#### 1.0 BACKGROUND

1.1 <u>NGT Case No. 673/2018</u> : Hon'ble National Green Tribunal Central Zonal Bench New Delhi, in the matter of original application no. 673/2018 (News Item Published in the "Hindu" authored by Shri Jacob Koshy titled" More river stretches are now critically polluted: CPCB") passed an order on 20/09/2018. The para 48, 49 and 50.3 of this order are relevant to comply. The para 48 states that "it is absolutely necessary that Action Plans are prepared to restore the polluted river stretches to the prescribed standards". Para 49 states that "Model Action Plan for Hindon River, already provided by CPCB, may also be taken into account"

In para 50(i, ii, iii) Hon'ble National Green Tribunal has issued following directions:-

- *i.* All States and Union Territories are directed to prepare action plans within two months for bringing all the polluted river stretches to be fit at least for bathing purposes (i,e BOD < 3 mg/L and FC < 500 MPN /100 ml) within six months from the date of finalization of the action plans.
- ii. The action plans may be prepared by four-member Committee comprising, Director, and Environment. Director, Urban Development. Director, Industries. Member Secretary, State Pollution Control Board of concerned state. This Committee will also be the monitoring Committee for execution of the action plan. The Committee may be called "River Rejuvenation Committee" (RRC). The RRC will function under the overall supervision and coordination of Principal Secretary, Environment of the concerned State/Union Territory.
- iii. The action plan will include components like identification of polluting sources including functioning/ status of STPs/ETPs/CETP and solid waste management and processing facilities, quantification and characterization of solid waste, trade and sewage generated in the catchment area of polluted river stretch. The action plan will address issues relating to; ground water extraction, adopting good irrigation practices, protection and management of Flood Plain Zones (FPZ), rain water harvesting, ground water charging maintaining minimum environmental flow of river and plantation on both sides of the river. Setting up of biodiversity parks on flood plains by removing encroachment shall also be considered as an important component for river rejuvenation. The action plan should focus on proper

interception and diversion of sewage carrying drains to the Sewage Treatment Plant (STP) and emphasis should be on utilization of treated sewage so as to minimize extraction of ground or surface water. The action plan should have speedy, definite or specific timelines for execution of steps. Provision may be made to pool the resources, utilizing funds from State budgets, local bodies, State Pollution Control Board/ Committee and out of Central Schemes.

- 1.2 Correction in polluted river stretch of Khan : In para 47 of the above order dated 20/09/2018, the polluted river stretch of Khan river has been mentioned as " Kabit Khedi to Khajrana". In fact, such stretch does not exist in the field. The Khan river originates from Limbodi tank & meets river Kshipra at triveni sangam, Ujjain after travelling about 72 KM distance. The whole length of the river Khan is found to be polluted mostly due to city sewage of Indore. Hence, it is respectfully submitted that the polluted stretch as mentioned in the above order may be corrected as mentioned here in above. Thus, in the proposed action plan, the whole length of river Khan has been considered for rejuvenation of river Khan.
- 1.3 It is pertinent to mention here that, in some of the petitions filed before Hon'ble National Green Tribunal on the above subject matter, Hon'ble National Green Tribunal, Central Zonal Bench Bhopal had directed time to time for abatement of Pollution & up-gradation of water quality of Kanh & Saraswati Rivers of Indore and to deeply re analyse the various works being implemented by Municipal Corporation in this regard on Environmental grounds. In the compliance of these orders, the concerned departments carried out various related works for abatement of pollution of river Kanh & Saraswati. Hon'ble National Green Tribunal passed following directions.
- 1.3.1 Incompliance of above directions given by Hon'ble National Green Tribunal, an inter departmental committee comprising of Collector district Indore (Chairman), Commissioner IMC Indore, CEO IDA Indore, RO MPPCB Indore, Joint Director DUDA Indore, Joint Director T & CP Indore & Executive Engineer WRD Indore submitted the report before Hon'ble NGT on 13.11.2017.
- 1.2.3 It is pertinent to be mention here that the work on rejuvenation of river khan is already in progress as stated here in above and the various works related to abatement of pollution in river khan has already been completed. The details of the same are given in following sections of this report.

#### 2. Khan River & Pollution Status

The Khan River, a tributary of the Shipra, rises from a hill near village Umaria (22° 37' N and 75° 54' E) about seven miles south of Indore. It flows through the city of Indore. It is pertinent to mention here that one more river named as Saraswati originates from Hukmakhedi Pond and later on joins river Khan at Krishnapura Chhatri called sangam. River Khan later on flows from Krishnapura Chhatri and also through the town of Sanwer & Joins river Kshipra at Triveni sangam near Ujjain after travelling distance of about 72 Kms. The Katkia nala is a major tributary to this river which joints the River Khan near Sanwer  $(22^{\circ} 58' \text{ N and } 75^{\circ} 50' \text{ E})$  where there is a small temple dedicated to Sangam Nath, the



Figure 1 : Satellite Image of Khan River

lord of the Confluence. The Khan Joins the Kshipra in Ujjain.

# 2.1 <u>River Khan & Various Rivers/ Nallas joining river khan</u>

It is to be mentioned here that there are 02 rivers namely Saraswati River & Kanh Rivers in flowing in the area and other 10 are the tributary nalas. The details of these rivers/nalas are as below:-

- <u>Saraswati River</u> : It flows in two stretches as shown below and join at Badaribagh then as one stream up to Sanjay setu where it joins river Kanh. Total length 9.46 km within Indore city. Both the stretches mostly carry sewage of the area.
   O Pipliapala to Badri Bag [Stretch-1]
   Machal Hills Rau Talab Bijalpur Talab Badaribagh, Sanjay Setu. [Stretch-2]
- <u>Kanh River</u> It originates from Asrawadkhurd via Limbodi Talab Kabitkhedi Sanwer and finally joins near Triveni in Kshipra River at Ujjain. Total length of the river is apprx 72 km while it is only about 27.59 km in the Indore city. The river

Khan does not has its original water & the sewage of Indore city, Mangliya & Sanwer Town flows in it.

- <u>*Piliyakhal Nalla*</u> Is originates from Sirpur Talab to Khatipura where it joins Kanh river length 11.3 km. mostly sewage of the city Indore flows in it.
- <u>Palasia Nalla</u> It originates from Pipliyahana Talab to Bhagirath pura where it joins Kanh river length 8.32 km. mostly sewage of the city Indore flows in it.
- <u>Azad Nagar Nalla</u> It originates from Virat Nagar to Madina Nagar where it is joint Kanh river length 2.59 km. mostly sewage of the city Indore flows in it.
- <u>Tulsi Nagar- Talawali Chanda Nalla</u> It originates from Scheme No. 134 Nipaniya & passes through Talawali Chanda area & joins Kanh river near Padaliya Bajrang village (out side the Indore city)– length 7.25 km within city. Mostly sewage of the city Indore flows in it.
- <u>Khajarana-Bhamori Nalla</u> It originates from Mitreshwar Hanuman Mandir & passes through Khajarana marg, MIG Gurudwara, gram-Bhamori, Bapat Square (MR-10) & joins River Khan near 12 MLD STP Kabitkhedi.
- <u>Narvar Nala</u> It originate from gram-Narvar & flows through the industrial area sanwer road Indore and joins river khan at Dhankhedi after travelling about 22 Kms of distance. This Nalla carries industrial waste and domestic waste of the area. However, Nagar Nigam Indore has intercepted this Nalla near sector-F of I/A of Sanwer Road and a CETP of 04 MLD has been established to treat the waste water.
- <u>Bhowrasala Nala</u> It originate from AGL station gram-Bhowrasala & flows through Bhowrasala industrial area & joins Narvar Nala at downstream of Kumedi.
- <u>Arvindo College Nala</u> It originates from the area near Arvindo College & flows through Lav Kush Chouraha & joins Bhowrasala nala near Akash Global Ltd. Kumedi.
- <u>Shakkar khedi Nala</u> It originates from village-Shakkar khedi area & joins river Khan at d/s of Shakkar khedi.
- <u>Katkia nala</u> This nala originates from Rajoda area & meets river Khan near Sanwer Town. At present the nala is not polluted however the care be taken so that no sewage of Sanwer town flows in it.



# Map showing location Rivers and Nallas

#### 3. <u>Water Quality Goal</u>

It is an important aspect for revival of river Khan in context of its utility as it is Nonperennial River. The ultimate goal for beneficial use of river will determine the level of actions to be taken for maintaining the water quality. In the above application OA no. 673/2018, Hon'ble National Green Tribunal passed the order that "All States and Union Territories are directed to prepare action plans within two months for bringing all the polluted river stretches to be fit at least for bathing purposes (i,e BOD < 3 mg/L and FC < 500 MPN /100 ml) within six months from the date of finalization of the action plans." Thus accordingly to achieve above goal, the various stake holders viz. Nagar Nigam Indore, Water Resources Department etc. has been asked to submit the action plan considering the order of Hon'ble NGT as stated above. For achieving the river quality fit for bathing purposes, it is essential that there should be minimum flow available in the river during whole of the year, to get sufficient dilution for treated domestic waste water (BOD < 10mg/litre). Keeping above in mind, Nagar Nigam Indore has made the action plan for improvement of catchments of Limbodi Pond, Bilawali Pond, Piplyapala Pond, Hukma Khedi Pond, Sirpur and Mundi Pond. In fact all these ponds are water feeder pond to river Khan.

Also, the industrial effluents generated from the catchment of river Khan which ultimately joining and contributing to the pollution load in river Khan should be treated to meet the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986 and to reuse the treated waste water for cooling/horticultures and other uses & maintain zero discharge at outlet. Comparative suggested criteria for bathing in river Khan is given in the following Table-1.

Sl.No	Parameters	Class 'B' Water Quality Criteria –for Bathing (to be achieved)	Class 'E' Water Quality Criteria for Irrigation (Present Quality)
1	рН	6.5 to 8.5	6 to 8.5
2	Dissolved Oxygen (DO)	$\geq$ 5.0 mg/l	-
3	Bio Chemical Oxygen Demand	< 3 mg/l	-
4	Total Coliforms Organism MPN/100 ml	< 500	-

Table 1. Suggested criteria for outdoor bathing

## 4. <u>The Basis of Proposed Action Plan for rejuvenation of river Khan</u>

River Khan being intermittent river, the action plan for maintaining water quality will be different from that of the perennial rivers. Presently, the river Khan and its tributary Saraswati are carrying mostly domestic waste water generated in the municipal limit of Indore. Also various nallas (10 nos) which carry the sewage meet to river Khan at different locations. There are 05 ponds namely Limbodi, Bilawali, Hukmakhedi, Pipliyapala Pond & Sirpur Pond in the upstream of river Khan & Saraswati. In fact the over flow of these ponds is discharged into above rivers. With the passage of time these ponds & there catchment area has come into danger & the catchment improvements of these ponds are also needed. Therefore, the action plan for prevention and control of pollution of river Khan has been drafted based on the directions given by this Hon'ble National Green Tribunal as mentioned here in above.

#### 5. <u>FIELD SURVEY</u>

#### 5.1 <u>Field Survey</u>

The field recon survey is carried out to see the pollution level and current status of Khan River. The physical survey is conducted from Indore city up to the confluence of Khan River and Shipra River at the 3 Km. upstream of Ujjain at Triveni. During the field survey the following observations were made.

- The length of Khan River from its origin near Ralamandal, Indore up to its confluence with Shipra River at Triveni, Ujjain is about 72 kms. The length of Khan River within Indore City would be around 21 Kms.
- The following important Nallas / Rivers are meeting with the Khan River within Indore Municipal Corporation limits.

Sr. No.	River / Nalla	Wards Covered	Outfalls
1	Khan River	13 Wards	60 Outfalls of secondary Sewers
2	Saraswati River	9 Wards	68 Outfalls of secondary Sewers
3	Khanjarana -Bhamori	11 Wards	44 Outfalls of secondary Sewers
	Nalla		
4	Shakkar Khedi Nalla	1 Ward	5 Outfalls of secondary Sewers
5	Piliayakhal Nalla	15 Wards	159 Outfalls of secondary Sewers
6	Palasia Nalla	12 Wards	66 Outfalls of secondary Sewers
7	Azad nagar Nalla	3 Wards	28 Outfalls of secondary Sewers
8	Tulsi nagar Nalla	1 Ward	38 Outfalls of secondary Sewers

Table- 2: Outfalls meeting Khan River within IMC limits

- 3. There are in total 468 various sewer outfalls meeting into Khan Rivers directly or through other channels in form of river or nallas. Out of these, about 314 outfalls are live outfalls which discharge the sewage into the river Khan.
- 4. There are several Stop / Check Dams at various locations along the Khan rivers, namely Kayatkhedi, Panchpipalai, Ramvasa, Jamalpura etc. to store the water for the irrigation purpose and to facilitate the downstream village for drinking water sources.

# Kayatakhedi Stop Dam



Panchpipalai Stop Dam



Ramvasa Stop Dam



5. There are 03 Sewage Treatment Plants located at Kabitkhedi Indore to treat the waste water of City Indore. The Capacity of these STPs are 245 MLD, 78 MLD & 12 MLD respectively. The Sewerage network of the city Indore is yet to be completed hence only part of the Sewage about 150 MLD is reaching to these plants for treatment and rest of the waste water that is about 170 MLD is directly flowing in river khan. Finally, the river carries partially treated sewage from Indore to the confluence at Triveni at the 3.0 kms. upstream of Ujjain City.

Khan River at Sanwer Bridge

# Khan river downstream of Kabirkhedi



- 6. At present, the local farmers along the Khan River, are using the water from the Khan river for farming. Since, it has high nutrient value, it is good for irrigation / farming but on the other side, since, it is in form of partially treated sewage, it carries millions of e-coli bacteria with it and hence, it is not safe for irrigation purpose.
- 7. As described earlier, the farmers used the water from Khan River to irrigate their fields, approximately 90% of running water (including partially treated sewage) is being used for farming. Hence, practically there was hardly any flow (approximately 15 MLD) in the river except rainy season. This can be seen in the photographs here below.
- During Simhast-2016, Water resource department constructed a bypass channel at Raghav Piplya to divert the khan river polluted water to river Kshipra meeting at down stream of Ujjain city.

- At Kayatkhedi Stop Dam
- At Panchpipalai Stop Dam



At Confluence of Khan and Shipra near Triveni



# 5.2 <u>Water Characteristics of river Khan & Saraswati/various nallas</u>

The water quality of above rivers and nallas are given as under.

S.	Drain/Nallah	River in which	pН	BOD	COD	TDS
No.		drain join				
1	Saraswati River at Bijalpur	Khan River	7.54	14	58.8	1052
2	Saraswati at TejpurGadbadi	Khan River	7.4	14	41.16	860
3	Saraswati River at Rajeev Gandhi Square	Khan River	7.52	6	36	476
4	Saraswati near Choithram Mandi Pool	Khan River	7.68	82	186.2	972
5	Saraswati River at Badribagh	Khan River	7.66	16	98	1078
6	Saraswati River at Karbala bridge	Khan River	7.63	18	117.6	1225
7	Saraswati river at Chandrabhaga (Juni Indore)	Khan River	7.63	60	156.8	1460
8	Khan river at Limbodi D/S	Khan River	7.48	70	156.8	1782
9	Khan river at Azad Nagar	Khan River	7.35	104	205.8	1683

Table 3 : Average Water Quality of River Saraswati/Khan

10	Khan river at Zoo (Kamla Nehru Park)	Khan River	7.6	08	40	498
11	Khan River at North Toda bridge	Khan River	7.35	90	166.6	1415
12	Khan river at Rambagh after confluence with Saraswati	Khan River	7.63	47	232.32	711
13	Khan river at Bhagirathpura	Khan River	7.91	10	50	488
14	Khan river at Kabitkhedi	Khan River	08	15	70	850
15	Khan River at Shakkar khedi	Khan River	8.01	12	60	845
16	Khan River at Dhankhedi	Khan River	7.52	8	55.68	828
17	Khan River at Darjikaradiya	Khan River	7.35	10.12	43	907
18	Khan river at Sanwer	Khan River	8.02	12	50	730
19	Khan River at Badodiya khan at Shahda Bridge	Khan River	7.7	3.8	34.56	638
20	Khan at Jamalpura	Khan River	8.4	10	66.64	713
21	Khan at Ramvasa	Khan River	7.9	12	58	762
22	Khan at RaghoPipliya	Khan River	7.79	16	74.25	88.9
23	Khan at Triveni before confluence to Kshipra river	Kshipra River	7.81	10	48	674

# Table 4 : Outfall Nallah confluence to Khan River

S. No.	Drain/Nallah	River in which drain join	рН	BOD	COD	TDS
1	Piliyakhal Nallah	Khan River	6.98	48	118.56	1212
2	Palasia Nallah	Khan River	6.98	46	108.68	721
3	Azad Nagar Nallah	Khan River	7.36	54	171.36	976
4	Tulsi Nagar-Talawali Chanda Nallah	Khan River	7.2	55	167.96	1203
5	Khajarana - Bhamori Nallah	Khan River	7.29	75	217.36	1212
6	Narvar Nallah	Khan River	7.54	54	150	1024
7	Bhowrasla Nallah	Khan River	6.40	180	2439.36	8369
8	Arbindo College Nallah	Khan River	7.67	30	90	810
9	Shakkar Khedi Nallah	Khan River	7.78	46	150	1344
10	Katkiya Nallah	Khan River	7.87	04	28	749

#### 5.3 <u>Status of water quality of ground water in the study area</u>

Along the river Khan & its catchment, MPPCB Indore collected 209 nos. ground water samples from 60 sampling locations during 2016-17 & 2017-18. 58 out of 60 ground water sampling locations are located within Indore Municipal Corporation Area and 02 ground water sampling locations are located outside IMC area. The ground water samples collected from afore-said locations were analysed for parameters such as Sulphates (SO<sub>4</sub>), Fluoride (F) and as well as heavy metals such as Cadmium (Cd), Copper (Cu), Lead (Pb), Iron (Fe), Nickel (Ni), Zinc (Zn) and Manganese (Mn) in Regional Laboratory, MPPCB, Indore. Water Quality Monitoring Results of ground water samples collected by the teams is given in the **Table-5**. Minimum and maximum concentration of SO<sub>4</sub>, Fluoride and heavy metals and no. of GW sampling locations not complying with the IS 10500-2012 drinking water specifications (acceptable limits), as amended is given in **Table 5**.

Table 5. Minimum and maximum concentration of SO<sub>4</sub>, Fluoride and Heavy metals and No. of GW sampling locations not complying with the IS 10500-2012 drinking water specifications (acceptable limits)

G		Analysis results of Ground Water Samples for General Parameters and Metals in mg/l						ters and H	leavy		
SI. No.	Details	SO <sub>4</sub>	F	Cd	Cu	Pb	Fe	Ni	Zn	Mn	Total Cr
1	Minimum (in mg/l)	7.94	BDL	ND	BDL	0.001	0.001	0.001	0.006	BDL	0.001
2	Maximum (in mg/l)	255	1.40	ND	0.001	0.007	0.72	0.01	0.141	0.72	0.029
3	No. of locations exceeding the limit	04	31	00	00	00	05	00	00	03	00
IS 10500-2012 Drinking Water Specifications- Acceptable Limit (in mg/l)		200	1.0	0.003	0.05	0.01	0.3	0.02	5	0.1	0.05

Analysis results of the ground water samples collected from 60 sampling locations in Indore region reveals that the samples w.r. to Sulphate (SO<sub>4</sub>), Fluoride (F), heavy metals such as Cadmium (Cd), Copper (Cu), Lead (Pb), Iron (Fe), Nickel (Ni), Zinc (Zn) and Manganese (Mn), Total Chromium (Cr) are in the order of 7.94 to 255mg/l, BDL to 1.40 mg/l, Not Detectable, BDL to 0.001 mg/l, 0.001 to 0.007mg/l, 0.001 to 0.72 mg/l, 0.001 to 0.01 mg/l, 0.006 to 0.141 mg/l, BDL to 0.72 mg/l and 0.001 to 0.029 mg/L respectively.

#### 6. <u>Components of Action Plan</u>

## 6.1 Main Sources of Pollution in river khan

- Domestic waste water of city Indore directly meeting river Khan or various nallas draining into river Khan.
- Industrial waste water/domestic waste from industries at Udhyog Nagar Palda/ Laxmibai Nagar/ Pologround industrial area/Bhagirathpura industrial area/ Sanwer Road Industrial area.
- Industrial waste water/domestic waste from industries at Sanwer Road / Kumedi Industrial area joining Bhorasala Nala.
- Industrial waste water/domestic waste from industries at Readymade Garments/electronic complex.
- Domestic waste water of the area near Arvindo Medical College and Surrounding residential area joining Arvindo medical College nalla.
- Domestic waste water of the Gram panchayat Mangaliya including Tulsinagar Nala/ Talawali Chanda Nalla of Indore.
- Domestic waste water of Sanwer Town.

# 7. MEASURES TO ABATE POLLUTION IN KHAN RIVER

As stated here in above, various measures already implemented by municipal corporation Indore, District Administration, MPPCB and other government agencies in compliance of order passed time to time by Hon'ble National Green Tribunal, Central Zonal Bench Bhopal in the cases filed before Hon'ble Green Tribunal.

#### 7.1 <u>Work taken up so far in order to upgrade the Kanh & Saraswati rivers of Indore</u>

**7.1.1** <u>Solid Waste Management Practices</u> - By adopting the best SWM practices in the city and creating the awareness in the public - not to dump house refuse, debris and demolished material in & along the river and not to dispose the sewage directly in the rivers or water streams. Indore stood no.1 in cleanliness amongst all cities in India. The following are the details of works done under SWM.

# 7.1.1.1 Collection & Transportation -

- a. 100 % Door to Door collection of waste is being practiced in all 85 wards of Indore City.
- b. There are 500 Twin comparted Vehicles for Door to Door Collection of Waste (One part for Dry Waste and Other for Wet waste).
- c. All Household and Commercial area is covered by these 500 Door to Door Vehicles.
- IMC have introduced one 50 Liter Bin which attached with Door to Door Vehicle for the Household Hazardous waste (Like Diapers, Sanitary Napkins, Battery & etc).
- e. The cost of 500 Door to Door vehicles is approximately 25 Crore.
- f. There is dedicated mechanism for the Bulk Waste Generators, IMC collect Wet waste in Compactors and Dry waste in Truck Tippers from the Bulk waste generators.
- g. IMC Collect 100-150 TPD from the Bulk Waste Generators.

# 7.1.1.2 Ultra Modern Transfe Station of MSW

- The following are the Ultra Modern Mechanized Transfer Stations of Indore City which is used for transfer waste from D2D small Vehicles to Large Compactors/Hook Loader of 14 Cum.
- The Total Cost of this Ultra Modern Transfer Stations are 40 Crore which includes all Civil & Mechanical Cost.
- The Mechanical Part of Transfer Stations and Hook Loaders are of TPS and Hywa.
  - a. MR 10, Near Star Square
  - b. Kabitkhedi
  - c. Sector F, Sanwer Road, Industrial Area
  - d. Sangam Nagar







- e. Shirpur, Dhar Road
- f. Crystal IT Park
- g. Azad Nagar
- h. Ratlam Kothi, Near Rajshai Hotel
- i. New Palasia
- j. Lalbagh

#### 7.1.1.3 <u>MSW Processing & Disposal</u>

- IMC has three nos. Material Recovery Facility, where dry waste is recovered and sent for the recycling and inert is being disposed in the Landfill located at Devguradiya Trenching Ground. IMC has incurred 2.5 Crore for the establishment of 3 Nos. Material Recovery Facility.
- In these Material Recovery Facility Plastic, Paper, Metal, Glass & etc. is recovered and sent for recycling.
- IMC has plastic waste Collection and Processing Unit also.
- IMC has Two nos. Lanfill, each are having a capacity of 6.25 Acres and situated at Devguradiya Trenching Ground.
- For the Treatment of Wet waste, IMC has Mechanical Composting Plant situated at Devguradiya Trenching Ground having capacity of 500 Tonnes per Shift.



## 7.1.1.3 Decentralized Processing

- IMC has established 20 TPD of Biomethanation Plant at Choithram Mandi, where gas is collected and convert to CNG which is being used as a fuel in City Bus. The cost of the plant is 7.2 Crore.
- IMC has established 15 TPD of Biomethanation Plant at Kabitkhedi, where gas is collected and convert to CNG which is to be used as a fuel in City Bus. The cost of the plant is 7 Crore.
- IMC has established 2.5 TPD Drum Composting plant at Regional Park, where compost is being produced which is used by IMC to maintain the greenery in the city. The cost of the plant is 80 Lakh.
- IMC has established two Nos. 1 TPD Organic Waste Converter which is installed one at Nehru Park and other one in Indore Zoo. The compost produced here is used for maintain the Greenery at Nehru Park and ZOO. The cost of one OWC is 50 Lakh.
- 150 Bulk waste generators in the city having decentralized treatment mechanism at their Premises like Pit-composting, OWC & Biomethanation.







#### 7.1.2 <u>Bin-free City</u>

- Indore is now Bin- free city and 100% waste collection is practiced in the city (Both Commercial & Residential).
- Previously there are 1180 Bin-point in the city and 450 open plots where waste is being dumped.
- IMC had Eliminate all the 1180 Bin-point and clear all 450 open plot locations.
- IMC has implement spot fines for waste dumped on open plots/points (Both Commercial & Residential).

**7.1.3** Cleaning & dredging of rivers – It is being regularly done and so far about 12.0 km Saraswati river and 13 km Kanh river has been cleaned, dredged and widened also.

As per the directives issued by NGT vide order no. 46 dated 19.07.2017 to take up the work from upstream i.e. from near Hanuman Mandir, Zoo hence from Azad Nagar barrage / gated weir to Jagannath bridge in a length about 2.5km in Kanh river has been taken as a Pilot Project for upgradation of Kanh river in which following activities are going on -

i- Dredging and cleaning of river including widening protection of river banks i/c the construction of retaining walls as per requirement.



ii- Rejuvenation of all old heritage structure by traditional methods – in this work all the old Ghats, 5 old dug wells which were ruined and filled up, are being restored again.



#### Rejuvenation of all old heritage structure by traditional methods (cont...)-



- iii- Rejuvenation of old stop dams (barrages / gated weir) constructed at the time of Holkar State there are 05 stop dams which are proposed to be renovate.
- i- Azad Nagar
- ii- Hanuman Mandir
- iii- Parsi Mohalla
- iv- Jagannath Bridge
- v- Dhobi Ghat





Rejuvenation of old stop dams (barrages / gated weir) constructed at the time of Holkar State (Cont.....) –



The above pilot project shall take about 4 months to complete. On the basis of above work other site shall be taken up for up-gradation.

- 7.1.4 <u>Diversion of sewer outfalls</u> from Kanh & Saraswati rivers and main Six nallas namely Palasia, Piliyakhal, Bhamori, Tulsi Nagar, Azad Nagar & Shakkarkhedi -
  - (i) Tapping of Secondary Sewerage outfalls joining in kanh & saraswati rivers & connect to primary line to carry the waste to STP for treatment : Work is in progress and about 80% work has been completed. Out of about 128 outfalls 86 outfall has been trapped & 19 km sewerage line has been laid. Work likely to be completed upto Jan. 2019. The cost of this work is Rs. 59.0 Cr.
  - (ii) Tapping of Secondary Sewerage discharging the sewage water directly in to the six main nallas of city i.e Piliakhal, Palasia, Bhamori, Azad Nagar, Tulsi Nagar & Shakkarkhedi and joining to primary sewerage line for finally carry the waste to STP for treatment : Work is in progress and about 30% work has been completed with allocation of fund from Simhasth 2016. Remaining shall be completed under AMRUT project for which tender has been approved & LOA has been issued. Out of about 258 outfalls, 48 outfalls has been trapped & 15.7 km sewerage line has been laid. Overall work likely to be completed upto Dec. 2019. The total cost of this work is Rs. 96.0 Cr.

# 7.1.5 Sewerage Treatment Plants and Common Effluent Treatment Plant – The details are as below-

#### (i) <u>Sewerage Treatment Plant -</u>

245 MLD Sewage Treatment Plant based SBR technology on constructed in 2 modules each of 122.5 MLD capacity has been constructed under JnNURM in the year 2016. Now the overall capacity of all the 03 sewage treatment plants of capacity i.e. 245, 78 & 12 MLD (2 Nos. were constructed under NRCP in the year 2005) is 335 MLD which shall be sufficient to cater the need of the population of 2020 of old Indore city. The cost of this STP with 3 years O&M is Rs. 193.89 Cr.

#### (ii) <u>Common Effluent Treatment Plant -</u>

4.0 mld Common Effluent Treatment plant has been constructed by IMC in Sanwer road Industrial area to treat industrial flow before discharging in Kanh river under Simhasth-2016. The cost of this CETP with 3 years O&M is Rs. 20.0 Cr.





#### 7.1.6 <u>Regulatory measures</u>

#### 7.1.6.1 Banning of use of Polythene Carry bags

Govt. of M.P. has issued order vide dated 24.05.2017 for banning of use, sale, manufacturing and storage of polythene bags. In compliance of this order Indore Municipal Corporation has also banned the polythene carry bags in city Indore.

Municipal Corporation with the help of MPPCB has conducted many raids on the polythene manufacturers and sellers and also traders. Municipal Corporation has seized about 150 Tons of banned polythene. This action has resulted the pollution control in the catchment of river Kanh & Saraswati.Municipal Corporation has observed more than 50% reduction of polythene waste in its MSW.Municipal Corporation has also banned the interested transportation of polythene.

**7.1.6.2** IMC has issued orders for imposing the fines on open defecation, littering of MSW, open urination and spiting in public places, open chemical waste disposal and movement of cattle in public places.

# 7.1.7 <u>Plantation including fencing along the bank of rivers in order to improve the</u> <u>environment</u>

There is a proposal for thick plantation all along the river bank by various species plants in order to improve the environment and to stop the further encroachment along the bank and to reduce the soil erosion. At so many places fencing is also being done in order to save the plants from animals. Plantation is being proposed with three year maintenance. In the Smart City area landscaping type plantation is being adopted.

Still the plantation at following places looking to the availability of the space has been done.

- Behind Swadeshi Mill 600 Nos.
- From Lokhande Bridge to Bhandari Bridge 1300 Nos.
- Lokhande Bridge to Krishnapura 600 Nos.
- Near Lokhande Bridge 50 Nos.
- Behind Choithram Mandi 180 Nos.
- Near Krishnapura Bridge 150 Nos.
- From MR-10 to Khatipura village (both side of river) 3550 Plants
- MR-10 Bridge to Treatment Plant (both side) 1880 Nos.
- Total 8310 Nos.







## 7.1.8 <u>Removal of encroachment</u>

As per the directive issued by Hon'ble NGT the initiative for survey and removal of encroachment is also being taken up. The following are the details -

#### Encroachments

		Total		– 1621 Nos.
	•	Near Chandrabhaga (Champabag Pool)	)	– 15 Nos.
	•	New Prakash Nagar		– 240 Nos.
	•	Tejpur Gadbadi		– 42 Nos.
	•	Shankar Bag		– 06 Nos.
	•	C.P. Shekhar Nagar		– 1318 Nos.
b.	E	ncroachment Removed		
a.	Sur	veyed so far along Kanh & Saraswati Ri	iver	– 2917Nos.

The above removed families have been shifted in the houses constructed under BUSP at Ahirkhedi and Nainod.Due to non availability of the housing unit encroachment is not being removed. Still at following places, under Housing program construction is going on.

#### Under Pradhan Mantri Avas Yojna -

S.No.	Description	Nos.	Target Date
1	Bada Bangarda, Budaniya	2136 Nos.	Dec. 2018 (Expected Date of Completion)
2	Bada Bangarda Ext.	384 Nos.	Dec. 2018 (Expected Date of Completion)
3	Bhuri Tekari	1280 Nos.	Aug. 2018 (Expected Date of Completion)
4	Dudhiya (Devguradiya)	664 Nos.	Apr. 2019 (Expected Date of Completion)
	Total	4464 Nos.	

#### Rajiv Avas Yojna -

S.No.	Description	Nos.	Target Date
1	Limbodi	512 Nos.	Nov. 2018 (Expected Date of Completion)
2	Bada Bangarda	768 Nos	Dec. 2018 (Expected Date of Completion)
	Total	1280 Nos.	

# 8. <u>Proposed action plan- Short term & Long term action and the</u> <u>identified authorities for initiating actions and the time limits for</u> <u>ensuring compliance.</u>

The short term and long term action plans and the implementing agencies responsible for execution of the action plans and the time limits are given in table as below :-

# Proposed Short Term and Long Term Action Plan for Rejuvenation of River Khan

SI	Action plan for	Organization/Agency	Time Target	Present Status
No.	rejuvenation of river	Responsible for	(For Preparation of Scheme)	
	Khan	Execution of the	Sellelle)	
		Action Plan		
I.	Industrial Pollution Contro	1		
	<ul> <li>(a) Construction of Effluent</li> <li>Conveyance System &amp;</li> <li>CETP (Common</li> <li>Effluent Treatment</li> <li>Plant) for Sanwer Road</li> <li>Industrial Area, Indore</li> </ul>	IMC Indore	Scheme is already under implementation	CETP Completed & working. The effluent conveyance System work of 13 Kms is completed out of 38 Kms. To be completed by 06 months.
	<ul> <li>(b) Up gradation of CETP to achieve zero discharge by further installing MGF, ACF, RO, MEE &amp; Dryer with provision to reuse the treated waste water in industries</li> </ul>	IMC Indore	Within 06 Months	Proposal to be prepared in 06 months & implementation in 1 year after sanction of funds.
	(c) Inventorisation of the industries in the catchment area of River Khan covering assessment on aspects relating to Status of Consents under Water & Air Acts and Authorisation Effluent Generation. ETP capacities and final mode of effluent discharges	MPPCB and MPSIDC	Within 06 Months	

 (d)	Actions against the	MDDCD/CDCD	Within 06	
(d)	Actions against the Identified industries in operation without Consents under Water & Air Acts/Authorisation under the H & OW (M & TM) Rules 2016 as amended	МРРСВ/СРСВ	Within 06 Months	
(e)	Action against the industries not installed ETPs or ETPs exist but not operating or ETP outlet or treated effluent is not complying to the effluent discharge standards or norms.	MPPCB/CPCB	Within 02 month	
(f)	Action against the red category industries for installation of OCEMS and not transferring data in CPCB and MPPCB	МРРСВ	Within 02 month	
(g)	Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies. Auto Service Stations to have a minimum provision of O & G traps.	МРРСВ	Within 02 month	
(h)	Prohibition of Burning of any kind of waste including agro-residues	State Govt./District and Local authorities	Regularly	Govt. of M.P. has already issued prohibitory orders.
(i)	ConstructionofCETPforreadymadegarmentscomplex/electronicscomplex	MPAKVN	Within 06 Months	Proposal to be prepared in 06 months & implementation in 1 year after sanction of funds.

2	Sewage Treatment & Disposal Plan					
1.	Protection of water quality	of Bilawali & Pipliyapa	a Pond			
	<ul> <li>(a) Laying of sewerage network in the colonies at upstream of Bilawali &amp; Pipliyapala pond (68.33 Km.)</li> </ul>	IMC Indore	Scheme is already under implementation	Work in progress (Total Package of 05 STPs & Sewer Network- 181 Km. Cost-183.6 Cr.)- Likely to be		
	<ul><li>(b) Trapping of sewage source of Bilawali &amp; Pipliyapalapond</li></ul>	IMC Indore	Scheme is already under implementation	completed Dec. 2019		
	<ul> <li>(c) Construction of STP –</li> <li>11 MLD, near</li> <li>NaharBhandara</li> </ul>	IMC Indore	Scheme is already under implementation			
	(d) Plantation in the area	Forest Dept.	Within six months			
2.	Rejuvenation of water quali	ty of Hukmakhedi Pono	1			
	<ul> <li>(a) Laying of sewerage network in the colonies at upstream of Hukmakhedi pond (15 Km.)</li> </ul>	IMC Indore	Scheme is already under implementation	Work in progress (Total Package of 05 STPs & Sewer Network- 181 Km. Cost-183.6 Cr.)- Likely to be		
	(b) Trapping of sewage source of Hukmakhedi pond	IMC Indore	Scheme is already under implementation	completed Dec. 2019		
	<ul> <li>(c) Construction of STP –</li> <li>07 MLD near</li> <li>Hukmakhedi pond</li> </ul>	IMC Indore	Scheme is already under implementation			
	(d) Plantation in the area	Forest Dept.	Within six months			
	(e) Repair of existing stop dams Bijalpur dam, AWASA Dam, Imitish nagar, baramath, nahar Bhandar, ghanghour ghat, Dhobi ghat.	IMC Indore	Within six months	Work in progress		

3.	Protection of Sirpur Pond&	its water quality			
	<ul><li>(a) Strengthening of existing pond viz. stone pitching of bunds.</li></ul>	IMC Indore	Scheme is already under implementation	Strengthening of bund- 1.05 Cr. work in progress- Mar. 2019	
	(b) Fencing of Sirpur Pond	IMC Indore	Completed	Work completed (45 lac)	
	(c) Trapping of sewerage outfalls and connecting to primary sewer lines (8.4 Km)	IMC Indore	Scheme is already under implementation	Work order issued (Package of Rs. 89 Cr. issued for GNT Market, Pologround, Laxmibai Nagar & Trapping of outfalls at Palasiya, Piliyakhal, BhamoriNala of 125 Km. sewer lines- Jan. 2020)	
	(d) Plantation	IMC Indore	Completed	Work completed (25 lac)	
4.	Completion of Conveyance System for City Sewage				
	<ul> <li>(a) For Primary Sewerage: The work related to primary sewer line is complete (99.99%)</li> <li>except 200 Mt. sewer line is pending due to dispute from the private land owner at Mahalaxminagar, which is also resolved after detailed discussion with land owner soon work will be started.</li> </ul>	IMC Indore	Scheme is already under implementation	To be completed in 06 Months.	
	<ul> <li>(b) For Secondary Sewerage</li> <li>: Scheme for secondary</li> <li>sewerage work to</li> <li>connect secondary</li> <li>sewerage lines falling in</li> <li>six nallahs (Azad Nagar,</li> <li>Piliyakhal, Bhamori,</li> <li>Palasiya, Tulsinagar,</li> </ul>	IMC Indore	Scheme is already under implementation	Identified 134 outfalls of which 25% work completed. Work is in progress. So far 18 km pipe has been laid out of 49.54 kms Work to be	

	Shakkarkhedi) of city to			completed upto Jan.
	primary line.			2019.
	(Simhasth/IMC Fund)			
	× / /			Remaining work of
				four nallas shifted to
				AMRUT project.
		DICL 1	0.1	XX7 1 1
	(c) Sewerage Network to	IMC Indore	Scheme 1s	Work is in progress
	Connect Secondary Sewer		already under	& So far 21 Km line
	Lines falling in Khan &		implementation	has been laid out of
	Sarawati Rivers to			22 kms. Work to be
	Primary Sewerage			completed in 03
	System: Rs 57.00 crores,			months.
	Proposed under Mukhya			
	Mantri Shahari			
	Adhosanrachna Vikas			
	Yojna			
5.	Implementation of Indore S	Sewerage project		
	Phase 1 project of Ds 270 a	r ic already under proce	ss of implementat	ion. The details of
	works one of under	i is alleady under proces	ss of implementat	ion. The uctails of
	works are as under			
5.1	Interception & Diversion of	Sewage with STP in rive	er Khan from d/s	of Limbodi Pond to
	Radhaswami (Palda)			
	(a) Laying of Sewer lines in	IMC Indore	Scheme is	Work in progress
	the area (about 22 small		already under	(Total Package of 05
	bastis)-64 Kms.		implementation	STPs & Sewer
				Network- 181 Km.
				Cost-183.6 Cr.)-
	(b) STP near Padhaswami	IMC Indore	Schame is	Likely to be completed
	(D) STI heat Kaunaswann (Palda), 06 MI D	INIC IIIdore	already under	Dec. 2019
	(1 alda)- 00 WILD		implementation	
			Implementation	
5.2	Interception & Diversion of	Sewage with STP in rive	er Khan & Azad	nagar nala from d/s
	of Radhaswami (Palda) to Z	00		
	(a) Laying of Sewer lines in	IMC Indore	Scheme is	Work in progress
	the area (Azad nagar,		already under	(Total Package of 05
	Khatipura, Viratnagar,		implementation	STPs & Sewer
	Shivshaktinagar,			Network- 181 Km.
	Udhyog Nagar Palda			Cost-183.6 Cr.)-
	etc.)-17 Kms.			Likely to be
			~	completed Dec. 2019
	(b) STP near Zoo - 35	IMC Indore	Scheme is	
	MLD		already under	
			implementation	

5.3	Interception & Diversion of Sewage going into Rajendra Nagar Nala joining river Saraswati at Amitesh pagar & construction of STP			
	<ul> <li>(a) Laying of Sewer lines</li> <li>in the area (Vigyan</li> <li>Nagar, Vaishali Nagar,</li> <li>Dhanwantri Nagar,</li> <li>Narmada Nagar &amp; other</li> <li>20 colonies)-4.5 Kms.</li> </ul>	IMC Indore	Scheme is already under implementation	Work in progress (Total Package of 05 STPs & Sewer Network- 181 Km. Cost-183.6 Cr.)- Likely to be completed Dec. 2019
	<ul><li>(b) Construction of STP- 08 MLD at Pratiksetu Bridge (Behind DIET)</li></ul>	IMC Indore	Scheme is already under implementation	
	<ul> <li>(c) For remaining work of</li> <li>(b) Secondary Sewerage</li> <li>: Scheme for secondary</li> <li>sewerage work to</li> <li>connect secondary</li> <li>sewerage lines falling in</li> <li>three nallahs (Piliyakhal,</li> <li>Bhamori, Palasiya) of</li> <li>city to primary line</li> <li>(being executed under</li> <li>AMRUT)</li> </ul>	IMC Indore	Scheme is already under implementation	Work is in progress. To be completed Jan. 2020
	(d) Construction of Effluent Conveyance System & CETP [Common Effluent Treatment Plant for Sanwer Road Industrial Area, Indore	IMC Indore	Scheme is already under implementation	CETP Completed & working. The effluent conveyance System work of 13Kms is completed out of 38 Kms. To be completed by 06 months.
	(e) Laying of Sewer Line in Sch. No. 71 industrial area	IMC Indore	Scheme is already under implementation	Cost of work Rs. 16.00 Lakhs. Work in progress. To be completed in 06 Months.
	<ul> <li>(f) Reuse of 13 mld effluent of existing 245 mld STP for garden, flushing, horticulture &amp; fire fighting i/c 1 nos OHT - 3 ML&amp; pipe network of 30km</li> </ul>	IMC Indore	Scheme is already under implementation	Work is in progress. To be completed upto Jan. 2020

6.	Phase-2:- DPR has been Prepared for following works & submitted for approval under				
	AMRUT Project of Rs. 1299.42 cr.				
6.1	Interception & Diversion of	Sewage going into Sirpu	ır talab joining ri	ver kanh by Piliakhal	
	nalah & construction of STP.				
	<ul> <li>(a) Laying of Sewer lines in the area (Sirpur, Ahirkhedi village, and adjoining colonies)-46 Kms.</li> </ul>	UADD/IMC Indore	Scheme made & Submitted for approval.	After allotment of fund (Within 3 years)	
	(b) STP near (Sirpur (Ahirkhedi) - 2 MLD	UADD/IMC Indore			
6.2	Interception & Diversion of Mangliya & construction of	Sewage going into Tulsi STP.	Nagar Nala joini	ng river kanh at	
	<ul> <li>(a) Laying of Sewer lines in the area Arandiya village and adjoining colonies, - 73 Kms.</li> </ul>	UADD/IMC Indore	Scheme made & Submitted for approval.	After allotment of fund (Within 3 years)	
	(b) STP near (Arandiya village) - 20 MLD	UADD/IMC Indore			
6.3	Interception & Diversion of river kanh & construction o	Sewage going into Bho f STP.	urasala nala to N	arval Nala & joining	
	<ul> <li>(a) Laying of Sewer lines in the area Rewati village, Bhourasala village and adjoining colonies - 12 Kms.</li> </ul>	UADD/IMC Indore	Scheme made & Submitted for approval.	After allotment of fund (Within 3 years)	
	<ul><li>(b) STP near (Kumerdi</li><li>(Shakkarkhedi village) -</li><li>9 MLD</li></ul>	UADD/IMC Indore			
6.4	Interception & Diversion of construction of STP.	f Sewage going into Kan	adiya nala & joi	ning river Kshipra &	
	<ul> <li>(a) Laying of Sewer lines in the area Bicholi Mardana village, Bicholi Hapsi village, Kanadiay village and adjoining colonies - 95 Kms.</li> </ul>	UADD/IMC Indore	Scheme made & Submitted for approval.	After allotment of fund (Within 3 years)	

	(b) STP near (Kanadiya	UADD/IMC Indore		
	village) - 25 MLD			
6.5	Interception & Diversion	of Sewage going into	narval nala & j	oining river Kanh &
construction of STP.				
	(a) Laying of Sewer lines in	UADD/IMC Indore	Scheme made	After allotment of
	the area Bada Bangarda		& Submitted	fund (Within 3
	village chotta Bada		for approval.	years)
	Bangarda village and			
	adjoining colonies, - 52			
	Kms.			
	(b) STP near (Bada	UADD/IMC Indore		
	Bangarda village) - 8			
	MLD			
6.6	Interception & Diversion of	of Sewage going into T	ulsi Nagar Nala	joining river kanh at
	Mangliya & construction of	STP.		
	(a) Laying of Sewer lines in	UADD/IMC Indore	Scheme made	After allotment of
	the area Talawalichanda		& Submitted	fund (Within 3
	village, Lasudi mori		for approval.	years)
	village and adjoining			
	colonies , - 12 Kms.			
	(b) STP near	UADD/IMC Indore	-	
	(Talawalichanda village)			
	- 3 MLD			
6.7	Rehabilitation and Up grad	ation of Existing 78 &	12 MLD STPs. di	ischarge treated water
	in kanh river			
	(a) Rehabilitation and Up	UADD/IMC Indore	Scheme made	After allotment of
	gradation of Existing 78		& Submitted	fund (Within 3
	a 12 MLD STPs as per revised PCB norms		for approval.	years)
6.8	Replacement of old Sewerag	ge pipeline network.		
	Replacement of old pipeline	UADD/IMC Indore	Scheme made	After allotment of
	network in old city limit		& Submitted	fund (Within 3
			for approval.	years)
( 0				· · ·
6.9	Reused network from Exist	ing & proposed STPs .		
	Reuse of 200 mld effluent	UADD/IMC Indore	Scheme made	After allotment of
	of existing 245 mld STP &		& Submitted	fund (Within 3
	proposed STPS in Phase-		for approval.	years)
	1&2 for garden, flushing,			
	horticulture & fire fighting			

	i/c construction of 15 nos			
	OHT & pipe network of 500			
	km			
7	River front development of	Kanh river in smart city	area	
	The river front development	IMC	already under	To be completed
	work of kanh river has taken		implementation	within 02 Years
	under smart city project in 8		1	
	starches in length of 3.9 km			
	& projected cost is -58.23			
	cr.			
8	Zero discharge from Existin	g 4 mld ETP at Sanwer	road	
	As per revised PCB norms	UADD/IMC Indore	Within 06	
	there should be zero		Months.	
	discharge from existing 4			
	mld ETP at Sanwer road by			
	installation of tertiary			
	treatment plant. Estimated			
	project cost -5 cr.			
III	Ground water quality			
	(a) Sealing of	Nagar Nigam/ Local	Within 06	
	contaminated hand	bodies/	months	
	pumps and found to be	Collector/PHED		
	unfit for drinking			
	(b) Supply of potable	Nagar Nigam/ Local	Within 06	
	water to the affected	bodies/PHED and	months	
	communities in the	M P Ground Water	montuis	
	identified critical	Department		
	blocks	Deputition		
	(c) Carrying assessment of	CGWB/M.P. Ground	Within 06	
	ground water survey	Water Department	Months	
	for quality and to			
	identify over exploited			
	(d) To Conduct periodic	MPPCB and M P	Within 03	
	surprise inspection of	Ground Water	Months	
	the industry to rule out	Department	wontins	
	any forceful injection	Department		
	of industrial effluents			
	into groundwater			
	resources			
	(e) All the industry should	CGWB/CGWA and	Within 06	
	NOC from the CGWB	M.P. Ground Water	Months	
	and action against the	Department		
1	and action against the			

	units in	Operation				
	without obta	aining of				
	NOC from CO	GWA				
	(f) To ensure r	ain water	CGWA/M.P. Ground	Within 06		
	harvesting	by the	Water	Months		
	industrial co	ommercial	Department/T&CD/M	1010Intilio		
	and other in	nstitutions	Department/1&CP/M			
	and other in	aundwatan	CI/Local bodies			
	recharging v	with only				
	clean wa	ter be				
	encouraged	by				
	CGWB/CGW	ΥA				
IV	Flood Plain Zone	(FP <b>7</b> )				
1 V	Flood Flam Zone	(112)	1	1		
	(a) Survey & De	marcation	District/Local	Within 06		
	of FPZ of Ri	ver Khan/	administration	Months		
	Saraswati	&				
	Identification	of				
	enchrochment	ts.				
	(b) Checking		District/Local	Within 06		
	encroachment	ts in the	administration	Months		
	FPZ of river H	Khan		W'al: OC		
	(c) Notification	of Flood	State Government	Within 06		
	plain Zone FF	Z		Months		
	(d) Plantation i	n Flood	M.D. State Forest	Dy Novt		
	(d) Plantation 1	n Flood	M.P. State Forest	By Next		
	plain Zone (F	PZ)	Department	Mansoon		
	(e) Prohibition o	f disposal	Local administration	Regularly	Disposal of Solid	
	of municipa	l plastic			Waste in FPZ of	
	and biomedi	cal waste			rivers & Nallas	
	particularly in	drains				
	1				already banned. The	
					MCI is following	
					good practices in	
					management of	
					MSW & received	
					no.1 award for this	
					work.	
V	Environmental F	low (E-Flo	u and Irrigation Practic	ces)		
1.	Catchment impro	ovement of	Limbodi Pond			
				****		
	(a) Removal of ob	ostruction	WRD Indore	Within six		
	in upstream cat	tchment		months		
	of Limbodi Po	ond &				
	Cleaning of so	urce				
	channels					
	Chamiers					
1	1		1	1	1	

	(b) Strengthening of	WDD Indone	Within air	
	(b) Strengthening of	WKD IIIdole	within Six	
	existing pond viz. stone		months	
	pitching of bunds,			
	plantation etc.			
			****	
	(c) Removal of	WRD/Collector Indore	Within six	
	encroachments if any		months	
	(d) Plantation in the area	Forest Dept.	Within six	
	()		months	
			montins	
	(e) Repair of existing Stops	IMC	Within six	Work in progress
	dams Azad nagar.		months	1 0
	savand nagar near balaii			
	mondir			
	manun,			
2.	Rejuvenation & Catchment	improvement of Mundi	Pond	
	(a) Removal of obstruction		(a) Removal of	
	in upstream catchment		obstruction	
	of Limbodi Pond &		in upstream	
	Cleaning of source		catchment	
	channels		of Limbodi	
	enamiers		Dond fr	
			Pond &	
			Cleaning of	
			source	
			channels	
	(b) Strengthening of		(b)Strengthenin	
	existing pond viz stone		g of	
	nitching of hunds		evicting	
	plicing of builds,		existing	
	plantation etc.		pond viz.	
			stone	
			pitching of	
			bunds,	
			plantation	
			etc.	
	(c) Removal of	IMC/Collector Indore	Within six	
	encroachments if any		months	
	(d) Plantation in the area	Forest Dept	Within six	
			months	
			monuis	
	(f) Repair of existing	IMC	Within six	Work in progress
	Stops dams		months	

3.	Catchment improvement of	Bilawali Pond		
				1
	(a) Removal of obstruction		(a) Removal of	
	in upstream catchment		obstruction	
	of Bilawali Pond &		in upstream	
	Cleaning of source		catchment	
	channels		of Bilawali	
			Pond &	
			Cleaning of	
			source	
			channels	
	(b) Strengthening of		(b)	
	existing pond viz. stone		Strengtheni	
	pitching of bunds,		ng of	
	plantation etc.		existing	
			pond viz.	
			stone	
			pitching of	
			bunds,	
			plantation	
			etc.	
	(c) Removal of		(c) Removal of	
	encroachments if any		encroachme	
			nts if any	
	(d) Plantation in the area		(d) Plantation	
			in the area	
4.	E-Flow and Irrigation Pract	tices		
	(a) Measurement of flow	M.P. Irrigation	Regularly	
	of Khan & Saraswati	Department /Nagar		
	rivers and maintaining	Nigam/ Local bodies		
	records			
	(b) To conserve water and	M.P. State Irrigation	Regularly	
	good irrigation	and Agriculture		
	practices to be adopted	Departments.		
	by the farmers by			
	organizing mass			
	awareness programmes			
	and through media in			
	vernacular language			