Remedial Action taken in Solid Waste & Sewage Management in Chhattisgarh.

(as per Hon'ble N.G.T O.A. 606/2018)

31st March 2023

Presentation by Chief Secretary, Govt. of Chhattisgarh

KEY ISSUES:

- Solid Waste Management
- Sewage/Septage Management

The Hon'ble Tribunal vide order dated 16.01.2019, directed Chief Secretaries of all States and UTs to explore remedial action after interaction with them.

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Chhattisgarh State Overview

CHHATTISGARH

Divisions
05

Districts
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Urban Local Bodies
169

Urban Population
59 Lakh+

Gram Panchayat
11665

Rural Population
196 Lakh+

Chhattisgarh the “cleanest state” in the country for three consecutive year in the Swachh Sarvekshan 2019, 2020 & 2021 and secured 1st position in eastern states in Swachh Sarvekshan Grameen 2022.

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2 Solid Waste Management

Chhattisgarh Solid Waste Scenario

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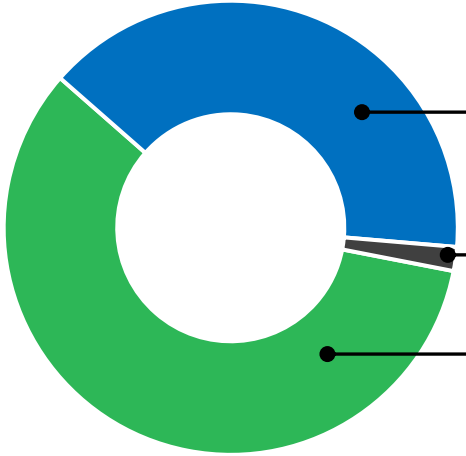
	Waste Generated (TPD)	Source Segregated (TPD)	Waste Collected (TPD)	Waste Processed at SLRM Centre (TPD)	Waste Processed at Compost Shed / Home Composting (TPD)	Waste/Inerts disposed at scientific landfill (TPD)
Urban Area	1820	1820	1820	726	1063	31
Rural Area	2051	936	936	936	1105	09
TOTAL	3871	2756	2756	1662	2168	40

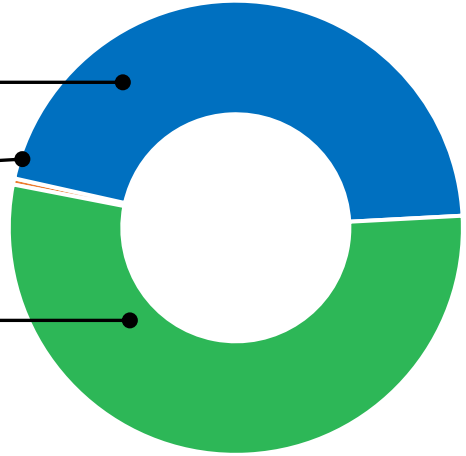
Urban Area Waste Profile



- 38-42% of Total Waste is Dry Waste
- 2-3% of Total Waste are Inerts
- 56-60% of Total Waste is Wet Waste

Rural Area Waste Profile

- 43-47% of Total Waste is Dry Waste
- 0.4% of Total Waste are Inerts
- 51-55% of Total Waste is Wet Waste



100% Waste processing is done in Urban Areas

Construction of **5000 segregation** sheds has been sanctioned and will be **constructed by August 2023**.
100% Waste processing will be achieved in Rural Areas by **March 2025 under Swachh Bharat Mission Gramin.**

Solid Waste Management Process

CHHATTISGARH

Attendance on Nishtha app

Departure

Door to Door Collection

Segregation at SLRM Centre

Weighing of waste

Washing Dry Waste

Secondary Segregation

Storage Facility

Sold to recyclers and cement plants

Washing of Wet Waste

Drying of useful wet waste

Composting at Compost Shed

Sold as City Compost

Compliance of SWM 380 Rules, 2016

Cont…

CHHATTISGARH

Enforcing waste generators to practice source segregation of waste in Urban Areas.	Ensure Door to Door collection of segregated Municipal Solid waste in Urban Areas	Bioremediation or capping of old and abandoned dump sites in Urban Areas	Ensure transportation in covered vehicles to processing or disposal facilities in Urban Areas
100%	100%	162 ULBS	100%







Compliance of SWM Rules, 2016[381]

Cont…

CHHATTISGARH

Identification and setting up of decentralized Solid Waste processing facilities.

Urban Area

- **360** SLRM Centres
- **175** Compost Sheds

Rural Area

- Segregation Shed **6274**
- Community Compost Pit **18110**

5000 additional segregation sheds to be constructed by August 2023 in the Rural Areas

Setting up solid waste processing facilities and setting up of sanitary landfill facilities for 2 ULBs.

Sakri Integrated Solid Waste management Facility (Raipur)

Kachhar Integrated Solid Waste management Facility (Bilaspur)

Compliance of SWM Rules, 2016

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Land allocation for Solid Waste Management In Industrial Areas

The developers of Industrial Estates, and Industrial Parks were required to earmark at least 5% of the total area of the plot or a minimum of 5 plots or sheds for recovery and recycling facilities.

This land has been identified and earmarked to ensure the sustainable management of solid waste generated in these areas.


Bhilai Rail Industrial Park


Engineering Park, Hathkhoj Bhilai


Mega Food Park Bagod, Banjari Sectpor I


Industrial Area, Lakhanpuri


Mega Food Park, Bagod Banjari Sector II


Rawalbhata Metal Park


Electronic Manufacturing Cluster Nawa Raipur

Model cities/panchayats 383

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In the Compliance of the order passed by Hon'ble NGT O.A. 606/2018 dated 30.04.2019.

- UAD has notified 27 Model Cities via State Gazette 5600/821 dated 14.05.2019 and,
- Department Of Panchayat & Rural Development has notified 81 Model town/panchayats via state Gazette 216 dated 12.06.2019

Few of these Model cities have been certified as 5 star, 3 star and 1 star city under the Garbage Free City Star Rating, 2021 conducted by MoHUA Govt. of India.

1 Model City 5 Star	10 Model Cities 3 Star	6 Model Cities 1 Star

Urban


Durg ULB

Jashpur Nagar ULB

Arang ULB

Rural


Murmunda GP


Naimed GP


Badekanera GP

Compliance of all SWM Rules is being done in all the 108 Model cites/towns/panchayats

IEC Campaign

Cont…

CHHATTISGARH

“Samjhaya-Sikhaya-Bhagidar Banaya”

Aiming at behaviour change of the citizens towards Source Segregation of Wet and Dry Waste an IEC Campaign ‘Chhota Bheem-Captain Clean’ was launched in association with popular Indian mythological animation Character to create a better impact amongst the Kids and youth.

IEC PROGRAMS FOR STUDENTS.

- **Summer Projects** in schools to promote Reduce, Reuse, Recycle and encouraging Eco-Friendly Habits.
- Organized **Swachhata Competition’s** for Schools, Hotels, Hospitals, RWA’s and Markets to promote hygienic living spaces
- 2000**+ Bano Plastic Free Workshops** organized in RWA, Colleges and Schools.

COMMUNITY LEVEL IEC PROGRAMS

- Telecast of Video Song **“Apna Jhola Layega”** in Regional News Channels, FM Channels, Multiplexes, Airport and Railway Station Screens.
- 165+ “**Bano Plastic Free**” Cycle Rallies organized.
- 6,000+ **Plastic Waste Shram Dan Rally** (Mass Scale Plogging Drive).
- 1400+ Bano Plastic Free **Nukkad Nataks** Organized.
- **Flash Mobs** in Malls, Parks and Markets.
- **Wall Paintings** on Swachhata and Bano Plastic Free themes.

IEC Campaign

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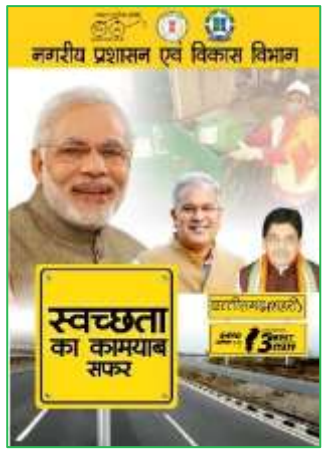
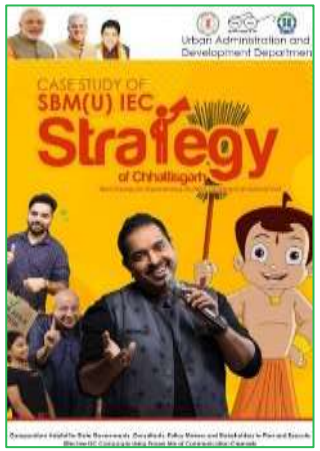
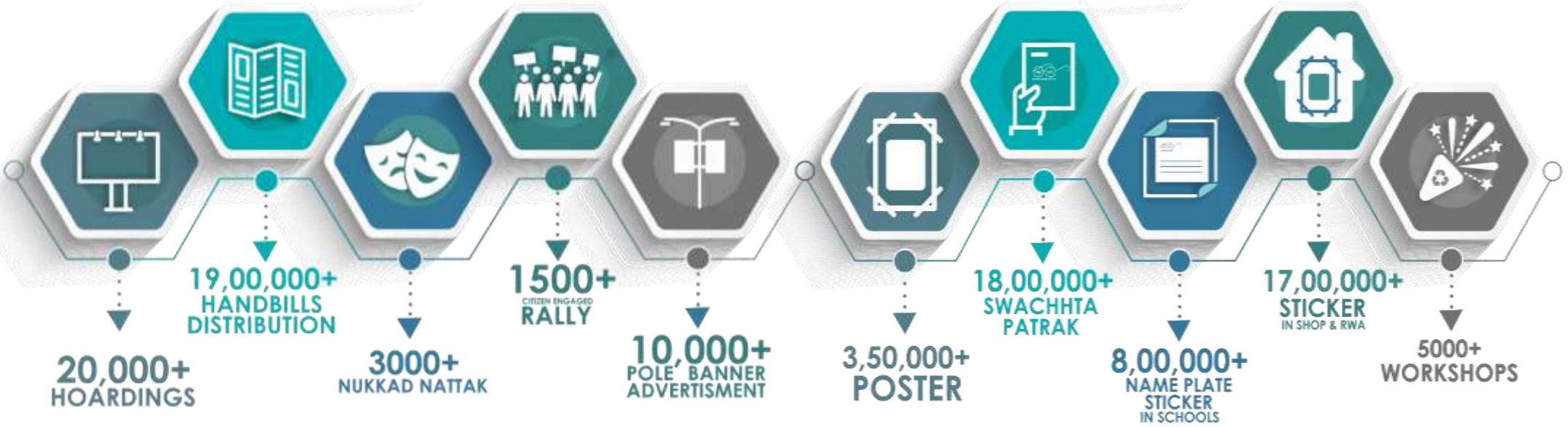
ICE flyers published and Activities performed







Innovations and Success Stories

Cont…

CHHATTISGARH

Chhota Bheem Captain Clean

Campaign for Behaviour Change of the citizens towards waste segregation & Community Participation

Godhan Nyay Yojna

Effective dairy waste management and livelihood by converting cattle manure into compost (40103 Tonne of vermi compost)

Bartan Bank

Innovative way to discourage the use of single use plastic by providing cloth bag and utensils on rent at nominal cost.
(332 Bartan are operational)

A WAY to DO it BETTER

India's First Garbage Café

Ambikapur ULB provides food to the poor and homeless in lieu of plastic waste.

Bali Vashiya

An Innovative way (garbage enzyme) for converting wet waste into Compost (Ambikapur Pilot Project)

NIDAAN 1100

Online Grievance Redressal Mechanism for all Waste Management Grievances in State of Chhattisgarh (3.8 Lakh+ complaints addressed since 2013)

Innovations and Success Stories

Cont…

“Swachhata Diksha” (Training Centre for Waste Management at Ambikapur)

State has developed a Training centre at Ambikapur.

AIM

- To impart knowledge in the waste management sector.
- Help experts to develop successful waste management models for their communities.
- To raise awareness among the public about the importance of waste management.

SALIENT FEATURES

- Equipped with state-of-the-art facilities and resources.
- Both Online and offline training available for individuals, organizations, and communities.
- Covers all aspects of waste management, including waste reduction, recycling, composting, and landfill management.

स्वच्छता दीक्षा
FIRST URBAN MANAGEMENT INSTITUTE FOR ROLE BASED CERTIFICATION
• STATE URBAN DEVELOPMENT AGENCY, CHHATTISGARH •


आइएएस के प्रशिक्षण का हिस्सा बना अंबिकापुर का स्वच्छता माडल

Through “Swachhata Diksha” training centre, the state has assisted multiple states by offering training and capacity building workshops regarding sustainable waste management.

In addition to the above the state has also imparted training to **Approx. 70 Officials from Nepal**

As per the NGT’s Direction 21 CMOs have been trained on the Indore Waste Management Model at Indore

Training imparted to officials form different States

State/Country	Officials
Maharashtra	80
Uttar Pradesh	50
Tamil Nadu	28
Rajasthan	25
Andhra Pradesh	10
Tripura	40
Jammu & Kashmir	4
Ladakh	25
Nepal	70

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Innovations and Success Stories

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Self Sustainable Revenue Generation CSC Model

Gram Panchayat (GP) – Batwahi, Block – Lundra, District – Surguja

- Segregation shed constructed and SHG swachhgrahi engaged for SLWM activities.
- Vermi compost units constructed for biodegradable waste.
- Community biogas installed and gas provided to 10 families under Gobardhan Scheme.
- Batwahi is also Menstrual Hygiene Management (MHM) saturated GP where every women and adolescent girl in GP is practicing Safe MHM.
- Single use plastic also banned in GP area. traditional sources like paper bags, dona-pattal are being used in place of SUP.

Gram Panchayat-Batwahi was awarded with ODF sustainability award in year 2020.


Batwahi GP


Batwahi GP


Batwahi GP

Legacy Waste Profile

Cont…

The Legacy waste Remediation work has been successfully completed in 162 Urban Local Bodies.

- Most of ULBs come under 1 lakh population category.
- Accumulated waste at dumpsites was processed under **Mission Clean City (based on Ambikapur model)** by putting Infrastructure at place in form of SLRM Centre and Compost Shed.

Process

- Segregation of waste at dump sites and formation of garbage heap.
- Sprinkling of water and bacterial inoculum.
- Scientifically capping as per landfill capping norms.

Formation of garbage heap and primary segregation

Sprinkling of water for compressing the heap

Drilling for insertion of Bacterial inoculums

Preparation of grass seeds to bind the soil on surface.

Covering of surface with Jute & other capping Material

Regular maintenance and care of the growing grass

- **Since January 2018, all 169 ULBs are implementing 100% waste processing, resulting in zero new dumpsites.**
- **Remediation work in 07 ULBs is under progress.**

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Legacy Waste Profile 390

Cont…

Status of Legacy Waste Disposal in 07 ULBs with Budgetary provision

Sr. No.	ULBs Name	Legacy Waste Quantity (Tonne)	State Budget allocation (in Lakh)	Present Status	Estimated work completion timeline
1	Raipur	4,50,000	1816.00	5th Tender has been called due to non availability of the Qualified Bidders. **Last date of Bid submission is 29.03.2023**	December 2024
2	Korba	2,64,000	693.71	Agency selected in 4th tender and work order issued on 10.11.2022. **20% work completed**.	May 2023
3	Durg	1,44,000	599.58	Agency selected in 4th tender and work order issued on 07.09.2022. **70% work completed.**	May 2023
4	Raigarh	53,934	211.35	After 10% work Contractor terminated due to poor performance and after retendering process work order issued on 15.11.2022. **80% work completed.**	May 2023
5	Jagdalpur	44,000	214.25	After 10% work Contractor terminated due to poor performance and after retendering process work order issued on 25.11.2022. **30% work completed.**	May 2023
6	Dhamtari	35,000	131.00	After 10% work Contractor terminated due to poor performance and after retendering process work order issued on 07.11.2022. **70% work completed.**	May 2023
7	Rajnandgaon	26,506	106.02	Remediation work is being done by ULB itself **45% work completed.**	May 2023
Total		**10,17,440**	**3771.91**	**Approx. 2,46,375 Tonne of Legacy waste have been remediated till now.**	

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Legacy Waste Profile[391]

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Technology to Remediate Legacy Waste

In **07** Urban Local Bodies the Legacy waste Remediation **work is in progress**.

As per the SWM Rules, 2016 and CPCB Guidelines for Disposal of Legacy Waste (Old Municipal Solid Waste), The proposed technology for treatment & disposal of Legacy Municipal Solid Waste is **Bio-remediation and Bio-mining**

1. Excavation of old dumped waste
2. Make windrow of legacy waste
3. Stabilization of the waste through bio-culture & aeration
4. Screening of the stabilized waste to recover all valuable resources
5. Sustainable management through recycling, co-processing etc.
6. **Recovery of Bio Soil**
   Reclamation of Land

State's Commitment

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Legacy Waste remediation work completion timeline

Sr. No.	1	2	3	4	5	6	7
ULBs Name	Raipur	Korba	Durg	Raigarh	Jagdalpur	Dhamtari	Rajnandgaon
Estimated work completion timeline	December 2024	May 2023	May 2023	May 2023	May 2023	May 2023	May 2023

- The State of Chhattisgarh understand the importance of addressing legacy waste and its adverse impact on the environment and public health.
- The State has made a strong commitment to managing legacy waste in a timely and efficient manner, and we are confident that we have the necessary resources to do so.
- The State has also developed a comprehensive plan with clear timelines to ensure the completion of work within time limit.
- The State reassure that the necessary budgetary provisions (**Rs. 37.72 Cr)** are already in place towards Legacy Waste Remediation.

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3

Sewage Management

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Chhattisgarh Sewage Scenario

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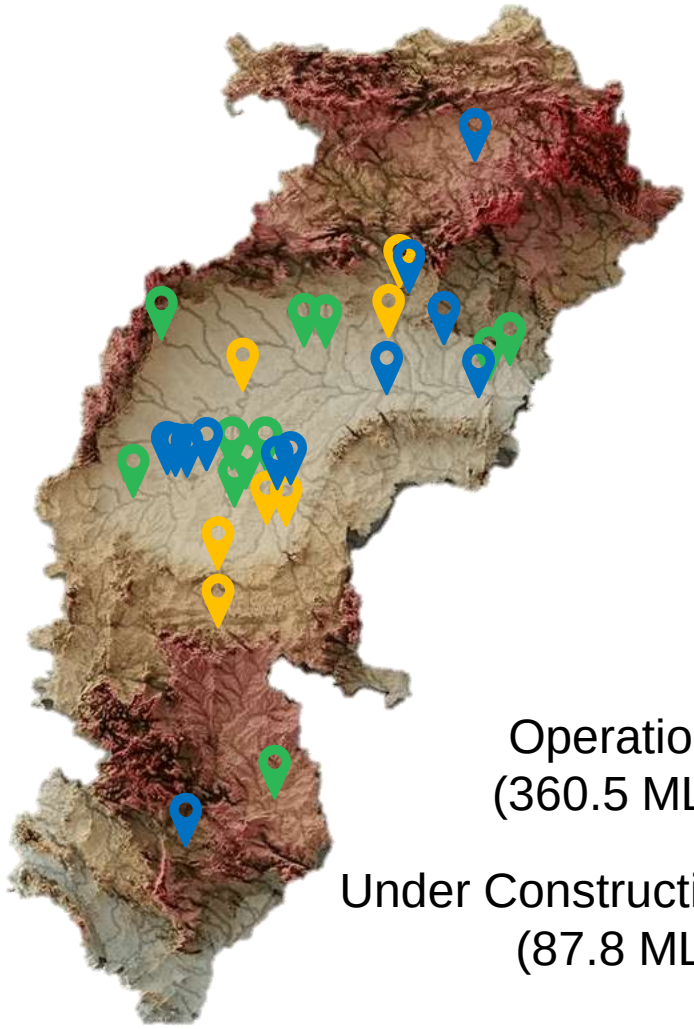


Approx. **600 MLD** of sewage is being generated in the State of Chhattisgarh.

The state has about **360.5 MLD installed capacity, 87.8 MLD under construction and approx. 311.2 MLD approved stage,** combining total capacity of **759.5 MLD** for the treatment of used water from the urban households.

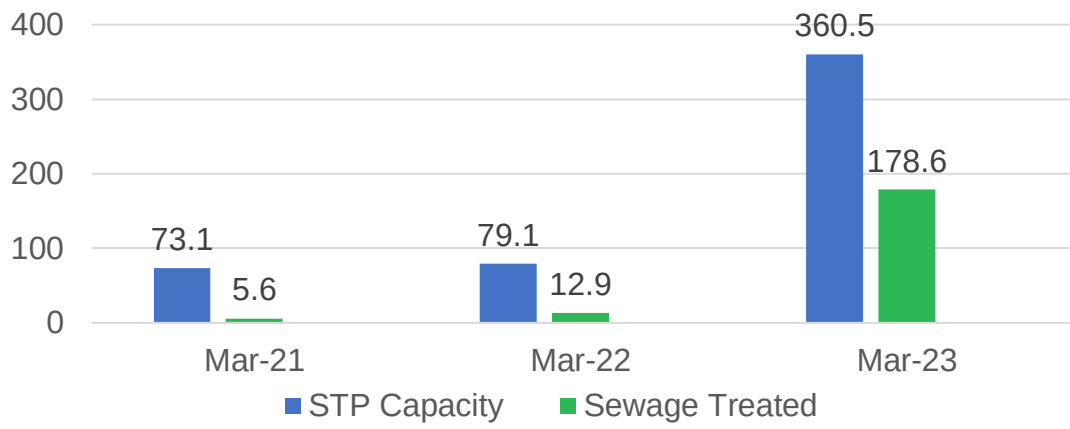
Most of the urban households are relied on on-site sanitation systems such as **Septic Tanks, Pit latrines and twin pits**. The septage generated from the households of all **160 ULBs** is being treated through **Faecal Sludge Treatment Plant (FSTPs)** (Low-cost gravity based Planted drying bed) and **co-treatment with nearby STPs** in **9 ULBs**

Approx. **33.5 Lakh Leach pit toilets are constructed** in the **rural area** where in situ treatment of faecal waste is done. And no further treatment of such waste is required in the rural scenario.

Operational (360.5 MLD) **14**

Under Construction (87.8 MLD) **11**

Approved Stage (311.2 MLD) **10**



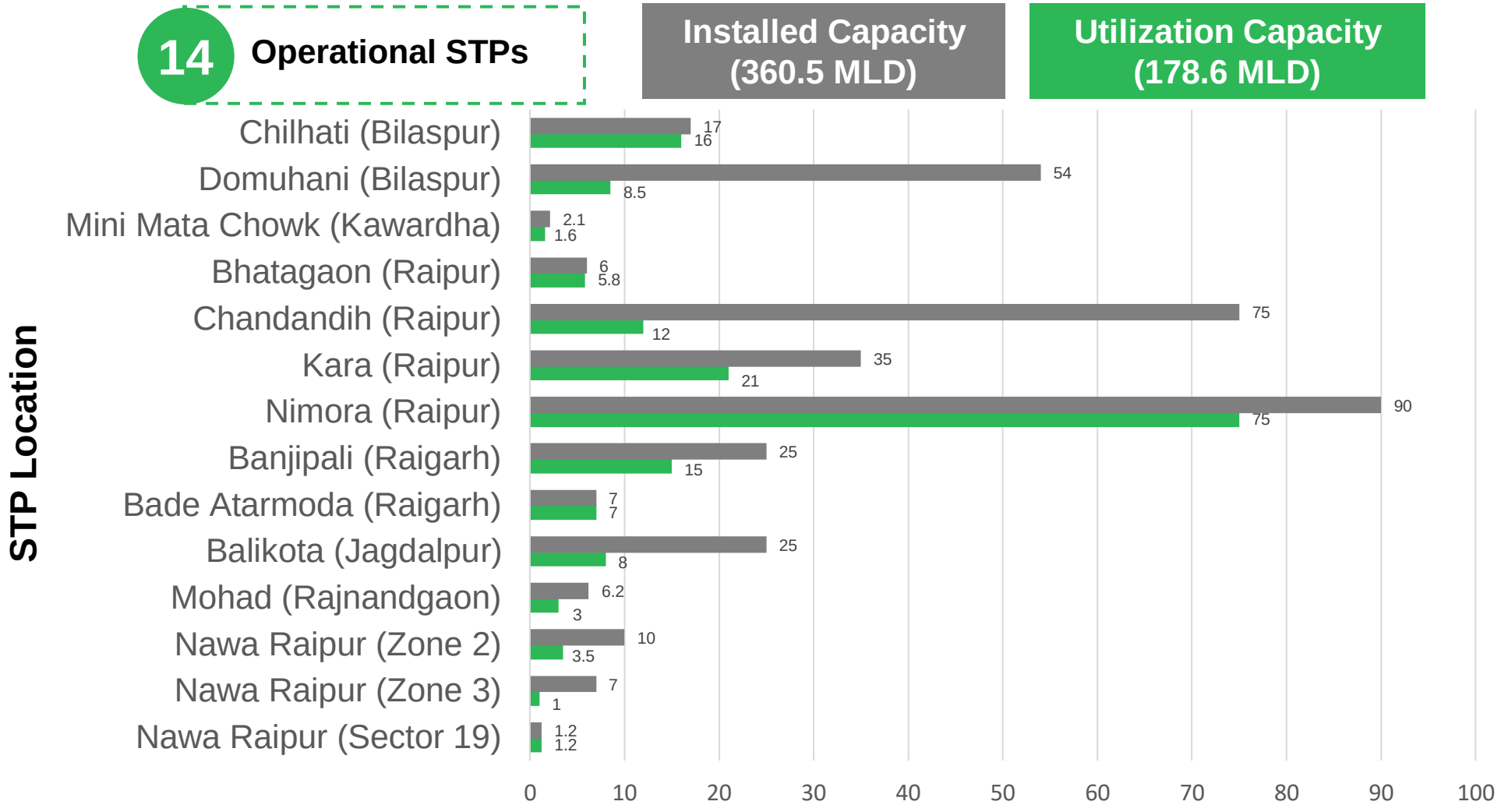
Progress in STP Capacity of State after intervention of Hon'ble NGT

STPs Progress

Cont…

Capacity Utilization of the Operational STPs

14 Operational STPs



The capacity utilization of STPs will increase upon the completion of the interception and diversion of drains in Chandandih (Raipur) and Domuhani (Bilaspur).

STPs Progress

Cont…

Progress of Under Construction STPs

11

Under Construction (87.8 MLD)

Sr. No.	Under Construction STPs	STP Capacity (MLD)	Physical Progress	Estimated Completion Date
1	Nawa Raipur: Zone 1	10	98% completed	(Jun 2023)
2	Nawa Raipur: Zone 4	10	60% completed	(Dec 2023)
3	Kanker	7.8	35% completed	(Dec 2023)
4	Dhamtari	19.6	34% completed	(Dec 2023)
5	Nawapara	7.5	85% completed	(Jun 2023)
6	Rajim	2.8	85% completed	(Jun 2023)
7	Simga	2.8	32% completed	(Jun 2024)
8	Champa	5.3	23% completed	(Jun 2024)
9	Bilaspur: Koni C	6.0	25% completed	(Jun 2024)
10	Bilaspur: Mangla B	10.0	Design ,drawing complete, excavation started	(Jun 2024)
11	Bilaspur: Mangla D	6.0		(Jun 2024)
TOTAL		**87.8**	**-**	

Budgetary provisions allocated for Construction of STPs.

Rs. 176.55 Cr from state budget

Budgetary provision

State Budget

STP	Capacity (MLD)	Project Cost (Lakhs)
Nawa Raipur Zone 1	10	3500
Nawa Raipur Zone 4	10	3493
Kanker	7.8	2143
Dhamtari	19.6	3031
Nawapara	7.5	1548
Rajim	2.8	1459
Simga	2.8	1088
Champa	5.3	1393
TOTAL	**65.8**	**17655**

Smart City

STP	Capacity (MLD)	Project Cost (Lakhs)
Bilaspur (Mangla B)	10.0	1354
Bilaspur (Mangla D)	6.0	869
Bilaspur (Koni C)	6.0	780
TOTAL	**22**	**3003**

Rs. 30.03 Cr from Smart City Scheme

STPs Progress

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STPs in pipeline

10

Approved Stage (311.2 MLD)

Sr. No.	STPs (approved stage)	STP Capacity Approx. (MLD)	Administrative Approval Timeline
1	Korba	20.5	Administrative Sanction provided on 05.01.2023
2	Kumhari	80.0	
3	Sakti	4.0	Administrative Sanction will be provided by 30.04.2023
4	Shivrinarayan	2.2	
5	Dantewada	2.8	
6	Chandrapur	1.7	
7	Durg	60.0	DPR preparation will be completed till October 2023
8	Bhilai	100.0	
9	Risali	15.0	
10	Ambikapur	25.0	
TOTAL		**311.2**	-

Budgetary provisions allocated for STPs in pipeline.

Rs. 156.58 Cr from state budget

Budgetary provision

State Budget

STP	Approx. Capacity (MLD)	Estimated Project Cost (Lakhs)
Korba	20.5	5772
Kumhari	80.0	6404
Sakti	4.0	772
Shivrinarayan	2.2	1010
Dantewada	2.8	655
Chandrapur	1.7	1045
TOTAL	**111.2**	**15658**

AMRUT 2.0

STP	Approx. Capacity (MLD)	Estimated Project Cost (Lakhs)
Durg	60.0	11600 Central Share 16300 State Share 7100 ULB Share
Bhilai	100.0	
Risali	15.0	
Ambikapur	25.0	
TOTAL	**200**	**35000.00**

Rs. 350.00 Cr from AMRUT 2.0 Mission

Utilization of the treated wastewater from STPs

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Reuse of the treated waste water from the operational STPs is being done in:

- Utilization in industrial purposes,
- Landscaping works in parks and gardens,
- Water sprinkling on roads to limit the Road Dust pollution,
- Construction work carried out by ULBs

Durg ULB


Raipur ULB

Acceptance received from five Industries for the purchase of treated wastewater from RMC.

- Accepted Rate of Treated Wastewater (after secondary treatment) : Rs. 6/Litre
- Expected Total Revenue Generation: 2.37 Cr/Year
- Work in progress for signing of MoU between RMC and Industry.

Sr No.	Name of Industrial Unit	Desired Treated Water (Per Day)
1	M/s. Hira Steel Limited	2000 KLD
2	M/s. Brijesh Steel Limited	7000 KLD
3	M/s. R. R. Ispat Limited	100 KLD
4	M/s. Alok Ferro Alloys Limited	1000 KLD
5	M/s. Hira Ferro Alloys Limited	900 KLD
Total Demand by Industries		**11000 KLD**

The treated waste water (20.5 MLD) from the Korba STP will be utilized by M/s. NTPC Jamni Pali

Insitu Drain Remediation

Pilot project Municipal Corporation Ambikapur

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State has developed a model in-situ Phyto-remediation plant named as **“Natural Gravity Based low-cost Wastewater Treatment Plant”** and it has been successfully implemented in **Municipal Corporation Ambikapur**, Chhattisgarh as a pilot project.

In this process treatment of drains is done using aquatic plants / microbial remediation methods.

The in-situ treatment system can treat the sewage in a continuous manner throughout the year.

400 Faecal Sludge Treatment Plants

Insanitary conditions for more than 5.7 million of the urban population was addressed by constructing low-cost gravity based FSTP as a result of which CG state became the first and only ODF++ State.

160 FSTP's in 160 ULBs

09 Co-treatment in nearby STPs

02 FSTP's in Rural Area

Salient features of FSTP

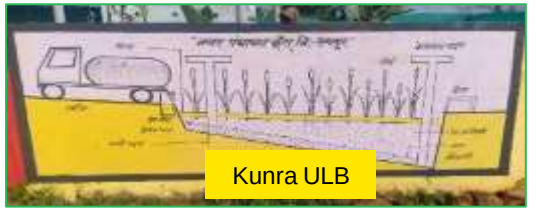
- Decentralised treatment plant with 5-step enhanced treatment process which is easy to construct and operate.
- Treatment plant with less space requirement and greater ecological viability.
- Low Capital and Operational expenditure per KLD as compared to other conventional technologies

Jashpur Nagar ULB


Patora GP


Rajnandgaon ULB

100 % Septage Collection Transportation & Safe Disposal


Kunra ULB

Charama ULB

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STP Photographs

Cont.…

Operational STPs

Bilaspur (Domuhani) 54 MLD

Bilaspur (Chilhati) 17 MLD

Kawardha (Mini Mata Chowk) 2.1 MLD

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STP Photographs

Cont.…

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Operational STPs

Raipur (Nimora): 90 MLD

Raipur (Chandandih): 75 MLD

Raipur (Kara): 35 MLD

Raipur (Bhatagaon): 06 MLD

STP Photographs

Cont.…

Operational STPs

Raigarh (Bade Atarmoda): 07 MLD

Raigarh (Banjipali): 25 MLD

Rajnadgaon (Mohad): 6.2 MLD

Jagdalpur (Balikonta): 25 MLD

STP Photographs

Under Construction STPs

Nawapara: 7.5 MLD

Dhamtari: 19.6 MLD

Simga: 2.8 MLD

Rajim: 2.8 MLD

Kanker: 7.8 MLD

State's Commitment

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- The State of Chhattisgarh understand the importance of managing sewage in an efficient and environmentally friendly manner, and we are committed to taking all the necessary steps to make zero gap in sewage management.
- The State is confident that we will complete the construction of the sewage treatment plants in a time bound manner and utilize the treated wastewater.
- The State reassure you that the state government has made adequate budgetary provisions **(INR 713.11 Cr)** in a ring fenced manner for the construction of Sewage Treatment Plants.

4 Accolade's

Accolade's: SS2022

ULB	Award Category
Raipur	11th Rank out of 45 ULB's with >10 Lakh
Ambikapur	4th Rank out of 380 ULB's with 1L-10L
Korba	14th Rank out of 380 ULB's with 1L-10L
Bhilai Nagar	21st Rank out of 380 ULB's with 1L-10L
Bilaspur	25th Rank out of 380 ULB's with 1L-10L
Risali	26th Rank out of 380 ULB's with 1L-10L
Durg	27th Rank out of 380 ULB's with 1L-10L
Raigarh	39th Rank out of 380 ULB's with 1L-10L
Jagdalpur	37th Rank out of 380 ULB's with 1L-10L
Rajnandgaon	51st Rank out of 380 ULB's with 1L-10L

ULB	Award Category
Bishrampur	Best 'Clean City' (<15K – EZ)
Balrampur	Best 'Self-Sustainable City' (<15K – EZ)
Khongapani	Best 'Clean City' (15K-25K EZ)
Akaltara	Best 'Self-Sustainable City' (15K-25K – EZ)
Jashpur Nagar	Best 'Clean City' (25K-50K EZ)
Baloda Bazar	Award for 'Citizens Feedback' (25K-50K EZ)
Kawardha	Best 'Self-Sustainable City' (25K-50K EZ)
Chirmiri	Best 'Clean City' (50K-1L EZ)
Bhilai Charoda	Best 'Self-Sustainable City' (50K-1L EZ)
Ambikapur	Best 'Self-Sustainable City' (1L-3L NZ)
Patan	India's Cleanest City No. 2 (<1L NZ)

Star Rating Performance 2022

ULB	Star Rating
Ambikapur	5 Star ★★★★★
Patan	
Bhilai Nagar	3 Star ★★★
Bhilai	
Durg	

ULB	Star Rating
Raipur	3 Star ★★★
Bhatapara	
Jashpur Nagar	
Khongapani	

- **63 ULBs** have been certified as **3 star** city and,
- **38 ULBs** have been certified as **1 star** city under the Garbage Free City Star Rating, 2022

CHHATTISGARH

Chhattisgarh

Thank You