

Proposed Action Plan for Rejuvenation of Kunda River at Khargone



Khargone

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**EXECUTIVE SUMMARY ON PROPOSED ACTION PLANS FOR
REJUVENATION OF RIVER KUNDA FOR IDENTIFIED POLLUTED RIVER
STRETCH (Khargone to Khedikhurd)**

S. No.	Description of Item	Details		
1.	Name of the identified polluted river and its tributaries	:	River Kunda	
2.	Is river is perennial and total length of the polluted river	:	No Length about 11 KM	
3.	No of drains contributing to pollution and names of major drains	:	Total 07 drains or Nallas i.e. Ondal Nalla, Imlipura Nalla, Kaladeval Nalla, Ganesh Mandir Nalla, Bavadi Bus Stand Nalla, Anand Nagar Nalla & Dalki Nalla	
4.	Whether 'River Rejuvenation Committee (RRC) constituted by the State Govt./UT Administration and If so, Date of constitution of 'RRC'	:	Yes , By M.P. Govt. Environment Dept. Order Dated 02/11/2017 & 29/06/2018	
5.	Major Towns on the banks of the river with population	:	Khargone - 133400 population (Present)	
	a. Total water consumption and sewage generation in MLD	:	Total Water consumption 10 MLD Total Sewage generation 7.3 MLD	
	b. Total no. of existing STPs and the total capacities in MLD	:	STP No. 01 & Capacity 50 KLD	
	c. Gaps in sewage treatment in MLD and no. of towns not having STPs	:	New STP required. 17.6 MLD STP under construction.	
	d. Total MSW generation in TPA	:	MSW approx. 19710 TPA (54 TPD)	
	e. Existing treatment and disposal facilities and total capacity	:	5322 MT Capacity compost Pit installed for wet processing.	
6.	Major industrial estates located with total no. of industries	:	Industrial Estate	No. of Industries
			02 semi-urban I/A for SSI	10 Green Industries. No water polluting Industries.
	a. Total water consumption and total industrial effluent generation in MLD	:	Industrial effluent generation - NIL	

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	b. No. of industries having captive ETPs and their treatment capacity in MLD	:	Not Applicable
	c. No of CETP's and their treatment capacity	:	Not Applicable
	d. Gaps in treatment of industrial effluent	:	Not Applicable
	e. Total HW generation in TPA in the catchment area	:	NIL
	f. Existing HW Treatment and Disposal Facilities and total capacity with life span	:	M.P. Waste Management Project Pithampur, Dhar
7.	Action plan includes mainly covering aspect such as (Proposal for utilization of sewage, ground water recharging or rain water harvesting, measures for regulating ground water use, protection and management of flood plain zone, maintaining minimum E-flows and water shed management, plantation on both sides of the river, setting up of bio-diversity parks etc., as per Hon'ble NGT Orders dated 20.09.2018 and 19.12.2018)	:	Yes
8.	Min. and Max. required time period for implementation of action plans		Min. 09 months, Max 02 Years
9.	Total estimated budget in crores towards implementation of proposed action plans with break-up (e.g. No. of STPs, capacity, total cost; No of CETPs, total capacity, Cost towards interception and diversion of sewage/effluent to STPs/CETPs etc.,)	:	<ul style="list-style-type: none"> Phase-I : Project Rs. 62 Cr. (STP-01, Sewer line, Sewerage System, Trapping of Sewage for Zone-I) Phase-II : Project estimated cost Rs. 88 Cr. keeping in view the expansion of city up to 2033. De-silting of river Kunda & strengthening of both banks, 01 check dam & other works : Rs. 18 Cr. project submitted to UADD for approval. Work to fulfill the gap in processing of MSW, MRF : Rs. 9.6 Cr. proposal submitted to UADD. Work to fulfill the gap in C&D waste management: Rs. 0.4 Cr. proposal submitted to UADD. Renovation of stop dam : Rs. 0.85 Cr.

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10.	Responsible Organization (s) for implementation of proposed action plans (Please enclose details as annexure)	:	Organizations responsible for execution of the action plans are UADD/Municipal Council Kharogne, Water Resource Department , District administration Central Ground Water Board, Forest Department, Agriculture Department and MPPCB.
11.	Proposed Mechanism for execution of action plans	:	<ul style="list-style-type: none"> • The district level monitoring committee under the Chairmanship of Collector Khargone will review the execution of action plan with various stake holders. 01 meeting held on dated 06-05-2019. • RRC at state level formed to review the progress on 06 monthly basis.
12.	Expected deliverables w r to achieving Goals	:	<ul style="list-style-type: none"> • The action plan for prevention and control of pollution in river Kunda has been drafted particularly to collect & treat the sewage of city Khargone as per the directions given by Hon'ble National Green Tribunal with aim to maintain the water quality BOD level < 3mg/l.

1.0 **BACKGROUND**

1.1 **NGT Case No. 673/2018:**

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 & vi) 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.

- vi. *All States and the Union Territories are required to send a copy of Action Plan to CPCB especially w.r.t. Priority I & Priority II stretches for approval.*



Fig.1: Intake Well at River Kunda near Santoshi Mata Mandir, Khargone

- 1.2** That MPPCB has prepared action plan w.r.t. Priority I & Priority II stretches of polluted rivers & the same have been approved by CPCB. The River Kunda,

(stretch Khargone to Khedikhurd about 11 km.) has been taken as priority V, stretch on the basis of BOD range 4.0 mg/l on the basis of monitoring report submitted by CPCB. In-fact the monitoring reports of above stretch of Kunda River are based on the samples drawn before 2016. The available 03 years records of the water samples drawn from the River Kunda at Khargone reveal that only once the BOD has exceeded the limit of 3 mg/L.

- 1.3** There is no water polluting industries in Khargone in the catchment of Kunda River. There are 02 small industrial areas in which only green industries mostly ginning mills are operational. Thus the problem of industrial effluent not observed.
- 1.4** That MPPCB is monitoring River Kunda at 01 place near New Bridge Khargone. The polluted river stretch has been mentioned as “River Kunda from Khargone to Khedikhurd”. It is pertinent to mention here that MPPCB had not taken any water sample of river Kunda at any point of time near Khedikhurd during past years. Thus it is not clear, on what basis the polluted stretch has been decided. During survey, MPPCB collected water samples of River Kunda at Mangrul and Khedikhurd, the river water found to be normal. During survey, it was also observed that at Khargone the Kunda River is dried at New Bridge except some stagnant water, mostly water mixed with sewage. Hence it is proposed that only the stretch of river Kunda starting from u/s of Ondal Nallah to d/s of Khargone city i.e. about 06 kms. may be considered as polluted stretch. The monitoring results for last 03 years are given in Annexure-1 & the BOD level has been observed less than 3 mg./L. Thus, as such no action plan is required to rejuvenate the above polluted stretch as per the para-(i) of point 48 of order passed by Hon’ble National Green Tribunal. However as directed by Hon’ble NGT the action plan for Kunda River considering stretch from Khargone to Khedikhurd is prepared so that the pollution caused by the domestic sewage of Khargone City is taken care.



Fig. 2 &3: River Kunda at Vill. Mangrul and Vill. Khedikhurd D/s of Khargone

2. KHARGONE & RIVER KUNDA:

Kunda River is situated in Khargone and the district is one among 51 Districts of Madhya Pradesh State. Khargone District Administrative head quarter is at Khargone. It is Located 288 kms. East towards State capital Bhopal. Khargone is growing fast as a city, and it now includes many villages, such as Jetapur. As of 2011 India census Khargone had a population of 1,16,150. While males constitute 51.44% of the population, females average 49.46%.

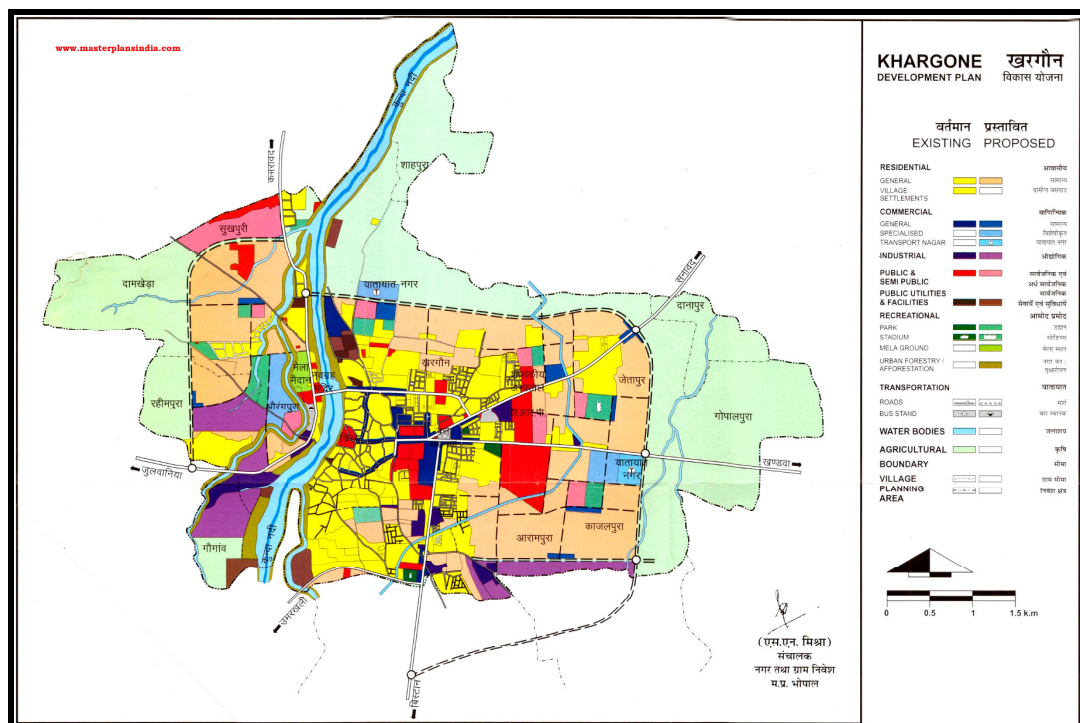


Fig.4: Map of Khargone City

Khargone has an average literacy rate of 80.9%. This is higher than the national average of 74.04%: male literacy is 87.84%, and female literacy is 75.73%. About 13% of the population is under 6 years of age.

2.1 Description of Kunda River:

The Kunda River is the main river of Khargone district. It is a tributary river of Narmada river. It is originated from forest, Amba and Sirvel village. River Kunda has a length of approximately 169Kms and its catchment area of 3825sq.km. This river is situated in the west directions of M.P. and it flows from South to North through four block of Khargone district, Bhagwanpura, Goganwa, Khargone and Kasrawad. On the Kunda River there are two Dam constructed Dejala-Devada dam & Vanihar dam. It provides drinking water for the Khargone city. The stop dams has been constructed in u/s of Khargone to obtain water for drinking purposes. Dejala-Devada Dam envisages construction of a storage Reservoir near village Dejala Devada, District Khargone, across river Kunda, a tributary of Narmada basin.

2.2 Dejala Devada Dam Components:

- An earthen dam 1560 m. long and of max. Height of 35.2 m. across river Kunda.
- A saddle earthen dam 210 m. long and of max. Height of 11.72 m. An earthen dam 1560 m. long and of max. Height of 35.2 m. across river Kunda.
- A saddle earthen dam 210 m. long and of height of 11.72 m. in the right flank.
- Masonry spillway (ogee) 400 m. long to pass the design flood of 2491.88 cumecs.
- Masonry head sluice on the left flank of Dejala-Devada dam.



Fig. 5: Dejala Devada Dam on River Kunda

2.3 River Kunda Polluted Stretch (Along Khargone) & Various Rivers/Nallahs joining the Stretch:

The River Kunda, (stretch from “Khargone to Khedikhurd”) has been taken as priority V, polluted stretch on the basis of monitoring report submitted by CPCB (BOD range 4.0 mg/l). As mentioned here in above, there is no water polluting industries located in the catchment of river Kunda. The only major town Khargone is situated in the bank of river Kunda. During survey it has been observed that the river water is found to be normal at u/s of confluence of Ondal Nallah to river Kunda. The sewage of Khargone city flows through Ondal Nallah & join river Kunda, due to which the water quality of river is deteriorated. Also there are other 06 small Nallahs namely: Ondal Nallah, Implipura Nallah, Kaladeval Nallah, Ganesh Mandir Nallah, Bawdi Bus Stand Nallah & Anand Nagar Nallah joining in the left bank of river Kunda & 01 Nallahs namely Dalki Nallah joining river Kunda in its right bank. The sewage of city normally flows through these Nallahs. Nagar Palika Khargone has laid the sewer line along the left bank of river bed to intercept the sewage flowing in Nallahs & to carry the waste water to the STP installed in the d/s of the city. The regulated discharge of water from the weir made at Santoshi Mata Mandir has been observed in the river Kunda which improves the quality of river water.

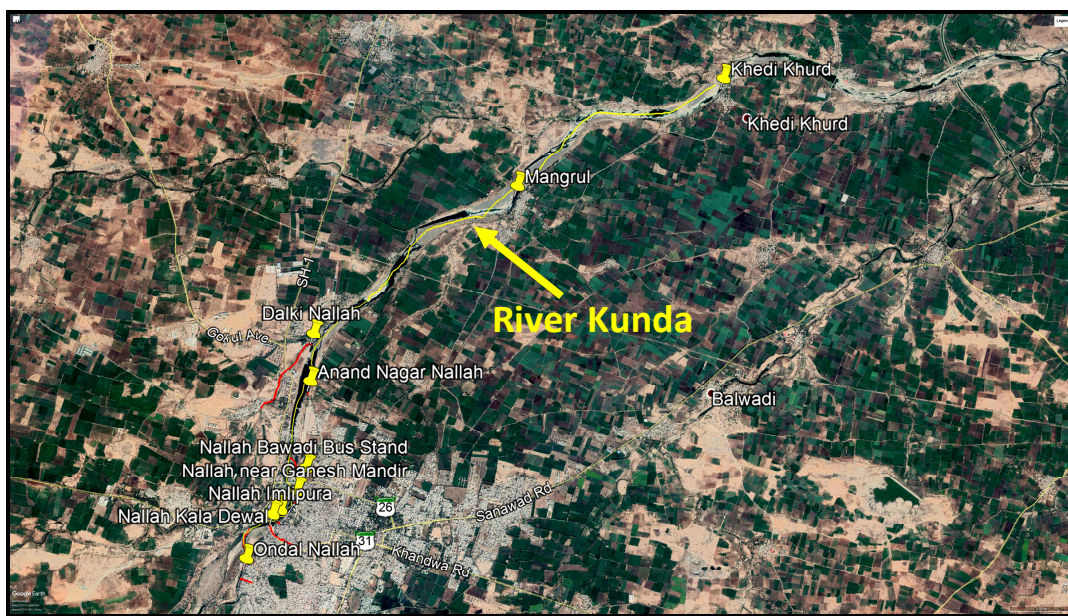


Fig.6: Satellite Map showing Kunda River Polluted Stretch from Ondal Nallah to Vill. Khedikhurd, Khargone

However as and when the water is not discharged from above weir the increase in BOD level of water of River Kunda is observed. It is pertinent to mention here that during survey there is no flow observed in the river Kunda near Khedikhurd, however clear river water found in the form impoundment. Also the same situation observed at Mangrul, which is about 08 km. d/s of Khargone. Thus the length of the polluted stretch may be taken as 6 kms. along Khargone town. The domestic waste water of city Khargone is the source of pollution in river Kunda and no other town/ city is located on the bank of river Kunda in the declared pollution stretch, which are responsible to contaminate the river.

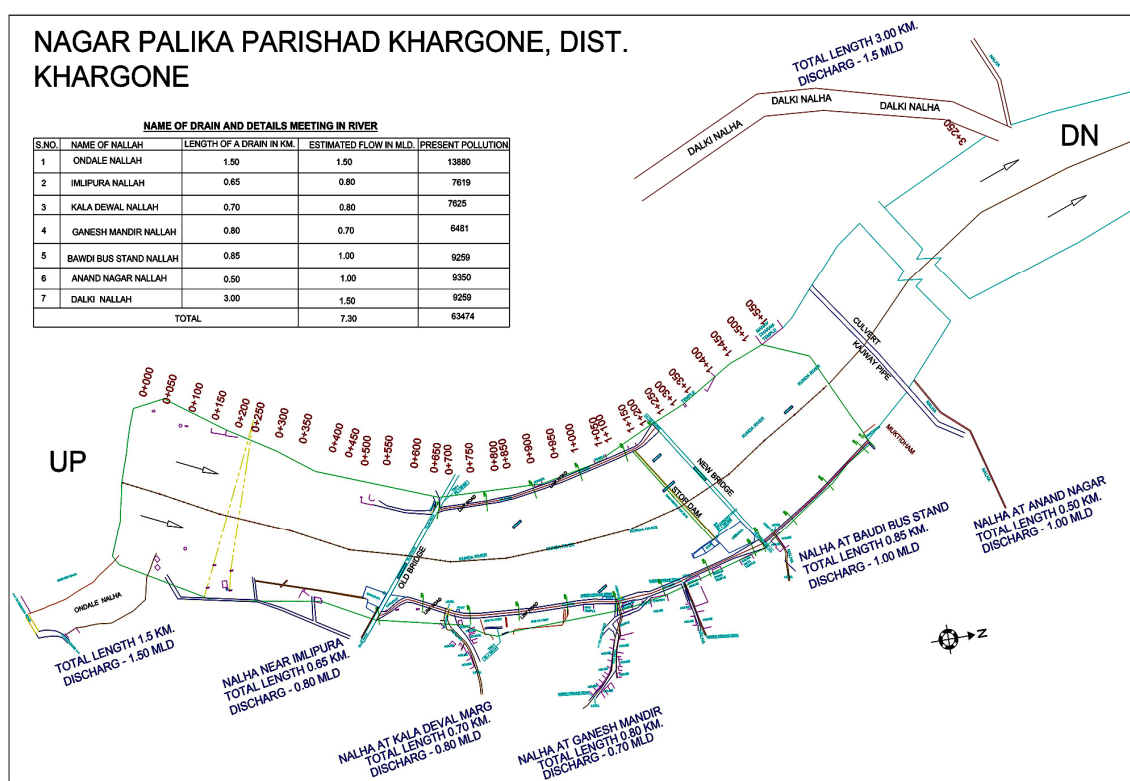


Fig.7 : Map showing location of River and Nallahs

3. WATER QUALITY GOAL:

It is an important aspect for revival of river Kunda in context of its utility. 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." It is pertinent to mention here that the polluted river stretch is meeting the above stated desired norms however as per directions of Hon'ble NGT the action plan is prepared to further upgrade the water quality of the river. To achieve above goal, the various stake holders viz. Nagar Parishad Khargone, Water Resources Department etc. has been asked to submit the action plan considering the order of Hon'ble NGT as stated above.

Comparative suggested criteria for bathing in River Kunda is given in the Table-1:

Table-1: Suggested criteria for outdoor bathing

Sl. No	Parameters	Class 'B' Water Quality Criteria – for Bathing (to be achieved)
1	pH	6.5 to 8.5
2	Dissolved Oxygen (DO)	≥ 5.0 mg/L
3	Bio Chemical Oxygen Demand (BOD)	< 3 mg/L
4	Total Coliforms Organism MPN/100 ml	< 500

4. THE BASIS OF PROPOSED ACTION PLAN FOR REJUVENATION OF RIVER KUNDA:

River Kunda is Non Perennial River. As stated here in above the water quality of the river between identified stretches is found to be meeting bathing standards however during field survey it is found that the proper collection of sewage & installation of full fledged modern waste water treatment plant is necessary for Khargone so as to avoid any possibility of deterioration of water quality of River Kunda. Also it is observed that in Khargone city, the quality of the river is maintained due to the dilution available with the river. The river Kunda in Khargone is observed to be dry during summer. Thus it is essential that the domestic sewage should be collected & treated properly before

discharge into the River Kunda. Therefore, the action plan for prevention and control of pollution of river Kunda has been drafted based on the directions given by this Hon'ble National Green Tribunal as mentioned here in above.

5. FIELD SURVEY :

5.1 Domestic waste water, Population, Water Supply, Domestic waste water & Existing treatment & Details of measure taken by Govt. agencies to control pollution in river Kunda:

The field recon survey is carried out to see the pollution level and current status of Kunda River. The physical survey is conducted from the Anicut on Kunda River at u/s of Khargone near Santoshi Mata Mandir to Vill. Khedikhurd which is d/s of Vill. Mangrul . The length of River Kunda stretch from u/s of confluence of Ondal Nallah to Khedikhurd (about 11 km.) has been considered to rejuvenate the water quality. During the field survey it was found that the domestic waste water appear to be main source of pollution in river Kunda.

5.1.1 Khargone: The city is governed by Municipal Council Khargone. The population of the city as per census 2011 is 133400. There are 33 wards in the city. Khargone Municipal Council has total administration over 26880 houses to which it supplies drinking water.

5.1.2 Population : The projected population of Khargone city is as under:

Table-2: Projected population of Khargone

Year	2011	2021	2031
Population	133400	190851	270830

5.1.3 Water Supply: The existing water supply of the city is based on river Kunda and 25 nos. tube wells about 10 MLD water is supplied to the town. The requirement of the town is 25.76 MLD at the rate of 135 LPCD.

5.1.4 Sewage Treatment: The houses are having septic tank & soak pits for treatment of domestic waste. However the overflow and other domestic waste flows in various Nallahs of the city as mentioned here in above. The

waste water quantity is estimate about 7.3 MLD based on the water supply. All the Nallahs of the area ultimately join River Kunda at various locations. To abate the pollution in River Kunda, a pollution abatement scheme has been approved by govt. of M.P. department of urban development under AMRUT. The scheme is being implemented by Municipal Council Khargone. It is pertinent to mention here that from its own resources Municipal Council Khargone has laid 1.5 km sewer line along the left bank of river Kunda to intercept the sewage of various Nallahs. MC Khargone has installed one STP of 50 KLD for treatment of above intercepted waste water near Muktidham.

5.1.5 Ongoing measures/proposed domestic waste water treatment measures taken by Govt. agencies to control pollution in Kunda

- **Sewer Lines:** The scheme of 62 Cr. under AMRUT Project for sewer lines & STP are in progress. The Laying of Sewer lines in the Municipal area of Khargone (Zone-1: 26 wards completely and 02 wards partly covered) is being done. About 8 km. primary sewer line laid out of 16 km. Distribution line of 135 km. work in progress. Out of which 70 km. has been completed.
- **STP near Kapas Mandi:** Capacity- 17.6 MLD- 75% civil work completed. As stated here in above, Municipal Council Khargone is doing the work of laying of sewer lines to collect the sewage & the installation of 01 STP to treat the domestic waste water. The above work of collection & treatment of sewage has already been started. The interception of sewage and treatment through STP will be helpful in rejuvenating the water quality of River Kunda.

5.1.6 Industrial Water Pollution:

There are 02 industrial areas at Bhadli and Rahimpura respectively. These industrial areas are specifically meant for small scale industries. The Khargone district is best known for cotton farming. There is small scale ginning industries in Khargone. These industries do not use water in their production process. The water is required only for domestic purposes.

There are 10 such industries which are green category. Thus the pollution due to industrial effluent is not observed and hence action plan is not required for industrial water pollution control.

5.2 Characteristic of the river, major drains & ground water:

5.2.1 Water Characteristics of river Kunda:

River Kunda quality in u/s of Khargone at water intake well near Santoshi Mata Mandir is Class-A as per IS 2296- 1982. The quality of the river is found to be between Class-A to Class-B at New Bridge Khargone during the monitoring work conducted by MPPCB for last 03 years. During the recent survey 05 samples of River Kunda were collected from Khargone to Khedikhurd along river stretch. The comparative chart of average water quality of river Kunda is as below:

Table-3: Water Quality of River Kunda

S. No.	Location of sample	Date	pH	BOD in mg/L	COD in mg/L	TDS in mg/L	Total Coliform MPN/100ml
1	River Kunda at Dejala Dewada Dam	06.05.2019	8.20	1.0	12.0	304	47
2	River Kunda at Intake well	06.05.2019	8.70	1.1	16.0	334.0	49
3	River Kunda New Road Bridge	06.05.2019	8.30	1.8	18.0	412.0	140
4	River Kunda at Vill. Mangrul	10.05.2019	7.85	1.7	23.92	510	90
5	River Kunda at Khedikhurd	10.05.2019	8.44	1.4	20.8	438	70

5.2.2 Water Characteristics of Major drains/ Nallahs: Nallah water samples of 07 prominent nallahs were also collected during the survey period from Khargone City. The water flow and water characteristics of

various Nallahs joining river Kunda (Polluted stretch) are given as under. The flow is based on the water supply in the catchment of various Nallahs.

Table-4: Flow and Water characteristics of various Nallahs joining river Kunda

S. No.	River/Nallah	Flow in MLD	pH	BOD	COD	TDS
1	Ondal Nallah	1.5	8.09	60	138.32	896
2	Imlipura Nallah	0.8	7.7	42	128.44	918
3	Kaladeval Nallah	0.8	7.7	40	108.68	664
4	Ganesh Mandir Nallah	0.7	7.72	38	79.04	973
5	Bawadi Bus Stand Nallah	1.0	7.7	60	148.2	830
6	Anand Nagar Nallah	1.0	7.64	10	39.2	1112
7	Dalki Nallah	1.5	7.87	14	49	1160

5.2.3 Status of water quality of ground water in the study area:

Along the polluted stretch of River Kunda (Khargone to Khedikhurd) & its catchment, MPPCB, Indore collected 10 nos. ground water samples from various selected locations during field survey on 06.05.2019 to 10.05.2019. The ground water samples collected have been analyzed for parameters such as Sulphates (SO₄), 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**.

Table-5: Min. & Max. Concentration of SO₄, Fluoride and Heavy metals in Ground Water samples & its compliance

Sl. No.	Details	Analysis results of Ground Water Samples for General Parameters and Heavy Metals in mg/L									
		SO ₄	F	Cd	Cu	Pb	Fe	Ni	Zn	Mn	Total Cr
1	Minimum (in mg/L)	22.12	0.518	ND*	ND	ND	0.09	ND	ND	ND	ND
2	Maximum (in mg/L)	177.43	0.987	ND	ND	ND	0.28	ND	0.066	0.087	ND
3	No. of locations exceeding the limit	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
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	0.1	0.05

*ND= Not Detectable

Analysis results of the ground water samples collected from 10 sampling locations near the polluted stretch have been found conforming with the IS 10500-2012 drinking water specifications (acceptable limits), as amended.

6. HEALTH STATUS OF THE PUBLIC IN THE CATCHMENT OF POLLUTED RIVER STRETCH

The health related (Water Born Diseases) data has been collected Civil Surgeon Dist. Hospital Khargone. (Annexure-3) The status for last 03 years are given as below:

Table-6: Health Status of District Khargone

Name of Disease	District Hospital Khargone		
	2016-17	2017-18	2018-19
Gastro entities	1137	1270	1325
Diarrhea	2431	2504	2644
Renal (Kidney) Mal functioning	58	65	69
Cancer	75	81	84

Municipal Council is supplying the safe drinking water with proper treatment to the citizen. Hence the problem of water born disease cannot be co-related with the polluted river stretch & Ground water pollution.

7. COMPONENTS OF ACTION PLAN:

The following main Sources of Pollution which may cause pollution in River stretch of Kunda have been considered to frame action plan to rejuvenate river Kunda:

- Domestic waste water of Khargone town meeting river Kunda through various Nallahs draining into river Kunda.
- Municipal Solid Waste, Construction & Demolition waste, Bio Medical Waste.
- Removal of encroachments in Flood Plane Zone & E-Flow Management in river Kunda.

8. MEASURE ACTIONS TAKEN BY GOVT. AGENCIES TO ABATE POLLUTION IN RIVER KUNDA:

As stated here in above, various measures already being implemented by municipal council, Khargone, District Administration, MPPCB and other government agencies to abate the pollution in River Kunda.

8.1 Work taken up so far & work proposed, in order to rejuvenate the River Kunda

8.1.1 Industrial Pollution Control:

There are 02 industrial areas at Bhadli and Rahimpura respectively in Khargone town. These industrial areas are specifically meant for small scale industries. The Khargone is best known for cotton farming. There is small scale ginning industries in Khargone, which do not use water in their production process. The water is required only for domestic purposes. There are 10 such industries which are green category. Thus the pollution due to industrial effluent is not observed and hence action plan is not required for industrial water pollution control.

8.1.2 Treatment of Sewage in the polluted river stretch:

The houses are having septic tank & soak pits for treatment of domestic waste. However the overflow and other domestic waste flows in various Nallahs of the city as mentioned here in above. The waste water quantity is estimate about 7.5 MLD based on the water supply. All the Nallahs of the area ultimately join River Kunda at various locations. To abate the pollution in River Kunda, a pollution abatement scheme has been approved by govt. of M.P. department of urban development under AMRUT. The scheme is being implemented by Municipal Council Khargone. It is pertinent to mention here that from its own resources Municipal Council Khargone has laid 1.5 km sewer line along the left bank of river Kunda to intercept the sewage of various Nallahs. MC Khargone has installed one STP of 50 KLD for treatment of above intercepted waste water near Muktidham.

8.1.3 Ongoing measures/proposed domestic waste water treatment measures taken by Govt. agencies to control pollution in Kunda:

- **Sewer lines & STP-** The scheme of 62 Cr. under AMRUT Project for sewer lines & STP are in progress. The Laying of Sewer lines in the Municipal area of Khargone (Zone 1: 26 wards completely and 02 wards partly covered) is being done. About 8 km. primary sewer line laid out of 16 km. Distribution line of 135 km. work in progress. Out of which 70 km. has been completed.
- **STP near Kapas Mandi – Capacity 17.6 MLD-** 75% civil work completed. As stated here in above, Municipal Council Khargone is doing the work of laying of sewer lines to collect the sewage & the installation of 01 STP to treat the domestic waste water. The above work of collection & treatment of sewage has already been started. The interception of sewage & treatment through STP will be helpful in rejuvenating the water quality of River Kunda.

Table-7: Details of STPs

S.No.	Name & Location of STP	Capacity in MLD	Status : Existing/Operational/ Proposed	Technology
1	STP Near Muktidham, Khargone	50 KLD	Existing/Operational	Electro coagulations
2	STP Behind Kapas Mandi Khargone	17.6 MLD	Proposed- 75% Civil Work Complete	SBR

- The Nallahs which are meeting Kunda River mainly carry the domestic waste water generating from city Khargone. The collection of sewage & its treatment is included in the Action Plan. The main component of the action plan includes laying of sewerage network, trapping of sewage outlets, completion of conveyance system, interception of sewage flowing into various Nallahs along with construction of proposed STPs as stated here in above. The work is already in progress.



Fig. 8 & 9: STP of 17.6 MLD Capacity under construction at Khargone

8.1.4 Septage Management: Regarding septage management, it is submitted that there is no sewer line existing in the city Khargone. The houses are using septic tanks & soak pits for treatment of domestic waste water. The quantity of the septage of the septic tank is calculated to be about 10 KLD. Municipal Council Khargone has installed FSTP of 30 KLD capacity for treatment of the same near trenching ground Khargone. There is no gap observed.

8.2 Status of Municipal Solid Waste, Construction & Demolition waste, Bio Medical Waste & Industrial Hazardous waste management:

Khargone Municipal Council has taken various required measures for collection, transportation, treatment & disposal of Municipal Solid waste & Construction & Demolition wastes. However further improvements is required to be done as per the gap observed. The status of details of different types of wastes & their management is submitted as below:-

Table-8: Status of MSW, C&D waste, BMW & Industrial Hazardous waste management

S. No	Type of Waste	Estimated Quantity	Details of Collection, Transportation, Treatment & Disposal	Details of Agency, Capacity & Technology used	Status of Compliance
1	Municipal Solid Waste	54 TPD	<ul style="list-style-type: none"> • 100 % door to door collection. • 100 % segregation in dry & wet form. • 100 % primary transportation. • 250 kg/day capacity OCM installed. • 5322 MT capacity compost pit installed for wet waste processing. 	Gap observed as follows : 08 no. vehicles, Transfer Station 02 no., MRF Facility 02 no., C & D Processing Plant 01 no., Scientific Landfill 01 no. required.	90% complied. Municipal Council Khargone received award in Swacchata Survekshan 2018 & stood in 15 th place. To fulfill the gap observed the proposal of Rs. 9.6 Cr. submitted to

PROPOSED ACTION PLAN FOR REJUVENATION OF KUNDA RIVER POLLUTED STRETCH

S. No	Type of Waste	Estimated Quantity	Details of Collection, Transportation, Treatment & Disposal	Details of Agency, Capacity & Technology used	Status of Compliance
					Govt. of M.P. for approval. The above works have been included in action plan.
2	Construction & Demolition Waste	01 TPD	No processing plant. The waste is taken to trenching ground. Having MOU with Jaya Industries, Meharja Phata, Khargone for processing.	<ul style="list-style-type: none"> • Gap observed as follows : C & D Processing Plant 01 no., required. 	Partially Complying. The proposal of Rs. 0.4 Cr. submitted to UADD, Govt. of M.P. for approval & included in action plan.
3	Bio Medical Waste	0.123 TPD	<ul style="list-style-type: none"> • All the HCFs have taken membership of CBWTF. • 100% collection in covered vehicles. • 100% transportation to CBWTF at Sanwer Road I/A Indore • No gap observed in collection, transportation & treatment. 	Hoswin Incinerator Pvt. Ltd. <ul style="list-style-type: none"> • Incinerator of 350 kg/hr. installed. • Incinerator of 250 kg/hr. installed (stand by) • Auto clave of 400 lit./batch capacity installed. • 06 nos. shredders. • OCEMS installed. 	Complying
7	Industrial Hazardous Waste	NIL	Not Applicable	Not Applicable	Not Applicable

8.3 Ground Water Quality:

- MPPCB conducted the study of ground water quality of various Tubewells & Handpumps existing in the catchment of Kunda River Polluted Stretch. The summary of study report is submitted in section 5.2.3.
- Analysis results of the ground water samples collected from 10 sampling locations near the polluted stretch have been found conforming with the IS 10500-2012 drinking water specifications (acceptable limits), as amended. As such no action plan is required.

8.4 Flood Plain Zone:

Following activities are to be carried for protection of Flood Plain Zone (FPZ):

- (i) Plantation in Flood Plain Zone (FPZ)- By State Forest Department
- (ii) Checking of encroachments- By District/Local Administration
- (iii) Prohibition of Disposal of Municipal & Bio Medical Waste Particularly in drains – By Local Administration.
- (iv) Notification of FPZ- by Water Resource Department, within 06 months.

Following works have already been done to protect FPZ:-

8.4.1 Plantation including fencing along the bank of rivers

There is a proposal for thick plantation all along the river bank and catchment by various species plants in order to improve the environment and to prevent 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 has been proposed by Municipal Councils for next three years:

Table-9: Proposed Plantation

Year	No. of Plant
2019-20	10000 nos.
2020-21	10000 nos.
2021-22	10000 nos.

8.4.2 Rain Water Harvesting:

Municipal Council Khargone (MCK) has framed the bylaws related to rain water harvesting. The condition of Rain water harvesting is imposed in every building permission issued having area more than 140 sq.meter. The MCK charges rain/roof water harvesting fees & also water harvesting commitment charges. MCK has taken commitment of rain water harvesting from permission seekers & the details are as follows –

Table-10: Details of Rain Water Harvesting

Period	No. of commitments	Details of commitments fee deposited
2016	25	Rs. 2.31 Lakh
2017	22	Rs. 2.19 Lakh
2018	26	Rs. 2.45 Lakh

The security deposit is given back only after completion of rain water harvesting system. The various buildings of the city have already done rain water harvesting. The work of rain water harvesting is very important & being done as a continuous process, hence no Action Plan is required.

8.4.3 Checking and Removal of Encroachments:

Municipal Council Khargone has informed that as such encroachments have not been observed. Time to time actions have been taken to remove the same. It's a regular activity; the action to remove encroachments shall be taken as and when required

8.4.4 Prohibition of Disposal of Municipal & Bio Medical Waste Particularly in drains:

1. The status of Municipal Solid Waste Management has been described in Section 8.2, the small gap has been observed. The action plan includes about the up-gradation in MSW management.
2. The status of Bio Medical Waste Management given in section 8.2. There is no gap observed hence action plan is not needed.



Fig.10: MSW Site, Khargone City



Fig. 11 & 12: Plastic Recycling work at MSW Site, Khargone City



Fig. 13 & 14: Composting work at MSW, Site Khargone City

8.5 Environmental Flow (E-Flow) & Irrigation Practices:

- i. River Kunda is Non-perennial River. The flow is observed round the year except months of summer. An anicut has been proposed in u/s of existing weir at Santoshi Mata Mandir to collect the water in rains &

regulate the flow. WRD has proposed check dams on various Nallahs/ river Kunda to improve E-Flow.

- ii. To conserve water & good irrigation practices to be adopted by the farmers for which mass awareness programmes through media shall be done in vernacular languages to the farmers by the water resource & agriculture department of Govt. of M.P.

8.6 Monitoring of Action Plan:

- i. It is proposed that action plan for Kunda River shall be monitored by RRC on 06 monthly bases whereas, at district magistrate level, district monitoring committee will monitor on monthly basis.
- ii. Monitoring Committee has been formed under the Chairmanship of District Collector Khargone vide letter dated 01.05.2019 including various stakeholders & experts. So far 01 meeting has been conducted on 06.05.2019 to formulate action plan & further review of its implementation.

8.7 Regulatory measures:

8.7.1 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 Khargone Municipal Council has also banned the polythene carry bags.

Above local bodies with the help of MPPCB has conducted many raids on the polythene manufacturers and sellers and also traders. During 2019-20, four raids conducted & Rs. 0.59 lakh recovered as penalty along with seizure of 57.2 kg banned polythene. This action has resulted the pollution control in the catchment of river Kunda.

- 8.7.2** Municipal Council Khargone has issued orders for imposing the fines on open defecation, littering of MSW, open urination and spiting in public places and movement of cattle in public places.

Based on the above survey & data collected, MPPCB has asked various stakeholders like, Nagar Palika Khargone, WRD, UADD etc. plan for rejuvenating the polluted stretch of River Kunda. Thus Based on the information received as mentioned here in above, the action plan has been prepared & submitted in following sections.

9.0 PROPOSED ACTION PLAN AND THE IDENTIFIED AUTHORITIES FOR INITIATING ACTIONS AND THE TIME LIMITS FOR ENSURING COMPLIANCE.

The Action plans and the implementing agencies responsible for execution of the action plans and the time limits are given in table as below (Annexure-2):-

Proposed Action Plan for Rejuvenation of River Kunda

S. No.	Action plan for rejuvenation of river Kunda	Organization/ Agency Responsible for Execution of the Action Plan	Time Target & Cost (For Preparation of Scheme)	Present Status
I.	Industrial Pollution Control –Not Applicable			
2	Sewage Treatment & Disposal Plan			
1.	Interception of Sewage going into various Nallahs of Khargone joining River Kunda : Conveyance System for City Sewage & STP			
	(a) Laying of Sewer lines in the Municipal area of Khargone (Zone 1 : 26 wards completely and 02 wards partly covered).	UADD/BMC Khargone	31.12.2019	Work in progress.About 8 km. primary sewer line laid out of 16.0 km. Distribution line of 135 km. work in progress. Out of which 70 km. laid. Total Cost of the project is Rs. 62. Cr, Sanctioned under AMRUT Project.
	(b) STP near (behind Kapasmandi, Nagar Palika Khargone) –17.6 MLD	UADD/BMC Khargone	31.12.2019 (STP work 75% completed)	
	(c) Laying of the Sewer line in rest of the remaining wards (Zone 2 :17. km, Zone 3: 16.	UADD/BMC Khargone	2 Years	DPR of Rs. 150 Cr. Submitted to govt. of M.P. under AMRUT

PROPOSED ACTION PLAN FOR REJUVENATION OF KUNDA RIVER POLLUTED STRETCH

	km. & 02 STP each of 1.5 MLD and 05 MLD respectively.			project for over all sewerage network considering estimation of waste up to 2033. Out of above, sanction of Rs.62. Cr. received. After sanction of Rs.88. Cr, The work will be completed in 02 years.
	(d) De-silting of river kunda and strengthening of both banks along with Construction of pathways and beautification and electrification, 01 check dam.	UADD/BMC Khargone	2 Years	Proposal submitted to UADD for Rs. 18 Cr. & Implementation in 02 Years after sanction.
III	Ground water quality: The Ground Water near polluted stretch not found contaminated in survey, hence action plan is not required. However the continuous watch is proposed Khargone.			
	(a) Carrying assessment of ground water survey for quality and to identify over exploited and critical blocks.	CGWB/M.P. Ground Water Department/ MPPCB	02 Year	
	(b) All the industry should be directed to obtain NOC from the CGWB and action against the units in Operation without obtaining of NOC from CGWA	CGWB/CGWA and M.P. Ground Water Department	01 Year	
	(c) To ensure rain water harvesting by the industrial commercial and other institutions and groundwater recharging with only clean water be encouraged by	CGWA/M.P. Ground Water Department/T&CP/ MCI/Local bodies	Already under implementation	The condition of Rain Water Harvesting is given in building permission. So far 73 building owners have been directed to install

PROPOSED ACTION PLAN FOR REJUVENATION OF KUNDA RIVER POLLUTED STRETCH

	CGWB/CGWA			above system. Rs. 6.95 lakhs has been received as guarantee money. Regular Process.
IV	Flood Plain Zone (FPZ)			
	(a) Plantation in Flood Plain Zone (FPZ) & Construction of 01 check dam.	State Forest Department /BMC/NP Khargone	Plantation done in 2018-19 – 62000 plants in regular Process.	In year 2019-20 :15000 Nos plantation proposed. In year 2020-2021 : 15000 Nos. In years 2021-2022 : 15000 Nos. The cost of check dam included with the cost proposed for work mention in 2-1(d)
	(b) Checking encroachments in the FPZ of river Kunda.	District/Local administration / Municipal Council Khargone	Regular Checking	All the encroachments in the FPZ of river Kunda has been already removed by local administration
	(c) Prohibition of disposal of municipal plastic and biomedical waste particularly in drains	Municipal Council Khargone	Regular Process	Spot fine imposed for littering in water drains and water bodies and recovered Rs. 1.65 lacs as penalty during 2018-19.
	(d) Proper segregation, collection, transportation of MSW.	Municipal Council Khargone	Completed	100 % door to door collection, Segregation and Transportation –
	(e) Bio-Remediation of legacy waste about 1.11 lakhs tonnes.	Municipal Council Khargone	Completed	-
	(f) Work to fulfill the gap in processing plant of MSW, MRF	Municipal Council Khargone	01 Year	Proposal submitted for identified gaps in MSW management for Rs. 9.60 Cr to UADD for Vehicles 8 Nos.

PROPOSED ACTION PLAN FOR REJUVENATION OF KUNDA RIVER POLLUTED STRETCH

				centralized composting plant, transfer station (2 Nos.) Scientific Landfill (1 Nos.) .
	(g) Proper collection transportation & treatment of C&D waste.	Municipal Council Khargone	01 Year	Proposal submitted for identified gaps in C& D Waste management for Rs. 0.40 Cr to UADD
V	Environmental Flow (E-Flow and Irrigation Practices)			
	(a) Measurement of flow of Kunda rivers and maintaining records	M.P. Irrigation Department /Nagar Nigam/ Local bodies	03 months	
	(b) Renovation of stop dam near Kalika Mata Mandir	M.P. Irrigation Department	06 months after sanction	Estimated cost Rs. 0.85 Cr. Implementation in 06 months after sanction
	(c) To conserve water and good irrigation practices to be adopted by the farmers by organizing mass awareness programmes and through media in vernacular language	M.P. State Irrigation and Agriculture Departments.	Regularly	

Annexure - 1

MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL.

Water Quality during Year - 2016-2017

Natural Water Resource : River Water

Description of Sampling Station: River Kunda at New Bridge Khargone

S.No.	Characteristic	Unit	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Average	Max.	Min.
1	Date of Sampling		Dry	Dry	Dry	23.7.16	20.08.16	25.09.16	10.10.16	29.11.16	Dry	Dry	Dry	Dry	-	-	-
2	Appearance		-	-	-	Clear	Clear	Clear	Clear	Clear	-	-	-	-	Clear	Clear	Clear
4	Turbidity	NTU	-	-	-	4.2	3.6	3.4	2.6	2.9	-	-	-	-	3.34	4.2	2.6
5	Colour	PCS	-	-	-	1	1	1	1	1	-	-	-	-	1.00	1	1
6	Odour	T. No	-	-	-	O. less	O. less	O. less	O. less	O. less	-	-	-	-	O. less	O. less	O. less
7	pH	pH Unit	-	-	-	8.42	7.9	8.34	8.36	8.2	-	-	-	-	8.24	8.42	7.9
8	Sp. Conductivity	µMhos/cm.	-	-	-	412	452	310	519	490	-	-	-	-	436.60	519	310
9	T. Solids	mg/l	-	-	-	328	356	206	368	360	-	-	-	-	323.60	368	206
10	D. Solids	mg/l	-	-	-	288	318	196	350	350	-	-	-	-	300.40	350	196
11	S. Solids	mg/l	-	-	-	40	38	10	18	10	-	-	-	-	23.20	40	10
12	Amm. Nitrogen	mg/l	-	-	-	0.022	0.002	0.022	6.16	0.02	-	-	-	-	1.25	6.16	0.002
13	Nitrite Nitrogen	mg/l	-	-	-	0.006	0.007	0.003	0.008	BDL	-	-	-	-	0.01	0.008	0.003
14	Nitrate Nitrogen	mg/l	-	-	-	2.64	2.5	1.064	1.86	1.2	-	-	-	-	1.85	2.64	1.064
15	Phosphate (PO ₄)	mg/l	-	-	-	0.018	0.014	0.018	0.014	0.016	-	-	-	-	0.02	0.018	0.014
16	Chloride	mg/l	-	-	-	30.85	33.98	38.28	39.13	35.29	-	-	-	-	35.51	39.13	30.85
17	Sulphate (SO ₄)	mg/l	-	-	-	3.16	3.02	3.89	12.68	5.02	-	-	-	-	5.55	12.68	3.02
18	T. Alkalinity	mg/l	-	-	-	172	180	140	144	148	-	-	-	-	156.80	180	140
19	T. Hardness	mg/l	-	-	-	156	160	128	148	152	-	-	-	-	148.80	160	128
20	Calcium Hardness	mg/l	-	-	-	110	132	104	120	112	-	-	-	-	115.60	132	104
21	Magnesium H.	mg/l	-	-	-	46	28	24	28	40	-	-	-	-	33.20	46	24
22	D. Oxygen	mg/l	-	-	-	6.9	6.8	6.6	6.9	6.9	-	-	-	-	6.82	6.9	6.6
23	B.O.D.	mg/l	-	-	-	1.6	1.5	1.6	1.8	1.6	-	-	-	-	1.62	1.8	1.5
24	C.O.D.	mg/l	-	-	-	14	12.48	20	15.14	16.18	-	-	-	-	15.56	20	12.48
25	Sodium	mg/l	-	-	-	24	22	20.08	21.48	22.04	-	-	-	-	21.92	24	20.08
26	Potassium	mg/l	-	-	-	1.8	1.4	1.9	1.15	1.2	-	-	-	-	1.49	1.9	1.15
27	T. Coliform	MPN/100ml	-	-	-	170	140	110	70	140	-	-	-	-	126.00	170	70
28	F. Coliform	MPN/100ml	-	-	-	<2	<2	<2	<2	<2	-	-	-	-	<2	<2	<2
29	Fluoride	mg/l	-	-	-	0.608	0.7	1.02	1.28	0.8	-	-	-	-	0.88	1.28	0.608
30	FDS	mg/l	-	-	-	180	190	134	212	250	-	-	-	-	193.20	250	134
31	T.K.N.	mg/l	-	-	-	5.6	5.04	2.8	NA	8.4	-	-	-	-	5.46	8.4	2.8
32	Boron	mg/l	-	-	-	0.008	0.006	0.008	0.008	0.007	-	-	-	-	0.01	0.008	0.006
	CATEGORY		-	-	-	"B"	"B"	"B"	"B"	"B"	-	-	-	-	"B"	"B"	"B"

Classification of River water based on IS - 2296 - 1982

MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL

Water Quality during Year - 2017-18

Natural Water Resource : RIVER WATER

Description of Sampling Station: River Kunda at New Bridge Khargone

S. No.	Characteristic	Unit	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Avg	Max.	Min.
1	Date of Sampling		Dry	Dry	26.06.17	25.07.17	03.08.17	05.09.17	02.10.17	04.11.17	13.12.17	Dry	12.02.18	05.03.18	-	-	-
2	Appearance		-	-	Sl. Turbid	Sl. Turbid	Sl. Muddy	Clear	Clear	Clear	Clear	-	Sl. Turbid	Sl. Turbid	Clear	Muddy	Clear
3	Turbidity	NTU	-	-	2.9	43.4	8.4	8.6	2.02	1.6	1.9	-	8.8	16.8	10.49	43.4	1.6
4	Colour	PCS	-	-	1	1	1	1	1	1	1	-	1	1	1.00	1	1
5	Odour	T. No	-	-	O. less	O. less	O. less	O. less	O. less	O. less	O. less	-	O. less	O. less	O. less	O. less	O. less
6	pH	pH Unit	-	-	8.2	8.36	8.46	8.34	8.07	8.34	8.26	-	7.8	8.6	8.27	8.6	7.8
7	Sp. Conductivity	µMhos/cm.	-	-	524	594	452	682	682.6	558	596	-	432	857	597.51	857	432
8	T. Solids	mg/l	-	-	370	435	335	453	420	362	393	-	318	616	411.33	616	318
9	D. Solids	mg/l	-	-	360	404	317	437	4091	344	365	-	303	598	393.00	4091	303
10	S. Solids	mg/l	-	-	10	31	18	16	11	18	28	-	15	18	18.33	31	10
11	Amm. Nitrogen	mg/l	-	-	0.02	0.018	0.028	0.024	0.033	0.021	0.031	-	0.036	0.056	0.03	0.056	0.018
12	Nitrite Nitrogen	mg/l	-	-	BDL	0.006	0.008	0.011	0.007	0.008	0.009	-	0.008	0.009	0.01	0.011	0.006
13	Nitrate Nitrogen	mg/l	-	-	2.1	3.73	2.03	1.642	2.11	3.38	3.62	-	6.36	2.22	3.02	6.36	1.642
14	Phosphate (PO ₄)	mg/l	-	-	0.018	0.018	0.028	0.019	0.031	0.024	0.036	-	0.027	0.038	0.03	0.038	0.018
15	Chloride	mg/l	-	-	36.3	49.98	38	40.242	33.5	43.39	39.98	-	40.55	329.42	72.37	329.42	33.5
16	Sulphate (SO ₄)	mg/l	-	-	15.8	4.22	6.74	6.268	35.11	9.36	22.6	-	8.82	14.6	13.72	35.11	4.22
17	T. Alkalinity	mg/l	-	-	152	188	196	296	150	192	196	-	192	280	204.67	296	150
18	T. Hardness	mg/l	-	-	172	228	172	272	230	176	184	-	200	224	206.44	272	172
19	Calcium Hardness	mg/l	-	-	120	160	128	204	100	120	144	-	160	196	143.00	204	100
20	Magnesium H.	mg/l	-	-	52	68	44	68	130	56	40	-	40	28	58.44	130	28
21	D. Oxygen	mg/l	-	-	6.9	6.3	6.8	5.9	7	7.2	6.8	-	4.8	6.7	6.49	7.2	4.8
22	B.O.D.	mg/l	-	-	1.7	1.8	1.6	2	2.2	1.9	2.2	-	3	1.26	1.96	3	1.26
23	C.O.D.	mg/l	-	-	18.62	20	20	24	10.78	20	24	-	24.2	19.2	20.09	24.2	10.78
24	Sodium	mg/l	-	-	20.12	19.8	17.6	23.9	18.1	21.02	22.6	-	25.6	26.7	21.72	26.7	17.6
25	Potassium	mg/l	-	-	2.1	2.2	1.08	2.2	1.56	1.91	2.10	-	3.1	2.8	2.12	3.1	1.08
26	T. Coliform	MPN/100ml	-	-	110	170	70	110	50	60	170	-	220	90	116.67	220	50
27	F. Coliform	MPN/100ml	-	-	<2	<2	<2	<2	<1.1	<2	<2	-	<2	<2	<2	<2	<2
28	Fluoride	mg/l	-	-	0.8	0.93	0.52	0.89	0.68	0.78	0.82	-	1.016	3	1.06	3	0.62
29	FDS	mg/l	-	-	252	254	214	262	238	220	250	-	180	390	251.11	390	180
30	T.K.N.	mg/l	-	-	8.4	5.6	3.92	6.163	3.08	7.84	8.2	-	8.4	4.2	6.20	8.4	3.08
31	Boron	mg/l	-	-	0.008	0.004	0.004	0.008	0.005	0.006	0.008	-	0.008	0.008	0.01	0.008	0.004
	CATEGORY		-	-	"B"	"B"	"B"	"B"	"A"	"B"	"B"	-	"B"	"B"	"B"	"B"	"A"

Classification of River water based on IS - 2296 - 1982

MADHYA PRADESH POLLUTION CONTROL BOARD, BHOPAL

Water Quality during Year - 2018-19

Description of Sampling Station: River Kunda at New Bridge Khargone

S.No.	Characteristic	Unit	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Avg	Max.	Min.
1	Date of Sampling		19.04.18	Dry	Dry	20.7.18	10.08.18	24.09.18	23.10.18	23.11.18	22.12.18	23.01.19	10.02.19	23.03.19	-	-	-
2	Appearance		Clear	-	-	Sl.Muddy	Sl.Muddy	Clear	Clear	Clear	Clear	Clear	Clear	Sl. Turbid	Clear	Muddy	Clear
4	Turbidity	NTU	6.8	-	-	43.19	3	5.3	2.8	3.9	3	1.4	2.4	2.4	7.4	43.19	1.4
5	Colour	PCS	1	-	-	1	1	1	1	1	1	1	1	1	1	1	1
6	Odour	T. No	O. less	-	-	O. less	O. less	O. less	O. less	O. less	O. less	O. less	O. less	O. less	O. less	O. less	O. less
7	pH	pH Unit	8.02	-	-	8.2	7.87	8.3	7.8	8.34	8.1	8.4	8.4	7.8	8.1	8.4	7.8
8	Sp. Conductivity	µMhos/cm.	658	-	-	950	494	593	708.12	723.8	740	410	442	590	630.9	950	410
9	T. Solids	mg/l	474	-	-	703	306	396	445	447	444	224	278	321	403.8	703	224
10	D. Solids	mg/l	460	-	-	670	292	385	431	433	433	210	269	309	389.20	670	210
11	S. Solids	mg/l	14	-	-	33	0.14	11	14	14	11	14	9	12	13.2	33	0.14
12	Amm. Nitrogen	mg/l	0.032	-	-	0.012	0.019	0.02	0.01	0.024	0.021	0.016	0.018	0.018	0.0	0.032	0.01
13	Nitrite Nitrogen	mg/l	0.002	-	-	0.009	0.009	0.004	0.008	0.087	0.027	0.005	0.004	0.009	0.0	0.087	0.002
14	Nitrate Nitrogen	mg/l	1.936	-	-	2.98	1.44	0.861	2.918	1.792	1.824	2.86	0.826	0.916	1.8	2.98	0.826
15	Phosphate (PO ₄)	mg/l	0.022	-	-	0.019	0.02	0.019	0.048	0.026	0.021	0.026	0.014	0.019	0.0	0.048	0.014
16	Chloride	mg/l	33.74	-	-	51.24	30.62	33.5	43.05	52.8	55.72	49.27	34.24	47.14	43.1	55.72	30.62
17	Sulphate (SO ₄)	mg/l	7.8	-	-	20.91	3.16	5.932	39.18	13.554	14.673	4.08	5.73	8.7	12.4	39.18	3.16
18	T. Alkalinity	mg/l	268	-	-	252	160	196	232	280	280	200	192	272	233.2	280	160
19	T. Hardness	mg/l	220	-	-	232	172	176	200	260	260	180	196	200	209.6	260	172
20	CalciumHardness	mg/l	160	-	-	156	132	128	140	160	208	120	132	160	149.6	208	120
21	Magnesium H.	mg/l	60	-	-	76	40	48	60	100	52	60	64	40	60.0	100	40
22	D. Oxygen	mg/l	6.8	-	-	6.8	6.9	7.2	5.1	6.4	6.2	7.2	7.6	6.9	6.7	7.6	5.1
23	B.O.D.	mg/l	1.2	-	-	1.1	1.9	1.8	2	2	1.8	1.4	1.4	2	1.66	2	1.1
24	C.O.D.	mg/l	12.37	-	-	19	20.16	20	20.7	21.29	19.2	10.86	17.78	15.23	17.66	21.29	10.86
25	Sodium	mg/l	160	-	-	24	28.01	26.5	19.18	24	22	22.62	15.6	18.06	36.0	160	15.6
26	Potassium	mg/l	60	-	-	2.4	1.8	2.2	1.98	2.2	2.10	1.84	1.8	2.01	7.8	60	1.8
27	T. Coliform	MPN/100ml	50	-	-	150	70	140	70	150	120	70	63	70	95.3	150	50
28	F. Coliform	MPN/100ml	<1.8	-	-	<2	<1.8	<1.8	<1.8	<1.8	1.8	<1.8	<1.8	<1.8	<1.8	<2	<2
29	Fluoride	mg/l	1.03	-	-	1.2	0.96	0.82	0.91	1.19	1.08	0.68	0.68	0.98	1.0	1.2	0.68
30	FDS	mg/l	304	-	-	410	-	-	240	270	260	128	182	214	251.0	410	128
31	T.K.N.	mg/l	7	-	-	6	6.72	6.163	3.9	7.84	6.1	5.04	3.921	6.16	5.9	7.84	3.9
32	Boron	mg/l	0.004	-	-	0.006	0.006	0.003	0.009	0.03	0.028	0.006	0.003	0.006	0.0	0.03	0.003
33	Iron	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
34	Manganese	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
35	Zinc	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
36	Total Chromium	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
37	Copper	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
38	Nickel	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
39	Lead	mg/l	ND	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
40	Cadmium	mg/l	0.024	-	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.024	0.024	0.024
	CATEGORY		"A"	-	-	"B"	"B"	"B"	"B"	"B"	"B"	"B"	"B"	"B"	"B"	"B"	"A"

Classification of River water based on IS - 2296 - 1982

कार्यालय नगरपालिका परिषद, खरगोन जिला खरगोन मध्यप्रदेश

दूरभाष (कोड -07282) 232883 फेक्स :-231333. Email : cmokhargone@mpurban.gov.in

क्रमांक/695/ सामान्य /2019

खरगोन, दिनांक 6/5/19

प्रति,

क्षेत्रीय अधिकारी,
मध्यप्रदेश प्रदूषण नियंत्रण बोर्ड,
इंदौर

विषय:- राष्ट्रीय हरित अधिकरण दिल्ली द्वारा प्रकरण क्र. 673/2018 के अन्तर्गत कुन्दा नदी शुद्धिकरण के संबंध में कार्य योजना ।

—00—

उरोक्त विषय के बारे में राष्ट्रीय हरित अधिकरण दिल्ली द्वारा प्रकरण क्र. 673/2018 के अन्तर्गत कुन्दा नदी शुद्धिकरण के संबंध में कार्य योजना बनाने के निर्देश दिये गये हैं । तदनुसार दिनांक 06.05.2019 को आपसे हुई चर्चा अनुसार नगर पालिका परिषद खरगोन द्वारा बनाई गई कार्य योजना आवश्यक कार्यवाही हेतु संलग्न प्रेषित है ।

संलग्न - उपरोक्तानुसार

पृ. क्रमांक/ /सामान्य /2019

प्रतिलिपि :-

1. कलेक्टर महोदय कलेक्टर कार्यालय खरगोन की और सूचनार्थ प्रेषित ।

मुख्य नगरपालिका अधिकारी
नगरपालिका परिषद खरगोन
खरगोन, दिनांक.....

मुख्य नगरपालिका अधिकारी
नगरपालिका परिषद खरगोन

PROPOSED ACTION PLAN FOR REJUVENATION OF KUNDA RIVER POLLUTED STRETCH

Proposed Short Term and Long Term Action Plan for Rejuvenation of River kunda

SI No.	Action plan for rejuvenation of river kunda	Organization/Agency Responsible for Execution of the Action Plan	Time Target & Cost (For Preparation of Scheme)	Present Status
1	Sewage Treatment & Disposal Plan			
	khargone: Interception of Sewage going into various nallas of khargone joining River kunda : Conveyance System for City Sewage & STP			
	(a) Laying of Sewer lines in the Municipal area of khargone (Zone 1 : 26 wards completely and 02 wards partly covered).	UADD/BMC khargone	31.12.2019	Work in progress. About 8 km. primary sewer line laid out of 16.0 km. Distribution line of 135 km. work in progress. Out of which 70 km. laid. Total Cost of the project is Rs. 62. Cr, Sanctioned under AMRUT Project.
	(b) STP near (behind kapas mandi, Nagar Palika khargone) – 17.6 MLD	UADD/BMC khargone	31.12.2019 (STP work 75% completed)	
	(c) Laying of the Sewer line in rest of the remaining wards (Zone 2 : 17. km, Zone 3: 16. km. & 02 STP each of 1.5 MLD and 05 MLD respectively.	UADD/BMC khargone	2 Years	DPR of Rs. 150 Cr. Submitted to govt. of M.P. under AMRUT project for over all sewerage network considering estimation of waste up to 2033. Out of above, sanction of Rs.62. Cr. received. After sanction of Rs.88. Cr, The work will be completed in 02 years. <i>for Rs.1800</i>
	(d) De-silting of river kunda and strengthening of both banks . along with Construction of pathways and beautification and electrification, <i>01 check dam</i>	UADD/BMC khargone	2 Years	Proposal submitted to UADD & Implementation in 02 Years after sanction.
	(d) To ensure rain water harvesting by the industrial commercial and other institutions and groundwater recharging with only clean water be encouraged by CGWB/CGWA	CGWA/M.P. Ground Water Department/T&CP/MCI /Local bodies	Already under implementation	The condition of Rain Water Harvesting is given in building permission. So far 73 building owners have been directed to install above system. Rs. 6.95 lakhs has been received as guarantee money. Regular Process.

PROPOSED ACTION PLAN FOR REJUVENATION OF KUNDA RIVER POLLUTED STRETCH

2.	Flood Plain Zone (FPZ)			
	(a) Plantation in Flood Plain Zone (FPZ)	State Forest Department /BMC/NP Khargone	Plantation done in 2018-19 – 62000 plants in regular Process.	In year 2019-20 : 15000 Nos plantation proposed. In year 2020-2021 : 15000 Nos. In years 2021-2022 : 15000 Nos
	(b) Checking encroachments in the FPZ of river Kunda.	District/Local administration / Municipal Council Khargone	Regular Checking	All the encroachments in the FPZ of river Kunda has been already removed by local administration
	(c) Prohibition of disposal of municipal plastic and biomedical waste particularly in drains	Municipal Council Khargone	Regular Process	Spot fine imposed for littering in water drains and water bodies and recovered Rs. 1.65 lacs as penalty.
	(d) Proper segregation, collection, transportation of MSW.	Municipal Council Khargone	Completed	100 % door to door collection, Segregation and Transportation –
	(e) Bio-Remediation of legacy waste about 1.11 lakhs tonnes.	Municipal Council Khargone	Completed	-
	(f) Installation of processing plant of MSW, MRF	Municipal Council Khargone	01 Year	Proposal submitted for identified gaps in MSW management for Rs. 9.60 Cr to UADD for Vehicles 8 Nos, centralized composting plant, transfer station (2 Nos.) Scientific Landfill (1 Nos.) .
	(g) Proper collection transportation & treatment of C&D waste.	Municipal Council Khargone	01 Year	Proposal submitted for identified gaps in C&D Waste management for Rs. 0.40 Cr to UADD



(Nishikant Shukla)
Chief Municipal Officer
Municipal Council , Khargone

Annexure – 3

Office of Civil Surgeon cum Chief Hospital Superintendent
Dist Hospital Khargone

Sr No/HA/2019/ 1021.

Khargone Date / /
13-05-2019

To,
The MPPCB
Indore

Subject:-Regarding Water born diseases.

Respected Sir, your desirable data of water born diseases are below.
Please see the table.

Name of diseases	2016-17	2017-18	2018-19
Gastro enteritis	1137	1270	1325
Diarrhoea	2431	2504	2644
Renal kidney mall function	58	65	69
Cancer	75	81	84


Civil Surgeon
District Hospital Khargone (M.P)

कार्यालय कलेक्टर (जिला शहरी विकास अभिकरण), जिला - खरगोन, म.प्र.
कमांक 71 / जिशविअ / 2019 खरगोन, दिनांक 01 / 05 / 2019
// आदेश //

माननीय राष्ट्रीय हरित अधिकरण प्रिंसिपल बैंच नई दिल्ली द्वारा प्रकरण क्र. ओए नं. 673/2018 में दिनांक 20.09.2018 में दिये गये आदेशानुसार कुन्दा नदी को "पॉल्यूटेड रिवर स्ट्रेच- खरगोन शहर के किनारे (प्राथमिकता कम-5)" की श्रेणी में शामिल किया गया है। इस सबध में माननीय राष्ट्रीय हरित अधिकरण के आदेशों के अनुसार कुन्दा नदी के पुनरुद्धार हेतु शार्टटर्म एवं लॉगटर्म योजना बनाई जाना है तथा जिला स्तरीय मॉनिटरिंग कमेटी का कलेक्टर की अध्यक्षता में निम्नानुसार गठन किया जाता है :-

1. कलेक्टर खरगोन (अध्यक्ष)
2. सी.ई.ओ. जिला पंचायत, खरगोन
3. महाप्रबंधक, जिला उद्योग एवं व्यापार केन्द्र, खरगोन
4. कार्यपालन यंत्री, जल संसाधन विभाग, खरगोन
5. परियोजना अधिकारी, नगरीय विकास विभाग, खरगोन
6. कार्यपालन यंत्री, लोक स्वास्थ्य यांत्रिकी विभाग, खरगोन
7. डी.एफ.ओ., वन विभाग, खरगोन
8. अधीक्षण यंत्री, म.प्र. पश्चिम क्षेत्र विद्युत वितरण कंपनी, खरगोन
9. जिला प्रभारी खरगोन, म.प्र. प्रदूषण नियंत्रण बोर्ड, इन्दौर
10. उप संचालक, नगर तथा ग्राम निवेश विभाग, खरगोन/इन्दौर
11. मुख्य नगर पालिका अधिकारी, नगर पालिका, खरगोन - संयोजक

(गोपाल चन्द्र डांड)
कलेक्टर,
जिला-खरगोन
खरगोन, दिनांक 01 / 05 / 2019

पृष्ठांकन कमांक 72 / जिशविअ / 2019
प्रतिलिपि :-

1. सी.ई.ओ. जिला पंचायत, खरगोन की ओर सूचनार्थ।
2. महाप्रबंधक, जिला उद्योग एवं व्यापार केन्द्र, खरगोन की ओर सूचनार्थ।
3. कार्यपालन यंत्री, जल संसाधन विभाग, खरगोन की ओर सूचनार्थ।
4. परियोजना अधिकारी, नगरीय विकास विभाग, खरगोन की ओर सूचनार्थ।
5. कार्यपालन यंत्री, लोक स्वास्थ्य यांत्रिकी विभाग, खरगोन की ओर सूचनार्थ।
6. डी.एफ.ओ., वन विभाग, खरगोन की ओर सूचनार्थ।
7. अधीक्षण यंत्री, म.प्र. पश्चिम क्षेत्र विद्युत वितरण कंपनी, खरगोन की ओर सूचनार्थ।
8. जिला प्रभारी खरगोन, म.प्र. प्रदूषण नियंत्रण बोर्ड, इन्दौर की ओर सूचनार्थ।
9. उप संचालक, नगर तथा ग्राम निवेश विभाग, खरगोन/इन्दौर की ओर सूचनार्थ।
10. मुख्य नगर पालिका अधिकारी, नगर पालिका, खरगोन की ओर सूचनार्थ।
11. स्टेनो टू कलेक्टर / प्रभारी अधिकारी जीएडी कलेक्टोरेट खरगोन की ओर सूचनार्थ।

(कलेक्टर)
जिला-खरगोन

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