



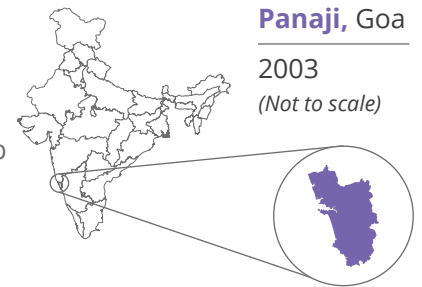
A CASE OF DECENTRALIZED SOLID WASTE MANAGEMENT SYSTEM TOWARDS A BIN FREE & LANDFILL LESS CITY: PANAJI

Project Highlights

- Reduction in waste generation through behavioral change among the residents of the cities towards waste management and segregation
- 100 percent bin free city with 100 percent success in door-to-door waste collection and waste segregation at source
- Mass awareness and extensive community engagement
- Adoption of city wide waste reduction measures

Background

Panaji, the capital of Goa is not only the administrative center and commercial hub of the state but also a popular tourist destination. In view of this, under the strong political will and administrative leadership of the Municipal Commissioner, a comprehensive city revitalization campaign called “Bin Free in 2003” was launched to improve sanitary conditions and solid waste management (SWM) system of the city.



Project Objectives

- I. To improve sanitation conditions in the city of Panaji
- II. To develop a comprehensive integrated plan for SWM in Panaji city in compliance with the SWM Rules, 2016

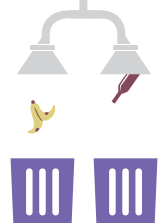
Key Stakeholders

Corporation of the City of Panaji (CCP), school and college staff and students, resident welfare associations (RWAs), local leaders and celebrities

Approach of “Bin Free” campaign

The campaign covered various aspects of SWM in Panaji and adopted an integrated approach to strategize the activities being undertaken under the initiative as indicated below:

- Segregation of waste at source into eight waste streams
- Modifications and innovations in the waste collection instruments to ensure effective door-to-door waste collection services throughout the city
- Establishment of material recycling stations and decentralized composting units for effective management of dry and wet waste
- Adoption of extended producer responsibility (EPR) initiatives through innovative strategies and fostering tie-ups with recycling units for efficient management of recyclable, hazardous as well as e-waste being generated in the city
- Extensive campaigns and community engagement drives to increase mass-awareness levels about the initiative and the issue of SWM



Financial Structure of “Bin Free” campaign

- User Charge, i.e., monthly costs for waste management services were imposed on the residents of Panaji by CCP was a major source of revenue for this model
- Other revenue sources include: sale of compost and segregated waste
- EPR initiatives with Tetra Pak
- Co-processing costs for bailing and transportation to cement plants were incurred by CCP

Achievements



Benefits

- **Minimized waste to landfill through effective management**
 - The city composts over 70 percent of the wet waste generated, reducing the waste reaching landfills
 - 120 residential colonies are effectively running the wet waste composting system
- **Improved recycling efficiency through market creation and tie-ups**
 - Dry segregated waste undergoes material recovery for ensuring maximum recycling rate which yields both environmental and financial benefits
 - 2,464 tonnes of non-recyclable waste has been sent to the cement kilns since the commencement of the initiative
 - 926 tonnes of recyclable material was sold between a time span of February, 2014 and October, 2015

Co-benefits

- Active involvement of rag pickers, women volunteers/ SHGs, thus, generating employment opportunities and immense awareness about the problem of SWM

Success Factors

- Strong and stable leadership
- Institutional and managerial models established within the CCP
- Technical innovations for effective management of solid waste
- Intensive campaigning and meetings with RWAs for increasing the mass awareness levels about waste segregation and management

Limitations

Unmanaged composting sites leading to reduction in communities willingness to participate in waste management practices.

Future Prospects

The city is working on the ideals of the bin less campaign and taking initiatives to manage the solid waste being generated across Panaji.

Source: <http://www.npcindia.gov.in/wp-content/uploads/2017/08/7.1-Annex-for-NPC-Panaji.pdf>

For more Information

<https://www.downtoearth.org.in/news/waste/back-to-bins-58380>

<https://swachhindia.ndtv.com/getting-right-can-learn-cities-managing-waste-4226/>

<https://india.smartcitiescouncil.com/article/panaji-boots-out-waste-landfills-other-cities-can-learn-too>

