



**Current Status of
Domestic Wastewater
Treatment & Management
(for centralized and
decentralized treatment
system)
in India**

19th December 2023

Key Government Schemes in Indian Water Sector

Historical moment for water management in India

Formation of Ministry of Jal Shakti in 2019,

bringing all Major departments of the government dealing with water under the aegis of one Ministry



Implementation period	2014 - ongoing	2015 - 2020	2019 - 2024	2020 - 2026	2021-2026	2021 - 2026
Estimated budget (USD in Million)	4,000	3,000	50,000	790	17,000	8,000

Union Budget FY 2023-24, approx. **USD 12 Billion** allocated to Ministry of Jal Shakti

CATCH THE RAIN campaign in 2021 saw **4.8 million RWHS** created/ maintained at **USD 9 Bn**

Key schemes in sewage treatment – Namami Gange, SBM(G), AMRUT



Key Implementing Sources

Central government

- Ministry of Jal Shakti
- Ministry of Housing and Urban Affairs
- Ministry of Environment, Forest and Climate Change; others

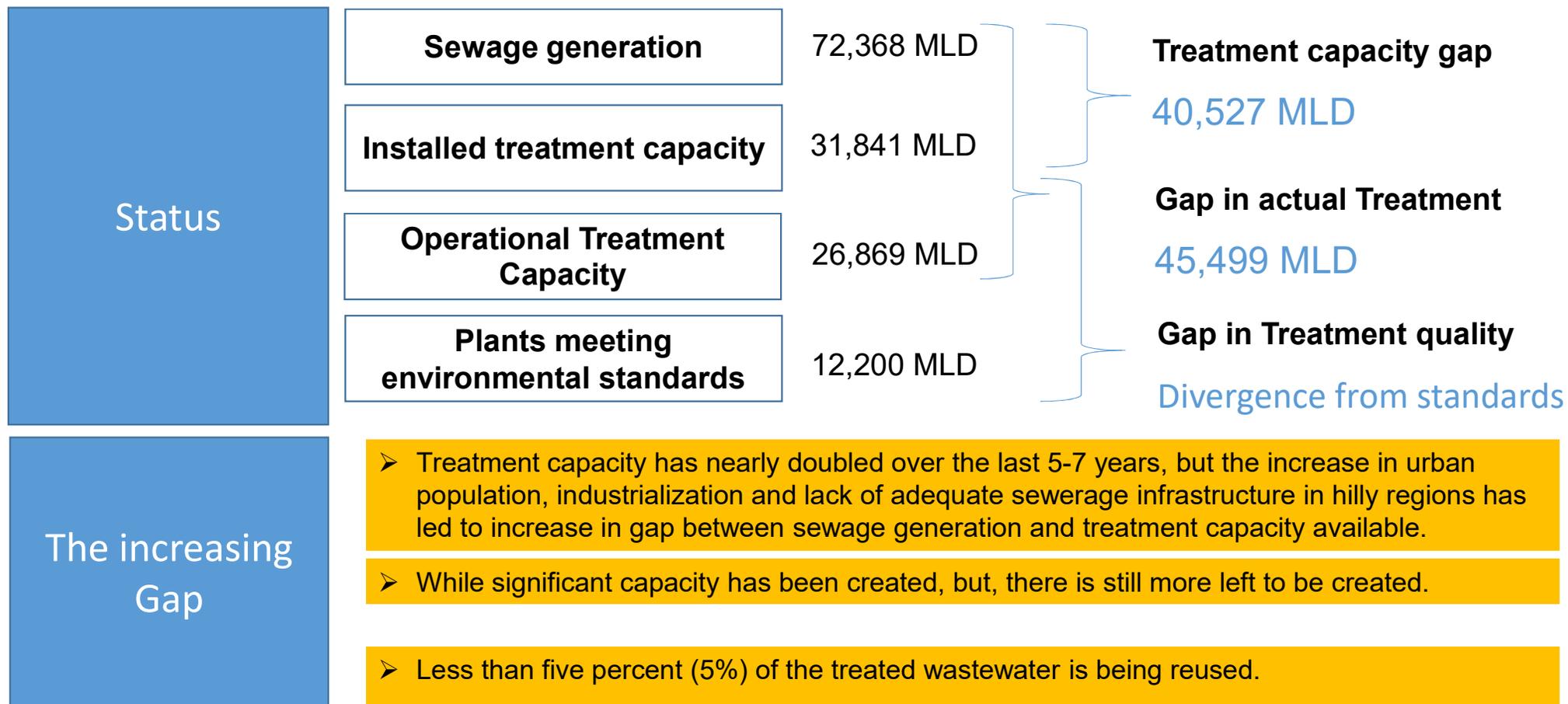
State governments

- State Urban development
- Rural water and sanitation departments
- PHED/ Municipal Corporations/ ULBs

International Financial Institutions

- JICA
- The World Bank Group
- Asian Development Bank
- DFID; others

Wastewater Generation & Wastewater Treatment Capacity in India



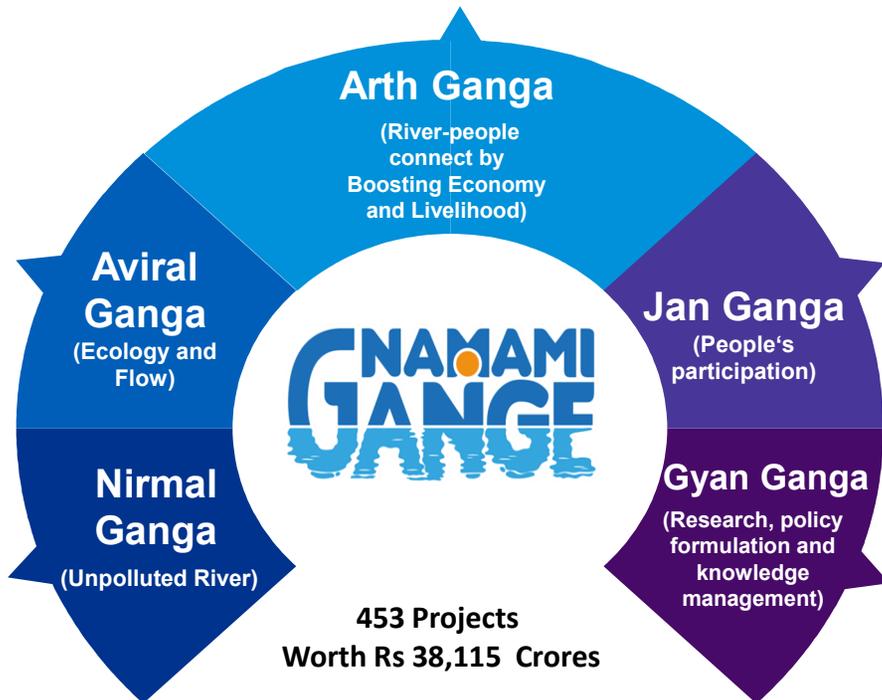
Source : Report on National Inventory of Sewage Treatment Plants in India by CPCB, 2021

Namami Gange Programme

An integrated river rejuvenation mission for the Ganga River Basin

VISION: The Vision for Ganga Rejuvenation constitutes restoring the wholesomeness of the river defined in terms of ensuring “Aviral Dhara” (Continuous Flow), “Nirmal Dhara”(“Unpolluted Flow”), Geologic and ecological integrity

Five pillars of Namami Gange



Components of the programme

Component	No of projects	Sanctioned Cost (Rs Cr)
Sewerage Infrastructure	197	31,444
Ghats and River front development	105	1,735
Solid waste management	12	295
Institutional Development	29	1,757
Research and public outreach	37	260
Biodiversity and Afforestation	51	763
Bioremediation	15	239
Rural sanitation	1	1,422
Others	7	200
Total	454	38,115

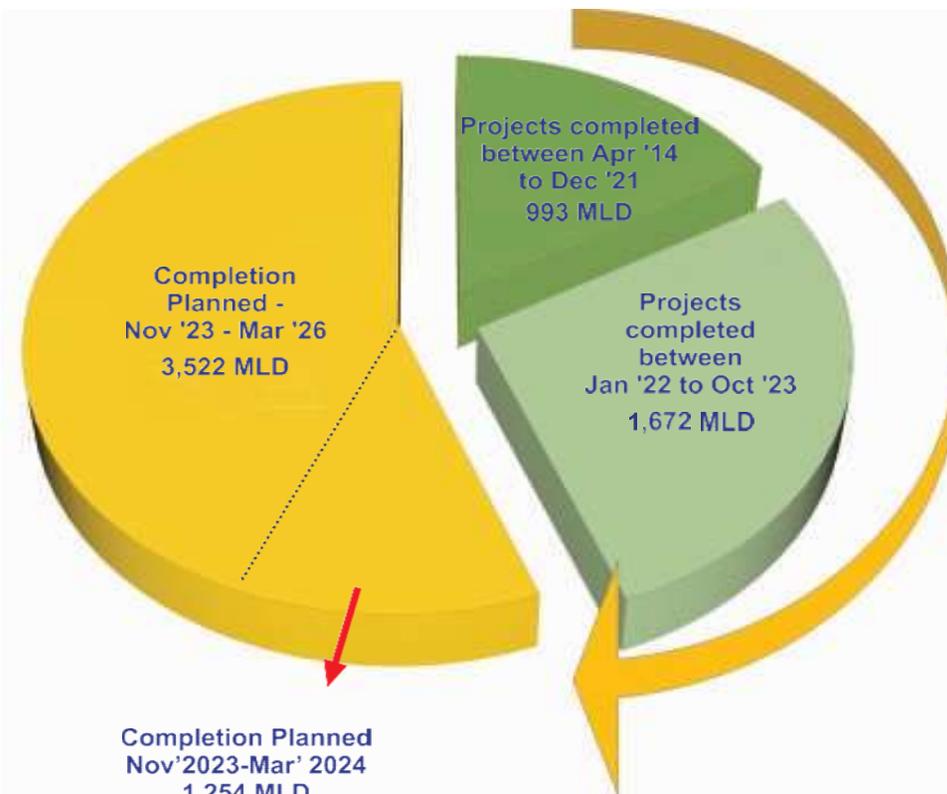
Namami Gange at a Glance

			Sanctioned				Completed			
S. No.	Type of Project	Name of State	No of Projects	Capacity (MLD)	Network (km)	Cost (in Rs. Cr)	Expenditure (Rs. Cr)	No of projects	MLD Created/Rehabilitated	Network (km)
1	Sewerage Projects	Uttarakhand	42	244	208	1,717	767	36	165	175
		Uttar Pradesh	69	2,388	1,896	14,097	5,345	37	945	1,799
		Bihar	37	745	1,792	6,160	3,850	13	274	1,305
		Jharkhand	5	262	151	1,310	186	2	16	88
		West Bengal	28	899	982	4,834	1,742	11	379	859
		Haryana	2	145	41	218	218	2	145	52
		Delhi	9	1,268	37	1,951	1,812	7	704	36
		Himachal Pradesh	1	2	0	12	4	1	2	0
		Rajasthan	1	36	146	258	176	0	36	135
		Madhya Pradesh	2	219	20	604	0	0	0	0
		Modular STP Decentralized	1	0	0	410	0	0	0	0
		Total	197	6,208	5,272	31,571	14,100	109	2,666	4,449
3	River front, Ghats and Crematoria		105	--	--	1,735	1,212	79	--	--
4	Solid Waste Management		12	--	--	295	192	9	--	--
5	Institutional Development (Non-Infrastructure)		29	--	--	1,764	508	9	--	--
6	Project Implementation Support, Research and Study Projects, Public Relations and Outreach		37	--	--	260	42	8	--	--
7	Biodiversity, Afforestation and Bioremediation		66	--	--	1,003	477	40	--	--
8	Other Projects		8	--	--	1,756	1,186	5	--	--
	Grand Total		454	6,187	5,254	38,384	16,834	259	2,666	4,449

Ganga River Basin- Project Details

Total capacity of 6,187 MLD (197 projects) is sanctioned under Namami Ganga up to October 2023

Time Period	Sewage Capacity Created/ to be Created (MLD)
Completed April 2014 – December 2021	993
Completed January 2022 – November 2023	1,672
Completion Planned December 2023 – March 2026	3,522
Total	6,187



Total targeted capacity by Dec' 2026: 7,001 MLD
(Including New Projects to be Sanctioned)

Transformational Initiatives Under Namami Gange

Governance for long-term sustainability of Sewerage Assets

Hybrid Annuity Based PPP model

- Used to undertake projects involving the **construction of STPs and interception and diversion works**, under the **Namami Gange** programme. **A total of 33 projects in Ganga river basin towns/ cities have been sanctioned under HAM.**



210 MLD STP Bhingawan, Kanpur



68 MLD STP, Jagjeetpur Haridwar

One city one operator model

- Shift towards a one-step solution for entire city
- Integration of new and existing sewerage treatment infrastructure under HAM model
- Single ownership and accountability for end-to-end operations
- Ensure continued performance for existing and new sewerage infrastructure



Photos of Operational Nirmal Jal Kendras (NJKs)/STPs in Uttarakhand



Devprayag 1.40 MLD NJK (STP)



Rishikesh (Swargashram) 3 MLD NJK (STP)



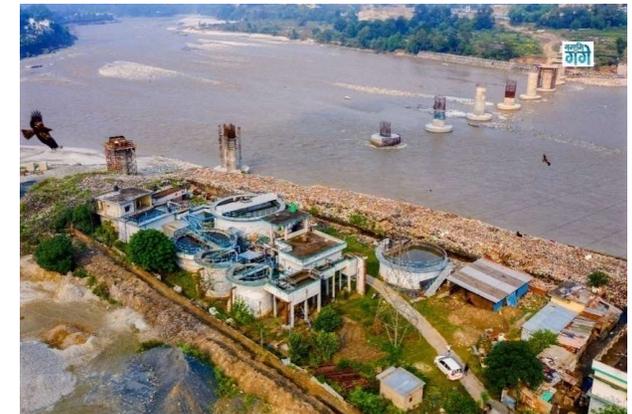
Chorpani 7.5 MLD NJK (STP)



Chorpani, Muni Ki Reti 5 MLD NJK (STP)



Haridwar Sarai 18 MLD NJK (STP)



Srinagar 3.5 MLD NJK (STP)

Photos of Operational Nirmal Jal Kendras (NJKs)/STPs in UP



Masani, Mathura 30 MLD NJK (STP)



Kodra, Prayagraj 25 MLD NJK (STP)



Rajapur, Prayagraj 90 MLD NJK (STP)



Ramanna, Varanasi 50 MLD NJK (STP)



Ramnagar, Varanasi 10 MLD NJK (STP)



Moradabad 58 MLD NJK (STP)

Photos of Operational Nirmal Jal Kendras (NJKs)/STPs in Bihar



Beur, Patna 43MLD NJK (STP)



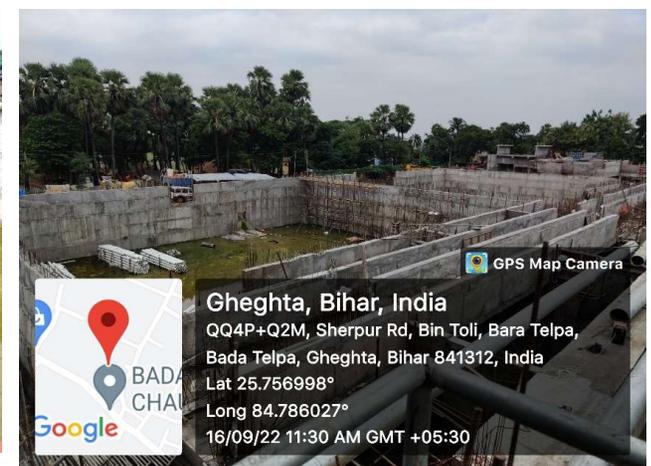
Karmalichak, Patna 37MLD NJK (STP)



Pahari, Patna 60MLD NJK (STP)



Maner, Patna 6.5MLD NJK (STP)



Chhapra 32MLD NJK (STP)

Photos of Operational Nirmal Jal Kendras (NJKs)/STPs in W.Bengal



Barrackpore 24 MLD NJK (STP)



Halishahar 16 MLD NJK (STP)



Budge Budge 9.3 MLD NJK (STP)



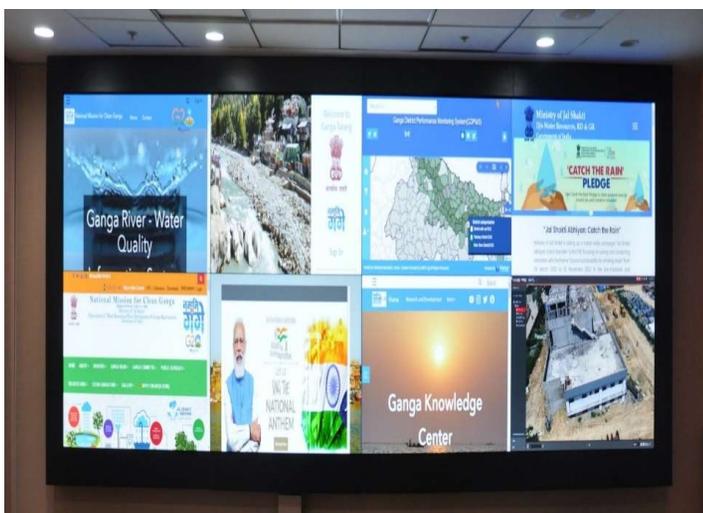
Kalyani 21 MLD NJK (STP)



Bhatpara 41 MLD NJK (STP)

PRAYAG: Monitoring Centre at NMCG

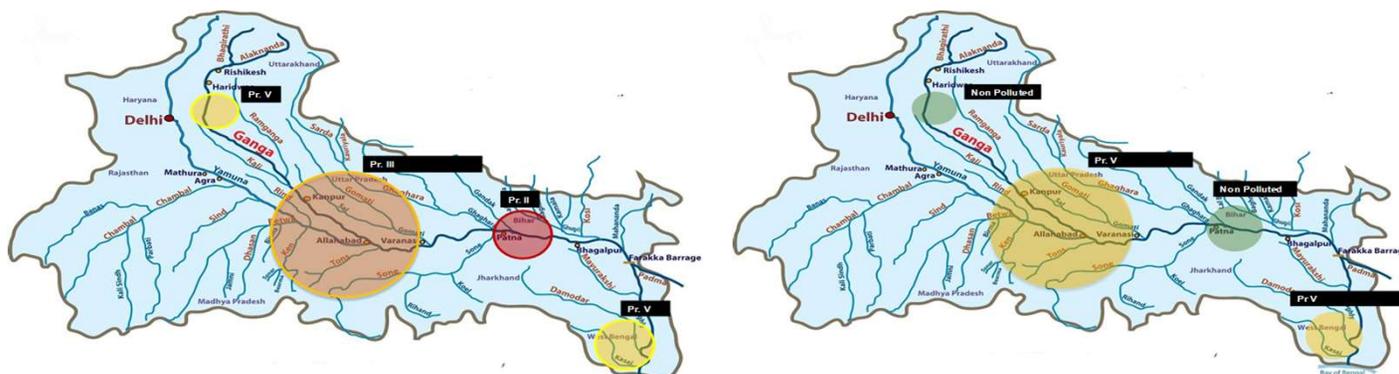
- Inaugurated on 20th April 2023 by Hon'ble Minister of Jal Shakti, Government of India
- PRAYAG (Platform for Real time Analysis of YamunA, Ganga and their tributaries) is a Real Time Monitoring Centre with on-line dashboards for planning and monitoring of project progress through real time feeds, river water quality, Performance of STPs, PMT Tool Dashboard, Ganga Districts Performance Monitoring System.



Major Achievements of Namami Gange Program Launched in 2014

Notable Improvement in River Water Quality, increase in numbers of Gangetic Dolphins and other biodiversity indicators

97 Manual and 76 Real Time Water Quality Monitoring Stations (RTQMS) are operational for monitoring water quality



State	Polluted Stretches	Priority Category	
		2014-15	2022 (Jan to Sept)
Uttarakhand	Haridwar to Sultanpur	V (4.2 - 5.8 mg/l BOD)	Not Polluted (< 3 mg/l BOD)
Uttar Pradesh	Kannauj to Varanasi	III (3.8 - 16.9 mg/l BOD)	V (2.5- 4.7 mg/l BOD)
Bihar	Buxar to Bhagalpur	II (7.8 - 27 mg/l BOD)	Not Polluted (< 3 mg/l BOD)
West Bengal	Triveni to Diamond Harbour	V (3.1 - 5.8 mg/l BOD)	V (2.6 - 3.9 mg/l BOD)

Priority	Criteria
I	BOD > 30 mg/l
II	BOD : 20-30 mg/l
III	BOD : 10-20 mg /l
IV	BOD : 6-10 mg/l
V	BOD : 3-6 mg / l

In 2022, No Stretches of River Ganga in Priority I to IV Categories of pollution

Achievements and Accolades



Namami Gange Mission: Recognized as one of the TOP TEN “World Restoration Flagship” by UN Decade



Recognized as one of the **top 10 World Restoration Flagship** initiatives on 13th December 2022 at Montreal, Canada during UN Conference Biological Diversity (COP 15)

DG, NMCG receiving the Award from Ms Natalia Alexeeva, UN Decade on Ecosystem Restoration

- **2021 – 2030 declared as the Decade on Ecosystem Restoration by UNGA**, positioning restoration of ecosystems as a major nature-based solution for achieving SDGs & national priorities
- World Restoration Flagships of the UN Decade are the first, best, or most promising examples of largescale and long-term ecosystem restoration in any country or region
- Led by UNEP and FAO, it embodies 10 Restoration Principles of the UN Decade

Participation in UN Water Conference -2023



- **The Only Indian entity to Organize a side event in the UN HQ during the UN Water conference- Namami Gange –**
“Namami Gange - An integrated & holistic approach towards Conservation & Rejuvenation of River Ganga and it's Ecosystem” was well attended
- **Bilateral meetings held with 13 countries –** Denmark, Egypt, European Union, France, Israel, Vietnam, Canada, Indonesia, United Kingdom, Singapore, UAE Japan and Bangladesh

Achievements and Accolades



NAT-GEO Award



Meeting of EDs of World Bank in Agra



Meeting held in Agra on 5th August 2023:

As part of the visit of 12 Executive Directors (EDs) of World Bank, representing 100 countries, to see the transformational progress of India and some World Bank funded projects in India, a meeting was organized on 5 August, 2023 in Agra in which Director General, NMCG, Mr. G. Asok Kumar gave a detailed presentation. Mr. Auguste Kouame, Country Director, World Bank, India was also present on the occasion.

Wastewater Generation & Wastewater Treatment Capacity in India

India's regulatory framework for wastewater treatment is evolving, with promising policies

Current Laws & Regulations covering WWT

Environment (Protection) Act, 1986:

Water (Prevention & Control of Pollution) Act, 1974:

Environmental Impact Assessment Notification (2006):

Water Cess Act (1977):

Municipal Solid Waste (Management & Handling) Rules, 2000:

Existing Policies

National Water Policy (2012) mandates setting up of sewage treatment plants in all towns with a population exceeding 10,000

Fecal Sludge and Septage Management FSSM (2017): Recognizes synergies and potential for co-treatment options for sludge.

National Framework for Safe use Treated Wastewater

Offers guidelines for the formulation of State reuse policy and intends to build appropriate market and economic models

Power Tariff Policy of 2016 mandates utilization of treated water from STPs at thermal power plants.

Efforts to bridge Gaps and Challenges

Coordination:

- Coordination challenges at various tiers causes uneven implementation which can be addressed by bringing together central and state level agencies

Integration:

- Untapped potential for wastewater reuse as a source for water bodies, groundwater recharge, and alternative water sources to be looked into

Decentralised Wastewater Treatment in India: Towards a National Framework

Decentralized Wastewater Treatment (DWT) is gaining momentum across states

National Water Policy (2012) incentivizes

- Decentralised sewage treatment plants,
- Recycling and reuse of treated water
- *through planned tariff systems, and subsidized treatment of industrial effluents.*
- **Scope for Decentralised Solutions**
 - The policy advocates Promotion of sanitation solutions that minimize water usage and treat wastewater at the source.

Several states including Karnataka, Kerala have taken steps towards adopting decentralised wastewater treatment solutions

Towards a National Framework

- NMCG's experience with the Ganga River basin fosters a comprehensive perspective that considers social, environmental, and economic aspects with expertise in implementing wastewater treatment infrastructure.
- The National Mission for Clean Ganga has promoted decentralized solutions such as Jhokasou for the Ganga River.

NMCG possesses the institutional knowledge and experience to craft a comprehensive national framework for decentralized wastewater treatment across India.

Jokhasou Technology and its adoption in certain NMCG projects

Under Namami Gange Programme three project with a total capacity of 1.92 MLD on Jhokhasou Technology have been sanctioned in Udham Singh Nagar, Rudraprayag and Rishikesh district of Uttarakhand

S. No.	State	Town	No. of STPs	Capacity (MLD)	AA&ES Cost Rs. In (Cr)
1	Uttarakhand	Udham Singh Nagar	3	1.3	199.36
2		Gaurikund & Tilwada	5	0.32	23.37
3		Muni Ki Reti, Rishikesh	1	0.3	94.06
		Total	09	1.92	316.79

Few examples of Decentralised Treatment Technology Adopted Across India

Decentralized wastewater treatment systems (DEWATS) offer a promising alternative to traditional centralized systems in India, particularly for smaller communities and areas with limited infrastructure. Diversity of DEWATS systems in terms of industry sectors, cost structures, output quality is presented in the table below

City	Location/Sector	Technology	Key Features
Koraput, Odisha	Hospital	Constructed Wetlands (CWs)	Treats wastewater for reuse in irrigation, low maintenance.
Puducherry, Tamil Nadu	College campus	CWs	High-quality effluent for reuse, eco-friendly and sustainable.
Mumbai, Maharashtra	Slum areas	Septic Tanks with Biofilters	Reduces BOD and COD levels, improves sanitation.
Bangalore, Karnataka	Gated communities	Decentralized Wastewater Treatment Plants with Biofilters	Non-potable water reuse, affordable and efficient.
Gurgaon, Haryana	Residential complex	Membrane Bioreactors (MBRs)	Stringent discharge standards, high-quality effluent for landscaping.
Chennai, Tamil Nadu	Hospital	MBRs	Meets stringent discharge standards, advanced technology for complex wastewater.
Gandhinagar, Gujarat	Dairy farm	Anaerobic Digestion (AD)	Biogas generation for energy, nutrient-rich digestate for agriculture.
Pune, Maharashtra	Food processing industry	AD	Biogas for cooking fuel, reduces environmental pollution.
Darjeeling, West Bengal	Hill resort	Community-Managed CWs	Reduces pollution, improves water quality, community ownership.
Kodagu, Karnataka	Rural communities	Decentralized Treatment Plants (community-managed)	Improved sanitation and hygiene, empowers communities.



Thank You

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