

e-Patrika

Waste NAMA Pilot in Varanasi as Part of “Development and Management of NAMA in India” Project

Varanasi | India



Implementation of Waste NAMA Pilot Project in Varanasi

The project “Development and Management of Waste NAMA (Nationally Appropriate Mitigation Action) in India” commissioned by the Federal Ministry for the Environment Nature Conservation and Nuclear Safety (BMU), Germany with Ministry of Environment Forest and Climate Change (MoEF&CC), Government of India as the lead executing agency is being implemented by GIZ with TERI as partner. It includes pilot project implementation in forest and waste sector. The waste sector pilot is being implemented in Varanasi and Goa.

The main objective of the project is to implement the solutions for solid waste management system that lead to reduction in GHG emissions. The project has enabled conversion of organic waste into biogas and compost with the help of centralized and de-centralized facilities while minimizing the waste quantity going to landfill. The project is also promoting recycling and recovery from dry waste fraction of MSW thus reducing emissions due to production of virgin materials.

Capacity building work under Waste NAMA

NAMA project team created awareness amongst households about their responsibilities for generated waste according to Solid Waste Management Rule, 2016 and guided them to segregate the waste in 3 streams: Organic, Inorganic and Domestic Hazardous waste. In addition, the project team trained people on home composting and how to prepare a composter at home using earthen pots.

Door-to-Door campaign for promoting source segregation and home composting



Fig 1 and 2: Door to door awareness programme by Waste NAMA Project team

NAMA project team successfully created awareness amongst residents of Varanasi Nagar Nigam wards including Sunderpur (29), Lallapura khurd (41), Gandhinagar (32), Kazipur (52), Khojwa (40), Bhelapur (45), Sudamapur (25) and Birdopur (27) through Door-to-Door awareness program on source segregation and home composting.

Public Event

NAMA project team created awareness on source segregation of MSW in Varanasi with the help of public event in places like parks and madrasa. With the help of public events the project team trained around 1000 people about source segregation and home composting.



Fig 3 and 4: Public event organized by Waste NAMA project team

Source Segregation and Home Composting Awareness program in Schools

“Children are our greatest treasure. They are our future”, quote by Nelson Mandela. NAMA project team has successfully trained around 300 students and teachers of Madan Mohan Inter College, Kamlapati Tripathi girls inter college, Arya Mahila inter college and Kashi balika shiksha niketan about source segregation and low carbon MSW management. Project also offered a set of home composting unit that can be used as a model to train students in future.



Fig-5: Waste NAMA project team with school students during an event



Fig-6, Waste NAMA project team members training students on source-segregation and home composting

Workshop of bulk waste generator

In this workshop, bulk waste generators were trained about waste management rules, penalty and useful techniques to handle organic waste, benefit of on site management of organic waste, Municipal Solid Waste Management and role of bulk waste generators to make city clean. The bulk waste generators were encouraged to organize on-site treatment of organic waste by showing the example of Hotel Taj Ganges Varanasi using on-site composting in the workshop.

Bulk Waste Generator (Hotel and Restaurant)



A one-day workshop was arranged and 54 representatives from different Restaurant, Hotel and Banquet Hall participated. Hotel Surya, Hotel Madin and Hotel Merden Grand have setup an organic plant with the help of NAMA project team and started segregating organic waste from the generated waste.

Fig-7: Participant Hotels during BWG workshop

Bulk Waste Generator (School and College)

In this one-day workshop, 66 schools and colleges participated. After the workshop, Arya Mahila Inter College started composting of organic waste using a compost pit in college premises.



Fig-8: Participants from schools and colleges in workshop on training BWG regarding MSW Management

Training of Health and Sanitary Staff

128 Health and Sanitary workers of Varanasi Nagar Nigam participated in this training. The training was organized at Commissioner Auditorium on December 10, 2019. The objective of this workshop was to create awareness among the Health and Sanitary staff about the rule and penalty of Solid Waste Management, types of Municipal Solid Waste and handling of it. We also did focus on the importance of source segregation, Personal Protective Equipment (PPEs) and role of Health and Sanitary Staff in the workshop. The health and sanitation staff is further training residents on source segregation and proper SWM management.



Fig-9: Health and Sanitary officers participant in training

Mapping of the Garbage Vulnerable Points (GVP) across 15 wards of Varanasi

GVP are the place where the waste is dumped illegally like open ground, roadside etc. NAMA project team surveyed 15 wards of Varanasi and mapped the GVPs. Total 777 GVP and 236 waste bins place were identified. Collected data and mapping of current situation of GVP will help Varanasi Municipal Corporation identify the gaps in present MSW Management system and implement their solutions.

S.No	Ward Name	No of GVP
1	Sarsaouli	55
2	Tarna	35
3	Shivpur	22
4	Narayanpur	30
5	Sikraul	26
6	Bhelupur	34
7	Proper Sarnath	124
8	Rahghat	46
9	Pahadia	97
10	Gandhinagar	7
11	Jolha South	136
12	Till Bhandeshwar	4
13	Bajardiha	77
14	Bhadaini	19
15	Alaipura	65

Table1: Ward wise GVP numbers

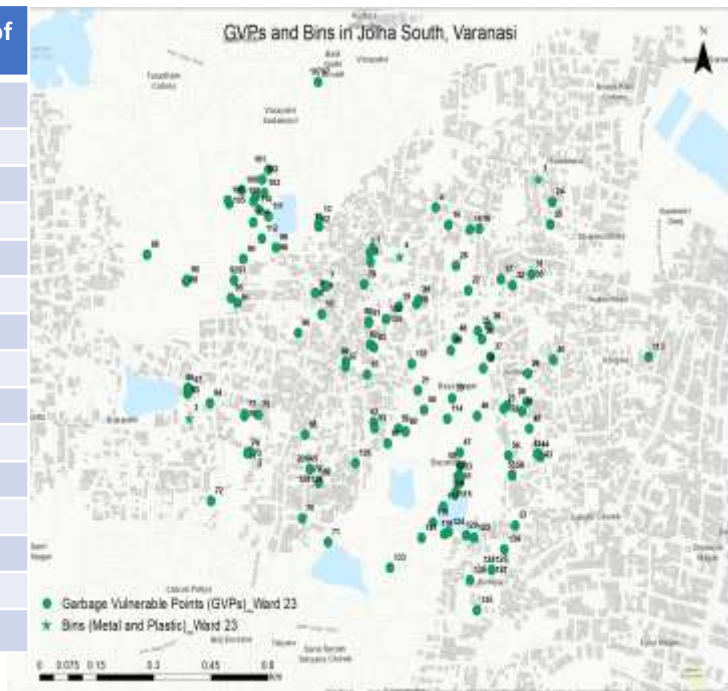


Fig-10: Mapping of GVP and Bin location of Jolha South

Establishment of Material Recovery Facility (MRF) Centre and Waste Characterization Study for MRF Centre under Waste NAMA Project

For establishment of MRF Centre, NAMA project team did Waste Characterization Study in Nagar Nigam Varanasi. The objective of this study was to identify the types of waste to make MRF Centre more efficient.

MRF Centre is established at Bhavnia Pokhri, Bhelpur with the help of Nagar Nigam Varanasi and Tetra Pak under Waste NAMA Pilot Project which was Inaugurated by Smt. Mradula Jaiswal (Mayor), Sh. Gaurang Rathi (Municipal Commissioner) and Sh. Vickramaditya Singh Malik (Joint Municipal commissioner) on January 17, 2020. This plant is being managed by Trilokchand Mahadev Enterprises Pvt Ltd. a local waste management enterprise.



Fig-11.Waste Characterization studies by TERI-GIZ team



Fig-12: Respected Mayor Ms. Mridula Jaiswal and Municipal Commissioner Mr. Gaurang Rathi during inauguration of Material Recovery Facility.

The objective of setting up this MRF is to recover the material from the dry fraction of Municipal Solid Waste (MSW) and sending it to the factories for recycling. Besides this, common men and waste pickers can also sell their inorganic waste at reasonable prices



Fig-13: NAMA Project team explaining the working principal of Material Recovery Facility to Municipal Commissioner Mr. Gaurang Rathi and Joint Municipal Commissioner Mr. Vikramaditya Singh Malik



Fig-14: Material Recovery Facility at Bhawania Pokhari, Bhelupur.

Training of Informal Waste Collectors under the Project

Informal Sector plays an important role in Solid Waste Management. A workshop was organized by NAMA project team to train the informal waste workers



Fig-15: Workshop for Informal sector

A five day workshop organized for informal sector workers

This workshop was conducted from September 2, 2019 to September 6, 2019. Total 80 waste pickers were trained by Dr. Mita Sinha and Waste Management Team from NAMA project in this workshop. This workshop was certified by National Skill Development Corporation and certificates were provided to the participants after successfully completing the workshop. The objective of this workshop was to educate them about MSW management and keeping themselves safe and healthy.

Training of people linked with Informal sector in Different Locations in Varanasi City

In partnership with Tetra Pak Pvt Ltd the Waste NAMA project team is conducting training for informal waste sector workers in different locations. Total 3 training camps have been organized with 120 participants. The objective of these workshops was to increase awareness about proper MSW Management, health and safety issues. Introduction to MRF and its importance is also part of the trainings. Many waste pickers were introduced to the MRF operator for transparency in trading the recyclables.



Fig-16: During training of people linked with Informal Sector



Fig-17: NAMA Project team giving a lecture to informal sector people during training

Managing 3 Pilot colony under this Project

NAMA project team is working in 3 colonies (Kranti Palli Colony, Saraswati Nagar Colony and Vinayak Kolhua & Rambagh Colony) to convert them into Model colonies for MSW Management. These colonies were selected considering that the MRF setup at Bhavniye Pokhri is near and collected organic, inorganic and household hazardous waste from households can be transported to the MRF Centre (for inorganic waste) and bio-methanation plant (for organic waste). Through the project the GHG emissions due to improper waste management will reduce because the generated waste will not directly go to landfill.

These steps are being followed in the model colonies :

- Increased awareness amongst people about Solid Waste Management and Segregation at home through door-to-door awareness campaign.
- Arrangement of sanitary workers and vehicles for collection of waste with the support from the Sanitary Inspectors.
- Training of sanitary workers about separate waste collection and use of PPEs
- Daily Audit of the model colonies and helping waste workers to pick separate waste and send dry waste to MRF Centre and Wet Waste to Bio-Methanation plant.



Fig-18: Data recording of collection of dry waste by NAMA project team with safai bandhu



Fig-19 and 20: Waste NAMA project team collecting data from Safai Bandhus regarding door to door collection of segregated waste

Varanasi Nagar Nigam Officials and Team

1. Ms. Mridula Jaiswal, Mayor, Varanasi Nagar Nigam
2. Mr. Gaurang Rathi (IAS), Municipal Commissioner, Varanasi Nagar Nigam
3. Mr. Anup Kumar, Additional Commissioner, Varanasi Nagar Nigam
4. Mr. Ajay Ram Singh, Executive Engineer, Varanasi Nagar Nigam
5. Mr. Surjeet Singh, SWM Expert, City Support Unit

GIZ Team members:

1. Dr. Ashish Chaturvedi, Director-Climate Change, Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, GIZ India
2. Mr. Jai Kumar Gaurav, Technical Advisor-Climate Change, GIZ India

TERI Team Members:

1. Dr. Suneel Pandey, Director, Environment and Waste Management Division, The Energy and Resources Institute (TERI)
2. Mr. Sourabh Manuja Fellow, Environment and Waste Management Division, TERI
3. Mr. Kuldeep Chaudhary, Project consultant, Environment and Waste Management Division, TERI
4. Mr. Dilshad Ahmad, Project consultant, Environment and Waste Management Division, TERI
5. Mr. Nirbhay Kumar Singh, Project consultant, Environment and Waste Management Division, TERI
6. Ms. Deepika Gupta, Project consultant, Environment and Waste Management Division, TERI



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