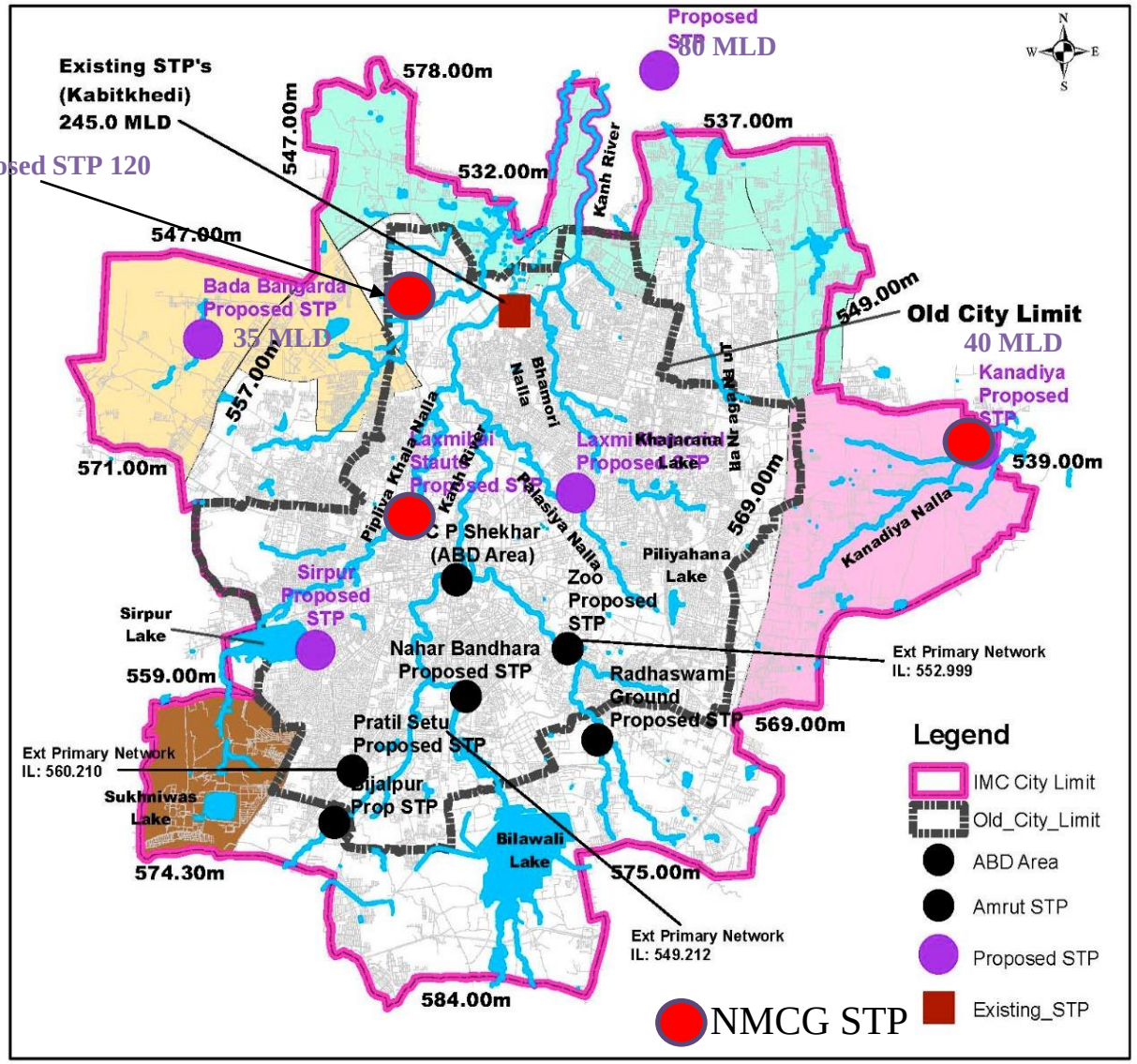
Proposed Sewage Treatment plants For Year 2040

(Proposed under Namami Gange)

I.UNDER NMCG Project

1. **120** MLD (78 MLD and 12 MLD STP Upgradation)
2. **40** MLD (Kandiya village)
3. **35** MLD (Laxmi Bai Statue)

Total :- 195 MLD



NMCG Cost Approved & IMC Action

S. No.	Description	Proposed Cost	TPA Recommended Cost
1	Capital Cost [Civil + E & M] +Other Charges as per Govt. of India Rules (ESAMP, Public Outreach, GAAP & Labour Cess) + Power Connection	17854	24444
2	O & M	34214.34	19002.09
3	Centage	0.00	1898.58
4	Contingencies (3%)	632.04	0
5	GST (18%)	3213.76	5770.45
	Total cost (Lacs)	55914	51115
	Total Cost (Cr.)	**559.14**	**511.15**

- **Action taken by IMC**

S. No.	Description	Action
1	Preparation of Draft tender document for contractor as per guidelines of NMCG	Tender Prepared
3	Approval from MIC	Approved
3	Draft Tender document approved from NMCG	NIT floated for the work & opening on 21.09.2023

Land acquisition status of proposed STPs

Land position

1. 120 MLD (78 MLD and 12 MLD STP Upgradation) :- Already with IMC
2. 40 MLD (Kandiya village) :- Applied collector office
3. 35 MLD (Laxmi Bai Statue) :- Applied for land transfer in collector office and Current Status :- Land shown on G.E.M. portal for Selling purpose.
4. 80 MLD :- Apply collector office
5. 35 MLD (Bada Bangarda) :- Land shown by IDA is very small required big land.

INDORE MUNICIPAL CORPORATION

Ongoing Sewerage projects work

DRA CONSULTANTS LTD.
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Sewerage Project – 1 (Sirpur Lake -20MLD STP)

Construction of 20 MLD STP at Sirpur lake including SCADA, Online Monitoring System sewer network work & Reuse of effluent by constructing OHT & GSR and pipe line network i/c all electro mechanical works & allied works etc. complete plus ten years operation & maintenance of above overall works.

Sewerage Project – 1 (Sirpur Lake -20MLD STP)

Name Of Project	**Construction of 20 MLD STP at Sirpur lake including SCADA, Online Monitoring System & Reuse of effluent by constructing OHT & GSR and pipe line network i/c all electro mechanical works & allied works etc. complete plus ten years operation & maintenance of above overall works.**
Project Cost	**Rs. 47,37,97,617/-**
Construction Agency	**M/s. SIMA Labs + HJCC Infra JV**
NIT No.	**12/EE/STP/E-TENDER/2021-22**
Work Order / LOA No.	**Agreement no. 19 dated 03/08/2022**
Project Start Date	**03.08.2022**
Project End Date	**02.02.2024**
Expected Completion Date	**02.02.2024**

Scope of Work

Proposed STP - Survey, Investigation, Engineering, procurement, construction, testing & commissioning of 1 nos. STPs i/c PLC-SCADA system i.e. Sirpur Proposed STP -20MLD.

Sewer Collection System of 20 MLD STP at Sirpur lake (only IMC limit collection system) -**7.96** kms primary & secondary lines.

Construction of Proposed Reuse water RCC OHT of **0.5** ML capacity of **21** Mtr. Staging Height at Sirpur Proposed STP (20MLD) & Construction of Proposed GSR of **0.1** ML capacity at Sirpur Proposed STP.

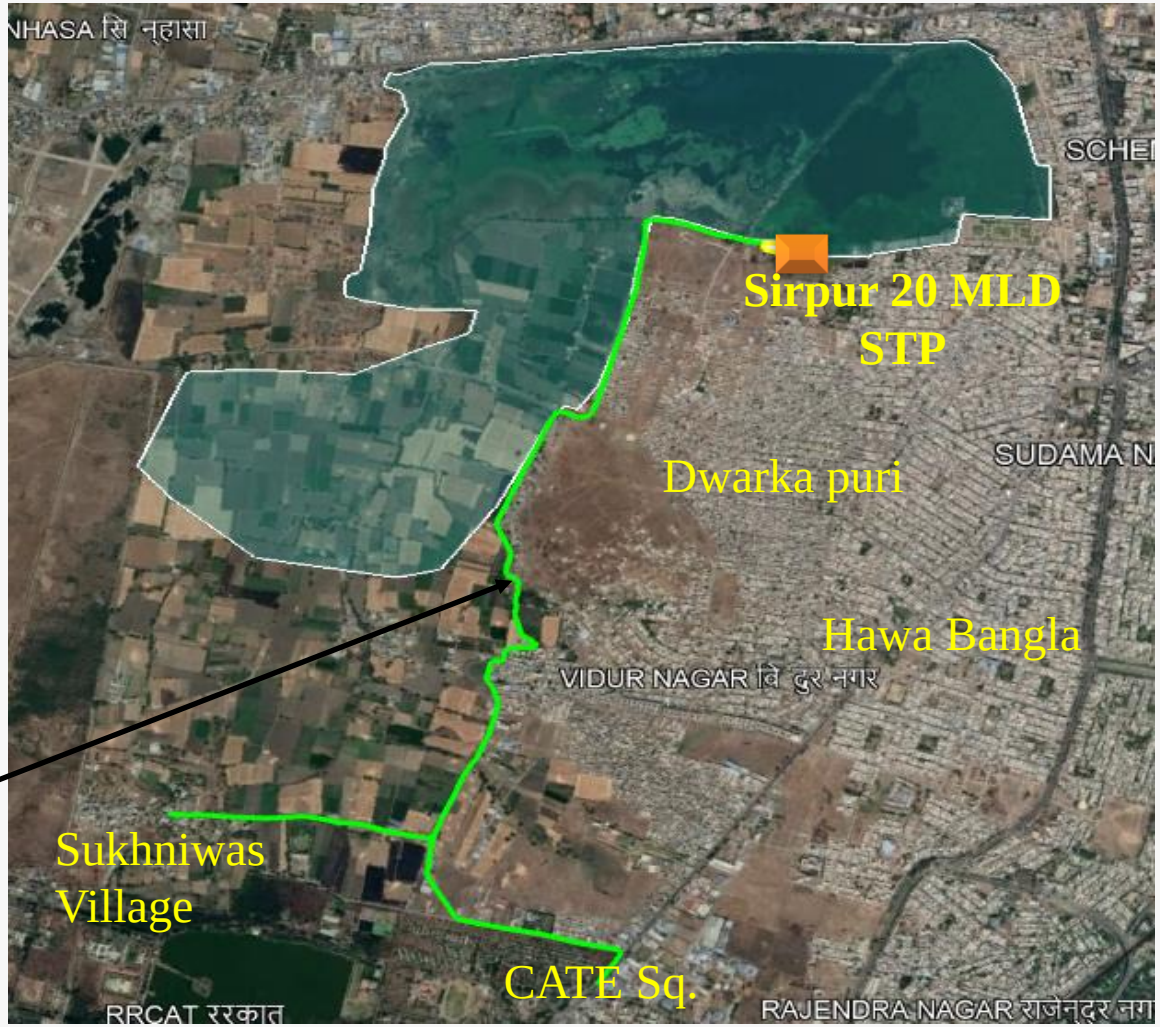
Reuse Distribution system to be laid from Sirpur Proposed STP (20MLD). Reuse of **08** mld treated waste water of Sirpur Proposed STP (20MLD) for **87** nos. Garden, flushing, horticulture & **20** nos. Fire Fighting including pipe network of **10.20** km.

STP Location & command Area

1. **Capacity of STP - 20 MLD**
2. **Network :- 7.96 km**
3. **Reused OHT- 0.5 ML**
4. **Reused network- 10 km**
5. **Area covered :-**

Dwarkpuri, prjpat nagar, kundan nagar, Vidur nagar, shukhniwas, Ahirkhedhi , fothi kothi , hawa Bangla

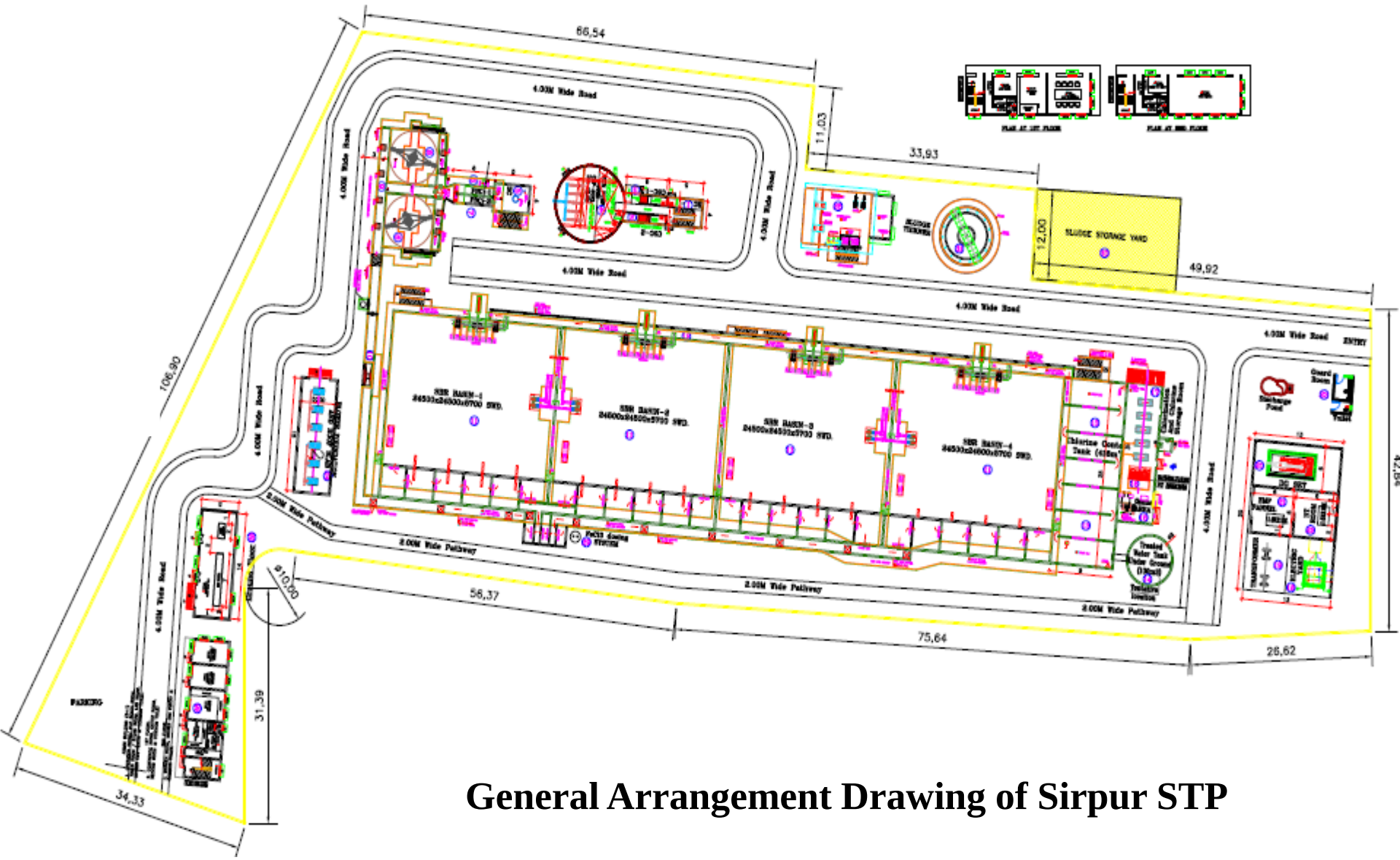
Main primary sewer to be laid



Project Progress

Progress	Status	Percentage
Financial	**18.88 Cr.**	**39.85 %**
Physical	• The agreement executed on 03.08.2022. • Sewer Pipe Line Design approved • Hydraulic design and Drawing of STP Approved. • Processes design approved, GAD approved, admin building, Wet well, MCC, Grit, Inlet, CCT & SBR civil design approved. • Sewer pipe line Laying work is in Progress:-**6.29/7.96km** • Excavation Work, PCC, Raft of SBR & CCT Completed and Wall Steel work is in progress. • Excavation Work, PCC, Raft of Admin Building & Grit Unit Completed and Brick Work & Column Steel work is in progress. • Mechanical design approved all screen, sluice gates, grit mechanism, SBR, Blower and Pumps. • All Pumps, Course screen - Fine screens, Decenter, Diffusers, Gates are Tested & Supply at Site.	**44.53 %**

Revised GAD of STP at Sirpur Lake



General Arrangement Drawing of Sirpur STP

Site Photographs

Wet well RCC work at STP

SBR Wall Steel Work at STP

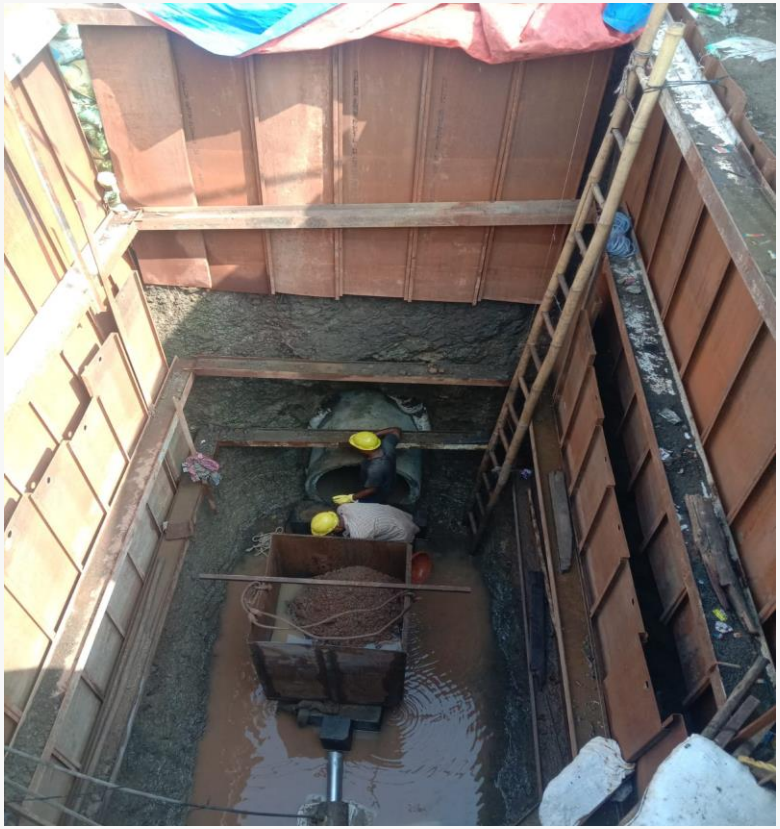
Site Photographs

CCT & GRIT RCC work at STP

ADMIN BUILDING Work at STP

Site Photographs

Pipe line Laying at Ahirkhedi



Pipe line Laying at Akash Nagar

Ongoing Sewer Pipe line work (IMC Fund)

Sr. No.	Name of Contractor	Project Name	Project Cost (Rs.)	Type of Work	Location	Total Length of Network (in mtr)	Upto Date laying (in mtr)	Balance Length (in mtr)	Remarks
1	**SIMA Lab's Pvt. Ltd. & HJCC (JV)**	Survey,investigation, Engineering, procurement, construction, testing & commissioning of 20 MLD STP at sirpur lake.	₹ 47,37,97,617	Open Cut & Jack pushing	Gondhwale Dham	**7960**	6290.0	1670.0	**1.** Physical progress 79.02% **2.** Financial progress 76.85%
2	**HJCC INFRA SOLUTIONS INDORE**	Sewer line network from Maruti nagar (Bholenath nagar) to C- sector primary line west zone.	₹ 2,10,22,524	Open/Jack pushing	D/s Asha Confectionary to Maruti Nagar	**1530**	**1282.5**	**247.5**	**1.** Physical progress 83.82% **2.** Financial progress 70.49%
3	**MAHENDRA MANGILAL JAIN**	Sewer line network waste water line and outfall taping work for Industrial area sector D.	₹ 2,84,33,082	Open Cut	Industrial Area D-Sector	**6020**	**1837.0**	**4183.0**	**1.** Physical progress 30.56% **2.** Financial progress 26.16%
4	**J.M.RAMAN I & CO.**	Sewer line network and outfall taping work from chota bangarda to banganga bridge.	₹ 14,96,32,14	Open/Jack pushing	D/s Banganga Bridge to Chota bangarda village	**13804**	3682.5	10122.3	**1.** Physical progress 26.42% **2.** Financial progress 25.27%

Ongoing Sewer Pipe line work (IMC Fund)

Sr. No.	Name of Contractor	Project Name	Project Cost (Rs.)	Type of Work	Location	Total Length of Network (in mtr)	Upto Date laying (in mtr)	Balance Length (in mtr)	Remarks
5	**M/S RAJESH AGRAWAL CONTRACTOR**	Providing and laying drainage line from chandra bhaga kalal kui mazid to devshree talkeez under ward 61 of zone 12.	₹ 1,06,04,375	Open Work	Kalal Kui Masjid Chandrabhaga	1140.0	227.7	912.4	**1.** Physical progress 19.97% **2.** Financial progress 0.00%
6	**HJCC INFRA SOLUTIONS INDORE**	Providing, Laying & Shifting of Sewer Line and Outfall tapping work at Khajrana Square Area for Fly Over Bridge.	₹ 4,52,52,857	Open Work	Khajrana work	1110	790.00	320	**1.** Physical progress 71.17% **2.** Financial progress 30.32%
7	**J.M.RAMANI & CO.**	Providing and Laying of Sewer network & Outfall tapping work from ITI Square to Anup Talkies Square	₹ 79392413.00	Open Work	ITI Square	1750.0	110.00	1640.00	**1.** Physical progress 6.29% **2.** Financial progress 0.00%
8	**J.M.RAMANI & CO**	Sewer line network at Chanakya puri Square to Raj Mohalla	₹ 24,2836999	Open Cut & Jack pushing	Annapurna Road	**4430**	**0.0**	**4430.0**	**1.** Physical progress 0.0% **2.** Financial progress 0.0%

Thank You

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Photographs of the Inspection


GPS Map Camera
Dhabli, Madhya Pradesh, India
Mangliyagaon, Manglaya Sadak, Indore, Dhabli, Madhya Pradesh 453771, India
Lat 22.806195°
Long 75.912808°
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Google


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