



## *Documentation of Innovative Practices*

# The Change makers



*Making Maharashtra ODF & Clean*



**Swachh Maharashtra Abhiyan**  
Urban Development Department  
Government of Maharashtra

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**4**  
October 2016

# *Dream of “Swachh*



महात्मा गांधीजी की १५०वी जयंती पर हमे उन्हे  
“स्वच्छ भारत” अर्पित करना है।...

*Honourable Prime Minister of India,  
on 15th August 2014, 68th Independence Day of India*

# *Bharat”...*



*“India can not become a superpower with open defecation being witnessed in states”*

*Honourable Chief Minister of Maharashtra,  
on 15th May 2015,  
Launch of Swachh Maharashtra Mission*

भारत सरकारचा पुढाकार  
स्वच्छ महाराष्ट्र करू साकार



## संकल्प स्वच्छतेवा

- सहभागाचा ठाम निर्धार
- व्यापक लोकसहभाग मिळवणार
- १०० टक्के शौचालयाचाच वापर करण्यासाठी प्रवृत्त करणार
- कचन्याचे संकलन, वर्गीकरण, वाहतूक करणार
- कचन्यावर शास्त्रीकृत प्रक्रिया करणार
- सांडपाण्यावर प्रक्रिया करणार
- स्वच्छ व हरित महाराष्ट्र साकारणार

सप्तपदी : स्वच्छ व हरित महाराष्ट्रासाठी ...



Every city moving towards becoming “clean city”



Every household moving towards access to clean toilet

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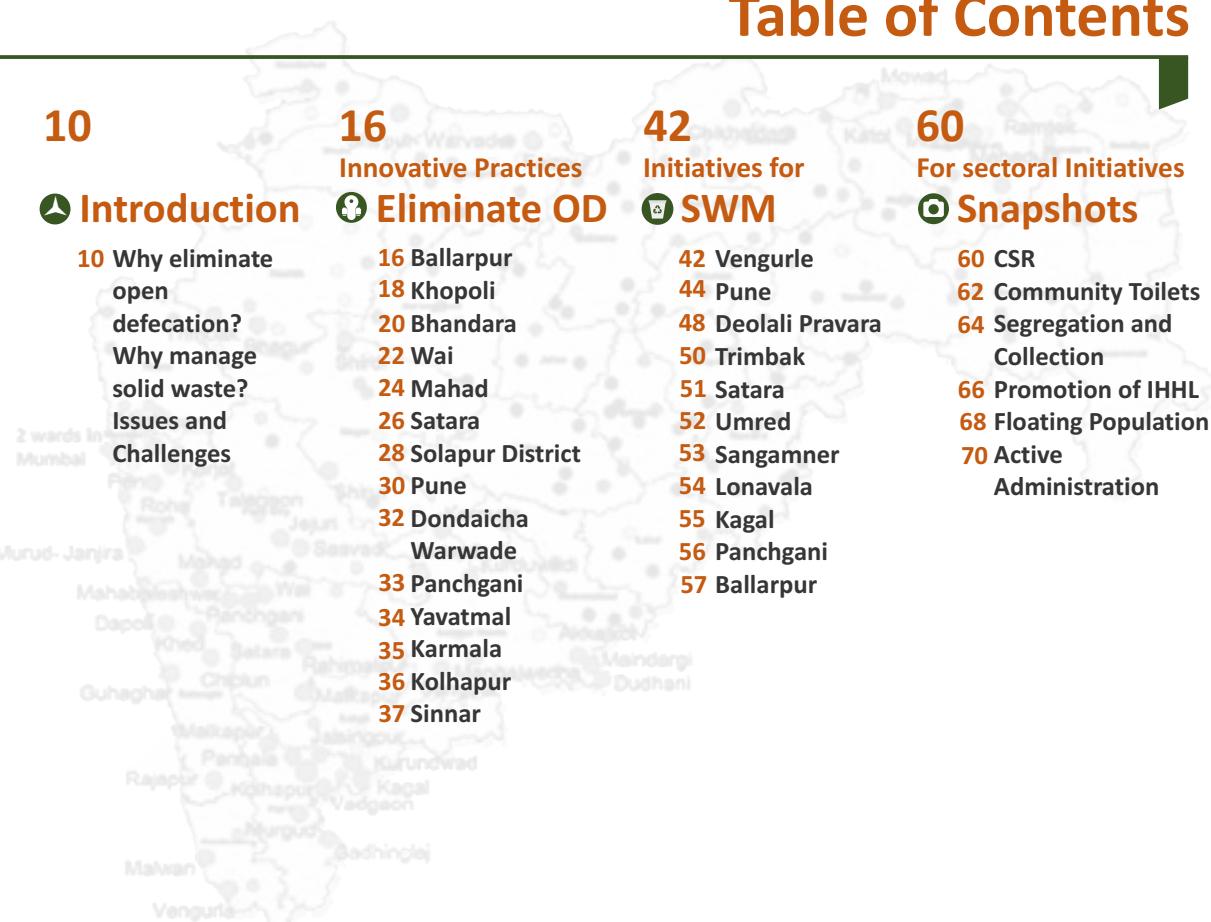
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RCUES

## About the book

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Sanitation and waste management is seen as a prima facie of any city. As per Census 2011, nearly one in three urban households in Maharashtra did not have toilet facility within the premises. Maharashtra generates nearly 27000 MT of waste per day, more than any other state in the country. These alarming statistics reflect the day to day challenges faced by the cities today.

Since the launch of Swachh Maharashtra Mission (Urban) in 2015 by the Government of Maharashtra, the cities have shown dedicated efforts in promoting the mission and increasing their own capacities towards the realization of this goal. Maharashtra proudly hosts 52 open defecation free cities under the first two milestones of this mission and intends to achieve entire urban Maharashtra ODF by 2nd October 2017. This has been achieved through various innovative practices undertaken by the ULBs as per their capacities with the aid of Central and State Government. Similar approach towards managing the solid waste is also embarked upon by the cities. Thus, cities have become change makers by adopting new practices for better management in sanitation and solid waste thereby paving way for other cities to follow.

These innovative practices need to be captured and shared across the state as an enhanced learning experience for effective implementation of the mission. This handbook documents few of such practices in the State so that they can be replicated further thus moving towards the dream of Swachh Maharashtra and eventually, Swachh Bharat. Apart from the ones those are documented here, there are many such innovations thought of and being implemented by the cities. There may be many such cities captured in the next volume of this book.



**RCUES**



## **Foreword...**

Since the launch of “Swachh Maharashtra Mission Urban” on 15th May, 2015 cities of Maharashtra have been dedicatedly working towards improving sanitation, hygiene and waste management. Under the leadership of Honourable Prime Minister Shri. Narendra Modiji, Maharashtra is one step closer towards fulfilling the vision for Swachh Bharat.

Swachh Maharashtra Mission is a commitment towards fulfilling Mahatma Gandhi’s dream of clean India with a vision to ensure access to safe and clean sanitation and waste management across the State. Urban Development Department of Government of Maharashtra has been providing remarkable guidance and support to Local Government in the State. Maharashtra is aspiring to become Open Defecation Free (ODF) by October 2017 and clean very soon, in the upcoming years.

Various initiatives, innovative ideas and achievements have been undertaken at city level and documentation of these is a crucial step towards sustaining Maharashtra ODF and Clean. I congratulate Urban Development Department and ‘Team Swachh Maharashtra’ for developing this Handbook on Innovative Practices being undertaken as a part of Swachh Maharashtra Mission. This handbook will be very useful for cities of Maharashtra as well as in other Indian States to convert their dreams into reality.

With political will, backed by a dynamic team and massive support from the citizens, Government of Maharashtra is all set to achieve universal access to sanitation and thereby make our cities clean, safe and healthy.

Government of Maharashtra’s journey towards achieving this dream will certainly become a source of inspiration for other States. I wish the State success in every endeavour initiated under the Mission.

Mr. Devendra Fadnavis  
Chief Minister, Maharashtra

October 13, 2016



**RCUES**



## **Key Message...**

With the launch of 'Swachh Maharashtra' mission, the State Government, Maharashtra is playing an active role towards the goal of clean Maharashtra under the dynamic and active leadership of honourable Chief Minister Shri. Devendra Fadnavis.

To assist the Local Governments in implementing this goal, Government of Maharashtra has formulated 'Swachhtechi Saptapdi' - Seven steps to cleanliness as guiding principles. The state is actively participating to motivate local governments by engaging with them in effective implementation of formulated strategies. Local governments are also encouraged by the state to enhance their capacity through various workshops and capacity building programs. Such rigorous efforts by the state have started to reflect within a year of the launch of the mission. Several cities have adopted innovative practices and have been successful towards effective waste management and making available access to safe sanitation. Such cities have paved the way for other cities and states to follow their footprints towards Swachh Maharashtra Mission.

Local leadership has played a crucial role in shouldering the responsibility to achieve the targets under Swachh Maharashtra Mission. 19 Open Defecation Free Cities had laid the foundation of 'ODF Maharashtra' on 2nd October 2015, which has led to an achievement of almost 100 ODF cities within last one year. This has generated tremendous energy at city level which is evident through a range of innovative activities undertaken at the local level.

I am delighted that the Urban Development Department is publishing this handbook on Innovative Practices. I am sure that this handbook will provide guidance to other cities and states in adopting a systematic approach to meet the goals of Swachh State. I extend my best wishes to all urban local governments for moving towards this mission thus making the vision of 'Swacch Bharat' come true.

Dr. Ranjit Patil  
Minister of State,  
Government of Maharashtra

October 13, 2016



**RCUES**



## Acknowledgment...

Government of Maharashtra launched “Swachh Maharashtra Mission Urban (SMMU)”, in alignment with the Swachh Bharat Mission (Urban), of Ministry of Urban Development, Government of India. Since the launch of the mission, Maharashtra has shown remarkable progress under the leadership of Honourable Chief Minister of Maharashtra Mr. Devendra Fadnavis.

Through financial and technical support to households and ULBs for community and/or household level sanitation and solid waste management, the SMMU has developed strategies to ensure coverage to all ULBs in the state. Along with providing basic infrastructure facilities to achieve this, promotion, operation and maintenance as well as sustainability are also focused upon to create ODF cities and their efficient waste management techniques.

Quarterly targets have been set and it is heartening to note that we have already reached the target of 100 cities declared open defecation free as on today. The Swachh Team and Local Governments have been at par with updated technicalities to reinforce the quality of interventions.

This Handbook on innovative practices documents the various initiatives undertaken by the ULBs in their efforts towards sanitation and solid waste management as envisaged by the SMMU. Our effort is to make a comprehensive document which can help the city managers adopt or replicate such initiatives at local level.

This Handbook is the result of team work and synergy of team Swachh Maharashtra and all ULBs in Maharashtra ably assisted by RCUES of AIILSG, Mumbai and CEPT University, Ahmedabad. I deeply appreciate this team effort and hope that implementers and stakeholders in the state and in India will find this book useful.

Manisha Patankar-Mhaiskar, I.A.S  
Secretary, Urban Development Department  
Government of Maharashtra.

October 13, 2016

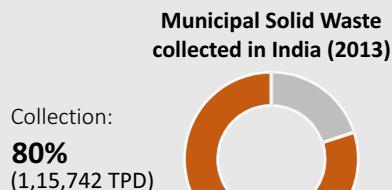


## Why manage solid waste ?

Solid waste management is one of the most essential services for maintaining the quality of life of the people for ensuring:

BETTER STANDARD OF HEALTH  
SANITATION  
ENVIRONMENT

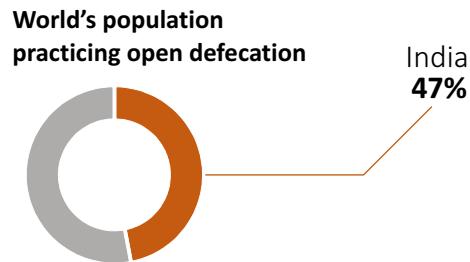
According to Central Pollution Control Board 144,165 TPD (Tons per day) of Municipal Solid Waste was generated in India during 2013-14.





## Why eliminate open defecation ?

The practice of open defecation is rampant in India and the country is home to the world's largest population of people who defecate in the open despite significant public investment in urban sanitation



With high population densities and a lack of safe spaces, open defecation affords little dignity and poses grave security risks for women.

Recent literature suggests that open defecation causes stunting among Indian children, particularly in more dense urban areas



# Journey till now

**Launch of the Mission** 15<sup>th</sup> May 2015



**Regional Workshops**



**Divisional Workshops**



**2<sup>nd</sup> Step**  
31<sup>st</sup> October 2015



**Maha-Cleanathon**  
3<sup>rd</sup> September 2016





**1st Step**

2<sup>nd</sup> October  
2015

**3rd Step**

13<sup>th</sup> October 2016

**1 STEP: 19 CITIES ODF**



2<sup>ND</sup> OCTOBER 2015

**2 STEP: 52 CITIES ODF**



31<sup>ST</sup> JANUARY 2016

**3 STEP: 100 CITIES ODF**



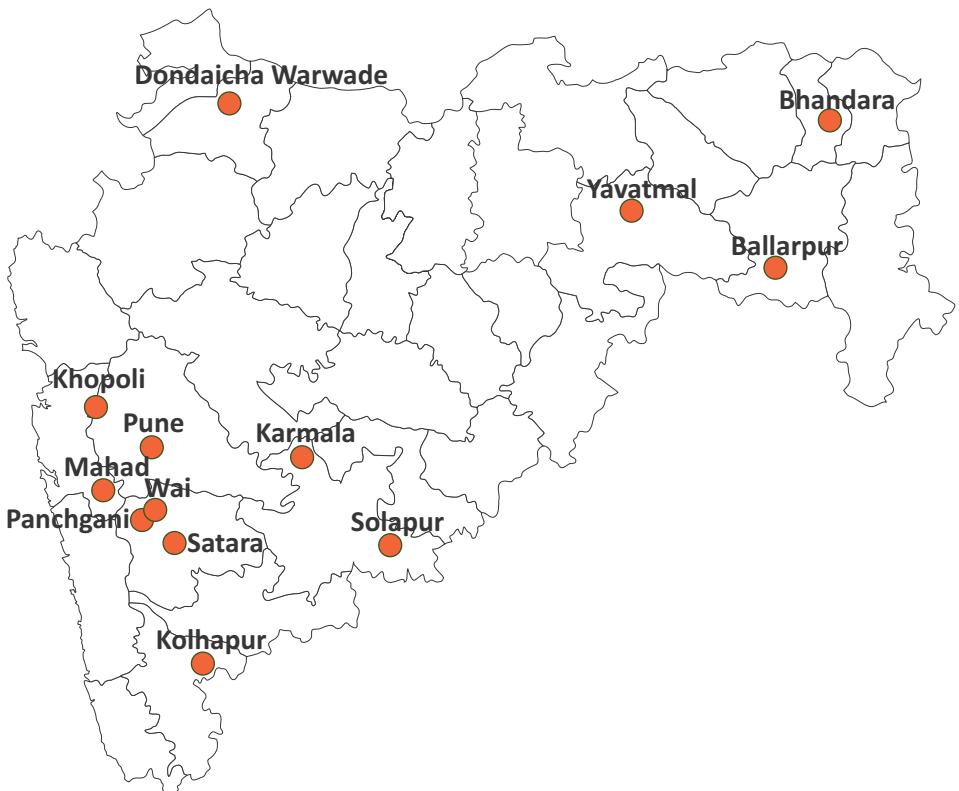
13<sup>TH</sup> OCTOBER 2016

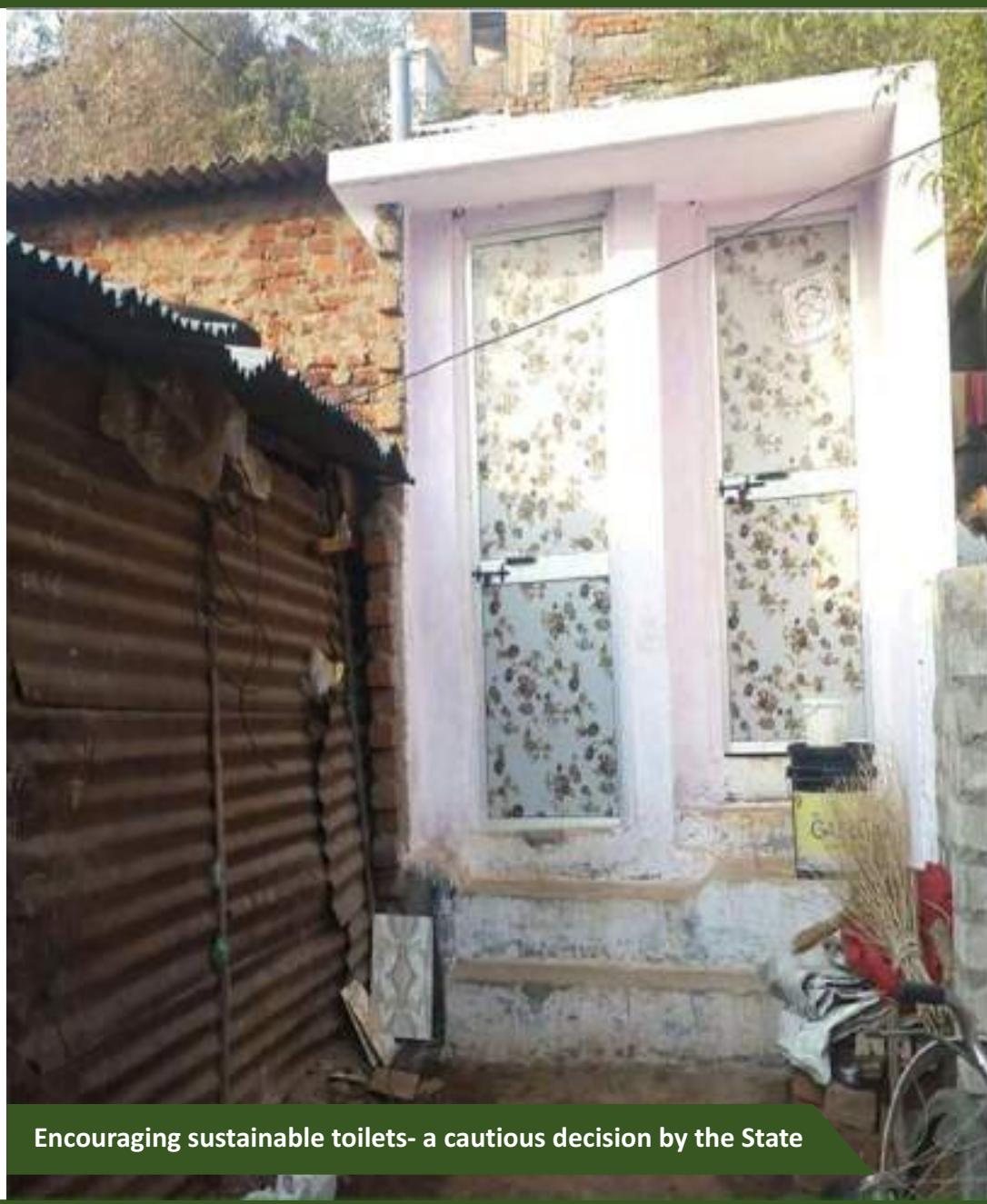
**URBAN  
MAHARASHTRA ODF**



2<sup>ND</sup> OCTOBER 2017

## Innovative Initiatives for making cities ODF





**Encouraging sustainable toilets- a cautious decision by the State**

# 1

# Ballarpur

## Active administration to exploring options for sanitation financing

### Background

- ⦿ Population (census 2011): 89,452
- ⦿ No. of Households defecating in open: 3,004
- ⦿ No. of Households dependent on community toilets: 2,522
  
- ⦿ The city is governed by a 'C' class municipality. Ballarpur is city in the Chandrapur district. The city hosts an industrial setup which is responsible for variation in the population.



### INNOVATIVE SOLUTION Adoption of ward to make it ODF

### Implementation

- ⦿ Citizens of Ballarpur were hesitant to avail funds under the scheme, due to lack of awareness of IHHL.
- ⦿ Due to the initiatives by the council for awareness of IHHL, an individual (Mr. Lakhan Singh) approached council for ward adoption in January 2016.
- ⦿ After the surveys were conducted, he provided counselling to the beneficiaries and convinced them to built toilets.
- ⦿ The process of building toilet blocks was fast tracked as Lakhan Singh provided material and initial capital for the construction of the toilets.
- ⦿ 40 toilets have been built so far.
- ⦿ Funds received by beneficiaries through SBM were given back to Mr. Lakhan Singh.



**INITIATIVE STARTED  
JANUARY 2016**

**CURRENT STATUS  
WARD ODF FREE**

**TWO OTHER WARDS  
ADOPTED**



## INNOVATIVE SOLUTION

**Loans to SHGs to address financial issues**

### Implementation

- After the initiative of constructing toilets was undertaken it was realised by the beneficiaries that the available funds were not sufficient if they decide to construct good quality toilets with bathrooms.
- The beneficiaries then approached council who encouraged Self Help Groups (SHGs) to take loans to meet the financial gap ESAF, a microfinance institution based in Nagpur, provided loan of Rs. 18,000 each to 18 such women.
- Women were comfortable with less documentation and instalment of Rs. 220. per week for 2 years
- To reduce the labour cost further beneficiaries constructed their toilets on their own Thus, good quality toilets with bathrooms were constructed in Rs. 60,000., which ensures sustained use of toilets by beneficiaries.

### SUSTAINABILITY AND REPLICABILITY

Along with the awareness the council has tried to solve the core issue of lack of finance along with the active involvement of the financial institutions and SHGs

Sustainability ★★★★★

Replicability ★★★★★

For more details contact Ballarpur Municipal Council: 07172240343

2

# Khopoli

Dealing with space and financial constraints

## Background

- Area: 30 sq. km.
- Population (census 2011): 1,08,648
- No. of Households defecating in open: 1770
- No. of Households dependent on community toilets: 4246
- Slums in Khopoli are densely populated with very less space for individual toilets. Despite this, people showed willingness for toilet construction.

## INNOVATIVE SOLUTION

### Toilets connected to group septic tank

## Implementation

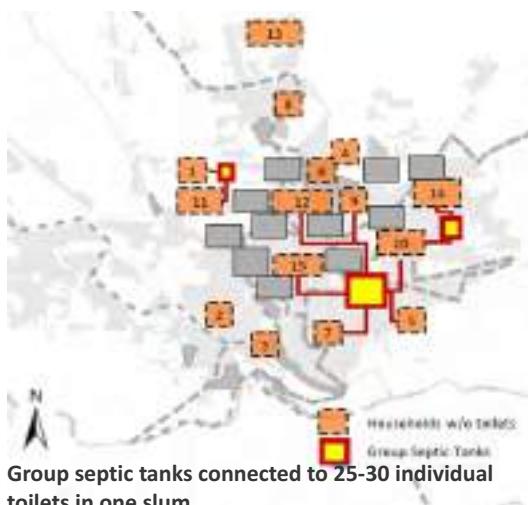
- To tackle the problems of space as well as funds, Khopoli Municipal Council (KMC) came up with an innovative solution to construct a group septic tank for a number of individual toilets in the close vicinity. Group septic tank of appropriate size was designed by engineers which caters to 25-30 HH level toilets. 8-10 septic tanks are already constructed in one slum.
- After assuring that this technique worked well in one slum, KMC worked to design such group septic tanks in other slums as well.
- Construction cost of a septic tank varies between .50,000 to 80,000/- depending on the size of tank, which is borne by the KMC and only toilet construction cost is borne by the owners. Due to this, many households came forward to build their individual toilets.
- Underground pipeline connecting toilets to septic tank is laid by the KMC. Such group septic tanks are cleaned around once in a month by the KMC with the help of a vacuum truck.

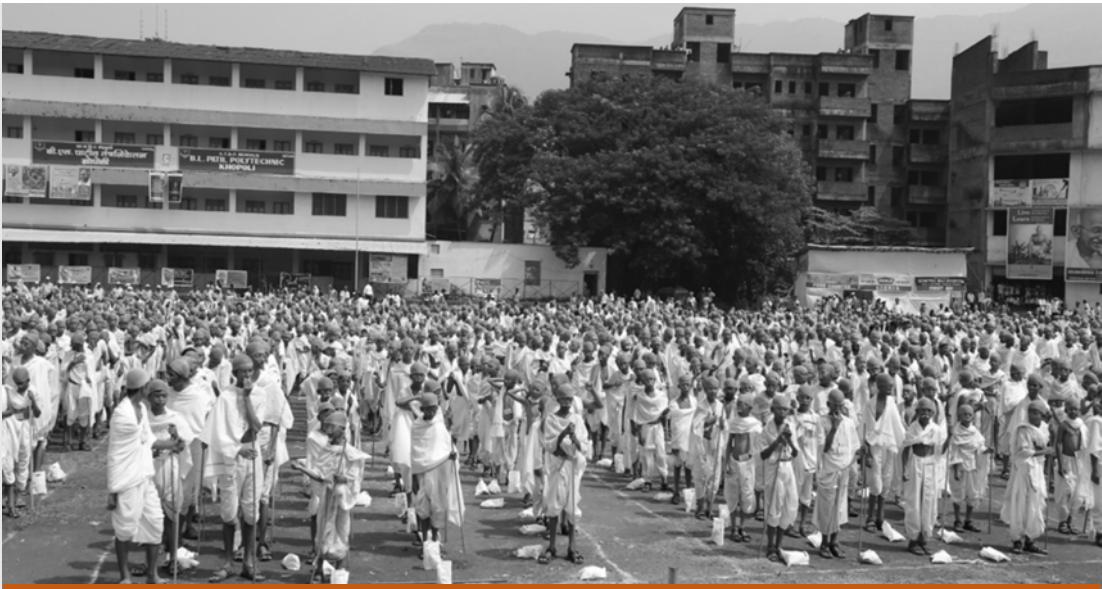


Group septic tanks connected to 25-30 individual toilets in one slum



Underground pipeline connection





As a 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 Guiness World Record for maximum number of children dressed up as Gandhiji at a same place.



#### SUSTAINABILITY AND REPLICABILITY

The model of group septic tank is being replicated in Khopoli at 9 more locations and can be similarly adopted in other cities dealing with space constraints.

3

# Bhandara

## Peoples initiative for converting open defecations spots to recreational spaces

### Background

- Area: 18 sq. km
  - Population (census 2011): 91,845
  - No. of Households defecating in open: 826
  - No. of Households dependent on community toilets: 1,177
- Bhandara is known as 'District of Lakes' It is famous for lake 'Khamtalav'. Around 50-60 thousand people visit this lake every year for Maha Shivratri festival



Situation prior to the initiative

### INNOVATIVE SOLUTION

#### Active use of public open spaces to reduce open defecation

### Implementation

- The initiative started by 'Green Mind' NGO in collaboration with Bhandara Municipal Council (BMC) officials with cleaning of city squares.
- This led to awareness among citizens, which gradually led to increase in peoples participation in keeping their city clean. From initial group of 8-10 people now around 200 residents of various age groups and professions have joined the group.
- Cleaning of lakeside 'Khamtalav' which attracts pilgrims was undertaken. 1.5 km landscaped jogging tracks, yoga meditation center and space for dhol practice was made as a result of which the lakeside is now open defecation free and has become one of the lively spaces in the city.
- For the first time *Mahashivratri mela* was organized at Khamtalav due to the cleanliness drive.
- Public spaces in the city were reclaimed with active participation of people.



Situation after the initiative

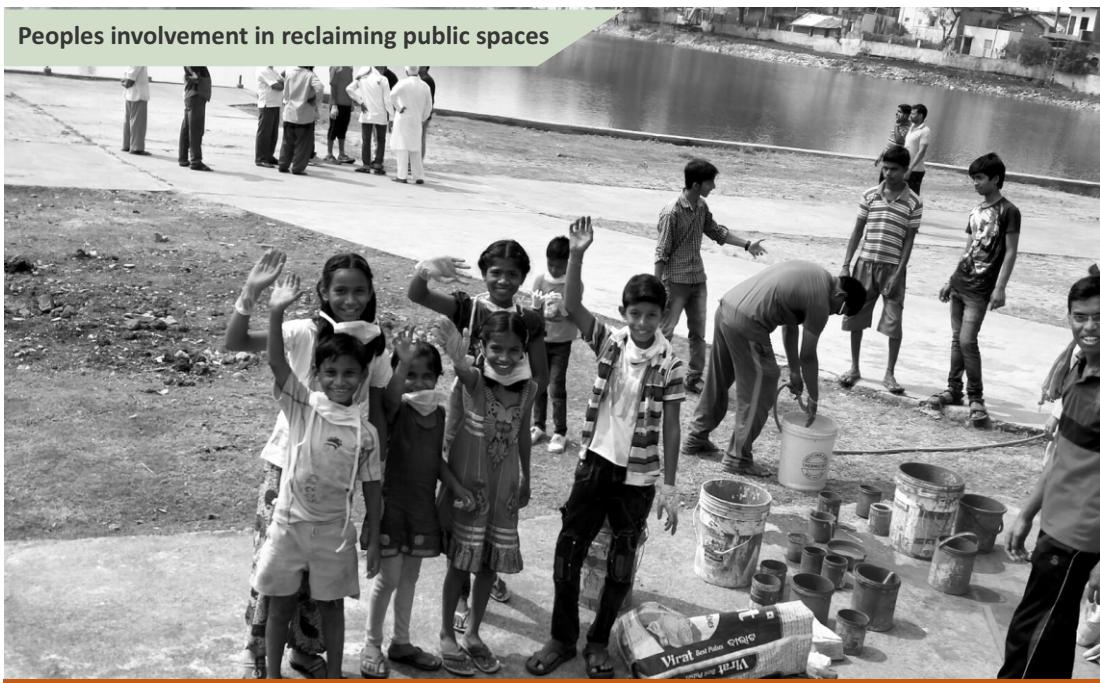


Citizens participating in the cleaning drive

### Cleaning of Lake side



### Peoples involvement in reclaiming public spaces



#### SUSTAINABILITY AND REPLICABILITY

As the lakeside area is now converted into a an active recreational place, it will attract more people. The larger the foot fall at such open spaces, more the chances of it being free from open defecation. This model, can also be replicated in different cities to convert open defecation spots into active recreational spaces thus making them open defecation free.

Sustainability ★★★★★

Replicability ★★★★★

For more details contact Bhandara Municipal Council: 07184255093

# 4

## Wai

A systematic approach to achieving sustainable universal sanitation

### Background

- ⦿ Area: 3.64 sq. km
- ⦿ Population (census 2011): 36,025
- ⦿ No. of Households defecating in open: 135
- ⦿ No. of Households dependent on community toilets: 2300
- ⦿ Wai is a class C council and a small pilgrim city, situated along the River Krishna, known as Dakshin Kashi and is well known for its Ghats and over 250 temples

### INNOVATIVE SOLUTION

**Addressing issues with entire sanitation service chain with in-depth assessment and technical solutions**

### Implementation

- ⦿ Wai Municipal Council (WMC) prepared a city sanitation plan in the year 2013 and initiated a city level demand based incentive subsidy scheme for its citizens to promote construction and use of individual toilets, even before the Swachh Bharat Mission was launched in October 2014.
- ⦿ The city level sanitation scheme did not only cover provision of toilets but was developed to implement integrated faecal sludge management to avoid issues linked with open dumping of faecal waste.
- ⦿ WMC is being supported by CEPT University Ahmedabad and All India Institute of Local Self Government (AIILSG), Mumbai under a project "Performance Assessment System (PAS) Project in Urban Water Supply and Sanitation



Survey conducted using mobile application SANITAB



Community level awareness campaign

### Smart surveys- a base for formulating city sanitation strategy

- ⦿ To assess the existing situation of sanitation facilities in the city, detailed household survey was conducted. The survey was conducted with a PDA application "SANITAB".
- ⦿ This enabled easy generation and analysis of database through online portal with creation of interactive dashboards, which helped in identifying location specific characteristics and issues. The questionnaire was detailed and it comprised of 70 questions to cover availability, possibilities and willingness for construction and use of toilets and also the details of existing facilities for collection and transportation of faecal waste.
- ⦿ The database obtained from the survey was used for preparation of city level sanitation strategy focusing two key areas – 1) Moving towards "Own Toilets" and 2) Implementing city wide septage management plan. WMC adopted multimedia strategy for awareness generation which included development and distribution / display of pamphlets, banners, posters etc; group discussions and presentations at community level during the public festivals, informative audio visuals and innovative announcements etc.

### INNOVATIVE SANITATION FINANCING.

- ◎ Sanitation Credit: WMC explored potential of demand and supply of 'toilet loans' in the city, to address financial issues at household level. A Toilet and Lenders' Fair was conducted at the city level, to create a platform for financial institutions and households to share their mutual requirements. WMC has effectively facilitated toilet loans through Self Help Groups (SHGs) in case of financial constraints..



### TOILET AND LENDERS FAIR:

- ◎ 'Toilet and Lenders Fair' arranged at city level provided a common platform for interaction between lenders and borrowers.
- ◎ The fair saw participation from new sanitation technology providers, sanitary ware suppliers and financial institutions from Wai and from cities around Wai.

### EFFORTS TO CREATE AWARENESS ABOUT APPROPRIATE DESIGNS OF TOILETS AND SEPTIC TANKS

- ◎ Guidelines for toilet and septic tank designs were developed to maintain construction quality.
- ◎ Workshops of contractors were conducted to train them for following the given norms.

### EXPLORING IDEA OF GROUP TOILETS

WMC introduced an idea of group toilets constructed shared by two to four households to address issues related to space and financial constraints.

### IMPLEMENTATION OF SEPTAGE MANAGEMENT PLAN

Wai is one of the first cities in Maharashtra, along with Sinnar, to prepare city wide septage management plan. Realising the importance of ending open dumping of faecal waste along the holy river Krishna, WMC decided to implement the faecal sludge/ septage management plan which includes- 1) Refurbishment of septic tanks 2) Regularising the process of emptying of septic tanks 3) Safe treatment and disposal of faecal waste.

With India getting digital, Wai Municipality has taken a step forward in using technology for conducting survey and preparing database. This method can be replicated by other municipalities for identification of location specific issues. Efforts to ensure good quality toilets with appropriate designs will lead towards sustainable toilets. Also, sanitation financing household level to promote construction and use of 'own toilets' has a high potential of replication in other cities, especially using SHGs as a catalyst. Ideas like Lenders' Fair and Contractors' Workshop may also be easily executed by other cities.

# 5

# Mahad

## Effective leadership to make dream of ODF city

### Background

- ⦿ Area: 4.07 sq. km.
- ⦿ Population (census 2011): 27,531
- ⦿ No. of Households defecating in open: 71
- ⦿ No. of Households dependent on community toilets: 844
- ⦿ The process of making Mahad ODF started in 1980s much before the emergence of global focus on ODF cities under the leadership of Mr. S.S.Sawant, the then council president.

### INNOVATIVE SOLUTION Prioritizing access to toilets for all

### Implementation

- ⦿ Educating and convincing the residents to discontinue OD was undertaken rigorously during the 11 year tenure of Mr. Sawant who personally used to monitor the OD spots in the early mornings. MMC took photographs of people defecating in open in the morning which were then published in the newspapers. This also led to levying penalty and filing cases against the ones resorting to OD.
- ⦿ It was observed that people resorted to OD because they did not have individual toilets and there were no community toilets nearby.
- ⦿ To mitigate this, MMC identified locations closest to such communities that lacked access and constructed toilets on government lands but this was not always possible as many identified locations were on private lands.
- ⦿ Mr. Sawant personally approached landowners and convinced them to give out piece of their lands to construct community toilets



All the open spaces in the city are clean, well-maintained and OD free

- ⦿ Over the years, MMC built many community toilets in this manner.
- ⦿ There was no incentive/ compensation granted nor was there any guarantee that these lands would be given back to the owner in the future. Yet land owners willingly surrendered the required land to construct toilets.
- ⦿ Presently, there are 59 toilet blocks with well-maintained infrastructure.
- ⦿ This special arrangement of MMC and private landowners created a wide network of toilets in the city.



Considering a buffer of 150m (or a walking time of 2 minutes), the influence area of community toilets extends to more than 66 per cent of the inhabited area of the city.

- Community toilets (Public land)
- Community toilets (Private land)
- Shared toilets
- Pay and use toilets

## Other Initiatives

### ① Group toilets as an option to community toilets

MMC identified the households who were reluctant to use community toilets and constructed group toilets for them, access to which was limited only to two to three user households

### ② Two storied community toilet blocks

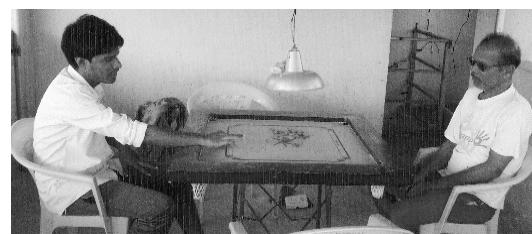
These have been constructed as a response to space constraints by demolition of dilapidated blocks. Terraces of such blocks are used as recreational spaces and so are maintained clean

### ③ Child-friendly arrangements

To change children's habits of defecating in open, MMC first provided small open to air toilet seats outside the main community blocks, which made children use the facilities and eventually shift to using closed community toilet blocks.



Where community toilets were not desired, shared toilets were constructed for 2 HHs.



Recreational space created within two storied community toilets

## SUSTAINABILITY AND REPLICABILITY

Mobilising private lands for construction of community toilets was a unique case due to the unusual arrangement of convincing the private land owners. However, other ideas like early morning visits to OD spots etc. are already being replicated in every city of the State.

# 6

# Satara

Persistent efforts to create  
and maintain a clean city

## Background

- Area: 8.15 sq. Km.
- Population (census 2011): 1,20,195
- No. of Households defecating in open: 542
- No. of Households dependent on community toilets: 5494
- Satara has been undertaking various efforts since the last two decades to make the city ODF free.

## INNOVATIVE SOLUTION

Optimum utilisation of Government schemes for prioritising health and converting ODF spots into lively recreational spaces.

## Implementation

- Satara, even being a class 'A' city with more than 1 lakh population, was declared as ODF in the first set of 19 ODF cities in the State, the reason being its historical efforts on prioritising health and sanitation facilities.
  - Satara Municipal Council (SMC) has been making the best use of every Government scheme that helps create sanitation infrastructure.
  - This has led to an increased awareness regarding construction and use of sanitation facilities, which made it easy for MMC to avail the benefits under SMMU.
  - SMC got able leadership of highly educated elected representatives who prioritised health over any other secondary needs. Six land pockets which were used for ODF were converted into gardens leading to beautification of the city.
- INVOLVEMENT OF SHGs IN SEPTAGE MANAGEMENT**
- Along with provision of toilets, cleaning of septic tanks is also taken care of by SMC, with the help of other missions. Vacuum trucks were purchased under the National Urban Livelihood Mission (NULM) and SHGs were encouraged to operate these vehicles to empty the septic tanks on demand.



Public toilets



Regular cleaning and maintenance of toilets



Regular cleaning of community toilets



Renovation of existing community toilets

### Efforts taken by Satara to become ODF free

#### In 1990s

'Toilets to every household' - work of IHHL under Integrated Low Cost Sanitation Scheme started on a large scale.

#### Early 2000s

Cleaning of toilets led to better quality of toilets thereby increasing their usage. Construction of new toilets was also undertaken by the NP.

#### 2005 – 2011

Various measures like importance of IHHL, community toilets, penalties, awareness programs, social pressure, involvement of citizen representatives were undertaken to make Satara ODF.

#### 2011 - 2014

Transformation of ODF spots was done through political involvement. Under MSNA, 64 toilet blocks at 16 localities were built. Under IHSDP, 1473 beneficiaries were provided with toilets.

#### From 2nd October, 2014

Cleaning of toilets led to better quality of toilets thereby increasing their usage. Construction of new toilets was also undertaken by the NP.

### Transformation of OD spots into public spaces



Nana Nani park



Godoli lake



Hutatma garden



Godoli garden

**7**

# Solapur District

Mission monitored by  
district collector, led by able  
city officials

## Background

- » Area: 180.67 km<sup>2</sup>
- » Population (census 2011): 951,118
- » No. Of HHs defecating in open: 24,514
- » No. Of HHs dependent on community toilets: 41,029
- » Solapur district is located in the south eastern region of Maharashtra. It is the 4th largest district in the state in terms of land area and 7th largest in terms of population, with 6 municipal councils- Sangola, Mangalwedha, Kurduwadi, Karmala, Pandharpur and Barshi

## INNOVATIVE SOLUTION

### Formulation of 7 step action plan at district level

## Implementation

- » Solapur district, to lead towards open defecation free cities formulated a 7 step action plan and came up with many innovative ideas. The first step involved observation and repairing of community toilets. All toilets were invigilated, and were made functional with all required facilities.
- » In the second step, campaign for elimination of open defecation was held to encourage people to use toilets.
- » Innovative ideas like felicitating the ones resorting to OD, penalising them, using media for creating a buzz around, taking support from Police were initiated first in Solapur district followed by cities all over State.
- » Strict restriction on open defecation led to increase in demand for toilets and which led to zero open defecation

## SUSTAINABILITY AND REPLICABILITY

The council has adopted the Gandhigiri pattern to prevent OD. Regular repair and maintenance of community toilets is carried out and students are involved for a longer impact. This pattern of Gandhigiri can be implemented in any city to automatically increase the demand for toilets.

**1**

**REPAIRING OF COMMUNITY TOILETS. MEASURES TO MAKE IT FUNCTIONAL.**

**2**

**AWARENESS PROGRAMMES TO PROMOTE USE OF TOILET**

**3**

**MEASURES TO STOP OPEN DEFECATION**

**4**

**EXTENSIVE PUBLIC PARTICIPATION**

**5**

**MEASURES TO INCREASE NUMBER OF APPLICATIONS**

**6**

**MEASURES TO INCREASE THE SPEED OF CONSTRUCTION OF TOILETS**

**7**

**AWARD OF RS.500 FOR LOCATING DEFAULTERS**



### BALVEER PATHAK:

Team of 30 students from 5th to 7th std. monitored OD spots and encouraged individuals to get their toilets built.

**Incentive:** Council made it's library accessible to these students as a reward.



### SHAME GAME:

- ◎ People who were found defecating in open were gifted flowers.
- ◎ Their photos were taken and put up on the boards at the council.
- ◎ Procession of defaulters was carried to embarrass them from open defecating

### MEETINGS AT WARD LEVEL

Meetings were held and campaigns were organized to teach people about how to avail the subsidy and fill the application. In these meetings people pledged to contribute for making their city ODF



# 8

## Pune

### Framework to promote initiatives for ODF city

#### Background

- ⦿ Area: : 440 sq.km.
- ⦿ Population (census 2011): 31, 15,454
- ⦿ No. of Households defecating in open: 16,117
- ⦿ No. of Households dependent on community toilets.

**Pune is nationally declared to be the city with highest number of individual toilets constructed (more than 22000, till date) under Swachh Bharat Mission.**

#### INNOVATIVE SOLUTION

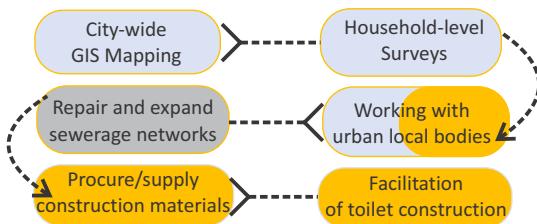
##### Support from local NGOs in facilitating construction of individual household toilets

#### Implementation

- ⦿ To facilitate construction of individual toilets Pune Municipal Corporation (PMC) collaborated with NGO-Shelter Associates and CREDAI to provide individual toilets to economically backward beneficiaries.
- ⦿ Shelter Associates has carried out city wide GIS surveys which gave the comprehensive picture of sanitation scenario of the city and household surveys which documented residents willingness for IHHL, existing sewerage network scenario etc.
- ⦿ CREDAI supplied materials to beneficiaries and provided assistance in building individual toilets.
- ⦿ PMC fixed/ extended the sewerage network as identified in the surveys.
- ⦿ The NGO also provided support in fact tracking the process by uploading the completed toilet photos.

#### Scope of NGOs in facilitating construction of individual toilets

- ⦿ Equitable Use: The design is useful and marketable for people with diverse abilities
- ⦿ The agency initiates the process of getting the signed undertaking from the beneficiary
- ⦿ Material distribution to identified households
- ⦿ A checklist has to be followed while distributing the material



Shelter Associates    CREDAI as partners    PMC

CREDAI (Builders' association) in the city for scaling up delivery of individual sanitation. Some builders are charging the families for it while some are doing it free.

## Guidelines for community toilets construction

1

**Equitable Use:** The design is useful and marketable for people with diverse abilities

2

**Flexibility in use:** The design accommodates a wide range of individual preferences and abilities.

3

**Simple and Intuitive Use:** Use of the design is easy to understand regardless of the users knowledge, language skills or current concentration levels

4

**Perceptible Information:** The design communicates necessary information effectively to the user, regardless of ambient

5

**Tolerance or Error:** The design minimizes hazards and the adverse consequences of the accidental or unintended actions

6

**Low physical efforts:** The design enables efficient and comfortable use with minimum fatigue.

7

**Size and space of the approach:** Appropriate size and space is provided for approach, reach, manipulation and use regardless of the user's body size, posture or mobility.

8

**Social integration :** Treating all groups with dignity and respect and reinforcing positive cultural values.

Cleanliness training programmes were undertaken as a part of in-house capacity building to promote and safe practises. Guidelines for the construction of the toilets were formed with a view to have more sustainable structures which are easy to maintain and more user friendly.

1.Optimal Ventilation

2.Optimal Lighting (Internal and External)

3.Differently-abled and Elderly friendly accessories

4.Waste Management

5.Plumbing Arrangement for Post-use cleaning

6.Systems for Fee Collection (For paid toilets)

7.Signage requirements: Directional and informational sign

8.User Friendly Accessories

9.Plumbing & Cleaning-Friendly Accessories.



Family to prioritize a toilet at 1 room house of size  
12 x 12 sq.ft.

### SUSTAINABILITY AND REPLICABILITY

The formulated guidelines as well as NGO involvement in construction of toilets can be replicated by other cities to increase the pace of toilet construction as well as make the toilet infrastructure sustainable.

Sustainability ★★★★☆

Replicability ★★★★☆

For more details contact: 02025501103

9

## Dondaiche Warwade

Promotion of individual toilets by making available additional funds for construction

### Background

- ⦿ Population (census 2011): 46,767
- ⦿ No. of Households defecating in open: 1,259
- ⦿ No. of Households dependent on community toilets: 3,516
- ⦿ Dondaicha Warwade started the initiative to improve toilet infrastructure by obtaining additional resources from the private sector

### INNOVATIVE SOLUTION

**Approached donors to adopt set of households for supporting toilet construction**

### Implementation

- ⦿ As the work for the mission was under process it was observed that the total government subsidy of Rs. 17,000 was not sufficient for economically backward beneficiaries.
- ⦿ Dondaiche Warwade Municipal Council (D W M C) approached various organisations for financial assistance.
- ⦿ Under CSR, Rotary Club agreed to provide help to these economically backward beneficiaries.
- ⦿ Those in need were supplied toilet seats, tiles, doors, basin and other required materials.
- ⦿ Around 60 beneficiaries were provided material of Rs. 5000 each. In the first phase, Rotary Club has given financial support of upto Rs. 3 lakh.
- ⦿ In the second phase, Rotary Club is planning to provide assistance to 25 more beneficiaries.

### SUSTAINABILITY AND REPLICABILITY

Local organisation and donors can generate demand for toilets by providing financial assistance and facilitating further process till the time toilets are constructed. Stakeholders can lend a hand in making the Swachh Maharashtra Mission successful.



Function held by rotary club for material distribution



10

# Panchgani

Step wise approach for increasing the coverage

## Background

- ⦿ Area: 6.8 sq. Km.
- ⦿ Population (census 2011): 14,894
- ⦿ No. of Households defecating in open: 102  
No. of Households dependent on  
community toilets: 319
- The city is part of Mahabaleshwar-Panchgani Eco-Sensitive Zone. Strong initiative from administrative and political cadre for creating awareness among the people.

## INNOVATIVE SOLUTION

### Simultaneous strategy of awareness campaigns and command and control regime

## Implementation

- ⦿ Probable beneficiaries were identified and meetings were held to create awareness and initiate construction of IHHL.
- ⦿ Maintenance of community and public toilets was done through contract with a private party to clean it twice a day.
- ⦿ Penalizing open defecation- monitoring squad was formed collect penalty of Rs. 50 for OD and defaulters were made aware of ill effects.
- ⦿ Sewerage charge of Rs. 100 is collected from annually. The council plans to increase taxes progressively to achieve 100% cost recovery over the next 5 years.



Meetings with the probable beneficiaries.



Community toilet

## SUSTAINABILITY AND REPLICABILITY

Better awareness of the people and a step wise approach helps in better coverage of the scheme

Sustainability ★★★★★

Replicability ★★★★☆

For more details contact Panchgani Municipal Council: 02168240244

# 11

## Yavatmal

Using locally suitable  
techniques for awareness  
generation

### Background

- Area: 11.73 sq.Kms.
- Population (census 2011): 138,303
- No. of Households defecating in open: 2080
- No. of Households dependent on community toilets: 4620
- Yavatmal is well connected by the road to the nearby cities like Nagpur, Wardha, Amravati etc.

### INNOVATIVE SOLUTION

**“Tamrel Chodo Abhiyan” with use of folk art to create awareness**

### Implementation

- Yavatmal Municipal Council (YMC) organized an awareness rally on 2nd October 2015 which witnessed large number of participation.
- Meetings with Self Help Groups and NGOs were held and importance of toilets was explained to them.
- ‘Tamrel Chodo Abhiyan’ was initiated, with an idea of making people aware of health hazards associated with using a ‘tamrel’ i.e. practicing open defecation Innovative banners were put up explaining health and environmental issues caused due to open defecation.
- Vehicles displaying such banners spreading awareness were used for advertisements and the local art form (‘Powada’) was played on audio clip.
- Mobile toilets were made available to socially backward communities till the time they get their toilets built.

Such awareness initiatives about the mission were adopted in other cities which helped increase the demand for toilets. Giving local touch to awareness campaigns is proved to be the effective solution to generate more demand for toilets.



# 12 Karmala

Framework for increasing the coverage of toilet facility

## Background

- Area: 4.96 sqkm
- Population (census 2011): 21,933
- No. of Households defecating in open: 265
- No. of Households dependent on community toilets: 1,936
- Karmala is located in the Solapur district of Maharashtra and follows the principles laid by Solapur district to become ODF.



## INNOVATIVE SOLUTION

**Regular maintenance of community toilets and strict implementation of rules**

## Implementation

- Extensive IEC was undertaken by the council to sensitize the people and increase their involvement. Mapping of location of community toilets was done reporting existing condition and coverage.
- Septic tanks were built for community toilets and faecal sludge management was initiated.
- OD defaulters were obligated to do community service.
- Action plan for Septage management was also prepared which included regular Inspection of Septic Tanks, Reuse of waste water, remunerative Sewage & sludge Management and a complaint Redressal system-Toll free Number.

**Eight step action plan for sustainability was prepared.**

- Regular Monitoring of OD spots by ULB staff
- Maintain proper septage management
- Beautification of OD spots
- Clean IHHL competition
- Rewards for maintaining ODF status & cleanliness
- Complaint redressal system
- Workshops on clean and green city
- Continuous awareness campaigns and media

## SUSTAINABILITY AND REPLICABILITY

Methodical problem identification and focused initiatives taken by the council is the part that can be initiated by the other cities.

**Sustainability** ★★★★☆

**Replicability** ★★★★★

For more details contact Karmala Municipal Council: 02182220315

13

# Kolhapur

## Addressing huge floating population

### Background

- » Area: 66.82 sq. km.
- » Population (census 2011): 549236
- » No. of Households defecating in open): 113
- » No. of Households dependent on community toilets: 16,670
  
- » Kolhapur is famous for its Mahalaxmi temple and witnesses heavy tourist footfall.

### INNOVATIVE SOLUTION

#### CSR support for toilet infrastructure

### Implementation

- » Kolhapur is the first Municipal Corporation in State to declare itself as open defecation free.
- » Multimedia strategy for creating awareness was used. Interviews with officials were aired at Radio Mirchi and Tomato FM to resolve the queries of the citizens and awareness was also spread through local TV channels.
- » 200 bio-digester toilets are built at various locations through CSR funds of Hotel Association, Builders Association and Industrial Association.
- » Likewise, Indo Count Foundation will be constructing 100 community toilets in the city under their CSR.
- » 20 toilets for children were also built at 10 different locations considering their anthropometrics



Public awareness rallies



Toilets with in-built bio digester for floating population



Community toilet



Street plays for public awareness

Sustaining bigger cities with higher floating population is a challenge. KMC is committed to continue its efforts to maintain the status of ODF city. Multiplying the arms with support from local organisations, donors and residents is the strategy adopted by KMC. Kolhapur's efforts may be a good learning for other municipal corporations and cities with higher floating population

14

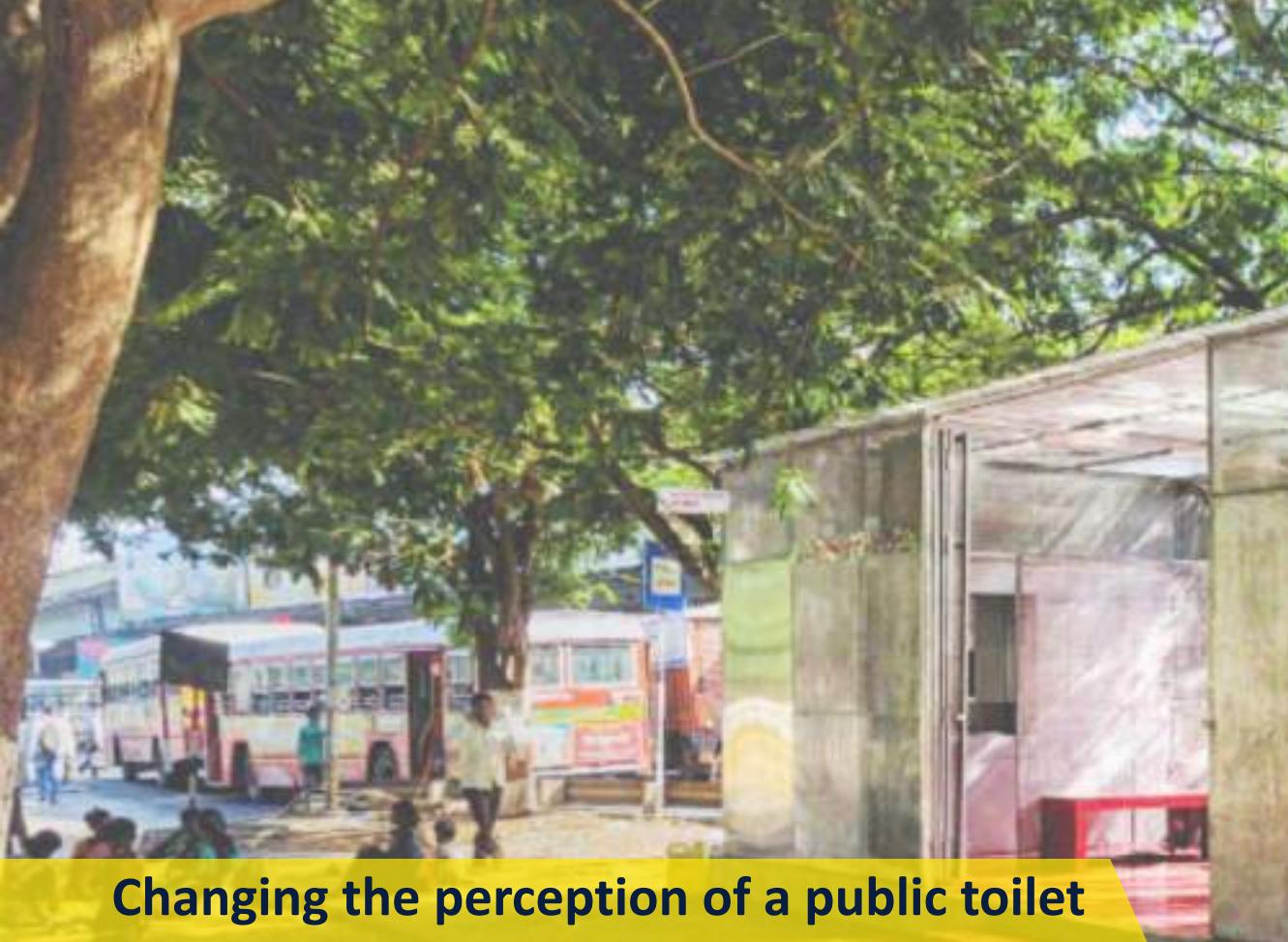
## Sinnar

### Toilets and lenders' fair



- ◎ Considering the cost of construction vis-a-vis socio-economic condition of the applicants, it was realized that Government subsidy alone will not be sufficient and there is a need of exploring options for making available additional funds through 'sanitation credit' at household level.
- ◎ Also, it was necessary to make people aware of the various available options of constructing a toilet so that they select the one which is financially viable yet technologically sound as per their needs. With this intention Sinnar Municipal Council (SMC) organised a "Toilet and Lenders' Fair" at city level.
- ◎ The fair witnessed a considerable participation of interested beneficiaries, SMC officials, sanitation technology providers, sanitary ware suppliers and financial institutions from Sinnar as well as nearby cities. It resulted into more number of applications for toilets, number of beneficiaries to approach financial institutions to avail sanitation credit to meet financial gaps for construction of toilets.
- ◎ The fair was organized in the SMC office premises. Space for individual stalls for the participants was provided along with basic facilities by the SMC.
- ◎ The applicants were informed about the event through various means like hoardings at prime locations around the city, local audio announcements, bulk SMSs, flyers in the newspapers etc.





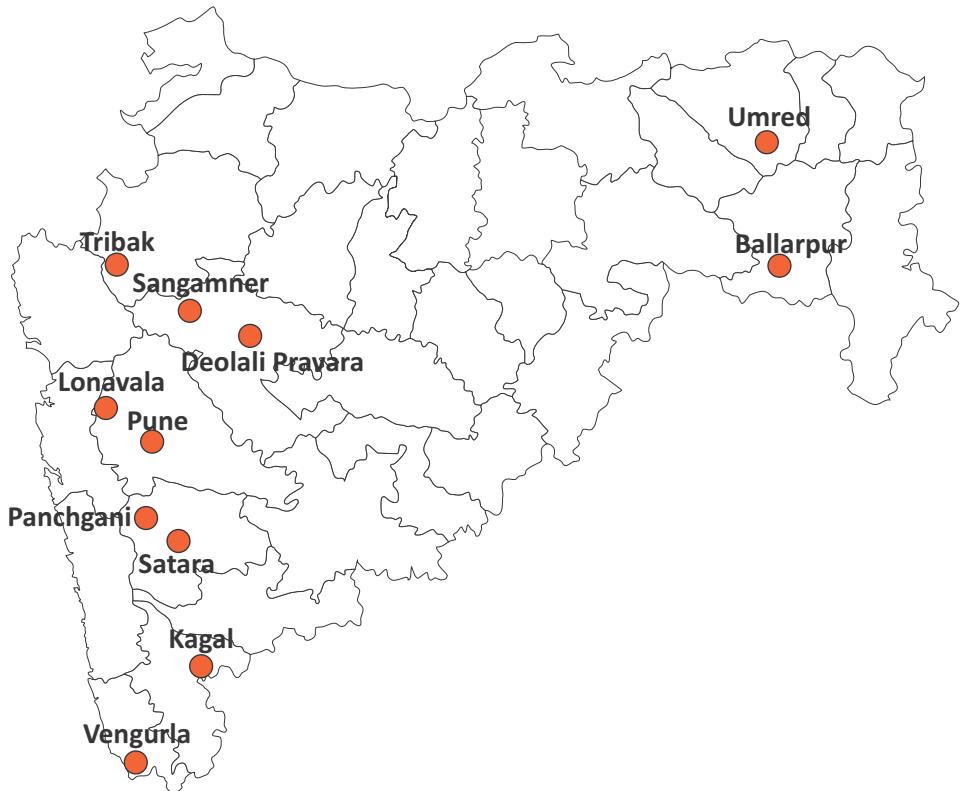
## **Changing the perception of a public toilet A Thane Municipal Corporation initiative**

**“Much cleaner and a beautified public toilets will change the perception of the people towards its function and usage...”**

- TMC exhibits a new phase of toilet construction by converging the definitions for community spaces and function of public toilets.
- The restroom measuring 10'x 30' has four blocks at two ends with a garden space at the centre. The centre space is also used as a free gallery to display art for amateur artists and is seen as a place for conducting awareness campaigns.
- The system also has been provided with the bio digester to reduce use of fresh water and improved waste management.
- Amenities like sanitary pads vending machine and incinerators, CCTV camera, mobile charging points and panic alarm have been introduced which truly showcases a better service delivery and well thought of functional aspect of design.
- TMC has set an example with help of private partners and city dreams of having this as a standard practice and not a pilot project.



## Innovative Initiatives for **Solid Waste Management**





1

# Vengurle

Active administration to increase public participation

## Background

- ⦿ Area: 12.98 sq. km.
- ⦿ Population (census 2011): 12,392
- ⦿ Daily generation of waste: 7 MT
  
- ⦿ The city is governed by a C class municipality. The town has a rich cultural heritage. It is a tourist place considering the vicinity from the coastline.

## INNOVATIVE SOLUTION

**Focused approach to achieve 100% segregation and better scientific disposal.**

## Implementation

The city authorities aimed for making this city clean and healthy in 2015. It was strengthened by having a focused vision and a strategic approach.

- ⦿ Achieving 100% coverage of the collection system and 100% segregation of waste was considered as the first priority.
- ⦿ To achieve this extensive awareness was undertaken along with strict implementation.
- ⦿ Within just duration of 4 months 100% segregation achieved.
- ⦿ This initiative by the council and the efforts were acknowledged and supported by the people as well.
- ⦿ As the council decided to study and explore various options for the recovery and disposal of waste with an aim to have zero waste generation and to clean disposal site.



Waste disposal waste site after cleaning



Separate bins for segregation of waste



Separate bins for segregation of waste



Segregated plastic waste collection

### Waste Recovery

The city as planned after achieving the 100% segregation explored various options for the waste recovery.

- Four way segregation of waste was achieved i.e. wet, dry, plastic and scrap waste was separately collected.
- Composting unit and biogas plant has been developed for wet waste disposal.
- For dry waste, shredding machine has been implemented from which briquettes are prepared.
- Plastic crushing machine is also used by the council. The byproduct of granulated plastic was also used for construction of the road on the pilot basis which has become a successful example.

Other materials like metals, glass paper is given / sold to the industries for which it



Dry waste shredding machine



Road constructed from recycled plastic



Plastic crushing machine

**A dumpsite turned into solid waste management study centre with more than 1000 visitors from within India and 10 from outside India.**

### SUSTAINABILITY AND REPLICABILITY

Positive externality of the segregation and scientific disposal of waste in a form of better material of road can be seen as a case that needs to be studied and formulated further.

**2**

## Pune

Multidimensional approach towards better management waste

### Background

- ⦿ Area: : 440 sq.km
- ⦿ Population (census 2011): 31, 15,454
- ⦿ Daily generation of waste: 1600-1700 MT
- ⦿ It is a rapidly growing city facing the problem of managing the increasing amount of waste.
- ⦿ Changing character from Pensioner's city to Educational – Administrative Center and now to an important Industrial hub with reference to the IT Center and manufacturing center.

### INNOVATIVE SOLUTION

**Fourfold approach to reduce waste before disposal**

### Implementation

- ⦿ Multidimensional approach and initiatives have been taken by the city to build better solid waste management system and reduce the quantity of waste before disposal.
- ⦿ The city has strategic initiatives planned in phases where they had involved various stakeholders at different level for the effective implementation and the outcome of the initiatives. Of these the handbook explains the three projects in details

#### INTEGRATING INFORMAL SECTOR IN MUNICIPAL SOLID WASTE COLLECTION

- ⦿ With a view to increase the door to door collection of segregated waste city had planned to integrate the rag pickers into the system as per the demand of the Kach Patra Kashtakari Panchayat (KKPKP) by formally registering them and providing them with Icards.

**1**

INTEGRATING INFORMAL SECTOR IN MUNICIPAL SOLID WASTE COLLECTION

ZERO GARBAGE PUNE CITY

**2****3**

CONTAINER FREE CITY

WASTE TO ENERGY

**4****5**

MANDATORY ONSITE DISPOSAL

HAZARDOUS WASTE DISPOSAL

**6****7**

SONIA GRAM UDYOG PRAKALP

- ⦿ The next step to formulate SWaCH, a co-operative of self employed waste pickers was taken in 2006.
- ⦿ SWaCH was considered as a partner for collection and segregation of waste and it covers around 60% of the households.
- ⦿ PMC in this case only acts as a facilitator to make people aware of the service and to promote the use

## ZERO GARBAGE PUNE CITY:

### Approach towards the project.

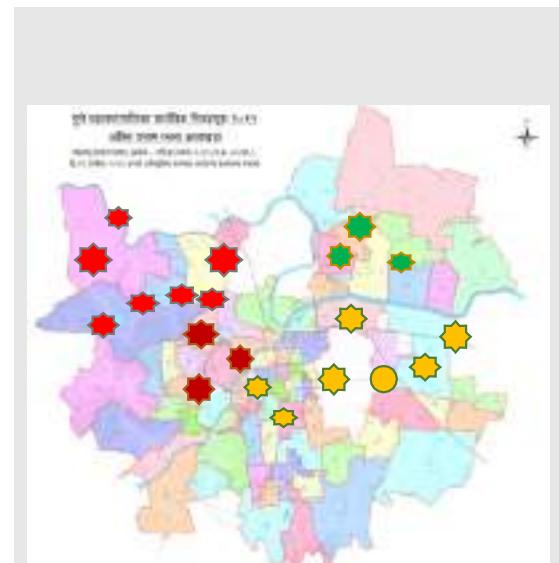
- ➊ The city with a view to have a holistic approach for management city had planned a pilot scheme for Katraj ward and then implemented it for 10 wards in the 1st phase and 20 wards in the second phase.
- ➋ This project was done with the support from Janwani organization which had provided help for planning and execution of the project.
- ➌ The project had 2 components
  1. Container free city
  2. Exploring options for waste recovery

### Method of implementation

- ➊ Each ward was assigned with 3 persons from Janwani to set up and increase the coverage of the door to door collection system and increase the efficiency of the functioning by framing the fixed timing of collection in close consultation of residents.
- ➋ With increased coverage of collection system and decreased dependency on secondary containers the number of containers for the wards was reduced.
- ➌ Increase in the coverage of collection system and better monitoring of waste helped to explore the option like waste to energy and biogas plant

### Monitoring

- ➊ Before removal of the secondary container, the volunteer from Janwani records the its demand based on the time required to fill it and accordingly the coverage of collection system is accessed and container is removed
- ➋ Contacts of various level officers and Janwani volunteers are spread across citizen groups for on ground updates.



Apartment level collection of waste



Regular cleaning of secondary bins



Awareness poster - segregation of waste

## ONSITE DISPOSAL OF WASTE

### Approach towards the project.

- ⦿ The housing projects after 2010 have a mandate of managing the disposal of their own organic waste.
- ⦿ With this as a base the city decided to improve the newly developing areas around the outskirts of the city after working on increase in coverage of collection system.

### Method pf implementation

- ⦿ Compulsory collection of segregated waste and penalizing the defaulters was considered as a first step.
- ⦿ Function of the collection workers was redefined to collect dry waste from the society gate and societies were asked to carry out door to door collection of waste.
- ⦿ Simultaneously awareness about the various methods for disposal of the wet waste was spread by developing prototype and through advertisements.
- ⦿ Various service providers for operation and maintenance of the organic waste disposal units were also provided to the housing societies to maintain its sustainability.
- ⦿ In few wards where there is majority of Bungalow area common biogas plants have also been initiated.

### Monitoring

- ⦿ No mixed waste is collected except for the singular apartments for whom it is not feasible to maintain decentralized disposal unit.



Apartment level collection of waste



Composting unit within the housing society

## SUSTAINABILITY AND REPLICABILITY

Holistic approach that the city takes can be replicated by the by the other cities.:)

**Sustainability** ★★★★★

**Replicability** ★★★★★

For more details contact Pune Municipal Corporation: 02025501103



**3**

# **Deolali Pravara**

## Decentralized solid waste management

### Background

- ⦿ Area: 43.34 sq. km.
- ⦿ Population (census 2011): 30,997
- ⦿ Daily generation of waste: 1.5 MT
  
- ⦿ The dumping site in Deolali Peavara was 5 km away from the city. Hence efforts were taken and initiatives were formulated to decentralize and manage solid waste.

### **INNOVATIVE SOLUTION** Managing solid waste through decentralized units

### Implementation

- ⦿ 9 localities have been selected for decentralized SWM. 1.5 MT of solid waste is collected daily (0.9 MT biodegradable and 0.6 MT non biodegradable waste) and processing units of composting are set up in these.

For Segregation two dustbins are given to each HH. Green dustbins are picked daily and red dustbins are collected twice a week.

- ⦿ All collected biodegradable waste is dumped in composting pit through hand driven carts and non biodegradable is transported to disposal site.

The 10 x 4 brick tank contains 4 compartments suitable for decomposing of upto 2 tons of waste. Each requires a month to fill after which it is kept for 3 months for maturation.

- ⦿ The council has formed a informal 'Parisar Swachhata Committee' of citizens to monitor the the unit.



Dustbins given to HHs for segregation



Separate bins for segregation of waste

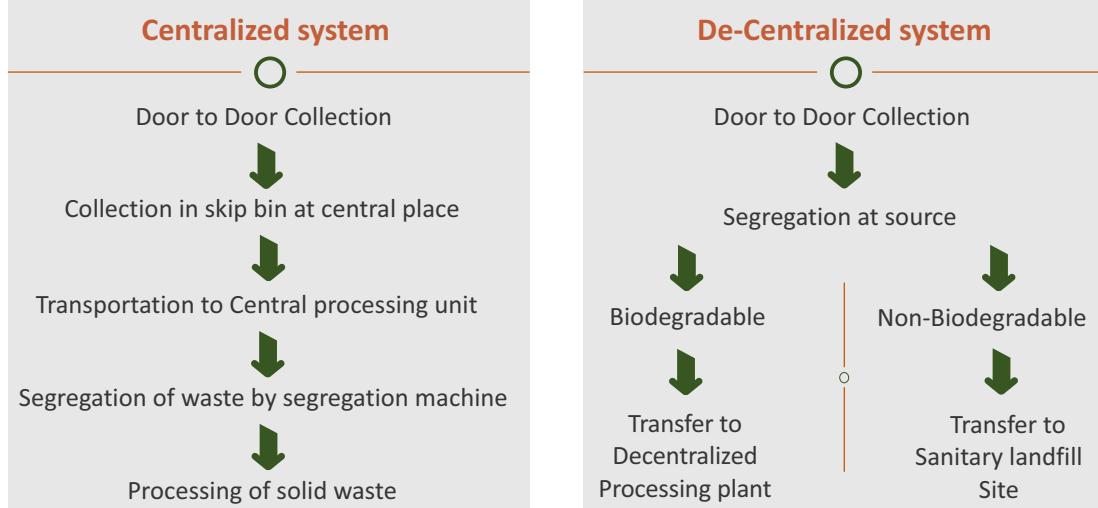


Biodegradable waste in decentralized unit

Total annual cost of decentralized SWM for one locality is Rs. 1,44,420. (collection, transportation and processing). Centralized method for same locality will cost Rs. 2,20,500.



## Functional comparison



## Cost comparison ( Cost per day for 165 kg of biodegradable waste )

	Centralized	Decentralized
Collection	424	298
Transportation	40	0
Processing	139	98
Total Cost	603	396

- The advantage of such system is that waste can be managed as far as possible within smaller area through recycling and processing of biodegradable waste.
- Only processing rejects or wastes that cannot be recycled or is hazards in nature need to transported to the centralized processing facility.

### SUSTAINABILITY AND REPLICABILITY

This decentralized module can be implemented in other cities as only that waste which cannot be recycled or is hazardous in nature is transported to the centralized processing facility hence maximum recovery of waste is achieved at the local level.

Sustainability ★★★★★

Replicability ★★★★★

For more details contact Deolali Pravara Municipal Council: 02366262027

# 4

# Trimbak

## Changing dumping ground to clean public place

### Background

- ⦿ Population (census 2011): 12,056
- ⦿ Daily generation of waste: 1.5 MT
- ⦿ Trimbak town is an ancient Hindu Pilgrim centre located at the source of the Godavari River. The serene ambience and the pleasant climate make it a tourist destination as well.

### INNOVATIVE SOLUTION

#### Conversion of 10 years functional dumping ground into a beautiful river ghat

### Implementation

- ⦿ Trimbak dumping ground is at the banks of river Godavari with an area of 1.1 Ha and average height of the accumulated waste 4M.
- ⦿ To convert this land into a public space, scientific approach for disposal of waste was undertaken.
- ⦿ Work of land recovery was allotted to M/S E B Enviro Biotech Pvt. Ltd. Nashik which was completed in 45 days and the land was utilized for building ghat.
- ⦿ Heaps of excavated waste was inoculated by Bio culture I and II.
- ⦿ The soil conditioner was taken away by the farmers the recyclables by rag pickers. Inert material was used to level the ground. Such scientific treatment of waste and



Each heap of accumulated and excavated waste was checked for bio-chemical parameter and treated accordingly.



Condition of the dumping ground before processing.



Condition of dumping ground after the initiative

conversion into a clean space will automatically reduce health hazards and soil degradation.

### SUSTAINABILITY AND REPLICABILITY

As the dumping site is now vanished, the ghat will attract visitors and add to city's beautification. This can be replicated in cities where the river sides have become places of dumping land.

Sustainability ★★★★☆

Replicability ★★★★☆

For more details contact Trimbak Municipal Council: 02594233132

# 5

# Satara

## Scientific disposal of waste through bio mining

### Background

- » Area: 8.15 sq Km
- » Population (census 2011): 120,079
- » Daily generation of waste: 48-50 MT (This includes waste generated from Satara, Khed, Shahapuri and Shendre)

### INNOVATIVE SOLUTION

#### Scientific approach to waste disposal

### Implementation

- » 7.6 hectares of landfill is operational since 1984 and till now approximately 1,23,000 tons of waste has been dumped over it.
- » Municipal Council has been successful in disposing the old waste and producing organic manure from it by bio mining process using the locally available machinery, i.e. JCB machine, tractor, vibration strainer and 2 workers.  
Everyday cost including that of machinery was Rs 20,812.
- » Approximately, everyday 115 ton waste is filtered and from it 28 to 30 tons of organic manure is produced.
- » The organic manure produced has been sold to farmers at a rate of Rs 1.5 per kg. 20 MT manure was used for garden owned by Municipal Council.

### Procedure

- Measurement of the waste on the dumpsite



**Condition of the dumping ground before processing.**

- Estimate the amount of constituents of waste.
- The organic manure produced was sent for verification.
- After validation, it was proved that the manure produced is useful for Agriculture.

### SUSTAINABILITY AND REPLICABILITY

The method of bio mining can be replicated at landfills which have been functional or operational from many years. This method is sustainable as the waste is segregated and organic manure is produced as a residue which can be used for agriculture

Sustainability ★★★★☆

Replicability ★★★★☆

For more details contact Satara Municipal Council: 02162234076

# 6

# Umred

## Involving private agencies in solid waste management

### Background

- Area: 7.7 sq. km.
- Population (census 2011): 53,971
- Daily generation of waste: 13 MT
  
- Umred became a garbage free city without any funds from the central or the state government.

### INNOVATIVE SOLUTION

#### Private sector participation to manage solid waste

### Implementation

- Private agencies have been appointed for door to door collection of garbage transportation and processing.
- Each vehicle has GPS system and separate containers for dry and wet waste.
- The cost for collection comes to a monthly expenditure of Rs. 2,10,000 apart from processing.
- Six months rigorous awareness programme was carried out.
- 60 shows of street plays have been arranged in the council area.
- Bulk SMS service was initiated.
- Publicity was done through hoardings and banners displayed at important public places.



Collection from individual HH



Segregation of waste



Street plays conducted to create awareness

### SUSTAINABILITY AND REPLICABILITY

Similar initiatives of involvement of private sector in collection and processing of waste can be replicated in other cities for solid waste management.

Sustainability ★★★★☆

Replicability ★★★☆☆

For more details contact Umred Municipal Council: 07116242007

# 7

# Sangamner

## Involving stakeholders for clean and green Sangamner

### Background

- ⦿ Area:: 16.31 sq kms
  - ⦿ Population (census 2011): 65,804
  - ⦿ Daily generation of waste: 7 MT
  - ⦿ The city is governed by a B class municipality.
- Accessibility from Pune, Nashik and Mumbai have played a vital role in economic growth of the city.

### INNOVATIVE SOLUTION NGOs motivating citizens to undertake cleanliness activities

### Implementation

- ⦿ Community groups like SHGs, rotary club, lions club in the nearby vicinity were involved for various activities.
- ⦿ Malpani group has started cleanliness drive with 400 participants cleaning the on street open dumping sites.
- ⦿ Council members had taken initiatives to clean the river bed.
- ⦿ Members were felicitated for performing better in terms of coverage of the service.
- ⦿ Zero waste project promoting On site disposal of waste is given directly to the rag pickers.
- ⦿ Educational institutions were involved for formulating models for zero waste at household level



Malpani group members in cleanliness drive



Community participation for cleanliness drive



Council undertaking the cleaning of river bed

### SUSTAINABILITY AND REPLICABILITY

Change in attitude and on ground implementation can be achieved with the will from the administration and the grass root level participation.

Sustainability ★★★★☆

Replicability ★★★★☆

For more details contact Sangamner Municipal Council: 02425225308

# 8

# **Lonavala**

## **Students as catalysts**

### **Background**

- ⦿ Area: 38 sq. km.
- ⦿ Population (census 2011): 57,698
- ⦿ Daily generation of waste: 4 MT  
The city is governed by a B class municipality.
- ⦿ Tourist place attracting large floating population majorly in the monsoon season.



### **INNOVATIVE SOLUTION**

**Decentralized functioning to increase the efficiency and coverage of service**

### **Implementation**

- ⦿ Lonavala has become a container free city with 100% segregation of waste. Decentralized waste disposal is undertaken through promotion of ward wise setup for composting and models for onsite disposal of waste.
- ⦿ Citizens are included for onsite updates Swachhta doot were assigned the duty for signing the log book marking the daily collection by ghanta gadi. Boards displaying the ghanta gadi timing were displayed to promote the use.
- ⦿ Environmental passbook: Students are asked to collect the dry waste from their houses once a week and throw them into dustbins in school premises for which they are given grades.



Technologically advanced bin or 'Tech bin' is a unique vending machine **where waste pays you chocolates**

### **SUSTAINABILITY AND REPLICABILITY**

Including citizens to promote the good practices can be replicated by other cities from this case.

# 9

## Kagal

### Strategy for zero waste

#### Background

- Population(census 2011):34,106
- Daily generation of waste: 8 MT
- Kagal is a taluka in Kolhapur district. It is located at boundary of Maharashtra and Karnataka.

#### INNOVATIVE SOLUTION

##### From 100% segregation at source to zero waste disposal

#### Implementation

- The waste collected is further segregated at the dumping ground.
- German technology is used to generate electricity from the wet waste. It is estimated that this project shall save around 2-2.5 lakh every month. Bio-digester and waste separator machines are used.
- 5MW of electricity can be generated from the amount of waste. At present electricity generated serves 250 street lights. Vision is to serve approximately 2000 street lights.
- Dry waste is to produce manure. This manure is sold to the farmers at the rate of Rs.3/- per kg.
- The project is under PPP with total project cost of Rs.3.35 Cr.
- The project was undertaken on by Green box company with the contract of maintenance of 5 years.



Electricity generation plant



Well equipped collection vehicle

#### SUSTAINABILITY AND REPLICABILITY

Any city of the same scale can take up the initiative of generation of electricity using the similar techniques.

Sustainability ★★★★☆

Replicability ★★☆☆☆

For more details contact Kagal Municipal Council: 02325245678

# 10 Panchgani

## Converting dumping ground into symbol of cleanliness

### Background

- » Area: 6.8 sq. Km.
- » Population (census 2011): 14,894
- » Daily generation of waste: 3 MT
- » The city is part of Mahabaleshwar-Panchgani Eco-Sensitive Zone declared by the Ministry of Environment and Forests in 2000.

### INNOVATIVE SOLUTION

#### Converting dumping ground into a Swachh Maharashtra point

### Implementation

- » Panchgani produces about 3 MT solid waste daily and about 5 MT waste during peak tourist season.  
Earlier, waste used to be collected and crudely disposed at a dumpsite located near Sydney point, one of the tourist attractions in the city
- » Recently, the dumpsite (1.25 acre) has been developed as a garden and a solid waste treatment plant of 3MT has been set-up at the site.
- » It was commissioned on 2 December 2015 at cost of 1.15 Cr.
- » The waste is segregated and a mechanical composter produces compost out of organic waste.
- » This manure is sold by the council to farmers.
- » The city received funds from the district Nagarathan for the project and contributed 20% of the project cost.



Dumpsite prior to the initiative



The dumping site has been converted to Swachh Maharashtra point.

### SUSTAINABILITY AND REPLICABILITY

Mechanical composting was chosen as the best method for disposal of waste considering the climatic conditions of Panchgani. Cities which have similar cold climatic conditions and which experience heavy rainfall can adopt this practice for efficient management of solid waste.

**Sustainability** ★★★☆☆

**Replicability** ★★★★☆

For more details contact Panchgani Municipal Council: 02168240244

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# Ballarpur

## Social media- A catalyst

### Background

- ⦿ Population (census 2011): 89,452
- ⦿ Daily generation of waste: 25 MT
- ⦿ The city is governed by a C class municipality. Ballarpur is city in the Chandrapur district. The city hosts an industrial setup which is responsible for variation in the population.

### INNOVATIVE SOLUTION Use of social media for awareness

### Implementation

- ⦿ An attempt was made to involve social media like Facebook, WhatsApp including You tube which proved to be a successful one.
- ⦿ Poster war through WhatsApp and Facebook about the awareness covered various aspects, emphasizing on the need for segregation of waste into dry waste and wet waste, the provision of toilets and ban on the use of plastic.
- ⦿ Through social media citizens shared their views, ideas, complaints and feedbacks with the council, thus bringing transparency in the system.

30/30 Media + Apps

Adv, Adv, Ajay, Ashish, Ashish, Dewendi

sake of peoples. Thanks vipin sir for your movement. I hope may this movement turn to revolution & leads to new paper bag carrying era. Even people are supporting it to very much extent than expected due to awareness on this through your programming & media and even through other sources too. Im thankful to PI Shiraskar sir also for not forcing the law very hardly on the people & allowing them for adaptability to the condition becoz of which many many of people are thankful.



Citizens could express their views and opinions to the council through social media.



Facebook page was created by the council to spread awareness about the mission

### SUSTAINABILITY AND REPLICABILITY

Social Media proves helpful in reaching to large number of people in limited amount of time. Thus this strategy can be replicated in cities to create awareness.

**Sustainability** ★★★★☆☆

**Replicability** ★★★★☆☆

For more details contact Ballarpur Municipal Council: 07172240343

# Snapshots for sectoral initiatives





## Corporate Social Responsibility

### ◎ Construction of

- ▲ IHHL
- ▲ Group Toilets
- ▲ Community Toilets
- ▲ Public Toilets and Urinals

- ◎ Operations & Maintenance
- ◎ Beautification of OD Spots
- ◎ School Sanitation
- ◎ Provision of Material, Labour, Equipments and Machinery
- ◎ R&D – Toilet Construction and Septage Management
- ◎ Training and Skills Enhancement



## Opportunities

## Mahabaleshwar

**POPULATION: 12,737**

**AREA: 137.2 sq. km.**

**Initiative of council support from , ABP News, Bank of Maharashtra and NGO- Shashwat Eco Solutions**

'GREEN MAHABALESHWAR,  
CLEAN MAHABALESHWAR'      Tree plantation

AWARENESS  
PROGRAMMES      Street plays, Elocution and essay competition,  
school rally, flexes and banners.

Increasing efficiency of Solid  
Waste Management      Provided ghantagadis, distributed around  
2,600 dustbins to HH



## Guhagar

**POPULATION: 34,207**

**Initiative of council support from , ABP News, Bank of Maharashtra and NGO- Shashwat Eco Solutions**

**CSR bank account**

- ◎ Guhagar Municipal Council formed the CSR bank account which could be used for sanitation activities like repair and maintenance of community toilets.
- ◎ Nearby construction companies as well as individuals have donated to this account.
- ◎ Under solid waste management initiative, cloth bags were distributed to shopkeepers to reduce the use of plastic.
- ◎ Guhagar being a tourist destination funds were also used for cleaning of beaches.



## Community Toilets

- ⦿ Community toilets should be opted for only where individual toilets are not possible at all.
- ⦿ For better functioning, facilities like water/ storage tank, electricity, wash basins, dustbins etc. need to be provided.
- ⦿ Ratio of one toilet seat of a community toilet per six households is advised.
- ⦿ Complaint redressed system at ULB level needs to be strengthened.
- ⦿ Daily monitoring system should be developed .
- ⦿ Feedback from citizens should be noted on daily basis.
- ⦿ Even If service of repair and maintenance of toilets is outsourced, regular monitoring of service provision has to be done by the councils.



## Checklist for better Community Toilets

## Wai

- ◎ Community toilet at Wai.
- ◎ Provision of wash basins, room for care taker.



## Lonavala

- ◎ Community toilet at Lonavala.
- ◎ Well developed surroundings increases use of toilets.



## Chopda

**POPULATION: 71,863**

**Provision of room for caretaker**

- ◎ Clean surroundings, ample of light, air and space inside the toilets.



## Segregation and collection of waste

- Collection of segregated municipal waste from the source of its generation is an essential step in solid waste management.
- Inefficient waste collection service has an impact on public health and aesthetics of towns and cities.
- Collection of wet and dry waste separately enhances the potential of cost effective treatment of such wastes and of deriving optimum advantage from the recyclable material fed into the system.



## Importance of segregation

## Dahanu

**POPULATION: 50,287**

**AREA: 18.2 sq.km**

- ⦿ City officials along with rotary club and reliance energy jointly conducted awareness programs by displaying banners around the city for segregation of waste.
- ⦿ 5 waste segregation centers have been set up in the city.
- ⦿ Wet waste is utilized for creating manure for agriculture and plastic is recycled.
- ⦿ Dry waste is channelized towards scrap yards.
- ⦿ Disposal of plastic waste is undertaken by private agencies. Plastic is melted and converted into lumps for its further reuse.
- ⦿ To achieve this, waste is compulsorily segregated at household level and hence 100% waste segregation is achieved.



## Akola

**POPULATION: 425,817**

**AREA: 52 sq.km**

### Maximum collection by providing incentive to workers

- ⦿ Collection vehicles were given few wards for the collection and were allowed to charge the prescribed amount per month ,against the service provided by them.
- ⦿ AMC has given guidelines to the collection vehicles regarding the charges for door to door collection from different sections of the society.

**House with tin shade ➤ Rs. 10 per month**

**House with concrete slab ➤ Rs. 30 per month**

**Business holders ➤ Rs. 200 per month**

**Maximum efforts were put  
to earn money covering  
maximum number of the  
households in the wards  
assigned to the workers**



## Promotion of IHHL

- Health risks increase with the number of households that share a toilet.  
Health risks reduce when own (individual or group) toilets are used.
- Promote construction and use of “own toilets” than addressing the issue by constructing publically maintained and used community toilets
- Process of construction of toilets can be expedited by facilitating access to good quality material.
- To ensure sustainability, it is essential to monitor every toilet being constructed under the Mission and whether it is constructed as per given designs and norms.



## Facilitate Construction of Own Toilets

## Navapur

**POPULATION: 34,207**

### **Construction of individual toilets with attached bathroom facility**

- ◎ Through Government funds and people's own contribution, toilets and bathrooms have been constructed.
- ◎ These individuals were made brand ambassador and their posters were put up in their locality.



## Nanded



A household in Nanded district changed the design of their house for the construction of toilet

## Nagpur



Permanent toilets were built in spite of temporary hoses due to increase in awareness among people

## Floating Population

- ◎ Since tourist places witness high footfall, the needs of these cities are different and should be addressed accordingly.
- ◎ Tourist places witness huge amount of floating population hence the dependency on public toilets is more.
- ◎ Large number of commercial entities consequently generate more amount of solid waste.
- ◎ As the floating population has no ownership towards city, the behavioural change is evident and need focused attention.



## Concerns

## Pandharpur

**POPULATION: 1,20,000**

**AREA: 25 sq.km**

### Provisions for floating population

- ◎ Under 'Tirthakshetra Vikas Arakhada, 10 mobile toilets with 100 seats are installed.
- ◎ 20 public toilets with 632 seats are constructed.
- ◎ Under the corporation fund, 10 public toilets are renovated.
- ◎ Ward wise meetings were held and importance of sanitation and hygiene was conveyed through folk art.
- ◎ 33 wards were catered by 1 ghantagadi each.
- ◎ 4 gantagadis were specially allotted for entities like Mutton shop, market, 'bhakta niwas' and 'annakot'.
- ◎ Route maps for ghantagadis were displayed on important junctions in the city.



## Shirdi

**POPULATION: 36,004**

### Solid waste management through private sector participation

- ◎ 'GREENY' from Pune was assigned for solid waste management which formulated a mission called 'Swachhagrah'. A pilot project was conducted at a radius of 2.5 km around the Sai Baba temple (survey of 96 hotels, 166 shops and 49 travel agencies to prepare methodology).
- ◎ Extensive IEC was undertaken along with skill building for collection workers and staff.
- ◎ After analysis of surveys, scale was upgraded to the city level with appropriate allocation and upgradation of resources.
- ◎ Only segregated waste was accepted by the collectors and areas achieving lesser amount of segregation were focused upon and awareness programs were conducted in these areas



**Before Initiative**



**After Initiative**

### Objectives of the mission Swachhagrah

- ◎ Maximum collection
- ◎ Maximum segregation
- ◎ Maximum recovery and recycling
- ◎ Minimum dumping

## Active Administration

- ⦿ Along with citizen participation, active administration is equally necessary for the success of the mission.
- ⦿ Government officials are the face of the mission for citizens.
- ⦿ Their active involvement in the mission is the source of encouragement for common people.
- ⦿ For efficient implementation of the scheme eager cooperation from the administration is a crucial part.
- ⦿ Their enthusiasm, awareness, involvement and support to citizens eagerness are reflected in the implementation of the scheme.



**Importance of active administration for effective implementation**

## Khapa

**POPULATION: 14,659**

**Innovative IEC - Sauchalayacha vapar karat asal tarach bola...**

- ◎ The employees in Khapa have adopted innovative IEC techniques by putting up notices on each desks saying 'Sauchalayacha vapar karat asal tarach bola' which means that people will be entertained only if they have a toilet.
- ◎ This unique technique by the government officials conveys the priority of the council to build toilets thereby spreading awareness among people.



## Shendurjana Ghat

**POPULATION: 27,081**

**One day salary donation by ULB employees**

- ◎ The ULB employees in Shendurjanaghat donated their salary of one day as a contribution to the Swachh Maharashtra funds.
- ◎ These funds would be used for construction of toilets for women.



# Nashik Kumbh Mela





## MOBILE TOILETS

- To ensure adequate sanitation facilities, authorities installed 9,000 temporary toilets across the city.
- These temporary toilets were installed on contract basis and the contractor was asked to ensure that there is a regular electricity and water connection.
- The contractor was also responsible for maintenance and security.



## AWARENESS GENERATION THROUGH PRIVATE PARTICIPATION

- As part of its nationwide initiative Dettol Banega Swachh India, Dettol tied up with McCann during the Nashik Kumbh Mela to create a unique innovation titled 'Kam Paani Mein Zyada Suraksha'

- The brand's intent was to educate devotees about healthy hand-washing habits especially before eating.
- 100 on-ground 'Dettol Hand Wash Agents' at places like sadhu grams, sewa grams, and snan areas (bathing areas) distributed 66,000 Dettol hand sanitiser packs.
- Radio, leaflets and public announcements were used to convey the message of following healthy hand-washing habits

# 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 Fadnavis 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*



The participation of people is  
most important for the success  
of these programmes

*Devendra Fadnavis*



On NDTV's Cleanathon in January 2016, we had pledged to contribute 50 lakh man hours to the Swachh India mission. We have already completed 33 lakh hours. We are confident we will touch 60 lakh hours by January 26, 2017

*Manisha Mhaiskar,  
Principal Secretary, Urban Development, Maharashtra.*

# लोकसहभागातून येणार अच्छे दिन



2nd October, 2016





## Maharashtra leads in Swachh Bharat Mission



Maharashtra: Swacch Bharat mission is driven by Chief Minister Devendra Fadnavis who also holds the portfolio of urban development. (Source: File Photo)

Maharashtra has taken the lead in the Swachh Bharat Mission. Of the ten top districts rated best under the project, five districts are from Maharashtra — Sindhudurg, Satara, Kolhapur, Ratnagiri and Thane.

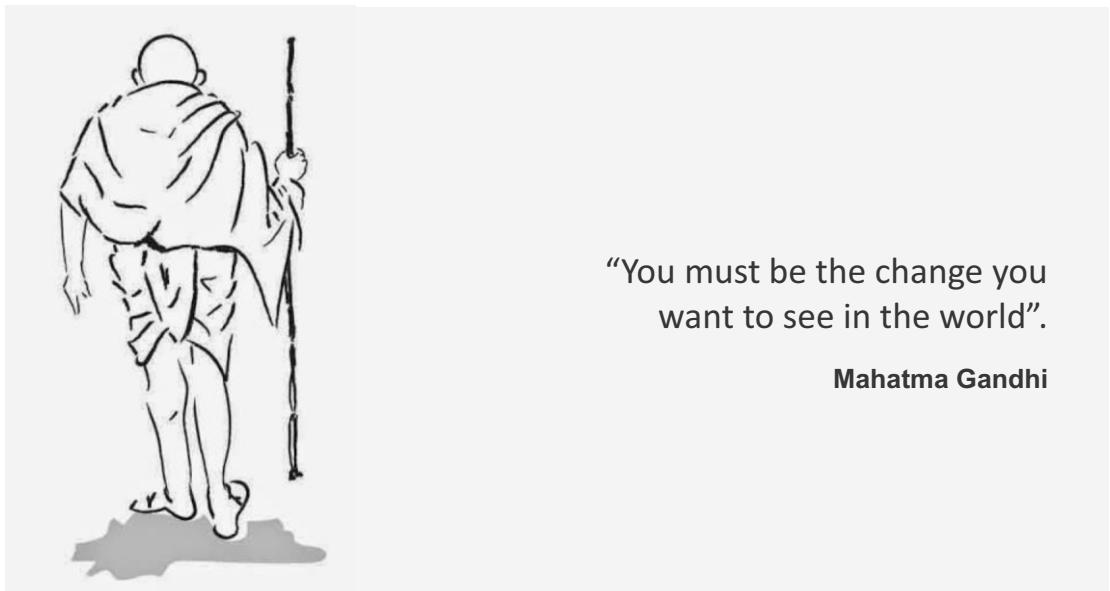
**रस्वच्छता मे ही समृद्धि है**

## List of abbreviations

- ▲ AIILSG: All India Institute of Local Self Government
- ▲ AMC: Akola Municipal Council
- ▲ CEPT: Centre for Environmental Planning and Technology
- ▲ CPCB: Central Pollution Control Board
- ▲ CREDAI: Confederation of Real Estate Developers' Associations of India
- ▲ CSR: Corporate Social Responsibility
- ▲ CT: Community Toilet
- ▲ DPR: Detailed Project Report
- ▲ FC: Finance Commission
- ▲ GoM: Government of Maharashtra
- ▲ GPS: Global Positioning System
- ▲ GR: Government Resolution
- ▲ HH: Household
- ▲ IEC: Information Education Communication
- ▲ IHHL: Individual Household Latrines
- ▲ KKPKP: Kagad Kach Patra Kashtakari Panchayat
- ▲ KMC: Khopoli Municipal Council
- ▲ MMC: Mahad Municipal Council
- ▲ MSW: Municipal Solid Waste
- ▲ MT: Metric Tonnes
- ▲ MTD: Metric Tonnes per Day
- ▲ MW: Mega Watt
- ▲ NEERI: National Environmental Engineering Research Institute
- ▲ NGO: Non-Governmental Organisation
- ▲ NOC: No objection Certificate
- ▲ NP: Nagar Parishad
- ▲ OD: Open Defecation
- ▲ ODF: Open Defecation Free
- ▲ PAS: Performance Assessment system
- ▲ PMC: Pune Municipal Corporation
- ▲ PPP: Public Private Participation
- ▲ R & D: Research and Development
- ▲ RCUES: Regional Centre for Urban and Environmental Studies
- ▲ RDF: Refuse-derived fuel
- ▲ SBM: Swachh Bharat Mission
- ▲ SHG: Self Help Group
- ▲ SMC: Sinnar Municipal Council
- ▲ SMMU: Swachh Maharashtra Mission Urban
- ▲ SWM: Solid Waste Management
- ▲ TMC: Thane Municipal Corporation
- ▲ TPD: Tonnes per Day
- ▲ ULB: Urban Local Body
- ▲ WMC: Wai Municipal Council
- ▲ YMC: Yavatmal Municipal Council

### Disclaimer

Information presented in this book is based on the inputs provided by the respective ULBs in Maharashtra. Urban Development Department, Government of Maharashtra, RCUES of AIILSG, Mumbai or CEPT University, Ahmedabad will not be responsible for authenticity of any information incorporated in this handbook.



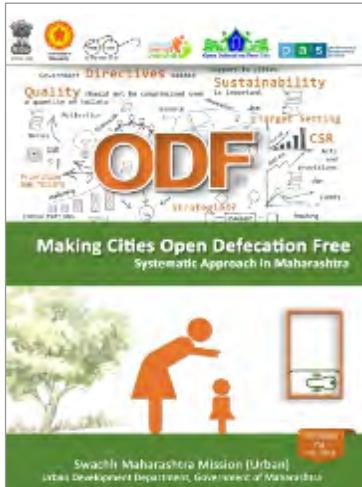
“You must be the change you  
want to see in the world”.

Mahatma Gandhi

**Swachh bharat  
Ek kadam swachata ki aur**

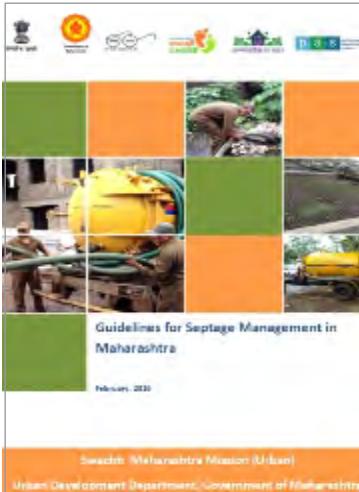
# Other Publications

Publication No 1- 2016



Handbook on "Making Cities ODF"

Publication No 2- 2016



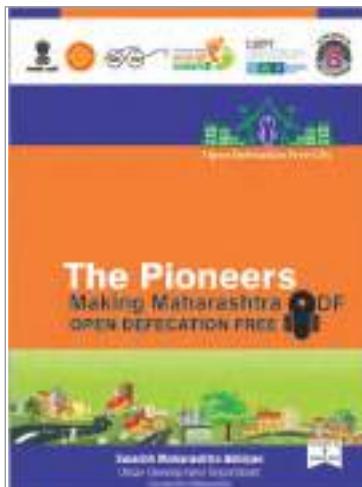
Guidelines for Septage Management in Maharashtra

Publication No 3- 2016



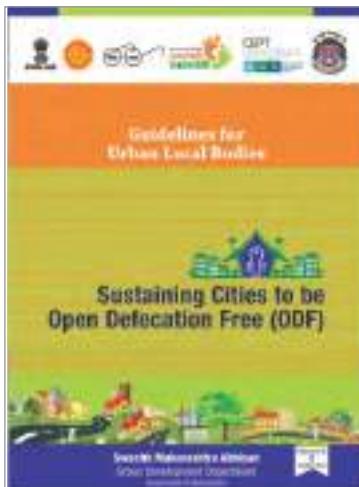
Handbook on Solid Waste Management Technologies

Publication No 6- 2016



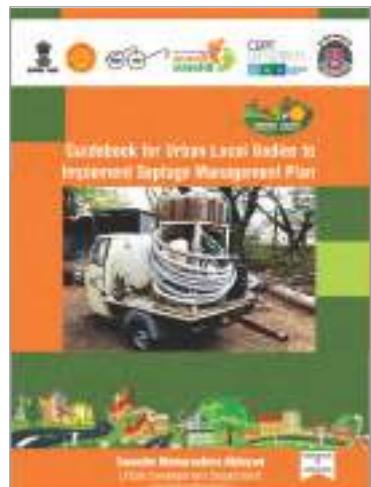
The Pioneers

Publication No 5- 2016



Sustaining Cities to be  
Open Defecation Free (ODF)

Publication No 7- 2016



Guidebook for Urban Local Bodies to  
Implement Septage Management Plan