



Program Implementation: Circular Economy a focus of **Swachh Bharat Mission in India**

28th August 2023

**REGIONAL POLICY DIALOGUE for
CIRCULAR ECONOMY TRANSITION**

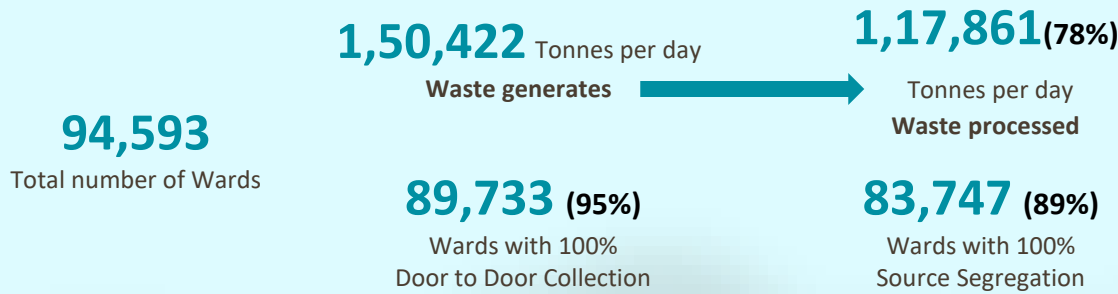
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Current trend of Municipal Solid Waste Management in India

Percentage of waste processing percentage in India



2300

Total number of
Dumpsite

326

Remediation
complete

1324

Remediation
approved & on-going

0-25%

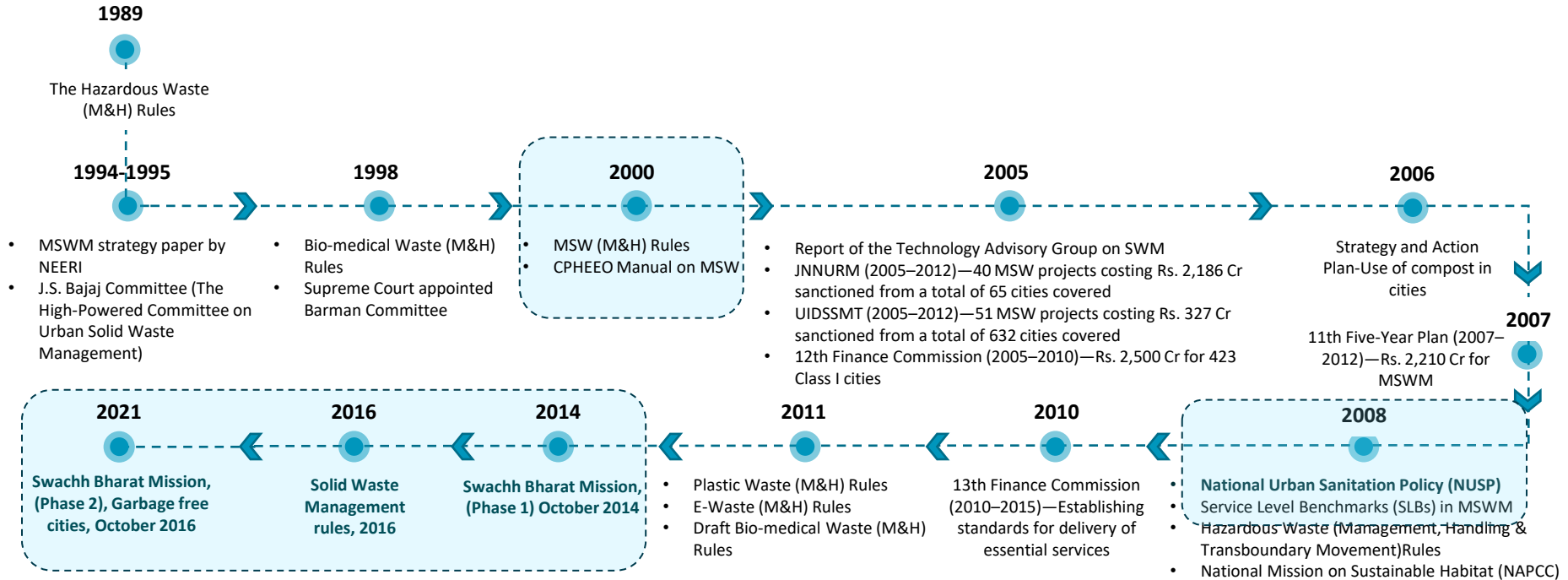
26-50%

51-75%

76<100%

100%

Important National level policy landmarks and Initiatives by Government of India for Solid Waste Management

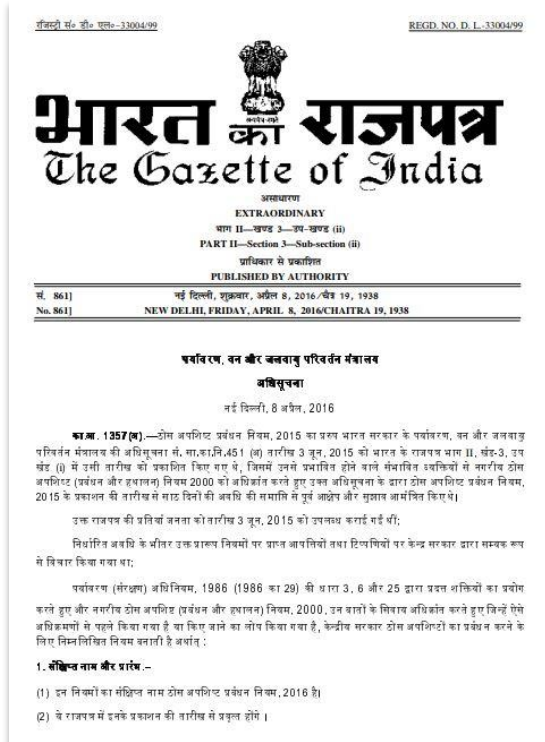


MSW Rules, NUSP and Swachh Bharat Mission key milestones for SWM . . .

India's SWM Rules (2016) provided a focus on recycle and reuse...

In India, the Solid Waste Management Rules (2016) came into force focusing on the following aspects -

- **Segregation at source level** with an intend of focusing on circular economy by converting waste to wealth by recovery, reuse and recycle.
- In special economic zones, **5% of the total plot area or minimum 5 plots/sheds are required** to be dedicated **for recovery and recycling facility**.
- **Manufacturer of disposable products** (such as tin, glass, plastic packaging etc) are required to provide **financial assistance** to the ULBs **for establishing proper waste management facility**.
- Being an agro-based country, in India, the SWM rule promotes **construction of compost plants** which will provide high nutrients fertilizers to the farmers.
- **Industrial units** who are depended on fuel and **located within 100 km from any solid waste-based RDF plant**, shall **replace 5% of their fuel requirement by the RDF produced fuel**.



Swachh Bharat Mission (Clean India Mission) was launched in 2014 defining long-term objectives to address sanitation related issues

Objective of the mission

- Elimination of open defecation
- Eradication of Manual Scavenging
- **Modern and Scientific Municipal Solid Waste Management**
- To effect behavioral change regarding healthy sanitation practices
- Generate awareness about sanitation and its linkage with public health
- Capacity Augmentation for ULBs to create an enabling environment for private sector participation in Capex and Opex

Objective of the making cities garbage free under the ambit of SBM phase 2

- **Segregation of household waste** into 'wet waste' (from kitchen and gardens) and 'dry waste' (including paper, glass, plastic, and domestic hazardous waste and sanitary waste wrapped separately)
- **100% door to door collection** of segregated waste from each household/ premise
- **100% scientific management** of all fractions of waste, **including safe disposal** in scientific landfills
- All **legacy dumpsites remediated** and converted into green zones
- All **used water** including fecal sludge, especially in smaller cities are **safely contained, transported, processed, and disposed** so that no untreated fecal sludge and used water pollutes ground water

The idea is to ensure-



Positive Messaging



Inclusiveness



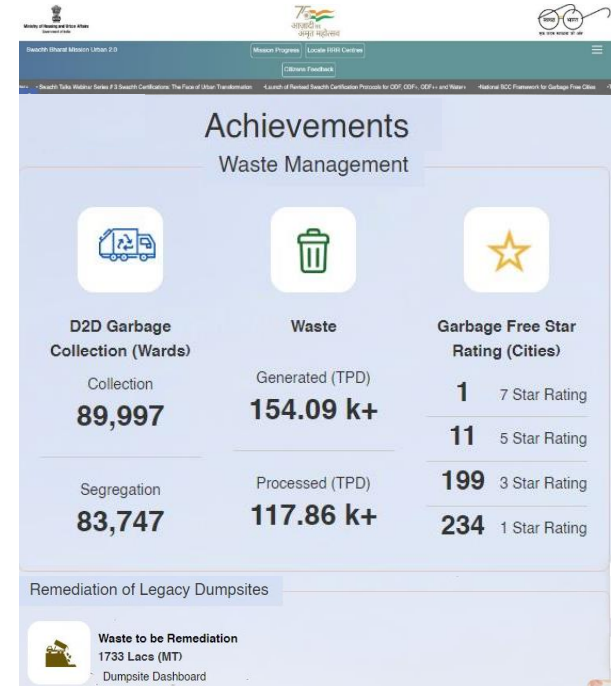
Gender sensitivity



Clarity

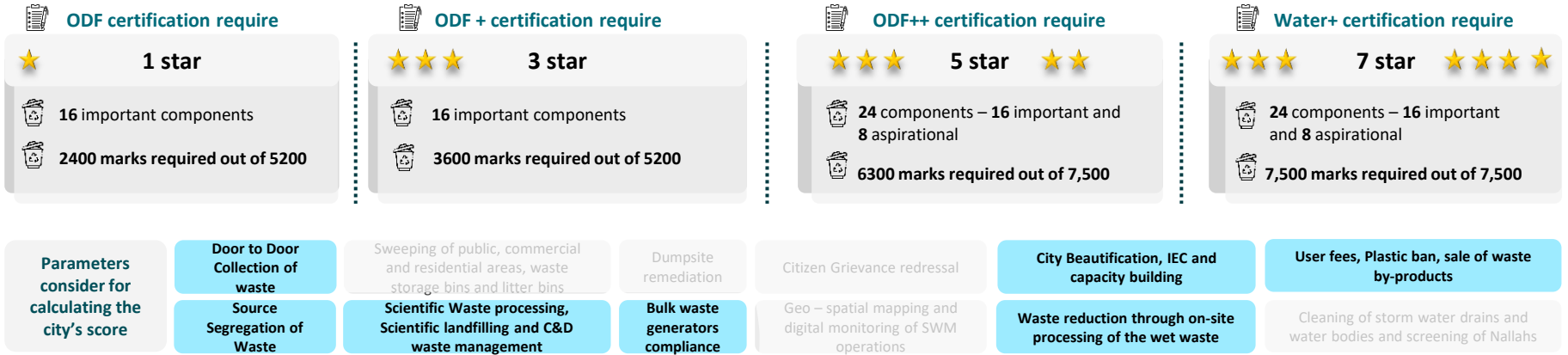


Cultural Relevance



To incentivize cities for performing well, star rating protocol came into action under the aegis of Swachh Bharat Mission

How Garbage Free cities are assessed?



Out of 12 parameters, 7 parameters of GFC protocol are linking along with the concept of closing the loop, 3R and improving the resource management



Swachh Survekshan as a measuring and monitoring tool for assessing status of the cities towards garbage free goal

- World's largest annual urban cleanliness survey
- A score-based framework

Three step process

- Self-Declaration
- Star rating
- Third Party Verification

SBM focused on concept of 3R (Reduce, Reuse, Recycle) which has become popular in urban India stimulating circular economy

➤ To ensure maximum resource recovery by converting waste to wealth, entire India is echoing the concept of 3R promoting circular economy for reduce, reuse and recycle.

➤ The theme of **Swachh Survekshan** (world's largest urban cleanliness survey), for 2024 is Reduce-Reuse-Recycle

➤ Under the campaign “Meri LiFE, Mera Swachh Seher” thousands of RRR (Reduce-Reuse-Recycle) centres have been set up in India

➤ Encouraging community participation as citizens contribute their clothes, shoes, old books, toys and used plastic to be reused or recycled.

➤ Other than RRR centers, there are other unique RRR initiatives such as making murals, artefacts and reusable products, generating energy etc engaging local governments, Self help group, private organizations etc.



Swachh Bharat Mission has created buzz by community engagement across the country

Swachhata anthem



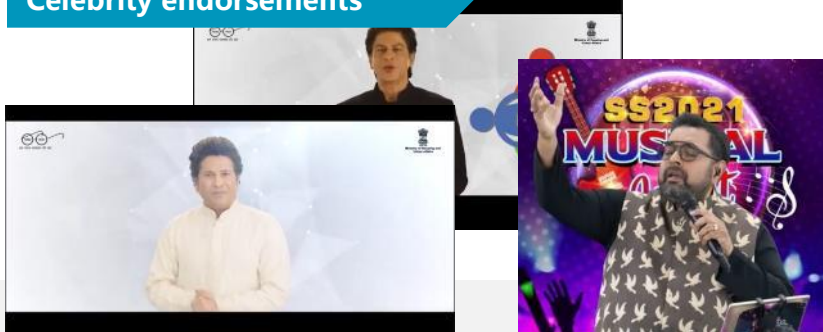
Swachhata Campaigning



Marathon and plogathon drives



Celebrity endorsements



Swachhata Pledge



Landscape of Municipal SWM in Maharashtra

2nd most urbanized state in India

414+ number of Urban Local Bodies

6662 number of Wards

25,296 Tonnes per day Solid waste **generates**

22,514 (89%) Tonnes per day Solid waste **Processed**

Cities in Maharashtra have ensured **100% house to house waste collection practice**

99% of the wards in Maharashtra has facilitated **source Segregation of waste**

Phased Reduction in use of Single Use Plastic

Status of solid waste management treatment plants in Maharashtra

107

Biomethanation plant

2247

Waste to Compost plant

54

Waste to energy plant

2182

MRF plant

891

C&D plant

333

SLRM plant

One of the states in India to have it's own state level campaigning pertaining to waste segregation at source



Key Objectives: On May 1st 2017 Hon. Chief Minister of Maharashtra has declared that the state would move towards making urban Maharashtra Clean & Green and launched the “Kachara Lakh Molacha” : **Waste to Wealth Campaign** to achieve segregation at source & processing of wet/dry waste



Key audience for the campaign: Urban men and women with no age bar



Nature of campaign: Non-mass media and Digital Media Campaign



Estimated funds utilized in the campaign: It was observed that a spend of INR 2 - 5 lakhs per ULB is appropriate for a 1 month dissemination of the campaign.



Key Messages:

- i) 100% Segregation of waste
- ii) 100% Collection of the waste in scientific manner
- iii) 100% Scientific Disposal of waste



Only state in India to have own registered brand “Harit Maha City Compost” for promoting city compost aligned with SWM Rules 2016 and advocating circular economy



Key Objectives: Maharashtra is the only state to have registered its own brand “Harit Maha City Compost” for promotion of marketing and sale of city compost which is as per the FCO standards and SWM Rules 2016.



Key audience for the campaign: Urban local bodies and farmers across Maharashtra



Nature of campaign: Non-mass media and Digital Media Campaign



Estimated funds utilized in the campaign: It was observed that a spend of INR 5 - 10 lakhs per ULB is appropriate for dissemination of the campaign.



Key Messages:

- i) To promote scientific processing
- ii) Ensure quality as per FCO
- iii) Support for marketing : Brand Identity
- iv) Proposed provisions for subsidy



Maharashtra accounts for maximum numbers of dumpsites remediation in India.....

Since 2014, under the ambit of Swachh Bharat Mission Urban, in alignment with the Solid Waste Management (SWM) Rules, 2016, and the guidelines of the Hon National Green Tribunal, India envisaged to reclaim 10,000 hectares of landfill sites which are occupied due to dumping of waste (The Week, January, 2021).

Status of dumpsite profile in Maharashtra

226

Total number of Dumpsites

55

Remediation complete

158

Remediation approved & on-going

Source: Retrieved from Swachh Bharat Mission Urban, dated on 25.08.2023

- As per the SWM Rules, 2016 and NGT, it is the mandatory for local authorities to Investigate and analyze all old open dumpsites and existing operational dumpsites for their potential of **bio-remediation and bio-mining**.
- In the absence of bio-remediation, capping is permissible. However, **bio-remediation/bio-mining is preferred over capping**.

landfill sites in Maharashtra

382

landfill site identified

161

constructed

45

under constructed

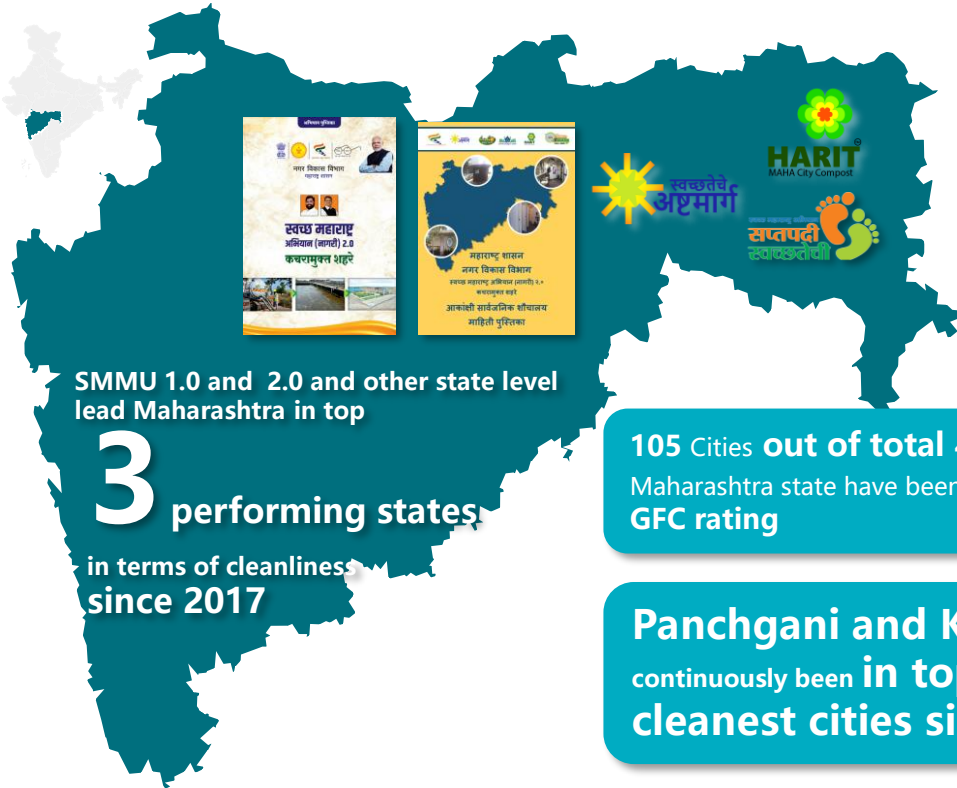
3

capped

Source: Retrieved from CPCB SWM Report 2020-2021



Maharashtra is one of the leading state - moving towards goal of Garbage Free cities



SMMU 1.0 and 2.0 and other state level lead Maharashtra in top

3 performing states

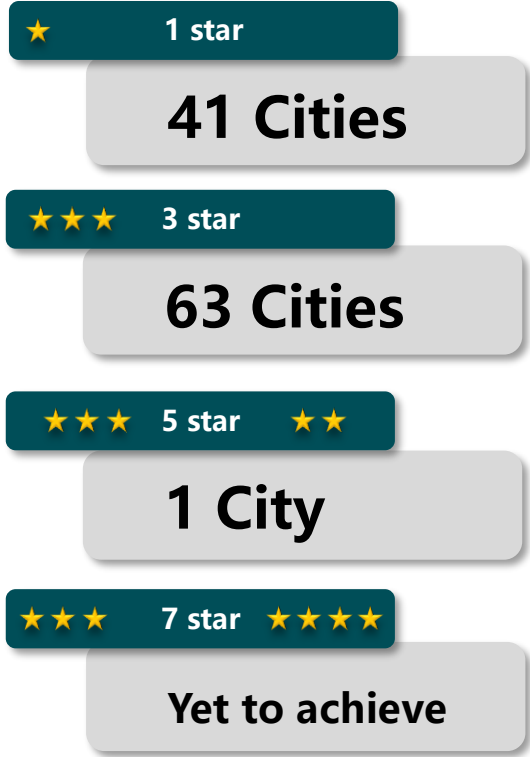
in terms of cleanliness since 2017

40 %

of total GFC in India belongs to Maharashtra state

105 Cities out of total 414 cities in Maharashtra state have been certified with GFC rating

Panchgani and Karad have continuously been in top three cleanest cities since 2019



Community facing behavior change- utilizing Maharashtra's unique position with celebrity endorsements

Amitabh Bachchan as face of Maha Cleanathon in Mumbai

Maha Cleanathon

The #MahaCleanathon held as part of the NDTV-Dettol Banega Swachh India campaign in Mumbai saw Amitabh Bachchan, and Maharashtra Chief Minister Devendra Fadnis pick up brooms to clean up their city.

The chief minister also vowed that Maharashtra will lead the way in solid waste management and plans to have the highest number of clean cities.



When you see someone littering. Go stop them. Tell them what they are doing is wrong. When you keep doing this repeatedly, people will change

Amitabh Bachchan

Salman Khan as BMC's Open Defecation Free drive brand ambassador



Salman today met municipal commissioner Ajoy Mehta and accepted BMC's proposal in this regard.

Aamir Khan as brand ambassador of Swachh Bharat Abhiyan in Mumbai



Sachin Tendulkar as part of "Swachhata Hi Seva" campaign



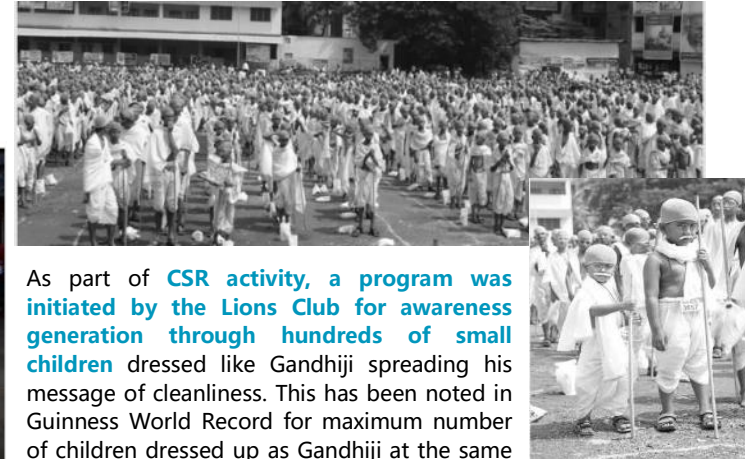
Dumping of litter and garbage on the pathways across the Bandra Reclamation Bus Depot significantly caused hindrance to pedestrian movement. This also led to misuse of the footpath by open urination and defecation. Hence cricketer Sachin Tendulkar came forward to clean up and beautify the stretch and make people aware of the ongoing Swachh Bharat Mission.

Community facing behavior change at City Level to achieve equitable and inclusive social environment

Facebook accounts created for ULBs like Umred, Mahabaleswar, Panchgani to raise awareness, create buzz, receive feedback and suggestions from citizens



Street plays in cities like Karjat have been organised by ULB, schools and NGOs to raise awareness



As part of CSR activity, a program was initiated by the Lions Club for awareness generation through hundreds of small children dressed like Gandhiji spreading his message of cleanliness. This has been noted in Guinness World Record for maximum number of children dressed up as Gandhiji at the same time.



Rallies by school students

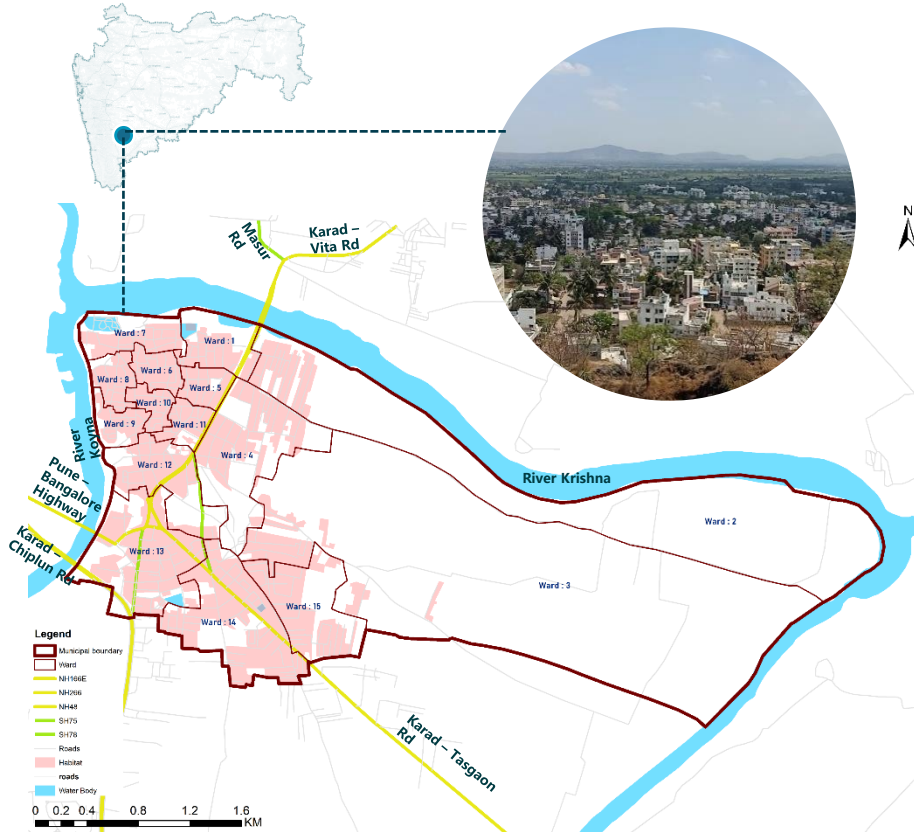
Marathon and cyclothon



Swachhta Spath



Municipal solid waste management at city level... A Case of Karad



Karad is well known for its refined source segregation of waste (Bio-degradable, non-biodegradable and hazardous waste)

Karad has achieved **100%** door to door solid waste collection

The city ensures **100%** process of Sanitary waste by Karad Hospital Association at zero cost to the Karad Municipal Council

1,00,000

Estimated current population

14

Total number of wards

2

Total number of Zones

26 TPD (Excluding C&D)

Municipal solid waste generation

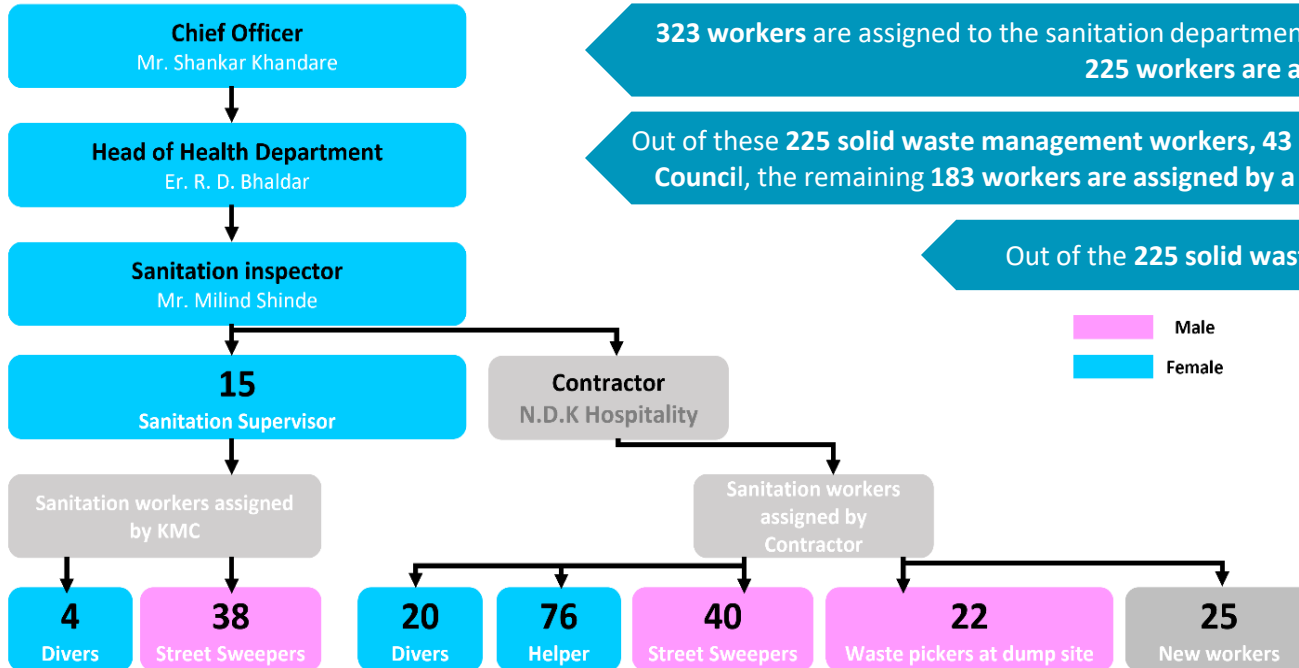
0

Number of garbage vulnerable points

100

Percentage of waste processed

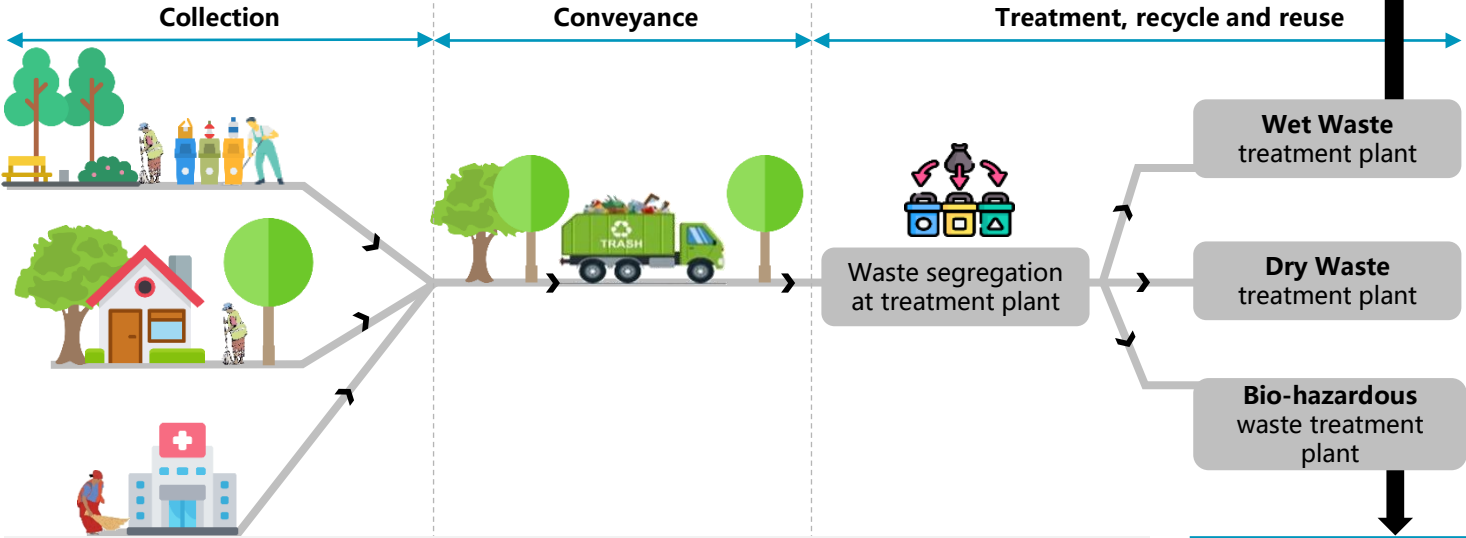
For understanding SWM operations, its important to understand organizational structure Karad...



Er. R. D. Bhaldar (HOD, health department) comprehending the sanitation system in Karad to CWAS team member

Leveraging private agencies has amplified waste management process and improved circular economy in Karad...

NDK Hospitality for street sweeping, transportation of the collected waste to the landfill site and waste picking at the landfill site

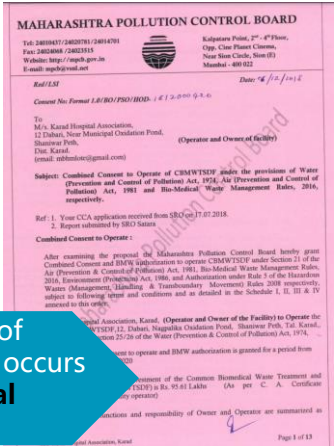


Adrushya Biological Technology use black fly soldier method to compost the wet waste into fertilizers.



Graphical representation showing private operators involvement at different part across solid waste management value chain in Karad

100% processing of biological solid wastes occurs by **Karad Hospital Association**



A significant stride has been observed in Karad, regarding garbage classification at source, encouraging community participation...

- Waste collection timing- **7 am to 11 am (Everyday)**
- **44 larger vans** are assigned by Karad Municipal Council
- In order to serve solid waste management service in dense areas, **18 smaller pick-up vans** have been assigned.
- Households who compost their own wet waste at home are incentivised in terms of **1% relaxation in property tax by Karad Municipal Council**

Households are provided with **six buckets of different colours** to segregate waste at source into 6 different category-

Wet waste	Household biomed hazardous waste	
Plastic waste		
Dry waste		
Paper waste		
Household E-waste		

Awareness poster circulated by Karad Municipal Council for waste segregation



The vehicle drivers are assisted by helpers who assist the households to collect their trash and pour it into dedicated compartments of the vehicles, as shown in the pictures



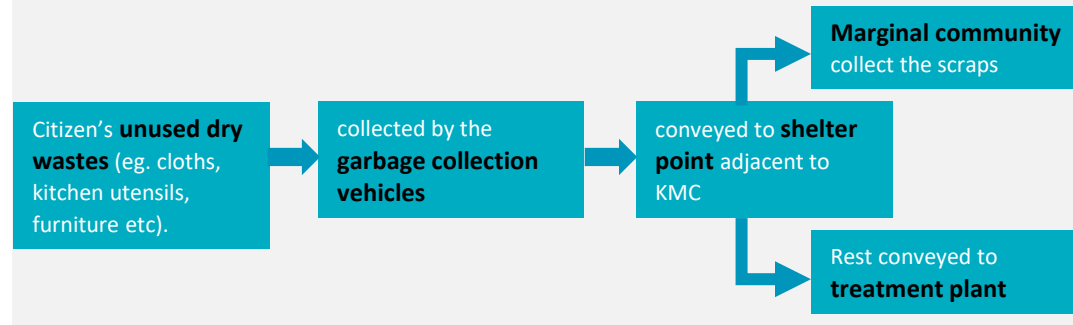
Household members segregating waste into 6 bins (color indicating different type of wastes) in Karad.

Citizen's engagement with RRR centers under SBM promoting circular economy in Karad. . .

» **14** RRR (Reduce-Reuse-Recycle) Centres, locally known as **Manuskichi Bhint (Wall of Humanity)**, situated in 14 wards in Karad.

» Innovative approach **taken up by Karad Municipal Council** under the ambit of Swachh Bharat Mission

Diagrammatic concept of RRR centers in Karad



One of the Manuskichi Bhint (Wall of Humanity), in Karad

Engaging women led self-help-group for social and behaviour change communication to foster equitable and inclusive service

➤ Women led self-help group “Janjagruti” monitor the households as “mentors” and provide handholding support on waste segregation at source.

➤ Owing to the positive behaviour change, **harassment and discrimination of these sanitation workers has been ceased** in Karad.

“I have been working in this field since 2017. It is captivating to watch how citizens now segregate their wastes properly into dedicated colored bins and hand them over to the garbage collection vehicles.” – One of the Mentor expressed her perception during the interview.



Sanitation workers safety: from the lens of social inclusion



» **Sensitization of sanitation workers** through **training workshops and health camps** on sanitation ecosystem, proper usage of PPE kits and occupational



Training workshop organized by KAM Foundation for sanitation workers safety



» **Protecting health of frontline sanitation workers** by providing health insurance schemes like Ayushman Bharat Yojana, Pradhan Mantri Suraksha Bima Yojana etc. and facilities of provident fund and employees state insurance by ULB & public agency.



The sanitation worker on ground ensuring wearing safety gears while working



» **Access to essential health facilities** including clean toilet, handwashing, and adequate access to drinking water.

Karad Municipal Council is in process of designing the PPE kits in more gender inclusive way as a future provision

Safe treatment of various types of wastes within the same vicinity



Resource recovery facility center at the SWM treatment plant



Two wet waste treatment plant (capacity of 10 TPD and 9 TPD)

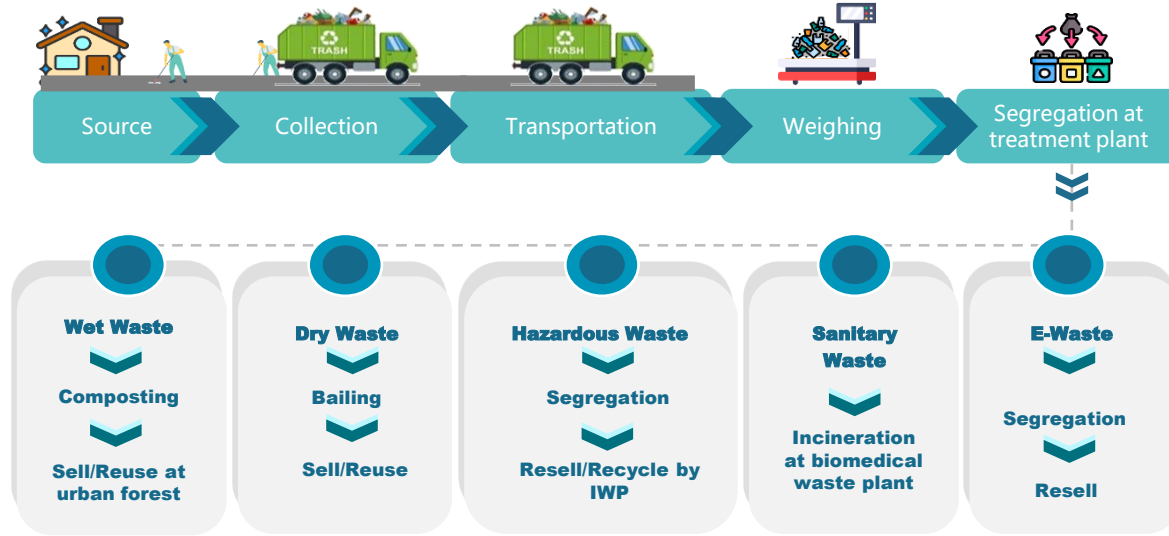


Segregation of dry waste before bailing process



Bio-methanation plant of 5 MT capacity generating 20-22 unit of electricity per day

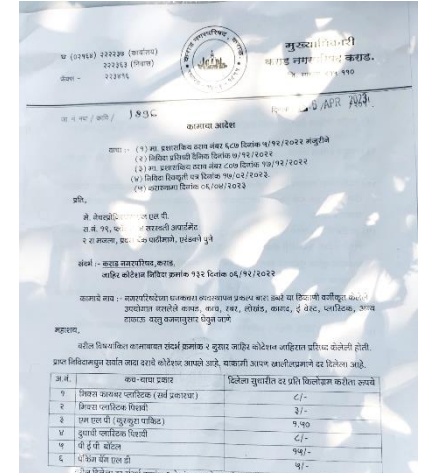
A focus on cost recovery is being practiced in Karad by stimulating circular economy...



After treatment of the wet waste they are converted into composts which is sold to the local farmers at the rate of **5000 rs/tonne**.

The recycled dry waste is being sold to a private organization namely Nature procreators L.L.P. at the interval of almost every 45 days.

Revenue generated from the resell of treated waste is collected by Karad Municipal Council and used for the city's overall development



Circulation floated by KMC determining resell rate of bailed dry wastes in local language

Type of waste	Resell price (Rs/Kg)
Mixed fibre plastic	8
Mixed Plastic Bags	3
MLP (Kurkura Plastic)	1.5
Milk Packets	8
PEP bottles	15
Packing bag LD	5

Capturing stakeholder's perspective on solid waste management system in Karad . . .



Sense of dignity

"Before the inception of Swachh Bharat Mission, we (the SWM workers) used to face various community induced challenges. They used to call us "Karchrwali (A mean way to address waste workers in local language). However, now owing to the success story of Karad, citizens behaviors towards us has been changed. They address us as Safai Karamgar (more dignified way to address the waste workers in local language)".

Avoidance of health hazards

"Due to segregation of waste at source, presently we don't face the issue of foul odor from the wastes like before. Also, we are using proper personal protection equipment (PPE) while segregating the waste before treatment, which helps us to avoid health disease."



Sense of Responsibility

"I have been working in this field since 2017. It is captivating to watch how citizens now segregate their wastes properly into dedicated colored bins and hand them over to the garbage collection vehicles."

Recommendations from India for preparing policy guiding document



Community participation in garbage classification will help in attaining Circular economy has a positive impact on the SWM value



Awareness among citizens through behavior change activities in their local language.

Promoting WASTE as WEALTH . IEC cell which is constantly thriving to achieve a positive behavior shift among the citizens.



Financial incentive to promote recycle and reuse at property level, helps in reducing waste that needs to be treated at centralized level



Engagement of women led self-help group, evoking an inclusive environment in the paradigm of the SWM value chain



Empathy towards health and safety of sanitation workers by enrolling them under various national level health insurance schemes.



THANK YOU

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About us

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes action-research, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.



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