# ACTION PLAN

FOR CLEAN-UP OF POLLUTED STRETCH OF

# CHANDRABHAGA RIVER

**2025**

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# CHANDRABHAGA RIVER (Pandharpur to Shegaon Dhumala)

## 1.1 Executive Summary of Action Plan Restoration of Water Quality of Chandrabhaga River

| Sr. No. | Description of Item | | Details |
|---|---|---|---|
| 1. | Name of the identified polluted river and its tributaries | : | Pandharpur to Shegaon Dhumala (District Solapur) |
| 2. | Is river is perennial and total length of the polluted river | : | Perennial<br>Length- 3.5 km |
| 3. | Priority 2018 by CPCB | : | Priority IV |
| | Revised priority 2022 by CPCB | : | Priority III |
| | Revised priority 2024 by MPCB (based on BOD of samples collected in year 2024) | : | Priority III |
| 4. | No of drains contributing to pollution and names of major drains | : | Gopalpur Nallah in Pandharpur |
| 5. | Major Towns on the banks of the river with population | : | **Local Body** – **Population**<br>Pandharpur – 1,10,000 |
| 6. | a. Sewage generation & Treatment in MLD | : | Total Sewage generation- 18 MLD<br>Total Sewage Treatment- 15.5 MLD<br><br>Untreated sewage – 2.5MLD during normal days and untreated sewage – 10 MLD during Ashadhi Wari Period Considering Floating population |
| | b. Total no. of existing STPs and proposed STPs with total capacities in MLD | : | 2 Nos of STP provided with treatment capacity of 18 MLD. Proposed STP- 13.5 MLD at Gopalpur-(2) & 4.5 MLD at Akluj |
| | c. Gaps in sewage treatment in MLD and no. of towns not having STPs | : | 10 MLD (during Ashadhi wari period) |
| 7. | Major industrial estates located with total no. of industries | : | Major Industrial estates in Solapur District- 06<br>Total No. of industries = 940<br>(Red category: 582, Orange category: 358) |
| | a. Total water consumption and total industrial effluent generation in MLD | : | Total water consumption- 21 MLD<br>Industrial effluent generation- 14.09 MLD |
| | b. No. of industries having captive ETPs and their treatment capacity in MLD | : | Industries having captive ETP- 582<br>Treatment capacity in MLD- 15.5 MLD |
| | c. No of CETP's and their treatment capacity | : | 02 No's of CETP in Solapur District<br>1) CETP MIDC Akkalkot Road, Solapur- 98 Members<br>2)Greenfield CETP MIDC chincoli, Tal-Mohol, Dist-Solapur- 36 Members |

| | | | |
|---|---|---|---|
| | d. Gaps in treatment of industrial effluent | : | 0 |
| 8. | Waste Management | : | |
| | a. Solid Waste Generation & processing | : | Pandharpur<br>Total MSW generated during 2024= 50 MT/day<br>Total MSW treated during 2024= 45 T/day<br>MSW is treated by Windrow composting |
| | b. Biomedical Waste Generation & treatment | : | Solapur District:<br>Total Biomedical waste generated: 1625 kg/day. |
| | | | Total Biomedical waste collected & treated: 1260 kg/day |
| | c. E-Waste Management Generation & treatment | : | E-waste generated by industries is sent to MPCB authorized E-waste reprocessor. |
| | d. Hazardous waste Management | : | • There are 161 Hazardous waste generating industries in Solapur District. These industries generated about 7000 MT Hazardous waste in year 2024.<br>• The HW from Solapur district is scientifically disposed through Maharashtra Enviro Power Ltd., MIDC Ranjangaon, Dist. Pune<br>• CHWTSDF capacity – Landfill – 60000 MT/A, Incineration – 3 TPA. |
| 9. | Action plan includes mainly covering aspect such as<br>(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) | : | RRC has already requested to Water Resource Dept, GoM for maintaining minimum E-flows and water shed management, plantation on both sides of the river, setting up of bio-diversity parks. |
| 10. | Min. and Max. required time period for implementation of action plans | | Min – one Year<br>Max- Three Years |

| | | | |
|---|---|---|---|
| 11. | 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.,) | : | Presently two Nos of STP provided with treatment capacity of 18 MLD.<br>• Under Nagarothan Abhiyan has sanctioned an amount of Rs 122.11 Cr for STP work at Gopalpur, sewerage system network and other allied work.<br>. |
| 12. | Whether 'River Rejuvenation Committee (RRC) constituted by the State Govt./UT Administration and If so, Date of constitution of 'RRC'. | : | River Rejuvenation Committee (RRC) constituted as per the Maharashtra Government G.R. issued by the Environment Dept, GoM vide No. NGT 2018/PC-2/TC-3 dtd.13.12.2018. |
| 13. | Responsible Organisation (s) for implementation of proposed action plans | : | 1. Water Resource Department, GoM<br>2. Urban Development Department<br>3. Pandharpur Municipal Council |

| | | | |
|---|---|---|---|
| 14. | Expected deliverables w r to achieving Goals | : | 1. To achieve 100% sewage collection and treatment<br>2. To achieve 100% MSW collection, transportation and treatment.<br>3. To achieve river water quality of Bathing standards by 2028.<br>4. Augmentation of River Flow and restoration of water quality-2028 |

| | | | |
|---|---|---|---|
| 15. | Initiatives taken by Govt. of Maharashtra and MPCB.<br><br>Budget Estimates & Pooling of Resources from Local Bodies, State Pollution Control Board, State Government & Central Government | : | • GOM, announced 'Namami Chandrabhaga Abhiyan' in year 2016 . It is an initiative taken to revive and rejuvenate the river Chandrabhaga and to restore its historic glory. Government of Maharashtra has prepared a comprehensive plan for cleaning of the river on the lines of 'Namami Gange'. The aim of the mission is to make the Chandrabhaga river pollution free and conserve its purity and sanctity.<br><br>• MPC Board has issued Direction to the local bodies to make 25% budgetary provision for scientific treatment and disposal of Sewage and Solid Waste. Accordingly, Municipal Corporations have passed resolution in their General Body meeting and reserved the funds. These funds are reserved and made mandatory to utilise for preparation of DPR, establishing treatment facility, O & M of treatment facility etc. The review of the same is taken from time to time by the Board.<br>• The work sanctioned under the Namami Chandrabhaga Authority Scheme for Solapur District has received administrative approval for an amount of Rs. 48.25 Cr and the funds of Rs.34.65 Cr has been disbursed from the Government.<br><br>• As per GR dated 12 september 2024 Maharashtra Shasan Nagar Vikas vibhag, Under Nagarothan Abhiyan has sanctioned an amount of Rs 122.11 Cr for Pandharur STP work at Gopalpur. |

**Preamble -**

In the matter of OA No. 673 of 2018-"More river stretches are critically polluted now: CPCB", the Hon'ble NGT has passed order dated 20.09.2018 for constitution of River Rejuvenation Committee (RRC) and Special Environment Surveillance Task Force (SESTF). The report comprises 351 polluted river stretches in India out of which 53 polluted river stretches are in Maharashtra. In the state, 9 polluted stretches in priority I & 6 polluted stretches in priority II. It has been mandated to prepare Action Plan for River Stretches and make them pollution free. In compliance of the orders of the Hon'ble NGT, the State Government has constituted RRC.

River Rejuvenation Committee (RRC) constituted as per the Maharashtra Government G.R. issued by the Environment Dept, GoM vide No. NGT 2018/PC-2/TC-3 dtd.13.12.2018 with 5 members under the guidance of Principal Secretary for preparation of action plans and to monitor the implementation of these action plans. The members of RRC are as mentioned under:

1. Commissioner / Director, Directorate of Municipal Administration
2. Chief Executive Officer – Maharashtra Industrial Development Corporation
3. Director (Environment)
4. Director (Industries)
5. Member Secretary – Maharashtra Pollution Control Boards- Member & Convener of RRC

Further State Government also constituted District Level Special Task Force comprising of the following:

1. Representative of District Collector
2. Representative of District Superintendent of Police
3. Representative of Regional Officer, MPCB
4. Representative of the District Judge of the concerned District

**Meetings of the RRC Committee:**

- 1st Meeting of River Rejuvenation Committee (RRC) convened on 14.12.2018.
  RRC reviewed draft action plans of polluted river stretches of Priority I prepared by Maharashtra PCB. It was decided by the all the committee members, to take review of local bodies and accordingly to communicate the outcomes of the meeting to the Hon'ble NGT, Principal Bench. Maharashtra PCB submitted nine draft action plans of polluted river stretches of Priority I to CPCB along with minutes of 1st meeting of RRC and submitted progress report of polluted river stretches to Hon'ble NGT on 15.12.2018

- 2nd Meeting of River Rejuvenation Committee (RRC) convened on 09.01.2019.
  RRC reviewed draft action plans of polluted river stretches of Priority II prepared by Maharashtra PCB. It was decided in the meeting to add in the draft action plans funding

details like source, name of scheme, timeline etc for proposed STPs by concern local bodies.

- 3rd Meeting of River Rejuvenation Committee (RRC) convened on 23.01.2019.
  RRC reviewed and finalised draft action plans of polluted river stretches of Priority I, II, III, IV and V prepared by Maharashtra PCB. RRC also decided to call the local bodies and review the timelines proposed in action plans from time to time.

- Maharashtra PCB submitted 53 draft action plans of polluted river stretches of Priority I, II, III, IV and V to CPCB along with minutes of 2nd & 3rd meeting of RRC and submitted progress report of polluted river stretches to Hon'ble NGT on 31.01.2019.

- CPCB Task Team on Polluted River Stretches called MPCB to give presentation on Action Plan for Priority-I & II polluted river stretches on 12.02.2019. Accordingly, the presentations were reviewed by Task team & few improvements in the action plan were suggested.

- 4th Meeting of River Rejuvenation Committee (RRC) held on 16/02/2019 & it was decided to communicate with Water Resource Department to maintain e-flow in the rivers of Maharashtra adopting good irrigation practices, protection & management of flood plain zone (FPZ), rain water harvesting, ground water charging, planation on both sides of river, Setting up of biodiversity parks on flood plains by removing encroachments and Urban Development department communicated to take necessary steps to provide adequate funds to urban local bodies for installation of sewage treatment & MSW processing facilities in a time bound manner so as to comply with the Hon'ble NGT.

- 5th Meeting of River Rejuvenation Committee (RRC) held on 25/06/2019. It was decided that Director Environment will communicate with Water Resource Department and Urban Development Department regarding provision of funds in time bound manner for installation of STPs & MSWM facilities. RRC reviewed and approved Action Plans for restoration of polluted river stretches in priority III, IV & V.

- 6th Meeting – Meeting of River Rejuvenation Committee (RRC) held on 05/11/2019. Discussed issue about funds & implementation in time bound manner of STPs & MSWM facilities.

- 7th Meeting – 28.03.2025 – In this meeting issue of Chandrabhaga River was not discussed. Issue of Pawana river was discussed.

**Achievable goal:**

The objective/goal of the action plan is that the quality of river water should meet with the required value as given under:-

| Quality Parameter | Standard to be achieved |
|---|---|
| BOD | 3.0 mg/l. |
| Dissolved Oxygen (DO) | More than 5.0 mg/l. |
| Faecal Coliform | Less than 500 MPN/100ml. |

## 1.2 Background

Bhima River is also referred as Chandrabhaga especially when it enters Pandharpur city. The origin of Bhima River is at Bhimashankar in pune district. The main tributaries of the river are Indrayani, Pawana, Mula-Mutha, Ghod and Bhama which flows through pune district. Kamini, Moshi, Bori, Sina, Maan, Bhagavati and Nira tributaries flow through Pandharpur District. The distance from the source of river Bhima to the Ujani reservoir is about 319 km and the distance from Ujani reservoir to Pandharpur is approximately 56.6 km.

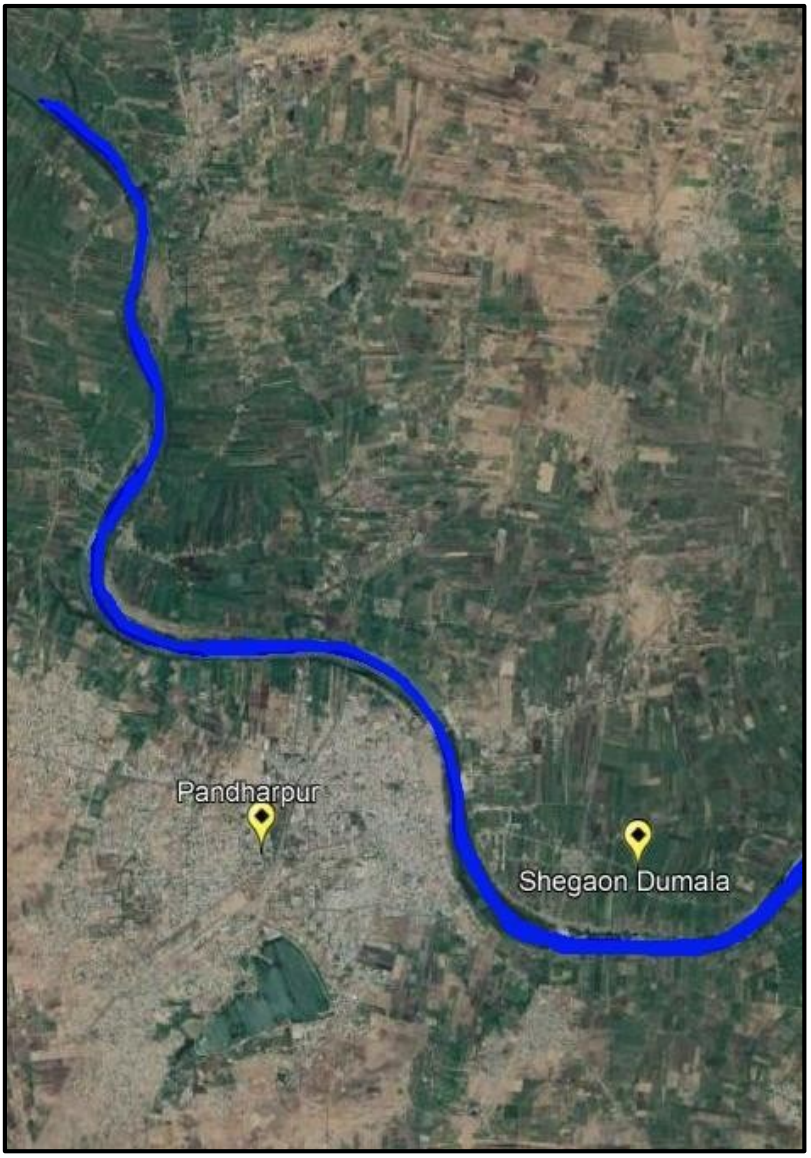


**Figure 1 Stretch of Chandrabhaga River**

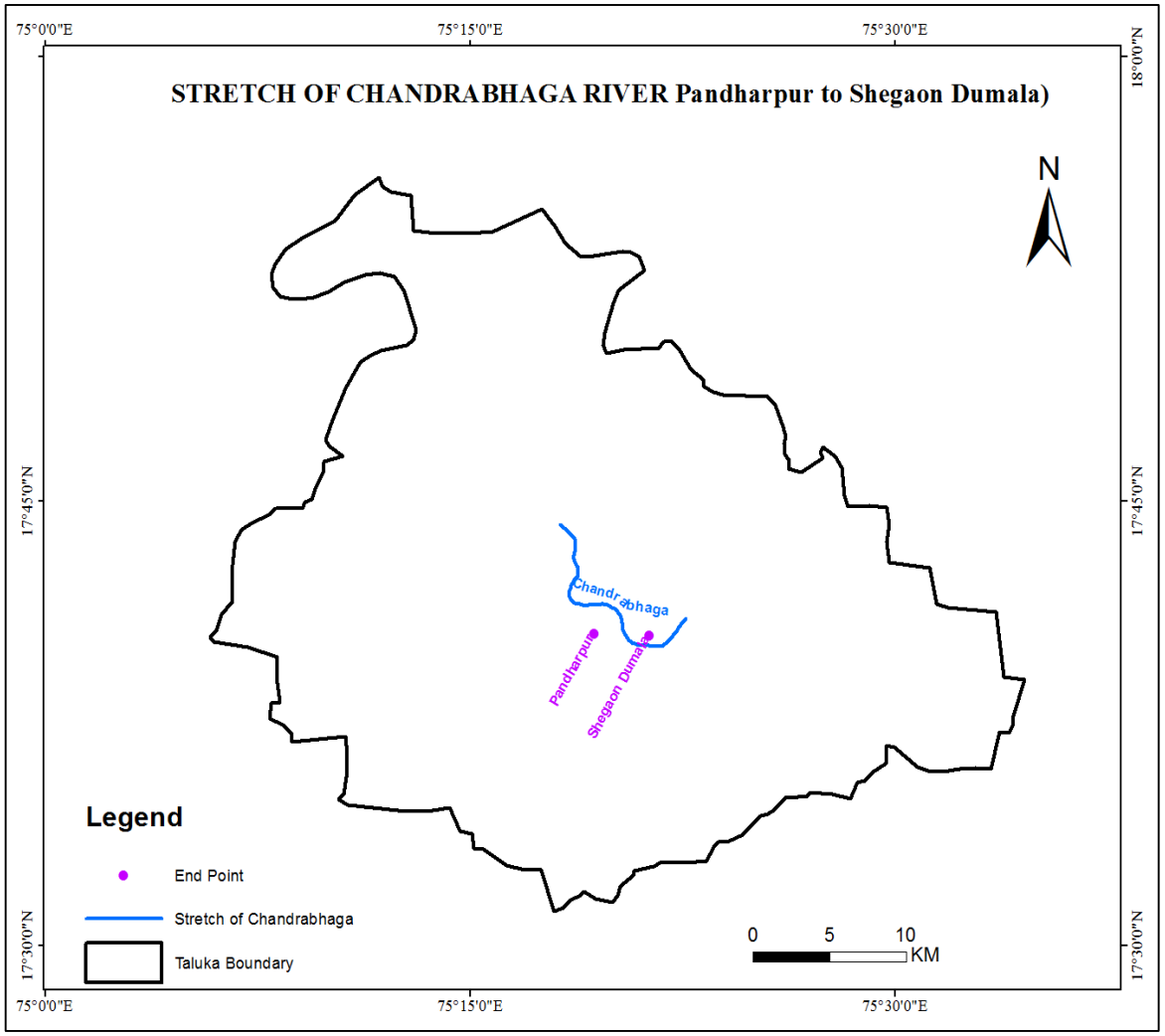


**Figure 2 Map Showing Stretch of Chandrabhaga River**

The river stretch extends from Pandharpur to Shegaon Dhumala. The length of this stretch is 3.5 km. Pandharpur is situated on the banks of the river. The population along this stretch is 1,10,000 as per 2011 Census.

The current status of the river as per the monthly sampling conducted between January to December 2024 reveals that water quality of the river falls in Priority III.

**Table 1 Introduction of river stretch**

| Sr. No. | Description of item | Details |
|---|---|---|
| 1 | Approx. length of stretch | 3.5 km |
| 2 | Major Towns located on the bank along with Population | **Local Body** / **Population**: Pandharpur / 1,10,000 |
| 3 | Stretch of River Perennial or Non Perennial | Perennial. |
| 4 | Water usage in the stretch | Mainly used for irrigation, Domestic and industrial use. |
| 5 | Current status of polluted river stretch (2024) | Priority-III |

## 1.3 Status of Sewage Generation and Treatment

Pandharpur is major town along the stretch of Chandrabhaga River. Untreated sewage from the town is being discharged into the river. Government of Maharashtra has initiated "Namami Chandrabhaga" Project to restore the water quality in the river.

**Table 2 Status of Pandharpur city water supply and wastewater generation**

| City | Population (Census 2011) | Sewage Generation (MLD) | Capacity of Existing STP (MLD) | Quantity of untreated wastewater (MLD) |
|---|---|---|---|---|
| Pandharpur | 1,15,000 | 18 | 15.5 | 2.5 |

**Table 3 Proposed Sewage Treatment plant**

| Council | Name and Address of STP | Designed Capacity (MLD) | Stage (Construction/ Proposed) | Target date of Completion |
|---|---|---|---|---|
| Pandharpur | Gopalpur (Ph-2) | 13.5 | Proposed | 2027 |
| Akluj | Akluj | 4.5 | Proposed | 2027 |

**Table 4 Domestic sewage aspects on the river stretch**

| Sr. No. | Particular | Remarks |
|---|---|---|
| **1** | Details of drainage system/sewerage network present/proposed | 80% covered by drainage network. |

| | | |
|---|---|---|
| **2** | Proposal for utilization of sewage | The Infrastructure Projects are mandated by MPCB to recycle 60% of treated sewage for secondary use by providing duel pipeline.<br>The Local Bodies will be encouraged to reuse treated sewage for various purposes. including to Thermal Power Plants wherever possible. |

| | | |
|---|---|---|
| **3** | Ground water extraction & consumption | Ground water extraction shall be minimum. Ground water department is engaged, in the exploration, development and augmentation of groundwater resources in the State through various schemes. |
| **4** | STP sludge management | STP sludge is disinfected and used as manure. |
| **5** | Proposal for ground water recharging/rain water harvesting | • The EC has mandated rainwater harvesting for projects above 20,000 Sq.m.<br>• G.S.D.A. is engaged in the development and management of groundwater resources in the State through various schemes. The main aim is to provide safe and potable drinking water to the community.<br>• The G.S.D.A. is engaged, in the exploration, development and augmentation of groundwater resources in the State through various schemes. This mainly includes, drilling of bore wells/tube wells under Rural Water Supply Programme, rendering technical guidance under minor irrigation programme by locating suitable dug well sites, strengthening of groundwater sources by water conservation measures, artificial recharge projects for induced groundwater, specific studies related to the periodic status of groundwater availability, protecting the existing groundwater resources through technical assistance under Groundwater Act etc. |
| **6** | Adopting good irrigation practices | Agriculture Department, GoM & Water Resource Department, GoM is requested for implementation. |
| **7** | Protection and management of Flood Plain Zones (FPZ) | Water Resource Department, GoM is requested for implementation. |
| **8** | Plantation on both sides of the river | Water Resource Department, GoM is requested for implementation. |
| **9** | Setting up of biodiversity parks on flood plains by removing encroachment | Water Resource Department, GoM is requested for implementation. |

## 1.4 Drain out-falling into River Chandrabhaga

There is one drain that meets Chandrabhaga River carrying untreated sewage. Following table provides the detail of the drain.

**Table 5 Particulars of drains falling into the river**

| Sr. No. | Location | Name of the drain | Discharge (min/max) | Length (km) | Width (m) | Depth (m) |
|---|---|---|---|---|---|---|
| 1 | Pandharpur | Gopalpur Nalla | @ 5 MLD | 3.0 | 5.0 | 1.0 |

**Table 6 Status of water quality of the drains**

| Sr. No. | Major Drain | BOD (mg/l) | COD (mg/l) |
|---|---|---|---|
| 1 | Gopalpur Nalla | 50.0 | 148.0 |

## 1.5 Status of Water Quality

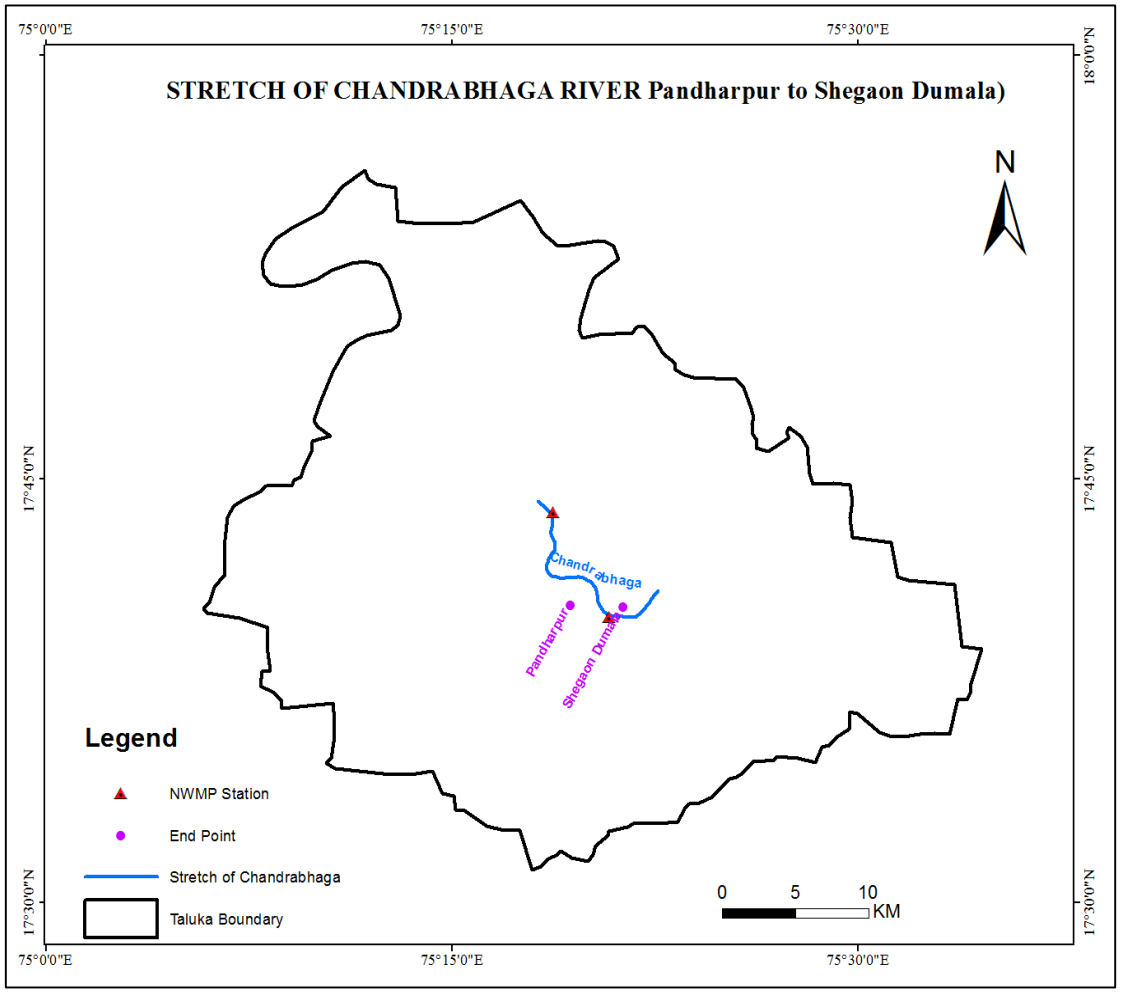


**Figure 3 Map Showing NWMP Station across stretch of Chandrabhaga River**

Water quality of River Chandrabhaga is assessed at two locations. It is observed that Dissolved Oxygen range between 4 to 7 mg/1 putting together data of two years (2023-2024) which is not meeting the criteria limit of at least 4 mg/l. The Bio-chemical Oxygen Demand (BOD) varies between 2.4 to 12.2 mg/1 for similar years which is exceeding the desired level of 3 mg/1. The Faecal Coliform numbers respectively for the years referred are in the range of 10-350 MPN/100ml indicating significant contribution of untreated sewage. The details of parameter specific concentration are provided in the table below:

**Table 7 Water Quality of Chandrabhaga River at U/s of Pandharpur town, Village-Gursale, Taluka- Pandharpur, District- Solapur**

| Month | Year | pH | DO (mg/L) Shall be more than 4 mg/l | BOD (mg/L) Shall be 3 or less than 3 mg/l | FC MPN /100ml Shall be less than 500 MPN/100ml | TC MPN /100ml | Water Quality |
|---|---|---|---|---|---|---|---|
| January | 2023 | 8.3 | 5.3 | 6.9 | 10 | 250 | Non Complying |
| | 2024 | 8.2 | 5.1 | 5.0 | 11 | 175 | Non Complying |
| February | 2023 | 8.4 | 4.8 | 8.3 | 11 | 250 | Non Complying |
| | 2024 | 8.3 | 5.5 | 4.6 | 70 | 550 | Non Complying |
| March | 2023 | 8.2 | 5.3 | 4.6 | 12 | 110 | Non Complying |
| | 2024 | 8.2 | 5.2 | 3.6 | 150 | 920 | Non Complying |
| April | 2023 | 8.1 | 5.8 | 3 | 14 | 200 | Complying |
| | 2024 | 8.3 | 6.1 | 2.4 | 70 | 550 | Complying |
| May | 2023 | Dry river | Dry river | Dry river | Dry river | Dry river | Non Complying |
| | 2024 | Dry river | Dry river | Dry river | Dry river | Dry river | Non Complying |
| June | 2023 | 7.7 | 6.2 | 3.6 | 25 | 350 | Non Complying |
| | 2024 | 8.3 | 6.8 | 3.1 | 14 | 425 | Non Complying |
| July | 2023 | 8.2 | 5.4 | 4.6 | 9 | 230 | Non Complying |
| | 2024 | 8.3 | 5.4 | 10.7 | 240 | 1600 | Non Complying |
| August | 2023 | 8.2 | 6.2 | 3.0 | 14 | 250 | Complying |
| | 2024 | 8.1 | 6.1 | 7.8 | 40 | 540 | Non Complying |
| September | 2023 | Dry river | Dry river | Dry river | Dry river | Dry river | Dry river |
| | 2024 | 8.2 | 7 | 3.8 | 46 | 430 | Non Complying |
| October | 2023 | 8.3 | 5.5 | 4.2 | 45 | 350 | Non Complying |
| | 2024 | 8.5 | 6 | 9.0 | 2.0 | 300 | Non Complying |
| November | 2023 | 8.1 | 5.4 | 4.8 | 35 | 550 | Non Complying |
| | 2024 | 8.9 | 5.2 | 8.6 | 22 | 220 | Non Complying |
| December | 2023 | 7.9 | 4.7 | 6.6 | 12 | 195 | Non Complying |
| | 2024 | 8.9 | 6.4 | 5.67 | 33 | 540 | Non Complying |

**Table 8 Water Quality of Chandrabhaga River at D/s of Pandharpur town rear Vishnupant Mandir, Village- Gopalpur, Taluka- Pandharpur, District- Solapur**

| Month | Year | pH | DO (mg/L) Shall be more than 4 mg/l | BOD (mg/L) Shall be 3 or less than 3 mg/l | FC MPN /100ml Shall be less than 500 MPN/100ml | TC MPN /100ml | Water Quality |
|---|---|---|---|---|---|---|---|
| January | 2023 | 8.3 | 5.3 | 6.2 | 10 | 350 | Non Complying |
| | 2024 | 8.2 | 4.7 | 9.5 | 20 | 275 | Non Complying |
| February | 2023 | 8.3 | 4.5 | 8.9 | 12 | 350 | Non Complying |
| | 2024 | 8.0 | 5.0 | 6.2 | 170 | 1600 | Non Complying |
| March | 2023 | 8.0 | 5.3 | 6.2 | 14 | 140 | Non Complying |
| | 2024 | Dry River | Dry River | Dry River | Dry River | Dry River | Dry River |
| April | 2023 | 8.4 | 5.8 | 4.2 | 15 | 225 | Non Complying |
| | 2024 | 8.0 | 4.8 | 4.4 | 170 | 1600 | Non Complying |
| May | 2023 | 8.4 | 5.1 | 7.0 | 35 | 425 | Non Complying |
| | 2024 | Dry River | Dry river | Dry rive | Dry rive | Dry river | Dry River |
| June | 2023 | Dry River | Dry River | Dry River | Dry River | Dry River | Dry River |
| | 2024 | 8.1 | 5.4 | 4.6 | 225 | 1600 | Non Complying |
| July | 2023 | 8.2 | 5.5 | 4.8 | 11 | 250 | Non Complying |
| | 2024 | Dry River | Dry River | Dry River | Dry River | Dry River | Dry River |
| August | 2023 | 7.9 | 5.3 | 7.0 | 17 | 275 | Non Complying |
| | 2024 | 8.1 | 6.1 | 2.4 | 92 | 920 | Non Complying |
| September | 2023 | Dry River | Dry River | Dry River | Dry River | Dry River | Dry River |
| | 2024 | 8.3 | 5.6 | 5.2 | 48 | 540 | Non Complying |
| October | 2023 | 8.2 | 5.4 | 5.6 | 175 | 550 | Non Complying |
| | 2024 | 8.6 | 5.5 | 5.4 | 70 | 900 | Non Complying |
| November | 2023 | 7.8 | 5.2 | 5.4 | 45 | 900 | Non Complying |
| | 2024 | 8.5 | 6.0 | 2.6 | 210 | 1600 | Non Complying |
| December | 2023 | 7.8 | 4.6 | 9.0 | 70 | 550 | Non Complying |
| | 2024 | Dry River | Dry River | Dry River | Dry River | Dry River | Dry River |

It is observed from the above analysis that most maximum BOD values recorded during the year 2023 & 2024 do not comply with the bathing standards of 3mg/l. This may be due to non-availability of the dilution water at disposal location in the river bed. The necessary dilution will be achieved by way of discharging necessary water quantum required to maintain e-flow from dam in a periodical manner. The usual water cycle of the release of water is mostly for irrigation and domestic purposes from interval of 21 days to 45days. The continuous e-flow will be achieved subject to availability of the water in the dam.

## 1.6 Status of Ground Water Quality

Maharashtra Pollution Control Board (MPCB) regularly monitors the water quality across 250 Water Quality Monitoring Stations (WQMS) for both surface (155 on rivers, 34 on sea/creeks, 10 on drains, 1 dam) and ground water (24 Borewells, 24 Dugwells, 1 Handpumps, 1 Tubewell) under two programs of NWMP (National Water Monitoring Programme) project titled GEMS (Global Environment Monitoring System) and MINARS (Monitoring of Indian National Aquatic Resources). Surface water samples are monitored every month whereas the ground water samples are monitored every six months.

### WQI for ground water

MPCB monitors ground water quality once in six months. Based on the stringency of the parameters and its relative importance in the overall quality of water for drinking purposes each parameter has been assigned specific weightage by CPCB. These weights indicate the relative harmfulness when present in water. Nine parameters (pH, Total Hardness, Calcium Hardness, Magnesium Hardness, Chloride, Total Dissolved Solids, Fluoride, Nitrate, Sulphate) are considered for calculating Water Quality Index of ground water.

| Water Quality Index - Ground Water | | |
|---|---|---|
| **WQI** | **Water Quality** | **Colour Code** |
| <50 | Excellent | |
| 50-100 | Good Water | |
| 100-200 | Poor Water | |
| 200-300 | Very Poor Water | |
| >300 | Water Unsuitable for drinking | |

**Table 13 Water Quality Index for one location (ground water)**

| Locations | Year | Parameters | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | pH | | B.O.D. (mg/l) | | C.O.D. (mg/l) | | Fecal Coliform (MPN/100 ml) | | WQI | Remark |
| | | Min | Max | Min | Max | Min | Max | Min | Max | | |
| **Bore Well at Bale** | 2024 | 7.4 | 8 | 2 | 6.4 | 8 | 20 | 14 | 35 | 455.92 | Water Unsuitable for drinking |

## 1.7 Status of Industrial Effluent Generation and Treatment

Maharashtra is one of the most highly industrialized states in India. With a rise in industrial estates in the State, areas like Mumbai, Thane, Navi Mumbai, Kalyan, Nashik, Pune and Pimpri-Chinchwad that have a large number of pollution-prone industries are facing chronic industrial pollution. In order to maintain a safe distance between industrial units and rivers to avoid discharge of effluent into water bodies, the State has its policy which also states that no industry will be allowed to establish along a river bank. Industries are being encouraged to recycle and reuse waste.

**Table 11 Particulars of Industries situated in Solapur District**

| Sr No | Particulars | Remarks |
|---|---|---|
| 1 | Particulars of Industries in Pandharpur | No major polluting industry is located in the catchment area. There is no discharge of effluent into the river from the industries.<br>Total no. of industries in red category: 582<br>Total no. of industries in orange category: 358 |
| 2 | No. of Directions issued to Industries | Show Cause Notice-35<br>Proposed Direction- 61<br>Interim Direction-18<br>Closure direction-13 |
| 3 | Total water consumption and total industrial effluent generation | Total Water consumption- 21000 CMD<br>Total Industrial Effluent generation- 14090 CMD |
| 4 | No. of industries having captive ETPs and their treatment capacity in MLD | No. of industries having captive ETPs – 582<br>Treatment capacity in MLD – 15000 MLD |
| 5 | No. of CETPs existing in the catchment of the polluted river stretch and the treatment capacity | Nil |
| 6 | No. of Industries that are members of the CETPs | Nil |
| 7 | Gaps in treatment of industrial effluent | Nil |
| 8 | OCEMS installation Status by Industries | 50 |
| | | Solapur:<br>Hazardous waste generation during the year 2017- |

| | | |
|---|---|---|
| 9 | Status of Hazardous Waste Generation and Treatment | 18: 7227.12 MT<br>Quantity of HW recycled: 13.31 MT<br>Quantity of HW disposed in secured landfill: 1146.18 MT<br>Quantity of HW disposed through incinerator: 6039.32 MT |

There are no industries in the catchment area of polluted stretch.

To monitor compliance of Consent conditions, performance of ETP, ECS and other measures, the Board officials inspect industries regularly.

## 1.8 Waste Management

### 1.8.1 Solid Waste Management

Total generation of MSW from Pandharpur is about 42 MT/day. 36 MT/day of all generated MSW is treated by composting and biomethanation.

### 1.8.2 Bio-medical waste Management

Total Bio-medical waste generation in Solapur district is 1625 kg/day, all waste is collected, transported and treated at CBMWTSDF located at Bhogaon, Tal, Dist Solapur. . The CBMWTSDF has installed capacity of Incinerator 100 Kg/Hr and Autoclave with installed capacity of 50 litre/cycle.

### 1.8.3 E-Waste management

- E waste is handled and disposed as per E waste management rules 2022 and amended thereon.

Action Taken by MPCB

- MPCB is undertaking regular monitoring of EPR Authorization conditions and regular inspection of the collection points/ centers mentioned in EPR Plan.
- MPCB has issued Directions u/s 5 of the Environment (Protection) Act, 1986 read with E-waste (Management) Rules, 2016 to all Municipal Corporations in Maharashtra for provision of collection centres.
- Co-ordination with Various State Government Departments
- Co-ordination with Urban Local Bodies (Municipal Committee /Council /Corporation).
- Awareness through Public Notice

**Constraints:**

- Channelization E-waste from informal sector to formal sector.
- Awareness about impact of E-waste on Environment and Rules of E-waste is required.
- Authorized collections and Segregation centers are required to be established by Local Bodies.

### 1.8.4 Hazardous Waste Management

The state of Maharashtra has four Common Hazardous Waste Treatment, Storage and Disposal Facilities. These facilities are located at MIDC Taloja, Trans-Thane Creek Industrial Area, MIDC Ranjangaon, Pune and MIDC Butibori, Nagpur. These facilities collectively handle 340,847 MT of Hazardous waste per annum.

There are 161 Hazardous waste generating industries in Solapur district. These industries generated about 7000 MT of Hazardous waste in last year. The HW from Solapur district is scientifically disposed through CHWTSDF at Maharashtra Enviro Power Ltd., MIDC, Ranjangaon, Dist. Pune having capacity – Landfill –60,000 MT/A and Incinerable – 3 TPH.

**Table 13 Status of Waste Management in Pandharpur**

| Sr. No | Particular | Remarks |
|---|---|---|
| 1 | Total MSW Generation | Total generation of MSW – 42 MT/day. |
| 2 | Existing MSW treatment and disposal facilities | 36 MT/day MSW treated by composting and biomethanation. |
| 3 | Bio-medical waste Management | Total generation: 1625 kg/day<br>Total collection: 1625 kg/day<br>Total treatment: 1260 kg/day |
| 4 | E-Waste management | E-waste generated by industries is sent to MPCB authorized E-waste reprocessor. |
| 5 | Hazardous Waste Management | • There are 161 Hazardous waste generating industries in Pandharpur. These industries generated about 7000 MT of Hazardous waste in last one year.<br>• The HW from Pandharpur district is scientifically disposed through CHWTSDF - Maharashtra Enviro Power Ltd., MIDC Ranjangaon, Dist. Pune<br>• CHWTSDF capacity – Landfill – 60,000 MT/A Incineration – 3 TPH |

## 1.9 Dream Project of Government of Maharashtra (GOM), Namami Chandrabhaga

GOM, has announced Namami Chandrabhaga Abhiyan on 18/03/2016 in the Budgetary Assembly Session of 2016-17. Namami Chandrabhaga is an initiative taken to revive and rejuvenate the river Chandrabhaga and to restore its historic glory. Considering the religious, social and economic importance of the river Chandrabhaga, the Government of Maharashtra has decided to prepare a comprehensive plan for cleaning of the river on the lines of 'Namami Gange'. Hon'ble Finance Minister, GOM, directed to issue the GR about finalization of working System of the Abhiyan, vide letter dt. 07/04/2016. The aim of the Namami Chandrabhaga Abhiyan is to make the Chandrabhaga river pollution free and conserve its purity and sanctity and others are as mentioned below:

- To maintain the permanent minimum continuous flow of water in the river bed.
- To construct weirs in the river bed for maintaining water level.
- To maintain & keep minimum environmental flow of water.
- To make available sufficient public bathrooms & toilets as well as mobile bio-toilets to the publics during Pandharpur yatras.
- To install STP's for treatment of domestic wastes and scientific disposal facilities for solid waste generated from the villages & cities located on the bank of Chandrabhaga river.
- To carry out the beautification & forestation of river banks.
- To make reuse/recycle of treated industrial water generated from the industries and industrial estates located in the catchment area of Chandrabhaga river.
- As per the local need to work for public participation and development of pilgrimage area.

**"Namami Chandrabhaga Pradhikaran"**

Established under the Chairmanship of Hon'ble Chief Minister, GoM & Co-Chairmanship of Hon'ble Finance Minister, GoM, having Divisional Commissioner, Pune as Member Secretary.

**"High Power Committee"**

Established under the Chairmanship of Hon'ble Chief Secretary, GoM of Maharashtra having Divisional Commissioner, Pune as Member Secretary.

In this context, the Government has identified CSIR National Environmental Engineering Research Institute (CSIR-NEERI) as 'Nodal Technical Expert Agency' the project. Bhima river originates in Bhimashankar in Pune district. But when it reaches Pandharpur, it appears like a crescent moon, thus deriving the name Chandrabhaga. It flows in a 370-km stretch between Pune and Pandharpur districts. CSIR-NEERI was already involved by the Maharashtra Government to provide technological solutions for sanitation and sewage treatment at important cities and pilgrim centers like Nashik and Pandharpur. Furthermore, is retained CSIR-NEERI for technological interventions during the execution of the Project 'Namami Chandrabhaga'. The Maharashtra Government intends to cleanse and make the holy river Chandrabhaga pollution free.

Similarly, on the line of Namami Chandrabhaga Maharashtra Government is in process of undertaking various projects for clean-up of other rivers in the State.

## 1.10 Involvement of Civil Society/Creation of awareness

For sustainable development it is necessary to promote and create environmental awareness among communities, businesses and governments. Therefore the Board organizes various environmental awareness programs across the State of Maharashtra. During the year 2024 the following program on environmental awareness was conducted by the Board.

| Month | Subject | Details |
|---|---|---|
| July - Aug 2024 | 'Paryavaranachi Vaari Pandharichya Daari' | An environmental public awareness campaign namely 'Paryavaranachi Vaari Pandharichya Daari' was organized on the occasion of Aashadhi Ekadashi and the foot pilgrimage to Pandharpur. As environmental issues are equally detrimental to urban and rural areas, fundamental messages such as plastic waste removal, proper use of water, electricity and natural resources, use of limited electrical power for agriculture, use of organic fertilizers, proper waste management of wet waste and dry waste were spread among the 15 lakh devotees who had gathered for the Pandharpur pilgrimage. These messages were |

## 1.11 Greenery Development Plan of Forest Department, Government of Maharashtra

In an attempt to boost conservation and protection of forests and wild life in Maharashtra, the State Forest Department has launched a drive aimed at roping in citizens to help the department in their massive 50Crore trees plantation drive. A dedicated website greenarmy.mahaforest.gov.in has been developed for registration of individuals and organizations as member of Green Army. Up-till now around 60 lakh members have been registered and hope to cross the 1Crore membership in near Future.

For maintaining the transparency, accountability and credibility, all the data relating to site selection for plantation with Geo-Tagging, development of Nurseries, digging of pits, availability of manpower, actual plantation and survival of the trees planted etc. is uploaded on the Digital Platform of Forest Department so that people can access the· data at any given point of time. This has helped to build confidence amongst the people and their ever increasing participation in the plantation programme.
For the registration of plantation by the individuals, private NGOs and other stakeholders of society the mobile application called "My Plants" has been developed. Similarly, the programs like "Saplings at the Door Step", "Digital visibility on social media", "publicity campaign" are being implemented for greater public participation.

The Forest Department is trying its level its level best to increase the Forest and Tree cover in the State by various innovative ideas by involvement of people in the plantation & its protection especially on Non-Forest areas as forest area is limited. Massive tree plantation program in urban & rural areas under the scheme "Nurturing Trees is Worshiping Nature" has been launched by the Govt. in line with Ranmala Village in Khed Taluka of Pune District.

The Tree based Agriculture under Mahatma Gandhi National rural Employment Guarantee Scheme (MG-NREGS) Kanya Van Samruddhi Yojana, Bhausaheb Phundkar Horticulture Plantation Programme in co-ordination with Agriculture Department, Sericulture Plantation in coordination with Textile Department, Riverside Plantation are some of scheme initiated for increasing green cover in the Non- Forest areas.

- Status report on Forest. As far as Maharashtra is concerned the findings are as follows:
- Tree cover on non-forest area has increased by 273Km.sq – Maharashtra is a leading state
- Mangrove cover has increased by 82Km.sq - Maharashtra is a leading state
- Water bodies in forest areas has gone up by 432 km.sq – Maharashtra is having higher rank
- Increase in the bamboo plantation area by 4462 km.sq – Eventually Maharashtra is placed highest in the country

## 1.12 Budget Estimates & Pooling of Resources from Local Bodies, State Pollution Control Board, State Government & Central Government

 The work sanctioned under the Namami Chandrabhaga Scheme, Solapur District has received administrative approval from State Govt for an amount of Rs. 7,44,11,525/- and the Pandharpur Municipal Council has received a fund of Rs. 2,21,00,223/-

## 1.13 Plan for Restoration of Water Quality

**Table 14 Time bound action plan to improve water quality for Chandrabhaga River**

| Sr. No. | Target/Action Plan Expected | Agency / Organization | Duration |
|---|---|---|---|
| 1 | Provide STP for treatment of sewage generation to avoid contamination of River water | Pandharpur Municipal Council Akluj NP | 2 Years |
| 2 | Provide effective operation, collection & treatment of MSW facility in the Pandharpur Town located on the bank of river to avoid contamination of river water | Pandharpur Municipal Council | 1.5 Years |
| 3 | To stop bathing in river water & open defecation at bank of river. proper disposal of human excreta and sewage | Local Body & Police Department. | 6 Month |
| 4 | To prevent growth of Algae/Eicchornia in river bed by installation of floating rafters and screen bars | Local Body | Continuous |
| 5 | In-Situ Nallah Clean-up treatment to stop untreated sewage entering into the river | Pandharpur Municipal Council | 6 Months |
| 6 | For biomedical solid waste, prepare a plan for collection, treatment & disposal. | Pandharpur Municipal Council | 6 Month |
| 7 | Organize awareness programs about promotion of organic farming on the River bank of villages. | Pandharpur MC & ULBs | 6 month |
| 8 | Provision of Toilets/ Biotoilet and Bathrooms at Pilgrims Place | Tourism Department/ULBs | 1 Year |

## 1.14 Proposed plans for maintaining e-flow

River flows only in Monsoon season & whenever dam water is released. The amount water released from dam is such that, will not over flow from next weir at the downstream.

Recommendations

1. Domestic sewage: All domestic sewage should be properly treated and its entry into river water should be prevented. The treatment can be carried out as follows:
    a. For small villages (population less than 1000) – root zone technology, Phytoremediation techniques can be used.
    b. For small villages or municipal councils (Population 1000 to 10000) – underground drainage system (100%) can be developed.
    c. For towns and cities (Population more than 10000) – underground drainage system (100%) can be developed.
    d. Nature based treatment System (In Situ) shall be provided.

2. Agricultural runoff
    a. Care should be taken to restrict the entry of banned chemical pesticides on the market.
    b. Agriculture department should take necessary actions to control the use of chemicals in the fields.
    c. Awareness should be created among the farmers on the use of chemicals in the fields.
3. Religious and other activities causing pollution
    a. All Local self-Government Bodies build special kunda for the idol immersion or come up with other feasible alternatives for this purpose..
    b. It is essential to create awareness, build special kunda for the idol immersion or come up with other feasible alternatives for this purpose.
    c. Separate Raksha kund needs to be built for cremation ash disposal. Moreover electric cremation units are needed to be installed in clusters, cities and people should be made aware of its use.
4. Municipal solid waste should be segregated at the time of collection and needs to be properly treated and disposed of. Segregation depending on its type for e.g. Waste processing centers should be established separately for industries, industrial areas and hazardous wastes.
5. Treated water should be reused and online monitoring for water quality standards should be done.
6. Provision of toilets/biotoilets facility during religious yatra.
7. The concerned governmental agencies should maintain minimum water flows in the river. The design of KT Weirs should be modified to facilitate environmental flows.
8. Access to the river channel for social/cultural/religious functions and recreation should be allowed in a manner that it avoids construction of paved (pucca) paths and does not cause any kind of pollution.
9. Prohibition on untreated Municipal solid waste dumped into the river and discharge of agricultural waste.
10. Widely occurring unscientific sand excavation is altering the river bed and having impact on river ecosystem. This should be banned permanently.
11. Encroachments, depositions, reclamation, constructions or any kind of development should be strictly prohibited on the banks or in the beds of streams, nallas and rivers up to minimum of 9 m distance from high flood line.
12. River banks are facing problem of outflanking at many places. Plantation on the banks of rivers should be strictly carried out to avoid such incidences, to maintain the river course, controlling erosion, reducing sediment load of the main channel, reduce pollution, and beautification.
13. Installation of online monitoring system for water quality & GIS platform for creating & maintaining database.
14. Awareness campaign for farmers should be made by agricultural Universities or Agricultural Department / NGOs. Awareness amongst the rural and urban residents regarding river pollution.

**Table 15 Timelines for Implementation of Restoration Plan**

| Activities/Year | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|
| Reconnaissance Survey | | | | | |
| Water Quality Sampling | | | | | |
| Preparation of Action Plan | | | | | |
| Propose and Execution (Setting up of STPs & MSWM system) | | | | | |
| Augmentation of River Flow if any and restoration of water quality | | | | | |