झारखण्ड
JSPCB

JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004
Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/240013

Ref. No...B.-364 Ranchi, Dated.....08/7/2021

From ,

Dinesh Prasad Singh,
Environment Engineer

To,

The Member Secretary,
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar,
New Delhi - 110032

Sub:- Regarding, submission of Monthly Progress Report (MPR) of June 2021

Sir,

With regard to the subject stated above, the monthly progress report (MPR) of June 2021 for the State of Jharkhand has been prepared and enclosed, herewith for your kind reference and further action.

Thanking You

Yours sincerely

8/7/2021

(Dinesh Prasad Singh)
Environment Engineer

National Mission for Clean Ganga
Format for submission of Monthly Progress Report in the NGT Matter OA No. 673 of 2018 (in compliance to NGT order dated 24.09.2020)

For the State of Jharkhand (June-2021)

Overall status of the State:

I. Total Population: **Urban Population 58,42,555 & Rural Population: 25055073 separately (as per 2011 Census)**

II. Estimated Sewage Generation (MLD): **452 MLD (Tapped Drinking Water 24 x7 not available in all 50 ULBs for entire population. So only 90 Ltr. Per Capita Per Day (LPCD) water and 80% is turned into waste water.**

III. **Details of Sewage Treatment Plant:**

- Existing no. of STPs and Treatment Capacity (in MLD): **10 nos. & 22 MLD (Ranchi and Sahibganj)**
- Capacity Utilization of existing STPs: **83%**
- MLD of sewage being treated through Alternate technology: **10 MLD (including 22 MLD as mentioned above)**
  (* Additional 100 MLD DPR preparation work awarded to CSIR-NEERI)
- Gap in Treatment Capacity in MLD: **430 MLD**
- No. of Operational STPs: **10**
- No. of Complying STPs: **10**
- No. of Non-complying STPs: **Nil (OCEMS to be installed as per the direction of Hon'ble NGT)**

Details of each existing STP in the State

No.	Location	Existing STP Capacity	Capacity Being Utilized	Operational Status of STP	Compliance Status of STP
1	Ranchi Municipal Corporation	10 MLD	100%	Yes	Yes
2	Sahibganj Nagar Parishad	12 MLD	66%	Yes	Yes

Details of under construction STPs in the State

No.	Location	Capacity of the plant in MLD	Physical Progress in %	Status of I&D or House sewer connections	Completion Timeline
1	Adityapur MC	36 MLD	72%	-	December 2021
2	Rajmahal NP	3.5 MLD	92%	• Construction of I&D structures completed. • 600 Nos. of House Service connection have been completed till date.	August 2021
3	Ranchi MC	37 MLD	42%	-	-
4	Ranchi Smart City Mission	16 MLD	70%	-	December 2021
5	Phusro	15 MLD	-	-	Tender Process ongoing; i) NIT published on website on 19.03.21, ii) Total 10 Bids have been received and are under evaluation.

Details of proposed STPs in the State

No.	Location	Capacity of the STP proposed in MLD	Status of Project (at DPR Stage/ Under Tendering/ Work to be Awarded)	Likely Date of Completion
1	Dhanbad	144 MLD	DPR prepared and sent to NMCG for approval under Namami Gange Scheme by Urban Development & Housing Dept. At present DPR sent by NMCG to IIT Roorkee.	
2	Ramgarh	40 MLD	Draft DPR of I & D Scheme sent to NMCG for approval under Namami Gange Scheme on 15.08.2020 by Urban Development & Housing Dept.	
3	Mango	43 MLD	DPR under preparation by Urban Development & Housing Dept. and DPR will be finalized after finalization of funding agency.	

IV. **Details of Industrial Pollution and concerning to seven polluted river stretches:**

- No. of water polluting industries in the State: **190**
- Quantity of effluent generated from the industries in MLD**: Under Evaluation**
- Quantity of Hazardous Sludge generated from the Industries in TPD: **Under Evaluation**
- Number of industrial units having ETPs:**187 (03 nos. of units self closed)**
- **Primary treatment of effluent is being done by 30 units which is sent to final treatment in CETP, Gamharia, Saraikela Kharsawn**
- Number and total capacity of ETPs (details of existing/ under construction / proposed)
- Compliance status of the ETPs: **Out of 187 industries action has been taken against 3 industries.**
- Number and total capacity of CETPs (details of existing/ under construction / proposed)
    1. ***Adityapur Auto Cluster, Gamharia – 2.2 MLD (In operation)***
    2. ***Silk Park Irba Area – 0.5 MLD (Construction Completed)***

3. ***Tupudana Industrial Cluster- 3.5 MLD(Under Construction)***

- Status of compliance and operation of the CETPs: Complied

Town	No. of industries	Industrial discharge	Status of ETPs	Status of CETPs (existing, under construction &proposed)
Dhandad Region	**42**		**41**	
Jamshedpur Region	**67**		**67**	1. ***Adityapur Auto Cluser – 2.2 MLD (In Operation)***
Ranchi Region	**37**		**35**	1. ***Silk Park Irba Area – 0.5 MLD (Construction completed)*** 2. ***Tupudana Industrial Cluster- 3.5 MLD (Under Construction)***
Hazaribagh Region	**44**		**44**	
Total	**190**		**187**	

V. **<u>Solid Waste Management:</u>**

- Total number of Urban Local Bodies- **50** and their Population-58,42,555 **(as per Census 2011)**
- Current Municipal Solid Waste Generation- **2228 MTPD**
- <u>Number, Installed Capacity and utilization of Existing Municipal Solid Waste (MSW) facilities;</u>

S. No.	Type of processing	No. of facility/ULB	Installed Capacity	Utilization Capacity	Gap (%)
1	Waste to Energy (Tonnage-Power Output)	01 ULB Decentralized	0.5 MTPD	100%	Nil

S. No.	Type of processing	No. of facility/ULB	Installed Capacity	Utilization Capacity	Gap (%)
2	Compost Plants	42 ULBs (Windrow, Vermi, Decentralized pit composting)	130 MTPD (Windrow) 670 MTPD (Vermi)	100%	Nil
3	Bio-methanation	Setup-03 ULBs. Operational-01 ULB. Under Installation/ Planned-04 ULBs.	20.5 MTPD 13 MTPD 314.5 MTPD	100%	Nil
4	Material Recovery Facility (MRF)	42 ULBs	1148.50 MTPD	100%	Nil

- Action plan to bridge gap between Installed Capacity and Current Utilization of processing facilities (if Gap > 20%): **NA**
- No. and capacity of C&D waste processing plants in TPD (existing, proposed and under construction): **2 nos. - Proposed at Ranchi (No Bid received, RFP is under revision for Re-Tender) & Dhanbad**
- Total no. of wards- **932**, no. of wards having door to door collection service- **883**, no. of wards practicing segregation at source- **798**
- Details of MSW treatment facilities;

Existing MSW processing facilities in MTPD

Number	Capacity	Technology
1	50	Bio methanation & Windrow

Under construction MSW processing facilities in MTPD

Number	Capacity	Technology
10	172.5	Windrow & Biotechnology

Proposed MSW processing facilities in MTPD

Number	Capacity	Technology
25	1000.35	Windrow & Biotechnology

- No. and area (in acres) of uncontrolled garbage dumpsites-**41** and Sanitary Landfills is under construction-**01**.
- No. and area (in acres) of legacy waste within 1km buffer of both side of the rivers. - **Nil**
- No. of drains falling into rivers and no. of drains having floating racks/screens installed to prevent solid waste from falling into the rivers: **47** no of drains in **8 ULBs** identified in O.A.673/2018. **(Annexure 3)**

Status of ULB wise Management of Solid Waste

ULB	Total MSW generation in MTPD	Total MSW being processed in MTPD	Existing MSW facilities	Utilization Capacity of the existing MSW facilities	Total Proposed MSW Facilities & Completion Timeline
42	1846	1181	1	50 TPD	36 Nos, March 2024

VI. **Bio-medical Waste Management: (Domestic):**

- Total Bio-medical generation: **7256.957 Kg/day**
- No. of Hospitals and Health Care Facilities:
  a. **Bedded: 1846**
  b. **Non- Bedded: 1163**
- **Status of Treatment Facility/ Common Bio-Medical Waste Treatment Facility (CBMWTF): Four CTF at Lohardaga, Ramgarh, Dhanbad & Adityapur is functioning.**
- **Total Quantity of Bio-Medical Waste generated: 7256.957 Kg/day**
- **Captive Treatment Capacity: 5819.457 TPD**
- **CBWTF Treatment Capacity: 1852 TPD**
- **Action taken against: 323 Health Care Facilities (HCFs)**

VII. **Hazardous Waste Management: (Domestic):**

- Total Hazardous Waste generation: **409279.2331 MT/Yr.**
- No. of Industries generating Hazardous waste: **566**
- Treatment Capacity of all TSDFs:
    1. ***M/s Adityapur Waste Management Pvt. Ltd. located in Saraikela Kharsawan district 17400 TPA (Land Fill) and capacity of 500 kg/hr (Incineration)***
    2. ***ACC Cement, Chaibasa for Co-processing – 33250 MT/month (Incineration)***
- Avg. Quantity of Hazardous waste reaching the Treatment Storage Disposal Facilities (TSDFs) and Treated:
    1. ***M/s Adityapur Waste Management Pvt. Ltd., - 7389.592MT (Land Fill) and capacity of 213.677 MT (Incineration)***
- Details of on-going or proposed TSDF: Nil

VIII. **Plastic Waste Management:**

- Total Plastic Waste generation: **43332 TPA**
- Treatment/ Measures adopted for reduction or management of plastic waste: **violations were registered, plastic carry bags were seized from traders and fine has been imposed on them; In Chas & Jamshedpur Road construction has been done by using plastic waste and reused by M/s ACC Limited Chaibasa Cement Works (registered with JSPCB) having facility of Co-processing plastic wastes.**

IX. Details of Alternate Treatment Technology being adopted by the State/UT: **Approximately 120 MLD.**

Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment: **Approximately 120 MLD.**

X. Details of Nodal Officer appointed by Chief Secretary in the State/UT: **Urban Development & Housing Dept.**

XI. Details of meetings carried under the Chairmanship Chief of Secretary in the State/UT: **The following review meeting held on 21.10.2020, 24.06.2020, 12.07.2019 under the Chairmanship of the Chief Secretary, Govt. of Jharkhand.**

XII. Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river: **Annexure 4**

XIII. Ground water regulation: **Drinking water & Sanitation Dept. have identified the contaminated hand pumps and sealed those hand pumps whose water is not fit for drinking. The contamination of the ground water is caused mainly due to the presence of Arsenic (Sahebganj, Rajmahal and Udhwa) and Fluoride (Ranchi, Gumla, Garwha, Khunti, Plamu, Dhanbad, Bokaro etc.) in excess in few of the regions of Jhakhand.**

Portable water is supplied to the Communities in the identified critical blocks through water tanker owned by local bodies and log book is maintained.
Periodic assessment of 24 districts and 260 blocks of Jharkhand for ground water resources was conducted by Jharkhand in 2009, 2011, 2013 & 2017 which also covers the area related to 7 polluted stretches and based on which a comparative statement of dynamic ground water resource. As per report of CGWA, Dhanbad and Bermo are among the overexploited blocks, Patratu, Silli and Bermo are among semi critical blocks along the seven polluted river stretches.
Groundwater quality monitoring shall be carried out at least twice in the year (winter: December-January and summer: May- June) at strategic locations to ascertain quality of groundwater.

XIV. Good irrigation practices being adopted by the State:

- **Promoting micro irrigation (drip & mini-irrigation) system to save the quantity of water used during agriculture and for promoting micro irrigation (drip & mini-irrigation) system- 90% subsidy is given to Small and Micro Level Farmers whereas 80% subsidy to other farmers.**
- **15004 nos. of the Farmers have obtained the benefit and total Area which is under Drip & Micro Irrigation- 6000 hect.**

XV. Rain Water Harvesting:

- Policy made by the department of UD&HD Jharkhand has been attached with the report as **Annexure1**.
- ***RWH structure installation of 71065 nos. in 40 ULBS***

- **54 nos. of RWH/ground water recharging structure have been constructed at Dhanbad by CGWB and 75 nos. of RGH structures have been constructed by the State Ground Water Directorate, Jharkhand.**
- **214 nos. of water bodies have been identified and sanctioned a fund of Rs. 185.08Cr. by the Water Resource & Irrigation Department for is restoration, which is under progress**
- **The Water Resource Department is preparing a DPR regarding Geophysical survey for Ground Water Recharging/ Rain Water Harvesting along the seven polluted river stretches which is under progress.**

XVI. Demarcation of Floodplain and removal of illegal encroachments & Maintaining minimum e-flow of river:

- **Periodic drives carried out by Local Administration to remove encroachments**
- **Training Programs have been conducted on "No burning of any kind of waste" for sanitary labors to create awareness on ill-effects of waste burning on environment and human health.**

XVII. Plantation activities along the rivers: ***Total – 124.69 Kms.***
(Jumar – 20 Kms, Swarnrekha – 65 Kms, Damodar- 20.69 Kms, Konar – 6 Kms, Sankh -8 Kms and Garga - 5 Kms)

XVIII. Development of biodiversity park:

XIX. Reuse of Treated Water: Policy made by the department has been attached with the report as **Annexure 2**.

XX. Model River being adopted by the State & Action Proposed for achieving the bathing quality standards: **River Swarnrekha**

XXI. Status of Preparation of Action Plan by the 13 Coastal States: **NA**

XXII. Regulation of Mining Activities in the State/UT: **NA**

XXIII. Action against identified polluters, law violators and officers responsible for failure for vigorous monitoring: **Environmental Compensation has been charged upon 3 units (BTPS & CTPS – Damodar River and HIDALCO Muri- Swarnrekha River)**

Government of Jharkhand

Urban Development & Housing Department

Notification

File no. -06/TC PO/Vividh-05/2016/ न०वि०...644 Ranchi, dated -...23/01/17

JHARKHAND RAIN WATER HARVESTING REGULATION, 2017.

Increasing urbanization has resulted in greater pressure on the infrastructure needs of urban areas. The supply of adequate quantity of potable water on one hand and managing the flooding of streets during monsoon on the other, has become Herculean tasks for the ULBs. Urban areas, including major cities, are becoming increasingly dependent on ground water as Surface Water supply is inadequate and unable to cater to the needs of the entire urban population. Freshwater sources are being heavily exploited to meet the demand of the urban population. Considering this issue seriously, Government have decided to take effective measures for collection of rain water from roof tops, paved / unpaved surfaces etc. and to use it either for recharging ground water or storing it in storage tanks. For this, it has been decided that, no building permission be granted unless provision is made for Rain Water Harvesting System. Rain water harvesting is the activity of direct collection of rain water. The rain water collected can be stored for direct use or can be recharged into the ground water. Water harvested can be used for domestic use, livestock, plant production or flood control.

Accordingly, in exercise of powers conferred by Section 592 of the Jharkhand Municipal Act, 2011, the Governor of Jharkhand hereby makes the following regulation:-

1. Short Title, Extent and Jurisdiction, Applicability of Regulations

1.1 **Title**-This regulation shall be called as ***Jharkhand Rain Water HarvestingRegulation,2017.***

1.2 **Extent and Jurisdiction:** It shall apply to all public, private, government institutions/buildings in the whole state of Jharkhand.

1.3 **Date of coming into force:** This regulation shall come into force from the date of publication of notification in Official Gazette.

1.4 **Applicability of Regulations:** Jharkhand Rain Water Harvesting Regulation, 2017shall be applicable for installation of Rain Water Harvesting Structures in allbuilding falling within the jurisdiction of-

1.4.1. All Regional Development Authorities.

1.4.2. All Urban Local Bodies.

1.5 All existing rules, regulations, byelaws, orders that are in conflict or inconsistent with these bye laws shall stand modified to the extent of the provision of these bye laws.

2. Definitions

In this Regulation, unless the context otherwise requires: -

2.1 **'Act'** means Jharkhand Municipal Act-2011;

2.2 **'Aquifer'** is a geological formation that stores and transmits water;

2.3 **'Artificial'** means any man made scheme or facility that adds water to an aquifer;

2.4 **'Amenity'** means roads, street, open spaces, parks, recreational grounds, play grounds, gardens, water supply, electric supply, street lighting, sewerage, drainage, public works and other utilities, services and conveniences.

2.5 **'Applicant'** means the person, who is the owner of the land or building or has title to a land or building and includes;

2.5.1 A trustee who is entrusted with or is concerned with any building;

2.5.2 A receiver, executor or administrator or a manager appointed by any Court of competent jurisdiction to have the charge of or to exercise the rights of the owner; and

2.5.3 A mortgagee in possession;

2.6 **'Authority'**means Regional Development Authority/Urban Local Bodies (ULBs).

2.7 **'Bore well'** means small diameter well which are generally deeper than open wells.

2.8 **'Dug well'** means traditionally made long diameter wells, pits excavated in the ground until the water reached, supported at the sides by RCC/Brick/Stone walls.

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2.9 **'Ground water'**means the water retained in the inter- granular pores of soil or fissures of rock below the water table.

2.10 **'Open Space'** means an area forming an integral part of the plot, left open to the sky.

2.11 **'Rain Water Harvesting'**-The harvesting of rainwater is the collection of water from surfaces on which rain falls, and subsequently storing this water for later use. Normally water is collected from the roofs of buildings and stored in rainwater tanks. Water can also be collected in dams from rain falling on the ground and producing runoff;

2.12 **'Run off'**- Run off is the term applied to the water that flows away from a surface after falling onthe surface in the form of rain;

2.13 **'Recharge' means** the process of surface water (from rain or reservoirs) joining the ground water aquifer;

2.14 **'State government'**- means the government of Jharkhand;

2.15 **'Stakeholders means'-**

2.15.1 All households and residents of urban areas,

2.15.2 Educational institutions including research and development (private & public),

2.15.3 All Government agencies and private agencies,

2.15.4 Industrial establishments,

2.15.5 Community Based Organizations,

2.16 **'Water tables' means** the level of water within inter-granular pores of soil or fissures of rock, below which the pores of the host are saturated;

2.17 Anything not defined in this regulation but is defined in the Act shall have the same meaning as defined in the Act.

3. Objectives

3.1 The objective of the Jharkhand rainwater harvesting regulation-2017 is to ensure the (best) possible beneficial use of rainwater endowment on the entire urban areas of Jharkhand.

3.2 To ensure that the maximum utilization of rainfall as possible through water harvesting, either by recharging it into the groundwater aquifers or storing it for direct use.

4. Expected outcome of the regulation

4.1 Recharge ground water.

4.2 Preserve and enhance surface water bodies in urban areas.

4.3 Provide back-up supplies during dry spell, draughts or periods of main supply break down.

4.4 Mitigate urban floods.

4.5 Improve quality of groundwater.

4.6 Provide environmental and ecological benefits to the urban area including fostering bio diversity.

4.7 Augment soil moisture for urban greenery.

4.8 Use of rainwater for urban aquaculture and vegetable production.

5. The following provisions shall be applicable for installation of Rain Water Harvesting structures

5.1 Provision of Rain Water Harvesting shall be mandatory for plot of size 300 sq.mt and above .

5.2 The building construction could be broadly classified as per the following:

5.2.1 Category –(A) Building on plot size less than 300 sq.mt.

5.2.2 Category- (B) buildings up to G-2 on the plot size more than 300 sq.mt.

5.2.3 Category- (C) buildings G+3 and above on plot size more than 300 sq.mt

5.3 The Rain Water Harvesting arrangement is not mandatory for buildings with a plot size less than 300 sq.mt. However the owners of buildings are advised to construct Rain Water Harvesting structure for conservation and protection of ground water. Either they adopt traditional method or any upgrade method.

5.4 All the layout open spaces / amenity spaces of housing societies and new constructions / reconstruction's/ additions on plots having area not less than 300 sq. mt provided that the Authority may approve the Rain Water Harvesting structures of specifications different from those specified here with, subject to the minimum capacity of rain water harvesting being ensured in each case.

5.5 The owner / society of every building mentioned in the para 5.4 aboveshall ensure that the Rain Water Harvesting structure is maintained in good condition for storage of water for non potable purposes or recharge of groundwater at all times.

5.6 The Authority may impose a levy for the failure of the owner of any building mentioned in the para 5.4 above to provide or to maintain Rain Water Harvesting structures as and when required.

5.7 Rain Water Harvesting shall be made mandatory for every Urban Local Bodies/Planning Authority to identify, demarcate, protect and maintain the water bodies that come under their jurisdiction will prepare a list.

5.8 If Rain water harvesting system has not been installed in the apartments/houses having area less than 300 sq.m , constructed before 2010 and there is no space available for installation of the same , the issue will be heard and resolved by the concerned ULBs and suitable order shall be passed from case to case by the CEO/ Executive officer/special officer of the ULBs.

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5.9 It is the responsibility of the builders of the apartments to install rain water harvesting structure, if the building is constructed on or after 2010 and occupancy certificate from the respective Municipal corporation has not been procured. In case of construction on or after 2010 and the occupancy certificate has been procured from the municipal corporation than the owner of the flats will have combined responsibility to install rain water harvesting in the building.

6. Rain Water Harvesting in a building site

Includes storage or recharging into ground the rain water falling on the terrace or on any paved or unpaved surface within the building site.

6.1 The following systems may be adopted for harvesting the rain water drawn from terrace and the paved surface

6.1.1 Open well of a minimum of 1.00 mt.dia and 6 mt. in depth into which rain water may be channeled and allowed after filtration for removing silt and floating material. The well shall be provided with ventilating covers. The water from the open well may be used for non potable

domestic purposes such as washing, flushing and for watering the garden etc.

6.1.2 Rain Water Harvesting for recharge of ground water may be done through a bore well around which a pit may be excavated up to a depth of atleast3.00mtand refilled with stone aggregate and sand. The filtered rain water may be channeled to the refilled pit for recharging the borewell.

6.1.3 An impervious surface / underground storage tank of required capacity may be constructed in the setback or other open space and the rain water may be channeled to the storage tank. The storage tank shall always be provided with ventilating covers and shall have draw-off taps suitably placed so that the rain water may be drawn off for domestic, washing gardening and such other purpose s. The storage tanks shall be provided with an overflow.

6.1.4 The surplus rain water after storage may be recharged into ground through percolation pits or trenches or combination of pits and trenches. Depending on the geographical and topographical condition, the pits may be of the size of 1.20 mt. width × 1.20 mt. length × 2.00 mt. to 2.50 mt. depth. The trenches can be or 0.60 mt width × 2.00 to 6.00 mt. length × 1.50 to 2.00 mt. depth. **The capacity/ volume *and number of pits and trenches should depend upon* the catchment area and quantity of peak rain fall of the area. It can vary from place to place.** Terrace water shall be channeled to pits or trenches. Such pits or trenches shall be back filled with filter media comprising the following materials.

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6.1.4.1 40 mm stone aggregate as bottom layer upto 25% of the depth;

6.1.4.2 20 mm stone aggregate as lower middle layer upto 25% of the depth;

6.1.4.3 Coarse sand as upper middle layer upto 40% of the depth;

6.1.4.4 A thin layer of fine sand as top layer.

6.1.5 Top 10% of the pits / trenches will be empty and a splash is to be provided in this portion in such a way that roof top water falls on the splash pad.

6.1.6 Brick masonry wall is to be constructed on the exposed surface of pits / trenches and the cement mortar plastered.

6.1.7 The depth of wall below ground shall be such that the wall prevents lose soil entering into pits / trenches. The projection of the wall above ground shall at least be 15 cms.

6.1.8 Perforated concrete slabs shall be provided on the pits / trenches. Bund should be created to minimize the run off.

6.1.9 If the open space surrounding the building is not paved, the top layer upto a sufficient depth shall be removed and refilled with coarse sand to allow percolation of rain water into ground.

6.1.10 Any other system developed, which is technically suitable and feasible under the local circumstances and conditions, which may vary from place to place.

6.2 <u>In case the plots where the water table is high i.e 10 feet or less, it is not mandatory to follow the above provisions.</u>

6.2.1 The terrace shall be connected to the open well / borewell / storage tank / recharge pit / trench by means of PVC pipes though filter media. A valve system shall be provided to enable the first washings from roof or terrace catchment, as they would contain undesirable dirt. The mouths of all pipes and opening shall be covered with mosquito (insect) proof wire net. For the efficient discharge of rain water, there shall be at least two rain water of 100 mm diameter for a roof area of 100 sq.mt.

6.2.2 Rain water harvesting structures shall be installed as not to endanger the stability of building or earthwork. The structures shall be designed such that no dampness is caused in any part of the walls or foundation of the building or those of an adjacent building.

6.2.3 The water so collected / recharged shall as far as possible be used for non-drinking and non-cooking purpose.

6.2.4 Provided that when the rain water in exceptional circumstances will be utilized for drinking and / or cooking purpose, it shall be ensured that proper filter arrangement and the separate outlet for by passing the first rain-water has been provided.

6.2.5 Provided further that it will be ensured that for such use, proper disinfectants and the water purification arrangements have been made.

7. <u>Community Rain Water Harvesting</u>

A common rain water harvesting structure shall be installed for a cluster of houses/buildings where there is no space for making a rain water harvesting structure. It shall be the duty of each and every owner/occupier to participate in the installation and maintenance of community rain water harvesting.

8. <u>Rain Gardens</u>

A rain garden is a functional landscaping technique that can beautify our property as well as help to filter and slow the flow of storm water. Rain gardens allow about 30% more rainwater to soak into the ground than traditional lawns.

8.1 Rain gardens are saucer shaped gardens that water flows into that are planted with grasses, flowers, shrubs, and sometimes small trees. They soak up water while providing wildlife habitat. The soils and basin fills with water for a short amount of time before soaking back into the surrounding soil. Plants used in

these gardens are adapted to survive in short periods of flooding as well as dry soils in between storms.

8.2 They are strategically located to capture runoff from hard surfaces such as a driveway, parking area, sidewalk of streets. Rain gardens fill with a few inches of water after a storm and then water filters into the surrounding soil, rather than running off to the street or storm culvert.

8.3 Rain gardens are a very good option to help lower the impact of impervious surfaces and polluted runoff because they are low-tech, inexpensive, sustainable and aesthetically pleasing.

8.4. There are multiple benefits of rain garden to the community and the local environment which include:

8.4.1 Reduced polluted stormwater runoff from yards into local streams,
8.4.2 Reduced localized flooding,
8.4.3 Reduced erosion,
8.4.4 Pollution prevention,
8.4.5 Groundwater recharge,
8.4.6 Enhanced wildlife habitat,
8.4.7 Aesthetics.

9. Awareness of stakeholders:

9.1 Publication of Rain Water Harvesting guidelines and conduct awareness campaigns,Orientationprogrammes, etc. for various stakeholders (Bulk consumers, residents, etc).

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9.2 To construct model demonstration project for public building, educational institutions, parks, open spaces, etc on rain water harvesting to disseminate the idea to various stakeholders.

10. Formation of Monitoring committee at State and District level

10.1 **State level Advisory Committee** will monitor the entire process of Rain Water Harvesting implementation at the State level. This committee will also comprise of a technical cell, which will provide the necessary technical support for implementation of Rain Water Harvesting. This Committee shall be chaired by the Principal Secretary, Urban Development &Housing Department and shall meet at least once in three months to review the status of implementation of Rain Water Harvesting.

10.2 **District level Advisory Committee**will monitor the implementation of Rain Water Harvesting at district level. The Committee shall comprise of representatives from all the concerned Government Departments involved in urban water management like Lake Development Authority, Central Ground Water Board, Mines and Geology Department, Town Planning Department and NGOs (working in water conservation), Academic institutions and field experts. This committee shall be chaired by the concerned Deputy Commissioner of the district. The committee shall be responsible to prepare, implement and monitor

the town / city wise RWH Action Plans. The Committee shall meet regularly at least once in three months to review the status of implementation.

10.3 **Roles and responsibilities of the committees**

10.3.1 State Level Advisory Committee – Frame the State Policy, prepare Technical Guidelines,Manuals and monitor the overall implementation of RWH.

10.3.2 Technical Cell – Provide the necessary technical inputs for the installation of Rain water harvesting current practices, drawings, legislations, etc

10.3.3 District Rain Water Harvesting Committee – Formulation and implementation of RWH Action plans.

10.3.4 Agencies/NGOS – provide the necessary technical inputs to the District Committees and ULBs for implementation of RWH Action Plans.

10.3.5 Physical verification of structures would be carried out before the onset of monsoon each year. Penalty shall be charged if not properly maintained.

11. **Prohibition** on digging of new tube wells/bore wells. Proper enforcement of such prohibition is required to be monitored at higher level and permission may only be given in exceptional circumstances.

11.1 Power of Municipalities to use any discarded or dead tube well as recharge pit or percolation pit. The municipality may provide or cause to be used any discarded or dead tube well for use as percolation pit for any locality or for use as community Rain water harvesting system.

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11.2 The department will prepare a list of all government buildings, which do not have rain water harvesting facilities. Such buildings will be served notices and they will be directed to implement the new structural designs at the earliest.

12. **Incentives and disincentives mechanism** shall be designed to facilitate the implementation of Rain Water Harvesting like rebate/fine in property tax etc.

13. **Responsibility of the household**- It shall be ensured by every household responsible for construction of Rain Water Harvesting structure that in no case polluted or waste water is let into the recharge pit as it will lead to pollution of the ground water.

14. **Penalty:**

14.1 Any person found violating clause no. 13 shall be punishable as per section 340 of the Jharkhand Municipal Act 2011.

14.2 Occupancy certificates will not be issued to the owners of the buildings unless they produce satisfactory proof of compliance of installation of rain water harvesting.

14.3 The Authority shall impose fine for the failure of the owner/builders of any building to install or to maintain Rain Water Harvesting structures depending on the residential area.

14.4 The state government may levy incremental penalty on erring property owners/builder. The rain water harvesting unit is must in houses built on sites of 300sq.mt or more. The rule applies to properties built in the year 2010 or earlier. The penalty for the first three months is 25% of the water bill. From the

fourth month the penalty becomes 50% of the water bill, which after six months becomes equivalent to water bill.

15. Power of the State Government

15.1 Notwithstanding anything contained in the foregoing paragraphs of the **Jharkhand Rainwater Harvesting Regulation-2017** the State Government by issuance of notification in the official gazette may amend or withdraw any of the provisions and / or the schemes mentioned herein above.

15.2 **Interpretation** - Should any doubt arise as to the interpretation of any of the provisions of these Rules, the matter shall be referred to the Urban Development and Housing Department, whose decision thereon shall be final.

By the order of the Governor of Jharkhand,

21.1.17

(Arun Kumar Singh)
Principal Secretary to Government
Urban Development and Housing Department

Memo No. **File no. -06/TC PO/Vividh-05/2016/** न०वि०.....644..... *Ranchi, Dated* 23/01/17

Copy to : *Copy forwarded to the Superintendent, Government Press, Jharkhand, Ranchi for publication in the forthcoming issue of Government Gazette/Nodal officer, E-Gazette, Urban Development and Housing Department, Government of Jharkhand for information and necessary action.*

21.1.17

Principal Secretary to Government,

Memo No **File no. -06/TC PO/Vividh-05/2016/** न०वि०.....644..... *Ranchi, Dated* 23/01/17

Copy to :*P.S to Minister, Urban Development and Housing Department/ All Additional Chief Secretary/ Principal Secretary/Secretary, Govt of Jharkhand/All Divisional Commissioners, Jharkhand/Director, SUDA / Director DMA/Town Planner, Town Planning Organization/ All Deputy Commissioners, Jharkhand / All Officers, UD&HD/ Municipal Commissioners/ Executive Officers/ Special Officers, urban local bodies for information and necessary action.*

21.1.17

Principal Secretary to Government

K Kala

Government of Jharkhand
Urban Development & Housing Department

RESOLUTION

No.- SUDA/AMRUT/Wastewater Policy/38/2017/2899 Ranchi, Dated 27/4/17

Subject:- Jharkhand Waste Water policy, 2017

1. BACKGROUND

Water recycling is reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, toilet flushing, and replenishing a ground water basin (referred to as ground water recharge). Water recycling offers resource and financial savings. Wastewater treatment can be tailored to meet the water quality requirements of a planned reuse. Recycled water for landscape irrigation requires less treatment than recycled water for drinking water. A common type of recycled water is water that has been reclaimed from municipal wastewater, or sewage. The term water recycling is generally used synonymously with water reclamation and water reuse. Gray water is reusable wastewater from residential, commercial and industrial bathroom sinks, bath tub shower drains, and clothes washing equipment drains. Gray water is reused onsite, typically for landscape irrigation.

Through the natural water cycle, the earth has recycled and reused water for millions of years. Water recycling, though, generally refers to projects that use technology to speed up these natural processes. Water recycling is often characterized as "unplanned" or "planned."

2. WHY WATER RECYCLING

Recycled water can satisfy most water demands, as long as it is adequately treated to ensure water quality appropriate for the use. Recycled water can satisfy most water demands, as long as it is adequately treated to ensure water quality appropriate for the use.

2.1 Uses for Recycled Water

2.1.1 Landscaping

2.1.2 Public parks

2.1.3 Cooling water for power plants and oil refineries

2.1.4 Processing water for mills, plants

2.1.5 Toilet flushing

2.1.6 Dust control

2.1.7 Construction activities

2.1.8 Concrete mixing

2.1.9 Artificial lakes

2.1.10 Car, Cloth & floor washing

2.1.11 Garden and irrigation using a hose spray or drip irrigation.

2.1.12 Construction.

2.1.13 Artificial lakes

Although most water recycling projects have been developed to meet nonpotable water demands, a number of projects use recycled water indirectly for potable purposes. These projects include recharging ground water aquifers and augmenting surface water reservoirs with recycled water. In ground water recharge projects, recycled water can be spread or injected into ground water aquifers to augment ground water supplies, and to prevent salt water intrusion.

2.2 What are the Environmental Benefits of Water Recycling?

In addition to providing a dependable, locally-controlled water supply, water recycling provides tremendous environmental benefits. By providing an additional source of water, water recycling can help us find ways to decrease the diversion of water from sensitive ecosystems. Other benefits include decreasing wastewater discharges and reducing and preventing pollution. Recycled water can also be used to create or enhance wetlands and riparian habitats.

2.3 Recycling Water Can Save Energy

As the demand for water grows, more water is extracted, treated, and transported sometimes over great distances which can require a lot of energy. If the local source of water is ground water, the level of ground water becomes lower as more water is removed and this increases the energy required to pump the water to the surface. Recycling water on site or nearby reduces the energy needed to move water longer distances or pump water from deep within an aquifer. Tailoring water quality to a specific water use also reduces the energy needed to treat water. The water quality required to flush a toilet is less stringent than the water quality needed for drinking water and requires less energy to achieve. Using recycled water that is of lower quality for uses that don't require high quality water saves energy and money by reducing treatment requirements.

3. TITLE

This policy shall be called as **Jharkhand Waste WaterPolicy, 2017**

4. VISION

"All Jharkhand cities and towns achieve the water recycling capability from STPs, household, commercial and industrial areas in a sustainable manner and reduce the fresh water demand to a sizeable extent".

5. GOAL

Jharkhand Waste Water Policy, 2017 is to ensure increase use of recycled water for other purposes apart from drinking, through the provision of appropriate technologies for water recycling and protection of environment.

The policy specifically endorses the following core principles:

5.1 To protect the environment and the State's water resources.

5.2 To promote proper functioning of network based sewerage systems and ensure connections of household so as to prevent dry weather flow in drains & streets.

5.3 Treatment of sewage, sludge andgrey water and recycle it for other uses.

5.4 Promoting recycle & reuse of household, commercial and industrial grey water

5.5 To make waste water project economical and environmentally sustainable.

5.6 Inclusive and participatory decision making in waste water recycling.

5.7 Transparent decision making processes to achieve socio-environmental as well as economic financial objectives.

5.8 Capacity building for enhanced institutional ability to govern the sector effectively.

5.9 Ensuring, protecting and optimizing investments.

5.10 Public Private Partnership (PPP) in the most appropriate manner.

5.11 Public outreach for environmental and health related outcomes.

5.12 Establishment of an efficient, effective, affordable and accountable system for managing the water recycling form urban sewerage and septage management

6. OBJECTIVES

To overcome the shortage of water by recycling it and putting them for different purpose, so that the use of potable water should mostly be for drinking purposes. The re-use of water in a sizeable quantity up to a certain quality after proper treatment of water for non-drinking purpose and last but not the least scientifically disposal of the remaining waste is the object behind formulating this policy.

6.1 To ensure 100 percent wastewater recycling in cities/towns

6.2 To improve waste water supply service focusing on customer satisfaction, coverage, frequency and reliability

6.3 Supply of potable water that incurs large amount of money to be reduced and waste water to be used in non-drinking purposes.

6.4 Promoting and augmenting wastewater reuse for ensuring environmental sustainability by reducing burden on already stressed basin and aquifers and preventing their depletion.

6.5 Promoting wastewater reuse from sewage discharge leading to reduction in environmental costs and health hazards.

6.6 Wastewater reuse by ensuring resource conservation & preservation of sensitive eco-system and reducing pollutant loading.

All cities and towns of Jharkhand become totally sanitized, healthy and liveable and ensure sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sewerage facilities for the urban poor and women. All urban dwellers will have access to and use safe and hygienic sewerage or sludge facilities and arrangements.

7. COMPOSITION OF GREYWATER

7.1 Greywater from Bathroom

Water used in hand washing and bathing generates around 50 60% of total greywater and is considered to be the least contaminated type of greywater. Common chemical contaminants include soap, shampoo, hair dye, toothpaste and cleaning products.

7.2 Greywater from Cloth Washing Water

It is used in cloth washing generates around 25 - 35% of total greywater. Wastewater from the cloth washing varies in quality from wash water to rinse water to second rinse water. Greywater generated due to cloth washing can have faecal contamination with the associated pathogens and parasites such as bacteria.

7.3 Greywater from Kitchen

Kitchen greywater contributes about 10% of the total greywater volume. It is contaminated with food particles, oils, fats and other wastes. It readily promotes and supports the growth of microorganisms. Kitchen greywater also contains chemical pollutants such as detergents and cleaning agents which are alkaline in nature and contain various chemicals. Therefore kitchen wastewater may not be well suited for reuse in all types of greywater systems.

8. LEGISLATION AND GUIDANCE DOCUMENTS

The Waste water Policy should be read in accordance with the most current versions of the following: Legislation and document

8.1 Environmental (Protection) Act, 1986

8.2 The Environment (Protection) rules,1986

8.3 The water (Prevention and Control of Pollution) Act,1974

8.4 The water (Prevention and Control of Pollution) cess, Act,1974

8.5 The water (Prevention and Control of Pollution) Amended rules, 2011

8.6 The water (Prevention and Control of Pollution) Cess rules, 1978

8.7 The water (Prevention and Control of Pollution) Rules, 1975

8.8 National Urban sanitation Policy 2008

8.9 National Water Policy 2012

8.10 Quality standards suggested by Central Pollution Control Board and Jharkhand State Pollution Control Board.

8.11 Standards set by Bureau of Indian Standards (BIS)

9. WHAT NEEDS TO BE DONE

9.1 A Separate System: STPs water reuse and grey water reuse to encourage.

9.2 Water reclamation centers to reclaim water after treatment of domestic sewage and greywater.

9.3 Where water Reclamation centers are situated in the midst of residential area, these can be built under ground to avoid the problem odour and parks can be maintained on the roof of treatment facility.

9.4 One of the Scheme of treatment may be Grit chamber, Primary sedimentation tank, Reaction Tank, Secondary sedimentation tank, Chlorination Tank followed by sand filtration.

9.5 Reverse osmosis filtration may be used for tertiary treatment.

9.6 100% households, commercial area and industrial area to be covered for wastewater recycling

9.7 Sewerage and water supply activity should be coordinated.

9.8 Water tariff should be such as to discourage the people from wasteful use of water.

9.9 Provision of adequate wastewater collection and treatment facilities for all the cities and towns in Jharkhand.

9.10 Protection of the environment and public health in the areas affected by the proposed systems, especially, surface water and ground water.

9.11 Consideration of treated effluents as a source for reuse (irrigation/ industrial).

10. THE POLICY

10.1 On Resource Development

Wastewater is a perennial water source and shall form an integral part of renewable water resources and the State water budget. Each local body will consider it as a resource and make the plan for reuse as per the site conditions with the help of experts. All local bodies will make city wastewater reuse plan (CWP) for a period of 20 years considering future development and city development in line with city Master plan to avoid any conflicts in developing the city in the future.

Existing levels of wastewater services shall be maintained and upgraded where necessary to enhance public health and the environment and separate plan is to be prepared by local body as per their requirement. Treatment of wastewater shall be targeted towards producing an effluent fit for reuse in irrigation in accordance with WHO guidelines as a minimum. Reuse of treated wastewater in other purposes shall be subject to appropriate specifications. Coordination shall be maintained with the official bodies in charge of urban development to account for the treatment and disposal of their liquid wastes. Central treatment plants shall be built to serve semi-urban areas, and collection of wastewater can be made initially through trucking until collection systems are justified. Specifications and minimum standards as stipulated by CPHEEO shall be applicable for the use of septic tanks in urban areas. Particular attention shall be paid to the protection of underlying aquifers.

10.2 On Resource Management

It is highly imperative that Urban Local Body shall develop and manage wastewater systems as well as the treatment and reuse of the effluent.

A basin management approach shall be adopted where possible. The use of treated wastewater from sewerage, households, commercial and from industrial application shall be given the highest priority and shall be pursued with care. Effluent quality standards shall be defined based on the best attainable treatment technologies, and calibrated to support or improve ambient receiving conditions, and to meet public health standards for end users. Key factors will include the location of the discharge, its

proximity to wells, the type of receiving water, and the nature and extent of end uses. Industries shall be encouraged to recycle part of its wastewater and to treat the remainder to meet standards set for ultimate wastewater reuse or to meet the regulations set for its disposal through the collection systems and/or into the receiving environment. Wastewater from industries with significant pollution should be treated separately to standards allowing its reuse for purposes identified by the city or to allow its safe disposal or water recharging. Consideration shall be given to isolating treated wastewater from surface and ground waters used for drinking purposes, and to the blending of treated effluent with relatively fresher water for suitable reuse. Urban Local Bodies can engage Experts from Government Engineering Colleges of Jharkhand NITs/Engineering colleges.

10.3 On Wastewater Collection and Treatment

10.3.1 **City Plan :**A proper and updated city plan is an essential pre-requisite for proper planning and design of all utilities and more so for the Sewerage Systems and water recycled from houses. The State shall endeavor to have proper digital city maps showing the levels prepared through modern available technology. The digital city maps should clearly show the city feature over ground and underground including all utilities. Geographical Information System (GIS), Ground Penetrating Radar (GPR), Total station etc. tools may be used for preparation of city map. The city maps should be updated for every 5 years. An effective and comprehensive GIS based data base and Management Information System correctly mapping the assets, user base and status of operations shall be established.

10.3.2 **Design Period:** Every city has to prepare a City Wastewater Recycling Plan (CWP) for next 20 years along with 5 year short term plan. The CWP for the city should take into account the likely changes in the city in next 20 years and plan for them and will be according to city Master plan. The Detailed Project Report (DPR) for recycling should be in accordance to CWP. The design of the sewers and planning of space should be for the 30 year projection requirements and for recycling from households and commercial establishments. However, the units which can be developed in modules (e.g. Sewage Treatment Facility, sewerage Pumping machinery, on site treatment facilities, etc.) can be designed for appropriate shorter period. Earmark of land for Sewage Pumping Station (SPS) and Sewage Treatment Plant (STP) should be done for all Urban Local Bodies (ULBs) and appropriate land allotment shall be done by Development Authority/Urban Improvement Trust/State Govt. on priority.

10.4 On Reuse of Treated Effluent and Sludge

10.4.1 Treated wastewater effluent is considered a water resource and is added to the water stock for reuse.

10.4.2 Blending of treated wastewater with fresh water shall be made to improve quality where possible.

10.4.3 Crop nutrient requirements shall be determined taking into consideration the prevailing effluent quality. Overuse of nutrients shall be avoided.

10.4.4 Accumulation of heavy metals and salinity shall be monitored, managed and mitigated. Leaching of soils shall be advocated by the irrigation authorities.

10.4.5 Treated effluent quality should be monitored and users alerted to any emergency causing deterioration of the quality so that they will not use such water unless corrective measures are taken.

10.4.6 Studies should be conducted and projects designed and implemented to store the excess treated wastewater in surface reservoirs but artificial recharge is not permitted. Due attention shall be given to the quality of treated and groundwater and the characteristics of the strata.

10.5 Industry:

Industrial reuse of reclaimed wastewater represents major reuse next only to irrigation in both developed and developing countries. Reclaimed wastewater is ideal for many industrial purposes. Where effluent is to be used in the industrial processes, it should be the responsibility of the industry to treat it to the quality standards required. Wastewater is to achieve adequate quality for reuse as cooling water.

The membrane filtration system can remove all suspended solids, faecalcoli forms, and giardia cysts. It could also significantly reduce human enteric viruses such as *reovirus*and *enterovirus*.

10.6 Industrial uses for reclaimed water include:

10.6.1 Evaporative cooling water:

10.6.1.1 once-Through cooling system

10.6.1.2 Re-circulating cooling system

10.6.1.3 cooling water quality requirements

10.6.2 Boiler –Feed water- The use of reclaimed water differs little from use of conventional public supplies for boiler-feed water,as both require extensive additional treatment quality requirement for boiler feed make up water are dependent upon pressure at which boiler is operated.

10.6.3 Industrial process water- Suitability of reclaimed water for use in industrial process depends upon particular use like-

10.6.3.1 Pulp and paper

10.6.3.2 chemical industry

10.6.3.3 Textile industry

10.6.3.4 Petroleum and coal

10.7 Re-use Options:

The following options or re-use of effluent have been identified: In general, public health concern is the major issue in any type of reuse of wastewater, be it for irrigation or non-irrigation utilization, especially long term impact of reuse practices. It is difficult

to delineate acceptable health risks and is a matter that is still hotly debated. Potential reuse of wastewater depends on the hydraulic and biochemical characteristics of wastewater, which determine the methods and degree of treatment required. While agricultural irrigation reuses, in general, require lower quality levels of treatment, domestic reuse options (direct or indirect potable and non-potable) reuses need the highest treatment level. Level of treatment for other reuse options lie between these two extremes. The reuse options may be (artificial recharge of aquifers is not permitted):

10.7.1 Irrigation

10.7.1.1 Agriculture and forestry

10.7.1.2 Landscaping

10.7.2 Fish – farming

10.7.3 Industry

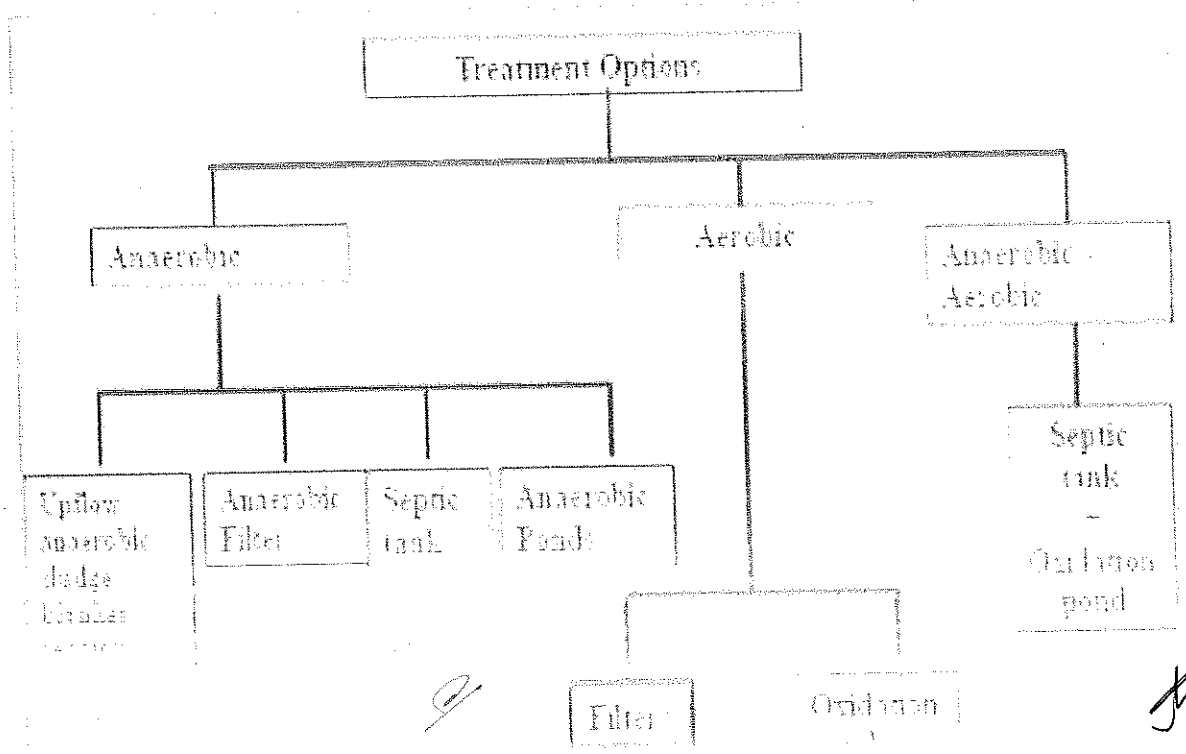
10.7.4 Non-potable Domestic Reuse:

The detailed project report should clearly define the best reuse option particular to town and strategy to obtain it. Action plan with clarity should be the part of Detailed Project Report (DPR), while preparing sewerage Projects. Before deciding the reuse of treated waste water authority must full fill the water quality norms and its legal implications.

Governing local body can sell the treated waste water and digested sludge to generate the revenue.

11. GREYWATER TREATMENT OPTIONS

Greywaterreuse methods can range from low cost methods such as the manual bucketing of greywater from theoutlet of bathroom, to primary treatment methods thatcoarsely screen oils, greases and solids from the greywater before other uses, to more expensive secondary treatment systems that treat and disinfect the greywater to a high standard before using it further. The choice of system will depend on a number of factors including whether a new



system is being installed or a disused wastewater system is being converted because the household is connected to sewer.

11.1 Components of Greywater Treatment Systems

A number of technologies have been applied for greywater treatment worldwide varyingin both complexity and performance. The following in general greywater systems considered :-

11.1.1 Primary treatment pre-treatment to secondary treatment:

11.1.1.1 Screening

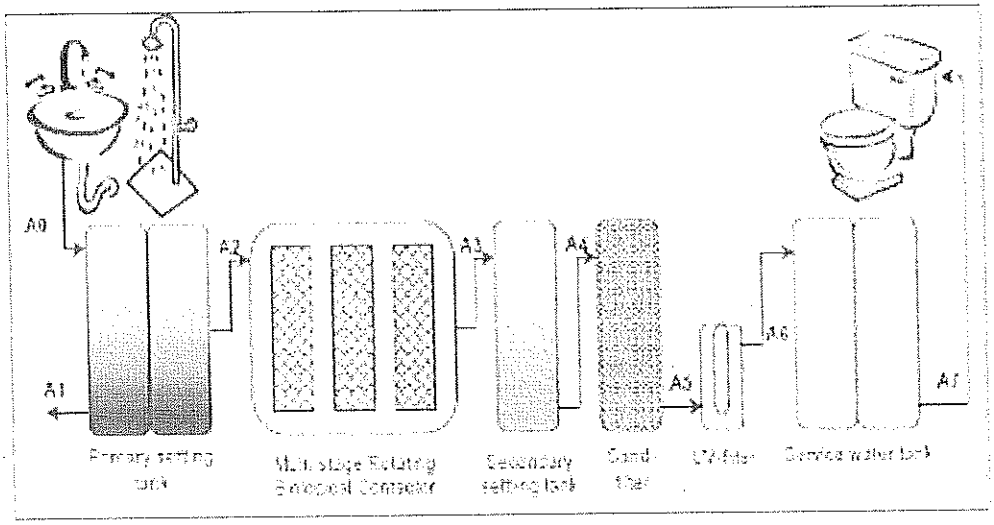
11.1.1.2 Equalization

11.1.2 Secondary treatment -1

11.1.2.1 Gravel filtration

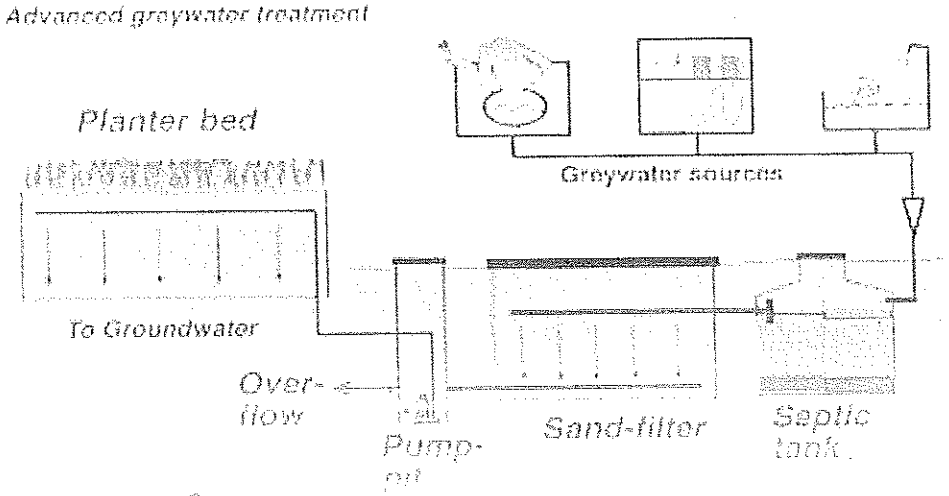
11.1.2.2 Sand filtration

11.1.2.3 Chlorination

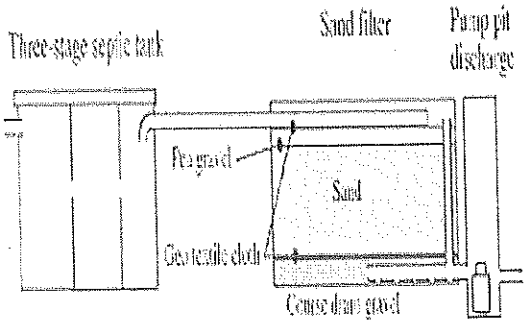


11.1.3 Secondary treatment -II.

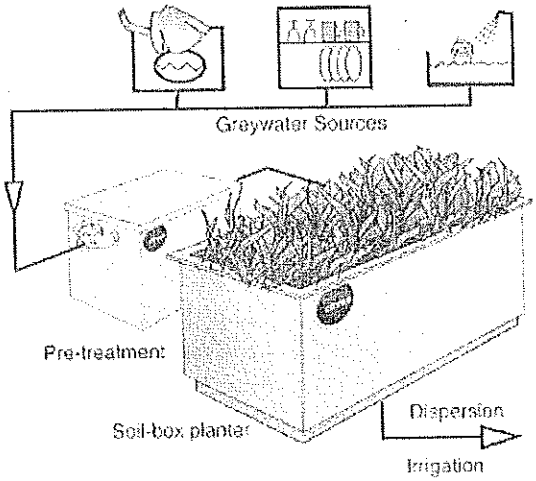
Broken brick, Charcoal, Chlorination, Treated greywater



Anaerobic to aerobic treatment



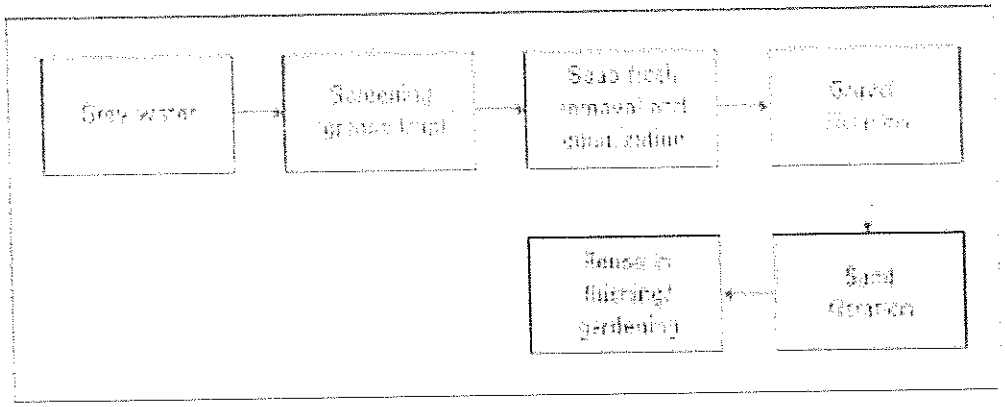
Aerobic Pre-treatment -- suitable for showers, hand-washing and laundry* water treatment.



11.2 Household level Greywater Treatment and Reuse System

In water scarce areas, with specific treatment the greywatercan be cleaned and reused not only for gardening but for other use also.

Technological processGreywater treatment process at the household level mainly involves screening (grease and silt removal), soap froth removal, equalization and filtration. Flow diagram of household based greywater treatment system is shown below



Greywater treatment for reuse in household

Advantages:

11.2.1 Reduces fresh water requirement

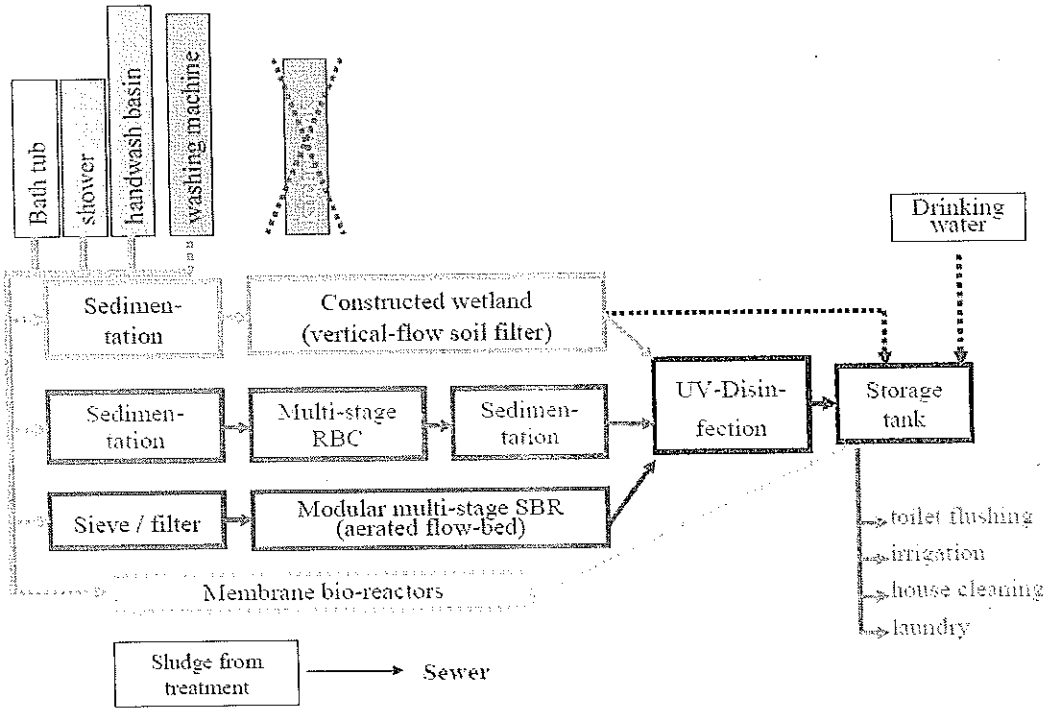
11.2.2 Prevents greywater stagnation

11.2.3 Prevents vector breeding

11.2.4 Use in flushing toilets to make toilets functional

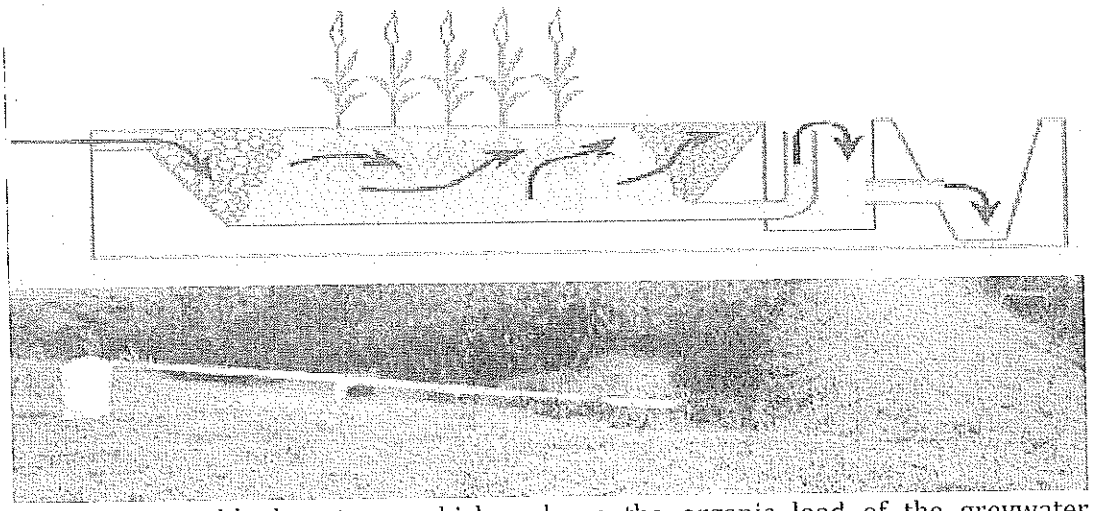
11.2.5 Use of greywater in gardening

11.2.6 Minimal risk to users of greywater as it incorporates principles of water safety.



11.3 Constructed wetlands:

Constructed wetlands have been used successfully in the past for the treatment of wastewaters. Physical, chemical, and biological processes combine in wetlands to remove contaminants from wastewater. Greywater treatment is achieved by soil



filtration in reed-bed systems which reduces the organic load of the greywater considerably, in addition to decreasing the concentrations of faecal bacteria. If properly designed, these systems would produce a clear and odourless effluent, which can be stored for several days without the need for disinfection.

12. ON PRICING FINANCING AND INVESTMENT

12.1 In view of increasing marginal cost of wastewater collection and treatment, wastewater charges, connection fees, sewerage taxes and treatment fees shall be set to cover at least the operation and maintenance costs. It is also highly desirable that part of the capital cost of the services shall be recovered. The ultimate aim is for a full cost recovery.

12.2 Appropriate criteria in order to apply the "polluter pays" principle shall be established.

12.3 Different charges for different areas may be applied. This shall be assessed for each geographical area as a function of end uses and effluent quality and will be subject to economic and social considerations.

12.4 Because of the limited financial resources available to Government of Jharkhand, setting investment priorities in wastewater will be compatible with government investment plans.

12.5 Criteria for prioritizing investments in the wastewater sector shall take into account the current and future needs of the state, needs to expand wastewater systems in urban areas and to provide wastewater systems to smaller towns and villages.

12.6 Priorities of wastewater projects shall not be disconnected from water supply projects and urbanization in general. Decisions will be made concerning them to attain optimum solutions to the need for services, availability of finance and availability of trained manpower.

12.7 Treated effluent shall be priced and sold to end users at a price covering at least the operation and maintenance costs of delivery.

12.8 It is the intention of the Government, through private sector participation, to transfer management of infrastructure and services from the public to the private sector, in order to improve performance and upgrade the level of service.

12.9 The role of the private sector will expand with management contracts, concessions and other forms of private sector participation in wastewater management.

12.10 The concepts of Built Operate Own/Built Operate Transfer shall be entertained, and the impact of such concepts on the consumers shall be continually addressed and negative impacts mitigated.

12.11 The private sector role in reuse of treated effluent shall be encouraged and expanded.

12.11.1 The costs will depend on the system/technology adopted for collection of sewerage and treatment and the administration costs. It is important that the full cost of the service is assessed for each urban area instead of adopting a typical cost assessment. The full cost shall cover the following:

12.11.1.1 Institutional aspect of the sanitation service e.g. the management information systems, accountancy and finance management, billing and collection, customer services, etc. and oversight activities.

12.11.1.2 Operating, maintaining (on a planned maintenance basis), repairing replacing and extending sanitation service physical infrastructure.

12.11.1.3 Keeping updated infrastructure and customer data on a GIS base.

12.11.1.4 Managers, staff, vehicles, equipment and consumables associated with above.

12.11.1.5 Consumable like chemicals etc.

12.11.1.6 Power charges.

12.11.1.7 Spare Parts.

12.11.1.8 Any other O&M contract amount

12.11.2 The urban local bodies are proposed to have following sources funds for O&M :-

12.11.2.1 The O&M cost will be met from the Government grants and contribution of the beneficiaries.

12.11.2.2 Revenue from sale of treated waste water.

The government in town policy shall include the provision of the recovery of full capital cost of lying sewerage system and prorate cost of STP for new colonies. It shall be mandatory for the ULBs to adhere to minimum 20% reuse and recycling of treated waste water. The treated waste water may be sold at a rate as decided by adopting transparent procedure as decided by State Government.

12.12 Public Private Partnership (PPP)/Engineering Procure Construct (EPC) and Operational &Maintenance (O&M) Contract

As there is budget constraint from the Central and the state side the option of the Sewerage Project through Public Private Partnership (PPP) will be explored. In case the PPP mechanism is not workable then the EPC mechanism will be explored and long term O&M Contract will be done.

13. ON STANDARDS,REGULATIONS AND QUALITY ASSURANCE

13.1 Particular attention shall be focused on adopting and enforcing effluent and sludge standards for municipal and industrial wastewater treatment plants and for discharges from industries, laboratories, hospitals, slaughterhouses and other businesses.

13.2 Extensive and comprehensive monitoring programs shall be developed. Influent to and effluent from the plants and throughout watercourses shall be measured and monitored against all appropriate parameters to ensure that public health objectives and treatment efficiency goals are attained.

13.3 Observation wells shall be installed near the treatment plants to monitor groundwater quality where necessary, and to mitigate adverse impacts where and when needed.

13.4 Data collected from the monitoring process shall be entered and stored, processed and analyzed through computer software, and results published periodically.

13.5 Roof and storm water connections to public sewers shall be prohibited. Collection of storm water shall be done separately and will be the subject of water harvesting.

13.6 Effluent and sludge standards for the disposal of hazardous liquid wastes shall be defined to ensure the safe disposal of such wastes.

13.7 State Pollution Control Board/ Central Pollution Control Board regulations for disposal norms shall be mandatory.

13.8 Industrial waste water is not allowed to disposed off in the sewer line. ULB can issue notification for penalties to be imposed on the such industrial units.

13.9 Laboratories shall be maintained and properly equipped to provide services and reliable data needed to ensure enforcement of and adherence to standards and regulations.

14. ON LEGISLATION AND INSTITUTIONAL ARRANGEMENTS

14.1 Legislation and institutional arrangements for the development and management of wastewater shall be periodically reviewed. Gaps shall be filled, and updating of the institutional arrangements with parallel legislation shall be made periodically to cope with varying circumstances and for this government shall notify an agency giving full power to take necessary action in this matter.

14.2 The role of the Government shall be fine-tuned and its involvement reduced to be regulatory and supervisory. Involvement of the stakeholders in wastewater management and support shall be introduced and expanded.

14.3 On Public Awareness

14.3.1 The public shall be educated through various means about the risks associated with the exposure to untreated wastewater and the value of treated effluents for the different end uses.

14.3.2 Programs on public awareness shall be designed and conducted to promote the reuse of treated wastewater.

14.3.3 Public awareness campaigns shall also be waged to educate the public on the importance of domestic hygiene, wastewater collection, treatment and disposal.

14.3.4 It is observed that the system is dependent on the appreciation of the beneficiaries to the advantages and importance of the system to them and thereby working together towards making it successful. The co-operation is vital for following areas:

14.3.4.1 Protecting the system from getting choked due to entry of extraneous material in the sewer system. A vigilant public will help prevent this.

14.3.4.2 The sewerage system yield full benefits or disease protection when there is 100% connectivity.

14.3.4.3 It is important that the beneficiaries appreciate the benefits and pay for their upkeep. The systems require proper upkeep and the cost associated with maintenance and upkeep should at least be recovered from the beneficiaries. The principal of the polluter pays will be adopted only by an enlightened and participating public.

14.3.5 A conscious campaign has to precede the planning and implementation of the sewerage Systems. ULB, Non Government Organizations and local neighborhood committees could give the process a thrust.

14.3.6 A public participation process will not only aid in identifying potential consumers but also serve as a public education program. Potential users will be mainly concerned with the quality of reclaimed water and reliability of its delivery and the constraints in using reclaimed water. Also, connection costs or additional sewerage treatment cost might affect their ability to use the product. Consultations with various stake holders will aid in structuring of tariff and discounts for adopting reuse technologies, awareness on dual piping system, water conservation and safety issues.

14.3.7 Municipal Bodies should decide and pass resolution regarding sewer connection charges. The provision should be widely publicized

14.3.8 Series of 'Sewer connection camps' may be organized. The time and venue should be publicized widely to inform residents. The days, time and venue should be to suit the convenience of public.

14.3.9 Ensure that all Government offices and schools are connected.

14.4 On the Human Resources Development & On Research and Development:

14.4.1 Capabilities of human resources in the management of wastewater shall be enhanced through training and continuous education. Work environment shall be improved and incentives provided.

14.4.2 Establishment of State Water & Waste water Training Center at state level. It will help in training of human resources in this sector.

14.4.3 Human resources performance will be continually appraised in order to upgrade capabilities, sustain excellence and provide job security and incentives to qualified individuals with excellent performance.

14.4.4 Applied research on relevant wastewater management topics shall be adopted and promoted. Topics such as the transfer of wastewater treatment technologies, low cost wastewater treatment technologies, reduction of energy consumption and others will receive adequate support.

14.4.5 Cooperation with specialized centers in the country and abroad shall be advanced, and raising of funds for this purpose shall be supported.

14.4.6 Transfer of appropriate technology suited for local conditions will be a primary target for the development activities and for adaptive research.

14.5 On Selected Priority Issues

14.5.1 To the extent that design capacities of wastewater treatment plants permit, priority of collection and house connections shall be accorded to expansion of urban areas served by treatment facilities. Users willing to contribute to the cost of the services in addition to fees and charges set by laws and regulations shall also be given priority.

14.5.2 Where design capacities of treatment facilities and of conveyance systems are approached or exceeded, priority shall be given to the expansion of such capacities.

14.5.3 Priority shall be accorded to situations and locations where waste-water disposal practices threaten the environmental integrity of freshwater resources, and where performance of cesspools and percolation pits pollute underground water aquifers.

More awareness campaigns will help to spread the work. The civic body should make it mandatory for new constructions to have a separate system to collect grey water.

15. OPERATION AND MAINTENANCE

There are several important factors that need to be considered when planning wastewater plants and options which will have a direct impact on O&M and monitoring. Since O&M aspects are important for the overall long-term success of the programme, O&M planning, including the financial provision of funds, should be included in the termsof references for the design of each plant. Furthermore, the O&M plan should be reviewed and approved alongwith engineering designs and specifications, including the operation and maintenance cost:

15.1 location of the wastewater treatment plants and its proximity to residential areas;

15.2 volumes and schedules of wastewater collection;

15.3 degree of mechanisation of technologies; and

15.4 final enduse or disposal of reuse

15.5 running it on PPP mechanism and charging the different users

16. STATE-LEVEL IMPLEMENTATION STRATEGY

16.1 State Urban Development Agency will develop and issue aWastewater Implementation Strategy and Plan Guidelines. These Guidelines will provide an overall state-level framework, objectives, *timelines and implementation plans to the ULBs. The Implementation Strategy will cover* aspects such as implementation targets, framework for engagement of the private sector, training and capacity building, behavior change and social communication, M&E framework, specific roles and responsibilities of various entities, guidelines to develop ULB-level plans, and funding mechanisms.

16.2 ULB-specific Wastewater Strategy and Action Plan conforming to the State Policy will be developed by each ULB based on the State Faecal Sludge & Septage Management Implementation Strategy and Plan Guidelines.

16.3 How the policy will be executed in the in the cities/towns.Three phase approach will be designed to implement the policy.

16.3.1 In the financial year 2017-18 it will be implemented in all the notified Nagar Nigam.

16.3.2 In the financial year 2018-19 it will be implemented in all the notified Nagar Parisad.

16.3.3 In the financial year 2019-20 it will be implemented in in all the notified Nagar Panchayat.

All efforts will be done to follow the execution method outlined above for the cities towns, however, depending upon the centre/state programme and budget availability the cities/towns might be chosen from any category in any financial year. Due to environmental factors the cities/towns may also be chosen out of these to implement the plan.

17. MONITORING & EVALUATION

17.1 At the state level, State Urban Development Agency (SUDA)/ Jharkhand Urban Infrastructure Development Corporation (JUIDCO) will adopt San-Benchmark framework for revised service level benchmark for sanitation that assess performance of citywide waste water recycling and sewage water treatment.

17.2 State Urban Development Agency (SUDA) / or JUIDCO will develop an M&E framework to measure cities' performance, and also devise data collection and reporting systems using indicator framework developed for San-Benchmark. This will be aligned with the 14th Finance Commission condition of publishing the service level benchmark to avail performance grant. ULBs will develop robust reporting format to track compliance of the various stakeholders with outcomes and process standards.

17.3 A cell will be created inside JUIDCO to monitor and evaluate the wastewater management operation. The cell will be created by funds from external agency funding or from the funds of 14th finance commission or through the state budget.

17.4 A Management Information System (MIS) will be developed accordingly to monitor the progress.

18. TAX INCENTIVE

The tax incentive will apply in following conditions:

18.1 All the Individual Households of RWAs will treat their waste water in a decentralised manner and reuse it inside their coloniesas permissible will get a rebate of 10% in the property tax.

18.2 All the new apartments which will be constructed and compulsory treat and reuse the treated waste water in their apartment, will get a 10% rebate of 10%of theconstruction permit fee, or Rs. 2,00,000/- (Two lakhs) whichever is less.

18.3 All the new malls, big hotels, industries, clubs, colleges, universities, hospitals, sports stadiums etc. which will be constructed will compulsory treat and reuse the treated water. In doing so they will get a rebate of 10 % of the construction permit fee, or Rs. 2,00,000/- (Two lakhs) whichever is less.

18.4 A separate head of the tax namely called 'Waste Water Tax' will be created which may be levied in the property tax for the operation and maintenance of the sepatge.

19. POLICY EVALUATION:

19.1 Policy may be reviewed as and when required for assessing its effectiveness and making changes if necessary.

19.2 This policy shall come into force from the date of issue of this resolution.

20. POWER OF THE STATE GOVERNMENT

20.1 Notwithstanding anything contained in the foregoing paragraphs of the Jharkhand WasteWater Policy, 2017 the State Government by issuance of notification in the official gazette may amend or withdraw any of the provisions and / or the schemes mentioned herein above.

20.2 Interpretation - Should any doubt arise as to the interpretation of any of the provisions of these Rules, the matter shall be referred to the Urban Development and Housing Department, whose decision thereon shall be final.

Order: It is hereby ordered that the copy of this resolution be published in the Special Gazette and wide publicity be given and circulated among all Department/ Head of the Department.

By the order of the Governor of Jharkhand,

26.4.17

(Arun Kumar Singh)
Principal Secretary to Government

Memo No-Suda/Amrut/ WasteWater-Policy/38/2017/2899 Ranchi, Dated 27/4/17

Copy to : Copy of the resolution forwarded to the Superintendent, Government Press, Jharkhand, Ranchi for publication in the forthcoming issue of Government Gazette/Nodal officer, E-Gazette, Urban Development and Housing Department, Government of Jharkhand for information and necessary action.

26.4.17

Principal Secretary to Government

Memo No-Suda/Amrut/ Waste Water-Policy/38/2017/2899 Ranchi, Dated 27/4/17

Copy to :P.S to Minister, Urban Development and Housing Department/ All Additional Chief Secretary/ Principal Secretary/Secretary, Govt of Jharkhand/All Divisional Commissioners, Jharkhand/Director, SUDA / Director DMA/All Deputy Commissioners, Jharkhand / All Officers, UD&HD/ Municipal Commissioners/ Executive Officers/ Special Officers, urban local bodies for information and necessary action.

Principal Secretary to Government

26.4.17

Sr. No.	Name of River	Name of ULBs	Name of Drains visited through which sewage directly discharged into the river	Approx. flow in drains (in MLD)
1	Damodar	Ramgarh Nagar Parishad	Drain near Argada village.	2
			Parsotia Nallah at Gola road Ramgarh	5
			Sahoo nallah Ramgarh	6
			Total Flow	**13**
2	Damodar	Dhanbad Municipal Corporation	Jeetpur Nallah	30
			Jodiya Nallah	100
			Chas Nallah	15
			Domgarh Nallah	3
			ACC Jamdoba Nallah	1.5
			Sudamadih Nallah	2
			Matkuriya checkpost Nallah (in city area ultimately discharged into Jodiya nallah)	60
			Wasseypur Nallah (in city area ultimately discharged into Jodiya nallah)	30
			Total Flow	**63.5 (for 4 drains)**
3	Damodar	Phusro Nagar Parishad	Bermosi nallah	4
			Ghutiyatad nallah	1
			Dhorikhas nallah	2
			Joriya Pull nallah	12
			Total Flow	**5 (for 2 drains)**

4	Garga	Chas Municipal Corporation	Drains near Gai ghat on the banks of Garga River.	3
			Drain at Medicine Gali near bridge on Garga river	2.5
			Drains at Bhojpur colony near bridge	6
			Drains at Bharra colony near bridge	2
			Drain at Bharra colony (Niche muhalla)	0.7
			Drain at Chira Chas near Pandey bridge	2
			Singar joriya nallah	12
			Total Flow	**28.2**
5	Subernarekha	Adityapur Municipal Corporation	JRDCL Drain	4
			Nagina Puri Drain	6
			Ram Madaiya nallah	7
			Road No. 32 Drain	7
			Saldih Drain	2
			Baba Kuti Drain	2
			Total Flow	**28**
6	Subernarekha	Jamshedpur NAC	Drain near Chhaya nagar bus stand (near WTP):	10
			East Plant Basti Drain	30
			510 Number Basti/ Sithgoda Drain (near CSIR-NML)	5

			Drain near old Baridih Colony	3
			Kumariya Nallah	25
			Jublie Park drain	5
			Sonari drain near Domuhani	2
			Asiana drain opposite Mandakini enclave	2
			Total Flow	**82**
7	Subernarekha	Mango Municipal Corporation	Daiguttu Nallah	8
			Dimna Nallah	10
			Mooncity Nallah	7
			Paras Nagar Nallah	6
			Gurudwara Basti Nallah	2
			Total Flow	**33 (for 5 nos. of drains)**
8	Subernarekha	Ranchi Municipal Corporation	Drain at Tupudana Industrial area in Hatia	6
			Drain at Hatia town	1.5
			Drain at Dhurwa	4
			Drain at Patel Nagar (Ward no. 52)	8
			Drain at Hetu	6
			Ghaghra nallah	10
			Total Flow	**35.5**

झारखण्ड राज्य प्रदूषण नियंत्रण पर्षद,

क्षेत्रीय कार्यालय–सह–प्रयोगशाला, पी0टी0सी0 चौक, मटवारी रोड, हजारीबाग।

Ref. 686 Date. 5/7/21

From,

A.K. Yadav,
Regional Officer, Hazaribag,

To,

The Board Analyst,
Central Laboratory,
Jharkhand State Pollution Control Board,
Ranchi.

Sub:- Submission of water analysis reports under NWMP.

Sir,

Please find enclosed herewith the water analysis reports under NWMP for the month of May, 2021 from Lab. Ref. No. 263 to 271 for your information & necessary action.

Encl :-A/a.

Yours faithfully

05/7/2021

(A.K. Yadav)
Regional Officer

Jharkhand State Pollution Control Board, Regional Office, Hazaribag.

Physico chemical characteristics of river Damodar at different points.

For the month of May, 2021

Sl.No.	Ref. No.	Name of Sampling Points.	Date & time Sampling	Temp. Air/Water ^{0}C	pH	D.O.	BOD Mg/lt.	COD Mg/l	T.S. Mg/l.	TSS Mg/l.	TDS Mg/l
1.	268	U/s Bhairi River At- Rajrappa. Ramgarh	25.05.2021 at 11.30 AM	34.0/31.0	7.2	7.5	1.2	36	360	38	322
2.	269	D/s confluence of Damodar & Bhairi River, At- Rajrappa. Ramgarh	25.05.2021 at 11.50 AM	34.0/30.0	7.4	7.4	1.3	40	418	55	363
3.	270	Damodar River, Near Ramgarh Road Bridge, Dist-Ramgarh.	25.05.2021 at 01.30 PM	34.0/31.0	7.3	7.2	2.1	60	486	82	404
4.	271	Nalkari Tributary , At Patratu Ramgarh.	25.05.2021 at 04.45 PM	34.0/32.0	7.2	7.1	2.1	56	285	80	205
5.	264	Brakar River, Near Tilaiya Dam. Dist- Koderma	24.05.2021 at 12.30 PM	35.0/32.0	7.2	7.1	1.2	44	280	40	240
6.	265	Tilaiya Dam, Near Intake Wall of DVC. Dist- Koderma	24.05.2021 at 01.10 PM	34.5/32.0	7.2	7.0	1.2	36	270	35	235
7.	263	Konar River, At-Bhishnugarh, Hazaribag, (Near at Konar Dam)	24.05.2021 at 10.30 AM	33/30.0	7.2	7.1	1.2	44	340	40	300
8.	266	Konar Dam, Near Intak well of DVC, at Bishnugarh, Hazaribag,	24.05.2021 at 10.50 AM	33/30.0	7.2	7.1	1.3	44	255	35	220
9.	267	Meetha Jheel, At-Hazaribag	24.05.2021 at 04.30 PM	32/30.0	7.3	7.2	1.3	56	258	35	223
		Standard Limits	--	--	6.5 to 8.5	4.0 min.	3.0	-	-	-	1500

05/07/2021
(C.K. Yadav)
A S.O.

05/07/21
(R .N. Anjaan)
Lab. Incharge

05/7/2021
(A.K. Yadav)
R.O.

(R.N.Kashyap)
Board Analyst

0/2

JHARKHAND STATE POLLUTION CONTROL BOARD

REGIONAL OFFICE-CUM-LABORATORY, MB/15 NEW HOUSING COLONY
ADITYAPUR, JAMSHEDPUR.
Web Site- jspcb.org/ Phone– 0657-2383241/ Fax- 0657-2383905

Ref. No: -…… *Dated-*……

From,

J.P. Singh
Regional Officer.

To,

The Board Analyst
Jharkhand State Pollution Control Board,
Ranchi.

Sub: - **Regarding analysis report.**

Sir,

Please find enclosed herewith the analysis report of river water for the month of April, 2021 for your information & necessary action.

Encl :- As above.

Yours faithfully

Sd/-
(J.P. Singh)
Regional Officer

Memo No :- 934 /Jamshedpur, dated 14-6-2021
Copy to – The Member Secretary, Jharkhand State Pollution Control Board, Ranchi for information.

JPS 14.6.2021
(J.P. Singh)
Regional Officer

JHARKHAND STATE POLLUTION CONTROL BOARD
REGIONAL OFFICE-CUM-LABORATORY, M/B-15, NEW HOUSING COLONY
ADITYAPUR, JAMSHEDPUR

Analysis report under NWMP for the month of April, 2021.

Sl. No.	Lab. Ref. No.	Water Code	Name of the Sampling Point	Date / Time of collection	Temp		pH	D.O mg/l	B.O.D mg/l	C.O.D mg/l	Total Hard. mg/l	Ca++ mg/l	Mg++ mg/l	Alk. Mg/l	Cond. µohm/ m2	Floride mg/l	Sulphate mg/l	Cl - mg/l	T.S mg/l	T.S.S mg/l	T.D.S mg/l	Turbidity NTU.
					A	W																
1	522/21	48	Chandil Road Bridge	27.04.2021 At-9.30AM	34.0	30.0	7.5	7.5	P	BDL	18.0	4.6	1.670	BDL	204.0	0.81	3.46	12.0	167.0	31.0	136.0	<5.0
2	520/21	4744	On swarnrekha river before meeting to kharkai	27.04.2021 At-8.40AM	32.0	28.0	7.4	7.3	2.0	6.1	18.0	4.5	1.762	23.0	195.0	0.74	6.62	18.0	152.0	22.0	130.0	6.0
3	521/21	4746	On swarnrekha river after confulance kharkai river	27.04.2021 At-8.50AM	32.5	28.0	7.5	6.2	4.3	9.0	84.0	25.1	5.100	50.0	211.5	0.82	11.80	36.0	191.0	50.0	141.0	7.0
4	519/21	4745	On Kharkai river before meeting swarnrekha river	27.04.2021 At-8.30AM	32.0	28.0	7.6	4.7	5.8	14.6	147.0	48.6	6.230	82.0	259.5	0.90	19.18	44.0	274.0	101.0	173.0	12.0
5	518/21	49	D/S Mango, Jamshedpur	27.04.2021 At-7.50AM	30.0	27.0	6.8	5.7	6.4	18.1	137.0	44.6	6.340	76.0	273.0	0.88	19.20	66.0	290.0	108.0	182.0	18.0
6	525/21	4742	Galudih Barrage	27.04.2021 At-11.55AM	40.0	36.0	7.3	6.9	1.5	5.0	45.0	12.2	3.460	37.0	225.0	0.72	7.71	22.0	174.0	24.0	150.0	7.0
7	526/21	4743	U/s HCL Ghatsila	27.04.2021 At-12.20PM	40.0	33.0	7.6	7.2	1.2	6.5	45.0	13.4	2.820	34.0	192.0	0.75	8.44	13.0	155.0	27.0	128.0	<5.0
8	528/21	24	D/s HCL Ghatsila	27.04.2021 At-1.0 PM	41.0	36.0	7.4	6.0	4.2	30.0	103.0	36.5	2.950	52.0	331.5	0.86	13.77	30.0	283.0	62.0	221.0	14.0
9	529/21	4748	Bharagora Road Bridge	27.04.2021 At-5.10PM	32.0	27.0	7.6	7.4	1.3	5.6	46.0	15.4	1.760	25.0	219.0	0.71	10.70	19.0	168.0	22.0	146.0	<5.0
10	516/21	1036	Koel Karo River at Manoherpur	20.04.2021 At-11.40AM	38.0	34.0	7.5	7.7	BDL	BDL	35.0	9.0	3.120	22.0	222.0	0.70	5.91	15.0	181.0	33.0	148.0	6.0
11	523/21	2399	Chandil Dam	27.04.2021 At-9.45AM	34.0	29.0	7.2	7.4	BDL	BDL	40.0	9.0	4.220	BDL	157.5	0.81	4.86	17.0	126.0	21.0	105.0	<5.0
12	524/21	2398	Dimna Lake	27.04.2021 At-10.50AM	38.0	32.0	7.3	7.7	1.1	BDL	27.0	8.0	1.710	BDL	192.0	0.80	6.51	12.0	144.0	16.0	128.0	<5.0
13	527/21	2387	Ghatsila Road Bridge	27.04.2021 At-12.40PM	40.5	33.0	7.5	7.3	1.5	1.5	49.0	13.9	3.600	27.0	217.5	0.72	6.35	15.0	178.0	33.0	145.0	6.0
14	517/21		Koina River at Manoherpur	20.04.2021 At-12.30PM	40.0	36.0	7.60	7.4	1.3	1.3	35.0	8.5	3.310	24.0	243.0	0.65	8.55	19.0	202.0	40.0	162.0	8.0

Remarks :- As per CPCB guidelines, Swarnrekha have been identified in class 'C' as per designated best use Criteria & the limit of Critical parameters pH, D.O. & BOD are 6.0 to 9.0, 4.0 & 3.0 respectively.

14/06/2021
(Amrita Mishra)
C.E.

14.6.2021
(J.P. Singh)
Regional Officer.

15/06/2021
Board Analyst

Water Quality Data for the period from January' 2021 of March'2021

STN Code	Sampling Date	Name Of Monitoring Location	Temperature	Dissolved O2	pH	BOD	Total Alkalinity	Chlorides	COD	Total Hardness	Calcium	Magnesium	Total Dissolved Solids	Total Suspended Solids
4740	09-01-2021	LOCO TALAB) PUMPU TALAB), AT- BARMASIA, DHANBAD	21	2	7.4	12.8	116	62	108	258	40	38.55	460	108
4739	09-01-2021	KATRI RIVER, NEAR BHATINDA FALL, AT-TETENGABAD, M	22	7.2	7.5	2.4	106	60	88	286	64	30.74	533	95
4738	09-01-2021	JAMUNIA RIVER NEAR LOHAPATTI BRIDGE, MAHUDA, DHANBAD	21	7.4	7.3	2.8	138	76	80	478	81.6	66.85	540	102
4000	09-01-2021	GARGA RIVER NEAR TELMUCHO BRIDGE	22	6.9	7.1	4.4	130	80	92	124	19.2	18.54	564	98
3553	09-01-2021	DAMODAR RIVER NEAR TELMUCHO BRIDGE	24	7.4	7.5	1.9	114	56	108	118	20.8	16.1	576	96
2383	09-01-2021	DAMODAR U/S JAMADOBA WATER	25	7.7	7.5	1.3	106	48	96	86	15.2	11.71	558	92
2384	09-01-2021	DAMODAR AT DOMGARH WATER WORKS D/S	27	7.6	7.4	1.4	110	52	88	90	16	12.2	544	88
2391	09-01-2021	DAMODAR AT PANCHET DAM	23	7.6	7.5	1.1	98	44	72	82	14.4	11.22	536	76
2392	09-01-2021	BARAKAR AT MAITHAN DAM	20	7.5	7.4	1.2	102	46	68	86	18.4	9.76	504	80
4741	09-01-2021	RANIBANDH TALAB NEAR ISM, DHANBAD	17	1.7	7.5	13.6	126	58	124	238	40	33.67	572	116
2394	20-01-2021	TOP CHANCHI LAKE	19	7.7	7.5	1.1	98	42	76	68	12.8	8.78	416	92
2382	20-01-2021	DAMODAR AT PHUSRO ROAD BRIDGE	19.5	7.6	7.5	1.4	96	46	88	92	16.8	12.2	528	96
3557	20-01-2021	DAMODAR RIVER NEAR BERMO RAILWAY STATION, BOKARO	19	7.8	7.5	1.7	102	44	84	96	17.6	12.68	542	88

3555	20-01-2021	DAMODAR RIVER NEAR ZARANGDIH BRIDGE, BOKARO	20	7.8	7.6	1.2	100	58	76	86	15.2	11.71	532	78
2381	20-01-2021	BOKARO AT ZARANGDIH BRIDGE	20.5	7.6	7.4	1.4	116	60	104	96	19.2	11.71	466	106
3556	20-01-2021	CONFLUENCE OF BOKARO & DAMODAR RIVER NEAR ZARANGDIH BRIDGE, BOKARO	20	7.7	7.5	1.8	120	62	96	94	17.6	12.2	542	100
3554	20-01-2021	KONAR RIVER NEAR SWANG COAL WASHERY, BOKARO	18	7.9	7.5	1.6	122	64	104	98	19.2	12.2	538	98
2390	20-01-2021	DAMODAR AT TENUGHAT DAM	16	8.2	7.6	1	96	28	64	70	14.4	8.29	436	68
2394	10-02-2021	TOP CHANCHI LAKE	20	7.6	7.5	1.2	112	60	80	90	20	9.76	452	104
2382	10-02-2021	DAMODAR AT PHUSRO ROAD BRIDGE	21	7.7	7.5	1.3	104	58	84	78	19.2	7.32	506	102
3557	10-02-2021	DAMODAR RIVER NEAR BERMO RAILWAY STATION, BOKARO	22	7.6	7.5	1.6	132	72	88	74	20.8	5.368	540	100
3555	10-02-2021	DAMODAR RIVER NEAR ZARANGDIH BRIDGE, BOKARO	23.5	7.8	7.6	1.3	120	76	80	86	21.8	7.808	554	106
2381	10-02-2021	BOKARO AT ZARANGDIH BRIDGE	24	7.5	7.4	1.5	102	54	100	70	21.6	3.904	570	98
3556	10-02-2021	CONFLUENCE OF BOKARO & DAMODAR RIVER NEAR ZARANGDIH BRIDGE, BOKARO	23.5	7.7	7.5	1.4	100	46	92	84	19.2	8.784	554	94
3554	10-02-2021	KONAR RIVER NEAR SWANG COAL WASHERY, BOKARO	24.5	7.8	7.5	1.7	104	50	108	66	17.6	5.368	538	90
2390	10-02-2021	DAMODAR AT TENUGHAT DAM	20.5	8.5	7.6	0.9	96	42	60	70	16.8	6.832	526	72

4741	12-02-2021	RANIBANDH TALAB NEAR ISM, DHANBAD	22	5	7.4	13.8	96	40	120	126	29.6	12.688	412	90
4740	12-02-2021	LOCO TALAB) PUMPU TALAB), AT- BARMASIA, DHANBAD	23	3.7	7.8	13	94	44	112	300	66	32.696	528	94
4739	12-02-2021	KATRI RIVER, NEAR BHATINDA FALL, AT-TETENGABAD, M	23	5.8	7.3	2.5	100	42	96	480	101.6	55.144	540	92
4738	12-02-2021	JAMUNIA RIVER NEAR LOHAPATTI BRIDGE, MAHUDA, DHANBAD	24	7.2	7.5	2.9	102	56	84	178	37.8	20.496	520	80
3553	12-02-2021	DAMODAR RIVER NEAR TELMUCHO BRIDGE	20	6.9	7.4	2	112	60	116	130	28	14.64	516	104
4000	12-02-2021	GARGA RIVER NEAR TELMUCHO BRIDGE	25	5	8	4.8	108	58	104	190	47.2	17.568	514	98
2383	12-02-2021	DAMODAR U/S JAMADOBA WATER	23	7.3	7.4	1.4	118	62	92	262	49.6	33.672	528	100
2384	12-02-2021	DAMODAR AT DOMGARH WATER WORKS D/S	22	7.2	7.3	1.5	94	30	96	192	38.4	23.424	432	70
2392	12-02-2021	BARAKAR AT MAITHAN DAM	24	7.3	7.5	1.3	130	66	72	64	17.6	4.88	578	102
2391	12-02-2021	DAMODAR AT PANCHET DAM	26	7.6	7.4	1	106	54	68	104	19.2	13.664	558	100
2394	08-03-2021	TOP CHANCHI LAKE	21	7.5	7.5	1.3	114	64	84	88	20.8	8.784	458	102
2382	08-03-2021	DAMODAR AT PHUSRO ROAD BRIDGE	22	7.6	7.5	1.4	102	56	88	80	20	7.32	510	100
3557	08-03-2021	DAMODAR RIVER NEAR BERMO RAILWAY STATION, BOKARO	23	7.5	7.6	1.8	130	70	92	72	21.6	4.392	536	94
3555	08-03-2021	DAMODAR RIVER NEAR ZARANGDIH BRIDGE, BOKARO	24	7.5	7.6	1.4	124	74	76	84	20.8	7.808	564	94
2381	08-03-2021	BOKARO AT ZARANGDIH BRIDGE	25	7.4	7.5	1.6	104	60	104	72	22.4	3.904	570	100

3556	08-03-2021	CONFLUENCE OF BOKARO & DAMODAR RIVER NEAR ZARANGDIH BRIDGE, BOKARO	24.5	7.5	7.5	1.5	102	48	88	82	20	7.808	562	98
3554	08-03-2021	KONAR RIVER NEAR SWANG COAL WASHERY, BOKARO	25	7.6	7.5	1.8	106	40	100	68	20	4.392	550	80
2390	08-03-2021	DAMODAR AT TENUGHAT DAM	24	7.8	7.6	0.8	100	44	64	72	16	7.808	530	70
4740	10-03-2021	LOCO TALAB) PUMPU TALAB), AT- BARMASIA, DHANBAD	24	3.5	7.7	13.8	98	48	116	288	76.8	23.424	532	98
4000	10-03-2021	GARGA RIVER NEAR TELMUCHO BRIDGE	26	5.2	7.8	4.6	104	60	108	188	48	16.592	514	100
3553	10-03-2021	DAMODAR RIVER NEAR TELMUCHO BRIDGE	25	6.8	7.5	1.9	110	64	116	132	32	12.688	528	102
4738	10-03-2021	JAMUNIA RIVER NEAR LOHAPATTI BRIDGE, MAHUDA, DHANBAD	26	7	7.6	3	104	58	88	180	46.4	15.616	520	78
4739	10-03-2021	KATRI RIVER, NEAR BHATINDA FALL, AT-TETENGABAD, M	27	5.9	7.8	2.6	102	44	100	472	72	71.248	536	98
2383	10-03-2021	DAMODAR U/S JAMADOBA WATER	28	7.6	7.5	1.6	120	64	96	200	52	17.08	536	102
2384	10-03-2021	DAMODAR AT DOMGARH WATER WORKS D/S	30	7.4	7.4	1.7	90	40	100	188	38.2	21.96	428	80
2391	10-03-2021	DAMODAR AT PANCHET DAM	28	7.2	7.4	1.4	104	60	76	116	40	3.904	582	98
2392	10-03-2021	BARAKAR AT MAITHAN DAM	24	7.7	7.5	1	124	70	68	80	28	2.44	594	94
4741	10-03-2021	RANIBANDH TALAB NEAR ISM, DHANBAD	23	5.1	7.3	13	100	50	100	128	30.4	12.688	410	100

JHARKHAND STATE POLLUTION CONTROL BOARD

CENTRAL LABORATORY, MANO BALRAM BHWAN, HATIA, RANCHI-834003

Analysis report of Swarnrekha river basin, Brahmini river Basin under NWMP of April, 2021

Lab Ref. No. Station Code No.	Name of the sampling point.	Date/time of sample collected	Temp A/W in oC	D.O. mg/lt	PH Value	BOD mg/lt	T.C. MPN 100	F.C. MPN 100	Alk mg/lt	Cl- mg/lt	COD mg/lt	T.H. mg/lt	Ca++ mg/lt	Mg++ mg/lt	TDS mg/lt	T.S. mg/lt	TSS mg/lt	Acidity mg/lt
164/21 23	Swarnrekha river, At.- Tatisilwai	20.04.2021 2.40 PM	35/28	6.8	7.5	2.5	-	-	82	18	48	110	28.8	9.27	396	440	44	6
1033	U/S Basia Dam on S. Koel River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1034	U/S Bolba on Sankh River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1035	U/S Lohajimi Torpa on N. Karo River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2376	North Koel U/S Daltonganj	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2377	North Koel D/S B.C.C.L., Rehla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
162/21 2385	Swarnrekha river, Namkum Road Bridge	20.04.2021 12.45 PM	36/28	6.7	6.8	2.3	-	-	82	20	36	122	33.6	9.27	398	474	76	6
2386	Swarnrekha river, At.- Mardu Village	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
158/21 2395	Hatia Dam	20.04.2021 8.40 AM	33/26	8.3	7.4	1.4	-	-	86	18	28	118	32.4	9.03	308	354	46	6
161/21 2396	Kanke Dam	20.04.2021 11.40 AM	34/27	6.8	7.5	2	-	-	76	20	32	122	33.6	9.27	336	380	44	6
166/21 2397	Swarnrekha river, At. - Getalsnd Dam	20.04.2021 4.35 PM	34/27	8.3	7.4	2.3	-	-	82	18	36	124	36.8	7.8	334	386	52	6