



Ministry of Housing and Urban Affairs
Government of India



June 2019 • Volume 2 • Issue 5

SWACHHATA SANDESH

A monthly newsletter of the Ministry of Housing and Urban Affairs (MoHUA), Government of India



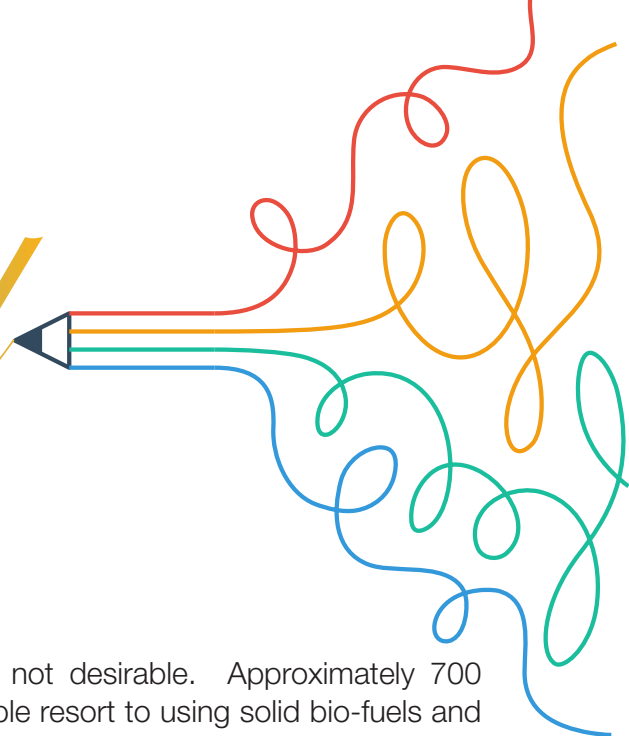
**WORLD
ENVIRONMENT
DAY 2019**

**CHOKING TO DEATH:
WASTE AND ITS IMPACT
ON AIR POLLUTION**

**PANCHKULA'S JOURNEY TOWARDS
SCIENTIFIC WASTE MANAGEMENT**



Editorial



The launch of the Swachh Bharat Mission (SBM) is an indication of the fact that the Central Government is assisting cities with the help of State Governments to improve sanitation conditions with the aim to achieve a Clean India by October 2019. It is a time bound mission to achieve 100 percent open defecation free status and 100 percent scientific solid waste management in urban India. Many discussions and deliberations regarding air pollution mostly focus upon the pollution in our surroundings. Statistics suggest that in developing countries like India, health impacts of indoor air pollution far outweigh those of outdoor air pollution. Indian cities are facing multiple problems including environmental issues and the problem of air pollution has become very grave in India. Of the ten most polluted cities in the world, seven are in our country (Deccan Herald, 04-06-2019). There is evidence of 7 million premature deaths by air pollution in the year 2012. In addition, 92 percent of people worldwide do not breathe clear air. With this background, the United Nations Environment Programme has declared Air Pollution as the theme for the year 2019 for World Environment Day (WED). China is the global host country for WED.

Inadequate waste disposal may cause severe environmental impairment and health problems. Landfills are significant contributors to air pollution. An order by the National Green Tribunal dated 17 July, 2019 mentions how “dumpsites are undoubted source of air pollution resulting in respiratory and other diseases”. It further states that the “right to breathe fresh air being part of right to life” and any “delay in remedying the

situation is not desirable. Approximately 700 million people resort to using solid bio-fuels and traditional cook stoves for domestic cooking (WHO, 2014; CEFW, 2015). Out of 0.2 billion people using fuel for cooking, 49 percent use fire wood; 8.9 percent cow dung cake; 1.5 percent coal, lignite, or charcoal, 2.9 percent kerosene; 28.6 percent liquefied petroleum gas (LPG); 0.1 percent of electricity; 0.4 percent biogas; and 0.5 percent any other means (The Indian Express, 05-06-2019). In January 2019, the Indian Government launched its comprehensive action plan to improve air quality. The plan commits to addressing the sources of air pollution in the area including from road dust, vehicle emission, burning of garbage, and construction and demolition activities. The Ministry of Environment, Forest and Climate Change also launched a National Clean Air Program, building a Pan-India air quality monitoring network to improve citizen awareness.

This newsletter brings news of such stories from different cities in India and showcases the progress of SBM, highlighting the champions and ambassadors of change. It also serves as a vehicle for promoting ground level practices and knowledge from those interested in making India clean and litter free.

The newsletter is available on the Mission website (<http://swachhbharaturban.gov.in>) and can be downloaded for further dissemination. The newsletter is an outcome of collective efforts made by states and cities. We thank them for their contribution and welcome suggestions for forthcoming issues.

Editorial Team, Swachh Bharat Mission



Panchkula's Journey Towards SCIENTIFIC WASTE MANAGEMENT

Adoption of 3R and a decentralized processing mechanism ensure visible results to Panchkula Municipal Corporation (PMC)

Panchkula is a satellite town adjacent to Chandigarh. At present, 115 MT waste is generated per day in the city from 20 wards. Out of the total waste generated, about 40 MT is being processed. Prior to 2017, the entire 115 MT untreated waste was dumped at the 12 acre dumping ground located in Panchkula Extension Sector 23, Jhariwala village. This direct dumping of untreated waste created havoc in the area with stink, stray dogs, pigs, vultures, etc. becoming a common sight. This area is close to Sector 23 to 27 and posed a severe health hazard to the residents there.

The methane gas produced by the dumping ground often caught fire during the summers. On May 25, 2018, nearly 93 fire tenders and 123 trucks of sand had to be pressed into service to douse the fire at the dumping ground. The nearby residents brought the matter to the National Green Tribunal (NGT) and blamed Haryana Urban Development Authority (HUDA) for developing a residential area in such

close proximity to the dumping ground. Considering the serious health issues and complaints from local residents, NGT directed HUDA and the Pollution Control Board to ensure due compliance with laws governing management of landfill sites. After the NGT order in 2016, HUDA and PMC jointly proposed a waste management plan through waste processing, along with the development of a sanitary landfill site in Jhariwala village.

Due to the unavailability of a centralized processing plant, PMC adopted 3Rs (reduce, recycle, reuse) principle and a decentralized processing mechanism. As a strategy, PMC involved local residents, RWAs, school children and other stakeholder to build awareness through IEC activities, awareness campaigns, pride rallies and stakeholder meetings regarding segregation and home composting. As a part of the management plan, 100% door to door collection has been ensured in all 20 wards through waste pickers. To encourage segregation, waste

pickers (erstwhile rag pickers) were provided with painted carts (blue and green) to collect the waste and take it to the common point from where the waste is transported to the dumping ground through 82 vehicles having separate blue and green compartments. As an important strategy to empower waste pickers, PMC has provided them with official ID cards, safety kits, medical facilities, toilet and drinking water facility at the dumping ground. Waste pickers are employed on a payroll basis and are also allowed to earn benefits by selling the recyclable and reusable dry waste collected from households.

Community Composting Facility

Panchkula generates 70 MT of wet waste and 40 MT of dry waste. Out of the total wet waste generated, 15 MT is processed through onsite composting in 80 parks and 10 MT by composting at various levels such as household and community.

The community composting facility at Sector 12 consists of 18 composting pits processing around 8 MT waste comprising dried leaves, grass, vegetables, fruit peels, rice, leftover food, bread and curd etc. Waste pickers are not only collecting waste but are trained to carry out composting and are

Snapshot: Panchkula Municipal Corporation (PMC)

| | |
|---|----------|
| State | Haryana |
| Area (in sq. km) | 33 |
| Wards | 20 |
| Population | 2,11,355 |
| Waste generation metric tons (MT) per day | 115 |



responsible for functioning of the community composting facility. The manure thus produced is used by the PMC for horticultural purposes. As a result of the awareness program and necessary facilitation by PMC, 250 households are now practising home composting by using Khamba and Aagha composters.

Material Recovery Facility (MRF)

MRF facility that has a capacity of 20 MT at a cost of 15 lakh was established in October 2018. It processes about 6-7 MT/day of the dry waste that is being collected from two wards - Sector 12 and Raila village comprising 1500 households (952 and 550

households respectively). These wards include residential societies, hospitals, schools, offices, restaurants, hotels, etc. The waste collection is carried out between 7 a.m. to 11 a.m. through three e-carts with two persons per e-cart. The collected waste is segregated and compressed at the MRF and sold to the recyclers for further processing.

Processing of Waste at Religious Sites

Organic Waste Converter (OWC) at Mansa Devi Temple

Religious sites that experience a huge daily footfall have also supported the onsite composting initiative. The famous Mansa Devi

temple, where 2,000 pilgrims visit daily, generates around 30 kg flower waste per day. In order to manage this floral waste, the temple installed a composting Organic Waste Converter (OWC) of 30 kg capacity in 2016. The compost produced here is being used for horticulture.

Biogas plant at Nada Sahib Gurudwara

The Gurudwara community kitchen caters to more than 2,000 people per day. In order to process the organic waste generated at the Gurudwara a biogas plant with a treatment capacity of 100 kg has been installed by BEIL Research And Consultancy Private Limited. The plant is based on the Double Digester Biomethanization (Aerobic & Anaerobic Biomethanization) technology provided by Indian Institute of Chemical Technology, Hyderabad. The 100 kg gas produced per day at this facility is being used for cooking while the sludge and 35-40 litre leachate generated daily is used as manure and fertilizer for gardening within the premises.

As a result of successful IEC and awareness program by PMC, some of the residential sectors and parks have started segregation at source and have implemented onsite composting. In the coming days, PMC will endeavor to achieve 100% source segregation waste in all the 20 wards and promote decentralized waste management facilities. This will ensure that most of the generated waste goes to the processing plant thus reducing the burden on landfills.

Case study documented by National Institute of Urban Affairs (NIUA), New Delhi

Key highlights

- Home composting adopted by 250 households and some apartment buildings.
- 80 parks and a temple practising on-site composting.
- Use of fuel efficient battery operated bike (provided by PMC) by all ward supervisors.
- Empowerment of waste pickers by hiring them on PMC payroll.
- Capacity building of waste pickers by PMC through the first NULM-SBM convergence in Haryana.
- An SHG of 12 waste pickers trained in Bengaluru under Hasirudala through CSR fund.
- Gurudwara using organic waste from its kitchen to produce bio gas for cooking.

CHOKING TO DEATH

Waste and its Impact on Air Pollution

The Crisis

Indian cities are fast turning into gas chambers. The capital city of New Delhi broke all records of high levels of air pollution, turning into the world's most polluted city, as the air quality index (AQI) touched 1,010 in early November 2017, which is considered extremely hazardous. It is like smoking 50 cigarettes a day! Apart from Delhi, cities such as Patna, Mumbai, Pune, etc regularly report dangerously high level of air pollutants. Patna and Delhi figure among the most polluted cities the world, both having an annual PM 2.5 concentration of more than 120 micrograms per cubic metres — **about 12 times the World Health Organisation (WHO) guideline.** In 2018, levels of PM2.5 in Delhi reached 720 ug/nm3, more than 11 times the safe limit prescribed by the WHO.

Why We Should Be Concerned?

It is claimed that air pollution kills one person every two minutes in India! The LANCET medical journal has estimated that air pollution is responsible for 6.5 million (72%) of 9 million deaths per year from all types of pollution. **A report by the Central Pollution Control Board (CPCB) shows that coarse particles (PM 2.5) are most common in many India cities.**

Landfills are significant contributors to air pollution. In 2016, Deonar dumping ground, Mumbai's largest waste dumping site spread across 111 hectares, caught fire a number of times causing high air pollution in the metropolis. As per news reports, the total volume of the waste piled up in the eight decade-old dumping ground is close to 16 million tons, with hills of trash as tall as eight-floor buildings. Delhi's landfills at Gazipur and Bhalaswa, where most of the city's whopping 10,000 tonnes of waste gets dumped, have also been in the news due to raging fires year around. As waste decomposes it releases methane, a highly combustible gas causing small fires which spew particulate matter. Landfills are the epicentre of air pollution, where the air quality is almost always in the 'severe' category.

The impact on air pollution

It is estimated that inefficient waste management through landfills and



biomass burning is the second biggest anthropogenic source of climate damaging methane gas (CH₄) after coal mining (Jardine et al 2009). Although CH₄ is not included in the criteria list of air pollutants, it is the third largest contributor to global warming after water vapour and CO₂. Sharma and Dikshit (2016) have estimated that emissions from biomass and open burning of waste contribute to almost 20–30% of the total air pollution in cities like Delhi.

Various research studies have been conducted to measure contribution of solid waste to the overall air pollution levels in the cities. A 2010 study by the National Environmental Engineering Research Institute (NEERI) found out that open burning and landfill fires were a major source of air pollution in Mumbai. The study found that about 2 percent of the total solid waste generated in the city is openly burnt on the streets and 10 percent of the waste is burnt in landfills. The NEERI study calculated that open burning of waste was:

- The largest emitter of carbon monoxide (CO), particulate matter (PM), carcinogenic hydrocarbons (HC) and nitrous oxides (NO_x), among activities



- that do not add to the economy of the city;
- The second largest emitter of hydrocarbons (HC);
- The second largest emitter of particulate matter (PM);
- The fourth largest emitter of carbon monoxide compared to all emissions sources in Mumbai; and
- The third largest emitter of CO, PM and HC combined together in comparison to all emission sources in the city.

This is not all. Open burning of solid waste and landfill fires released 10,000 grams of dioxins/furans, known carcinogen, into Mumbai's lower atmosphere every year, estimated the 2010 study of NEERI. Meanwhile, the CPCB has estimated that "garbage burning in the open air contributes 5% to 11% of all direct particulate matter in Indian cities' air".

A multi-stakeholder study, "Making Delhi Swachh," conducted by the Department of Environment, Delhi, the NGO Chintan Environmental Research

and Action Group, and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2015) showed that: "While 94% of Delhi residents know that improper waste management causes pollution; the majority of residents of South Delhi Municipal Corporation and New Delhi Municipal Council believe that burning waste is safe as long as it is done outside the home. Besides, only 31% declared to be aware of the conditions of Delhi landfills—less than 13% in North and East Delhi Municipal Corporations.

Greenpeace's January 2017 report, 'Aipocalypse: Assessment of air pollution in Indian cities', reminds that "deadly air pollution is not a problem restricted to Delhi-NCR (National Capital Region) or even to India's metros. **It is a national problem that is killing 1.2 million Indians every year and costing the economy an estimated 3% of GDP.**"

Air pollution disproportionately affects the vulnerable and the poorest of the poor, the waste pickers, and has an adverse impact on their lives. Waste pickers are

the true environmentalists of this country who work to reduce, recycle and reuse our waste. For them pollution is not a seasonal problem but an everyday reality.

The Way Forward

Cleaning up the toxic air of Indian cities requires strict control on burning of solid waste. Penalties for burning garbage, leaves, plastics etc. must be enforced strictly by municipalities in accordance with the Solid Waste Management Rules, 2016. Moreover, reducing waste at source, segregation, reusing, recycling and composting locally is more effective than landfilling and incinerating. The less waste that reaches the landfill, the less to manage. Along with this, exploring decentralized solutions rather than centralized ones for waste management will not only help in controlling our increasing landfills but also cut down on transportation and manpower costs.

Contributed by Chintan Environmental Research and Action Group, New Delhi

Swachhata Speak

An Interview with
SHRI VIJAY NEHRA, IAS
Municipal Commissioner,
Amdavad Municipal Corporation

Congratulations on winning the title of India's Cleanest City (above 10 lakh population category) in Swachh Survekshan 2019 (SS2019)! What preparations did the city undertake to achieve this feat?

Above 10 lakh is a misnomer for the city of Amdavad in the sense that we are way more larger among the large cities. We are almost 60 lakhs. The scale of operation cannot be therefore compared to most of the other cities in this category. While we have distinct advantage of economy of scale, the enforcement of the MSW Rules, 2016 among the kaleidoscopic cross section of the society over larger geographic boundaries was a challenge we ultimately met with success.

The actions that we have initiated and sustained in the run



up to the SS2019 can broadly be divided into two different categories i.e. Internal and External.

The internal measures include inculcating discipline among the safai workers through enforcement of biometric attendance despite strong resistance from the employees' union and the other is total withdrawal of the roadside solid waste containers. The bin-less system not only saved money by eliminating one out of two parallel system of waste collection, but also helped the door to door collection of solid waste in becoming efficient. There were other measures too like installations of 4000 littering bins facilitating the floating population.

The segregation of waste at source is a law and the generator i.e. every citizen has a responsibility. I was told that the source segregation was Mission Impossible. The one day event where every municipal official and employees met the citizens on a designated Sunday and asked them to segregate or we stop collecting the waste. The diehard habit changed overnight. A major road block in scoring good marks in this Survekshan was cleared.

Amdavad is the first city in Gujarat to have received ODF+ certification by the Ministry of Housing and Urban Affairs (MoHUA), Government of India. Tell us about this journey and the future plans with regard to moving towards the ODF++ certification focusing on safe and complete faecal sludge management.

The journey up to ODF+ was quite arduous as it involved upgrade of all the public as well as community toilets not only in terms of the 20 most basic conditions as prescribed related to cleanliness, infrastructure etc but also to the 11 additional conditions that add to aesthetics and the additional amenities to 10% of public toilets. The most difficult task here was to teach and train the regular users as well as the users from floating population, the sense of ownership of the facilities to counter the problems of theft and vandalism of small things like water-taps or light bulbs. This was only possible through constant monitoring by the dedicated supervisory staff of AMC and agencies which maintain the facilities. We also introduced a penalty on open urination.

We have increased the 11 desirable and aspirational conditions from 10% to 25% of the public toilets making them the special toilets. We have sanitary napkin vending machines, incinerators, toilet air fresheners, rainwater harvesting arrangements among other things in these special toilets.

AMC's campaign on source segregation of waste in a single day in December, 2018 was a great example of an effective behavioral change campaign. Tell us about some other innovative campaigns that had a positive impact on Swachhata of the city.

Since the single day source segregation campaign, AMC conducted four major campaigns. They are i.) Plogging ii.) Clean Sabarmati campaign. iii.) JET and iv.) E memo for spitting.

Plogging is picking the litter while jogging was a onetime event to create awareness among the citizens and the morning joggers responded benevolently. The fact that they continued the campaign even after the designated day is proof of people's commitment as swachhagrahis.

The clean Sabarmati campaign aimed at cleaning the shores of Sabarmati River on World Environment Day. The fact that 30,000 strong clean warriors volunteered in the hot summer to work for betterment of the historic river is by itself a living proof of people's participation.

The E-memo for spitting on the road is an aspirational attempt towards the enforcement of the ultimate cleanliness aimed at behavioral change following the anti-littering enforcement with



35,028 cases of spot fines and the penalty amounting to INR 2.85 crores. The system operates with 6,000 CCTV cameras and the all those who caught spitting were issued e-memo and penalty of INR 100 per case was recovered. On these lines, a JET (Joint Enforcement Team) comprising AMC and the Police started a campaign in E-Rickshaws for spot fines from 5th June, the World Environment Day. The first two days saw 3136 cases recovering a penalty amounting to INR 36.68 lakhs.

How the AMC gearing up for Swachh Survekshan 2020? Any future plans that you would like to share with the readers?

We didn't do enough for the legacy waste last year. The solid waste processing plants became a top priority. The Bio-mining and capping are therefore top priorities now. The Bulk Waste Generators are also on the radar and facilitating them with the knowledge and helping them with wet waste to compost is in the agenda. We also have big plans on prohibiting the single use plastics. A preliminary work on EPR (Extended Producer Responsibility) is already done and we are aiming at substantial reduction or almost eliminating the plastic waste from the solid waste stream.

The true ambassadors of the Swachh Bharat Mission are the citizens of the country. What role have the Amdavadies played in the success of the Mission so far and how does AMC plan to engage more with the citizens in the coming days?

Cleanliness is a mind game where all, I repeat, all citizens are stake holders. The success therefore can be entirely attributed to the bravado of the Amdavadies who contributed to the success in an active or in a passive manner. It is a time for a competition of actual act among the individual households, societies, commercial establishments including the eateries, educational institutions for the source segregation of solid waste. There will be star rating for all these establishments.

On the ODF front, we have plans to make public committees comprising regular users of public toilets to inculcate a sense of ownership and to generate the humane feedback system aimed at timely correction of O&M issues.

Swachhata has become an integral part of all of our endeavors. There will be one positive story of cleanliness from 2nd October, 2019 per day, involving an individual or a group of citizens. It will be a well documented set of 365 stories which will be turned into a coffee table book by 2 October, 2020.

Bring your Old Clothes and Get Bags Made for Free: An Initiative by Bhopal Municipal Corporation (BMC)



Bhopal has always been known for its innovative campaigns to engage citizens in its Swachhata initiatives. Under its #CYOB (Carry Your Own Bag/ Bottle) campaign, BMC has begun a unique initiative to reduce the use of plastic bags.

Citizens of Bhopal can now bring their old clothes and get eco-friendly cloth bags made for free! Women tailors have been made available at key market locations where this facility is presently available. What's more, BMC has also collaborated with Mahashakti Seva Kendra (MKS), an all-women not-for-profit organization to collect old clothes from households, turn them into beautiful bags and deliver them at the doorstep – all for a nominal charge. Now Bhopal is not just bidding adieu to plastic bags but also helping create employment opportunities for these talented women!

Chhattisgarh Launches its New Campaign Swachhata #TalkAudit on Social Media

In an effort to continuously create awareness on Swachhata related issues among its citizens, Chhattisgarh launched its new social media campaign called Swachhata #TalkAudit. Presently running on Twitter, Facebook and YouTube, #TalkAudit is an interaction between the Program Implementation Unit (PIU) of Chhattisgarh and the citizens to provide information on various components of Swachhata and also obtain their feedback for improving the city's cleanliness quotient.

NDMC Organizes Capacity Building Workshop on Swachh Survekshan League 2020



A workshop was organized by NDMC on 15 June, 2019 with Resident & Market Welfare Associations on the ongoing Swachh Survekshan League 2020 in which 250 association members participated. The event was attended by Smt. Rashmi Singh, Secretary NDMC, and other senior officials from NDMC, consultants from the National Program Management Unit (NPMU) of SBM-U and sanitation supervisory staff. The workshop highlighted the crucial role of citizens during the validation of 12 parameters on the levels of Swachhata in the city. The workshop also saw the Best Safai Karmachari & Driver of the Month being awarded.

National Workshop for Finalization of Manual on Storm Water Drainage Systems



A one day national workshop for Finalization of Manual on Storm Water Drainage Systems was organized by the Central Public Health Engineering and Environment Organization (CPHEEO) under the aegis of SBM-U on 29 June, 2019 at the NDMC Convention Centre, New Delhi. The workshop saw participation from over 500 state and Urban Local Body (ULB) officials from the Water Engineering Department who gave their valuable inputs on the engineering, operations and maintenance and the management of storm water drainage systems.

Shri Durga Shanker Mishra, Secretary, Ministry of Housing & Urban Affairs (MoHUA), Government of India delivered the keynote address at the workshop. The inaugural session of the event was also attended by Shri R. K. Gupta, Chairman- cum- Managing Director, WAPCOS Limited who outlined the journey of the preparation of the manual.

TOTAL INDIVIDUAL HOUSEHOLD LATRINES CONSTRUCTED:



**64.32
lakh**

96.83%

- 58.98 lakh constructed
- 5.34 lakh under construction

TOTAL COMMUNITY/ PUBLIC TOILETS CONSTRUCTED:



**5.45
lakh**

107.4%

- 5.05 lakh constructed
- 0.39 lakh under construction



80.96 tonnes per day waste processed **55.67%**



3500+

Garbage Vulnerable Points
(GVPs) mapped across
1200+ Wards
on MoHUA GVP App

SWACHH SURVEKSHAN League 2020

100% City Profile
Completed by over
1900+ ULBs for Swachh
Survekshan 2020 League
Quarterly Assessments

Is your city getting ready to get a **Star Rating**?

States are invited to send nominations of their cities for Garbage Free Protocol
Certification on sbmurban.moud@gmail.com



OPEN DEFECTION FREE (ODF) UPDATE

4,273

ULBs
declared
ODF

3,737

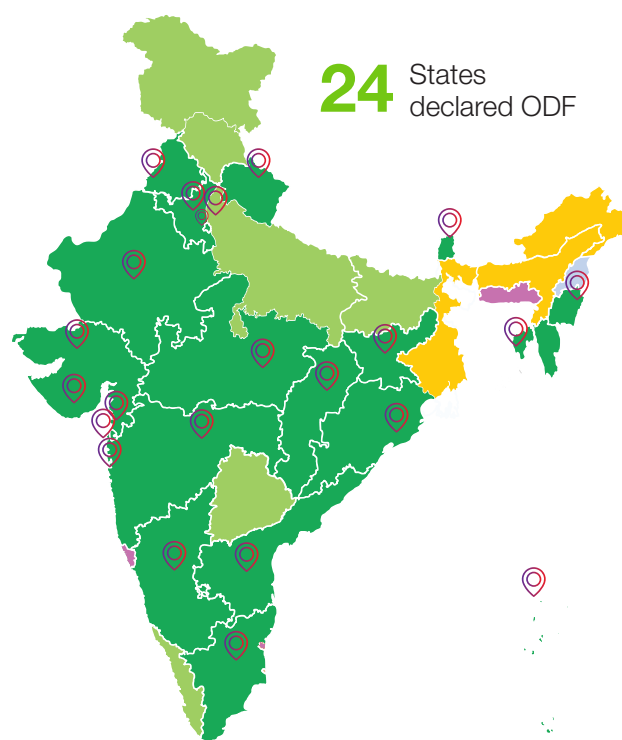
ULBs
certified
ODF

4,376

ULBs as on date

Is your city ready to move beyond ODF to **ODF+** and **ODF++**?

States are invited to send nominations for **ODF+** and **ODF++**
Certification through www.swachhodfurban.org



24 States
declared ODF



आवासन और शहरी कार्य मंत्रालय
भारत सरकार



विश्व
पर्यावरण
दिवस 2019

कम्पोस्टिंग की
आदत डालें

प्रदूषण को मात दें

#BeatAirPollution | #SayYesToLess