



Vengurla Municipal Council

Swachh Bharat Mission

Swachh Survekshan 2018

Innovation and Best Practices

(Zero Waste City and Zero Waste Dumping Ground)



Picture: Zero Waste Milestone, Vengurla

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1 EXECUTIVE SUMMARY

The Municipal Council of Vengurla keenly felt the need to save the natural environment of the town and to preserve its marine bio-diversity. This was important not only for the residents but also to preserve the tourist potential of the town. We identified the main culprit in harming the environment as plastic waste. In the past few years, poor solid waste management practices had led to unrestricted dumping of solid waste, especially plastic, in the creek and on the beaches. Plastic was choking up the creek and the beaches. This was very harmful to marine life. Vengurla beach is a favorite nesting spot of seven different turtle species including Olive Ridley turtles. Turtle eggs were being damaged by the dumping; the Olive Ridley turtle itself has been declared an endangered species. Vengurla being a poor council, we could not afford to hire the services of a contractual agency to de-segregate the waste and separate out the plastic. So we thought we would go to the people and convince them to segregate waste at source so that the plastic could be dealt with scientifically. Segregated wet waste would also help us to generate clean energy and reduce our carbon footprint. With the support of local NGOs and citizen forums, we were able to convince people to segregate waste into four different fractions. At the same time, we re-designed our cleaning services for 100% door-to-door waste collection in the council area. As a result of all these efforts, we have been able to achieve 100% waste collection and four-way segregation of solid waste. We are well on the way to achieving zero waste status. We have also been able to generate clean energy. Now that the nesting season for the turtles is coming back, we hope that the turtles will lay their eggs and flourish on Vengurla beach.

2 INNOVATION AND BEST PRACTICES IN VENGURLA

2.1 INTRODUCTION AND OBJECTIVE

INTRODUCTION

Vengurla is a picturesque beachside town in Sindhudurg District in the Konkan region of Maharashtra. It lies on the state highway between Mumbai and Goa. Vengurla is located in a hilly tract of Mango and Cashew orchards with abundant forests. History indicates that due to fertile land of this area and its strategic location, Dutch people set up a trade centre in Vengurla which is known as the Dutch Vakhar. In days of the British empire, the British had established their colony separately in the plateau portion which is popularly known as Camp area. Vengurla was established as a municipal council in the year 1876. It has an area of 12.98 sq.km. The population of Vengurla as per 2011 census is 12392. On account of it being a tourist place, we also have a floating population up to 8000. A famous market building in the Council area is the Crawford market which is the twin of the Crawford market of Mumbai; it is 141 years old and is in the heart of Vengurla market. There are many other historical monuments in the council area. For the council and its residents, the natural environment of the town is just as important as its history.

OBJECTIVE

- i. To preserve the marine diversity and save the natural environment of the city.
- ii. To make city livable, clean and beautiful.
- iii. To promote tourism.
- iv. To develop clean energy mechanisms to mitigate global warming.
- v. To set up a waste to energy project to improve energy resources of council.
- vi. To achieve zero waste status through the mantra of Re-Use, Re-cycle and Reduce waste.

2.2 SITUATION PRIOR TO THE INITIATIVE

People keenly felt the need to save the environment which was being harmed by unscientific waste management. Even though guidelines have been given by state government regarding solid waste handling and rules were framed in the year 2000, these have not been implemented strictly prior to this initiative.

- i. **PLASTIC WASTE CHOKING UP THE CREEK AND THE BEACHES:** Due to lack of awareness among people, plastic waste was being dumped anywhere in the town. People were not segregating any waste at home and plastic was choking up the drains and the creek. There is a local nullah in the Vengurla council which joins Mansiriverthat in turn flows into the ocean. People like to offer worship at some spots along the river. But due to lack of awareness, many of them used to offer flowers etc in plastic bags and throw these in the nullah. These plastics were choking up the nullah and the creek.
- ii. **OLIVE RIDLEY TURTLE BEING HARMED:** The beaches are natural nesting environment for seven turtle varieties. The most well known is the Olive Ridley turtle. But unrestricted dumping of waste on the beach was destroying turtle eggs.
- iii. **WASTE WAS PILING UP IN THE CITY:** Door to door collection of municipal waste was not practiced here in Vengurla Municipal council. This means garbage was collected and deposited at 20 designated secondary collection points. Vehicles only visited these collection points so many people often came and deposited waste after the vehicle had left. The vehicles also were not very regular. Sometimes if vehicle was out of order, that route was not covered for the entire period of repair.

- iv. **POOR SOLID WASTE MANAGEMENT PRACTICES:** Prior to the initiative, people were not segregating waste at all. Without segregation, it was not possible to process the waste and it simply used to rot.
- v. **INSUFFICIENT LOGISTICS:** there were not sufficient vehicles to collect and transport all the waste daily. Only 1 tractor and 2 vehicles were provided which were not enough to serve the purpose. Vengurla city has 5333 properties and the city generates near about 7 tons of total waste daily. There was only 50-60% daily collection of waste i.e. about 4 tons daily in two shifts from 7 AM to 11.30 AM and 2.30 PM to 5 PM.
- vi. **POLITICAL INDIFFERENCE:** Elected representatives did not feel that cleanliness and saving the environment would get them any votes so they were indifferent to the idea of cleaning up the city. They all seemed to feel that cleanliness is not a tangible good.

2.3 TIMELINE OF THE STUDY

We launched a public outreach program to raise public awareness about the need to protect the environment and to segregate waste. To reduce carbon footprint, we started a waste to energy project for generating clean energy. We also banned harmful substances like plastic carry-bags below 50 microns.

2.3.1 EVOLVEMENT OF THE CONCEPT

1. PUBLIC OUTREACH PROGRAM FOR WASTE SEGREGATION:

- i. **NEED TO PRESERVE ENVIRONMENT BY SEGREGATION AT SOURCE:** We realized that proper waste management was only possible through waste segregation at source; for this public support was a must.

With the help of NGOs like KrantiMahila, YuvaPratishthan, SindhudurgZilha Youth, we launched a public awareness program on the need to segregate solid waste. Discussions on the harmful impact of dumping waste were organized. The KasavSanrakshanSamiti came and requested people to create a good environment for the Olive Ridley turtles.

- ii. **FOUR WASTE FRACTIONS SEGREGATED:** We developed a four way segregation system: (1) Wet waste which included kitchen waste; (2) Dry waste including paper, cardboard, tetra packs, rubber, cloth, leaf waste, dead wood, (3) Plastic waste includes packaging material, PET bottles, plastic containers, milk packets; (4) Metals and glass including Glass bottles, aluminum, iron and tin. The information of 4 ways segregation system was provided in Pamphlets to the citizens and the banners regarding 4 ways segregation system were fixed at corners and various public places. Due to continuous awareness building, many apartments and housing societies pro-actively responded to four way segregation system of Vengurla municipal council and they purchased 4 separate bins and set up a special structure for daily segregation of waste.
- iii. **CAPABILITY BUILDING:** To develop the capacity of staff members of the council and people, we trained them about what is 4 way system, how it can be segregated, important of waste segregation, how it is helpful for processing, and what are its advantages, etc. For that purpose hand-bills were supplied, demonstrations were conducted, meetings of cooperative societies were held, ward meetings were held with participation of swachhata committee repeatedly.
- iv. **SUPERVISION MACHINERY SET UP:** To monitor four way segregation and effective collection of waste, trained staff was deployed with each waste collection vehicle to facilitate this initiative at initial stage. A flying squad kept vigilance over the process. Each vehicles is cross-examined by staff and they refuse take mixed waste. Our Chief

Officer himself is out on the streets for supervision from the early hours of the morning.

- v. **WASTE BYE LAWS PASSED:** Vengurla municipal council has passed a resolution to implement by laws regarding waste collection and segregation with the aim of to facilitate legal action on defaulter. This will convey a positive message to all the citizens. To accelerate this initiative, the awareness campaign were conducted with the help of school children.
 - vi. **TAKING POPULAR FEEDBACK:** We took meetings in each of the 17 wards and we asked the people to nominate a volunteer/Swachhtadoot for providing feedback. This volunteer helps our staff in communicating importance of waste segregation and collection to people in his ward. Also in each ward, the volunteer verifies the regularity of door-to-door collection every week. We take corrective action on the basis of this feedback.
2. **BAN ON PLASTIC CARRY BAGS:** Vengurla Muncipal council has successfully banned on plastic carry bags below 50 micron. To implement this, we held meetings with shopkeepers and especially the stall owners in the fish market. Fish being an important product of Vengurla, plastic was extensively being used to carry the fish. We encouraged the stall owners to use paper and cloth to wrap the fish instead and they have supported our initiative.
3. **GENERATING CLEAN ENERGY, REDUCING CARBON FOOTPRINT:** Segregated wet waste is processed through bio-methanation plant and dry waste through briquetting machine. For wet waste, we send it all to bio-methanation plant ie about 1.5 tons daily. This includes hotel waste, fish market waste and segregated wet waste from households. The bio-methanation plant produces sufficient methane and 30 units electricity to

power the requirements of running the plant and also for pumping water in the nearby well. The remaining fraction of dry waste, i.e. paper, cardboard and leaf waste is processed in the briquetting machine. We plan to sell the briquettes to industries for use as fuel. In this way we will also reduce our carbon footprint. Vengurla municipal council has received plastic crusher machine from United nation development programme (UNDP). All plastic waste is crushed and utilized in road development in last year we utilized 20tonn of plastic waste and earned 200000 rupees from it. Glass and metal- is collected separately at source and stored at dumping site which is disposed by selling to vendor.

4. **CORPORATE SOCIAL RESPONSIBILITY:** As part of the publicity campaign, we also persuaded banks to support us. Bank of India, Union Bank and Bank of Maharashtra respectively donated Rs 1,00,000/-, 25,000/- and 1,12,000/- for cloth carry bags and for a Nirmal Kalash. We are installing the Nirmal Kalash at the creek and the Mansiriver to persuade people to throw their offerings in the Nirmal Kalash and not in the river. GIC provide us funds of 50 lakh for a facility of mobile toilets(2), Garbage collecting vehicles(2), Sulabhshouchalaya(1) as a CSR activity.
5. **IMPROVING SERVICE DELIVERY/ SCALABILITY:** To garner popular support for banning plastic and segregation at source, it was important to convince the people of our sincerity in cleaning up the city. So we also concentrated on improving service delivery by taking following steps:
 - i. **DEPLOYING SUFFICIENT VEHICLES FOR WASTE COLLECTION:**
The vehicles provided earlier were not sufficient to take the problem of disposal of garbage. So the Council has taken initiatives to add two more vehicles for collecting and transporting the garbage. Now there are 4

waste collection vehicles and one tractor available in VengurlaMunicipal council. So we have solid waste increased collection of solid waste to 100% daily i.e about 7 tons daily. We have dedicated one tractor and 3 vehicles for door-to-door collection of household waste; and each vehicle has four compartments for dry, wet, plastic and glass and metal waste. In the morning they collect household waste and in the afternoon shift, they clean the drains in the area allocated to them. The fourth vehicle is dedicated to road sweeping. One vehicle is for vehicle on call.(as per demand)

- ii. **PUTTING ROUTE MAPS IN PUBLIC DOMAIN:** The route maps of waste collection vehicles were prepared by the council and uploaded on its website. Accordingly the vehicles follow these routes to collect the garbage.
- iii. **USE OF TECHNOLOGY FOR MONITORING:** For daily collection garbage vehicles are monitored through GPS devices. This helps to understand the work actually done by the vehicles.
- iv. **VEHICLES KEPT IN GOOD REPAIR:** Now we are prompt in repairing vehicles and there is one vehicle which is kept as back up.
- v. **TRAINING STAFF MEMBERS:** Capability building of staff has been very imp to achieve wet and dry waste segregation. The Chief Officer trained the staff both in office and through demos in the field. So also our supervision is very good. We hired ten contractual labour to supplement our permanent cleaning staff and they too were trained.
- vi. **GRIEVANCE RE-DRESSAL SYSTEMS:** Maximum time and efforts were spent over hearing and solving the complaints of the peoples in regard of waste collection, cleaning of open drains, etc. People are responding on toll free number, What's App group and Facebook and the council quickly solves their problem.

3 IMPACT

Vengurla municipal council has become the first municipal council of Maharashtra to implement the concept of four way segregation of waste successfully. After its success council developed mechanism of at source segregation as;

1) Wet waste, 2) Dry waste (leaves, branches) 3) Color paper boxes, 4) Papers, 5) Cardboard, 6) Plastic waste, 7) Plastic bottles, 8) Glass Bottles, 9) Broken glasses, 10) Rubber, 11) Tyre, 12) Chappals, sandal, Boot etc, 13) Sanitary napkins, 14) Diapers, 15) Hairs, 16) Rubber, Rubber Tube, 17) Electric tubes, 18) Mobile battery, used cells 19) TV, Computer parts, 20) school bags, 21) Cloths, 22) Chicken waste 23) Egg shell, 24) Coconut nutshell, 25) Thermacoal, 26) Dead animals, 27) Metal etc.

Likewise Vengurla Municipal Council routinely follows Twenty seven ways segregation at source. There is no requirement of secondary segregation.

There is no debris problem as demolished building material diverted as plinth fills for new construction. Non-recyclable, non-biodegradable waste is utilized at cement factory which is helpful to make zero landfill and zero waste dumping ground.

Vengurla Municipal Council render service to adjoining areas to accept their waste in segregated manner, As Pingoli Grampanchayat send their waste (1 ton daily) at our project site and we accept waste from 34 beaches of Sindhudurg District and dispose it with scientific manner. Vengurla Municipal Council has capacity to accept waste three times of its own generated waste.

i. House to house collection of solid waste

No. of Households in Council	Prior to Initiative	After Initiative
5333	1067	5333

ii. At source segregation of solid waste

Total number of households	Prior to Initiative	After Initiative
5333	0	5333

iii. Waste collection and transportation

Quantity of waste generated	Waste collected prior to initiative	Waste collected after Initiative
7 MT	3-4 MT	7 MT

iv. Waste disposal and treatment

Quantity of waste generated	Prior situation	After Situation
7 MT	No waste processed or disposed of	100% wet waste (1.5 to 2 MT) processed to generate 30 units of electricity; 100 % dry waste (5 MT) briquetted; 100% Glass and metal (100 Kg.) kept for sale; 100% Plastic waste (70 Kg) kept for use in plastic crushing machine.

Picture: Zero Waste Dumping Site (Birds Eye View), Vengurla.



4 SCALABILITY OF THE INNOVATION

This initiative will sustain itself because we have taken care to involve and convince all stakeholders: people and municipal staff. Use of social media has played key role in sustainability of this initiative. We continue to be in touch with people on What's App group and Facebook (Vengurla Nagarparishad) The Council has effectively used the toll free number (18002332099), the council web site (www.vengurlamc.org) and also newspapers to communicate with the public and carry our message. Daily updates are shared with social media. Vengurla municipal council's Facebook page has become popular among citizens. The Council has nominated Swachhata Doots for daily vigilance. Volunteers from the citizens have come ahead as waste warriors for the municipal council. Now the citizens have come to expect direct contact with the council so there will be pressure even on future elected bodies to maintain this initiative and to carry it forward.

INNOVATIVE CONCEPTS OF VENGURLA MUNICIPAL COUNCILS

1. Tree of humanity (Manusakiche zad) This concept followed at Vengurla basically teaches ethics to citizens that if anybody have surplus clothes, toys or any useful material he can put below the mango tree and who wants to use it he can take away that things and full fill his survival demand. With this concepts near about 250kg clothes are circulated in use since last 6 months. (From 1st Jan 2017) and peoples are responding very well with donating good condition clothes, toys and useful material.
2. Organic Kitchen Garden Development Program- Vengurla Municipal Council makes available inputs required for organic kitchen gardening. Inputs likes Bio gas slurry, compost, Vermi compost are available at our Swachh Bharat tourist point which is helpful to promote Organic Kitchen Garden. Vengurla Municipal Council promotes these concepts to make easily availability of vegetable, fruits and flowers for citizens for their own demands.

5 FINANCIAL INCLUSION

Bio Methanation project, Briquetting project, composting unit has potential to generate revenue through products like Bio gas Slurry, Briquettes, Compost etc. Likewise Plastic bottles, glass bottles, metals, card boards, plantation cultivated at dumping site give income to municipal council.

Table: Basic cost of Project, Vengurla

Sr. No.	Project Cost	Cost
1	Bio Gas	Rs. 65,00,000/-
2	Briquetting Unit	Rs. 35,00,000/-
3	Plastic Crusher unit	Rs. 12,00,000/-
4	Thermacoal Shredder	Rs. 50,000/-
5	Composting Unit	Rs. 50,000/-
6	Total	Rs. 1,13,00,000/-

Table: Income potential per month, Vengurla

Sr. No.	Item	Rate	Income potential per month
1	Briquettes	Rs. 4/kg	Rs. 60,000/-
2	Bio gas Slurry	Rs. 2/Ltr.	Rs. 60,000/-
3	Card board	Rs. 6/Kg	Rs. 1200/-
4	Compost	Rs. 3/Kg	Rs. 15,000/-
5	Vermi compost	Rs. 12/Kg	Rs. 24,000/-
6	Paper waste	Rs. 3/Kg	Rs. 1200/-
7	Tyres	Rs. 2 per piece(motorcycle) Rs. 100/- per piece	Rs. 1000
8	Plastic bottles	Rs. 21/Kg	Rs. 6,300/-

9	Glass bottles	Rs. 1/kg	Rs. 1000/-
10	Crushed plastic	Rs. 10/Kg	Rs. 20,000/-
11	Electricity generated	Rs. 12/unit	Rs.12000/-
Total			Rs. 2,01,000/-

Fruit, Vegetables & Crop cultivated at previously dumping site which is now utilized for such cultivation is also additional income source for Vengurla municipal council. This dumping site is now renamed as “**SWACHCH BHARAT TOURIST SPOT**” within last 6 months more than 15000 visitors visited this place.

Picture: Revenue Generating Mechanisms, Vengurla



6 IMPLEMENTATION

6.1 SITUATION AFTER IMPLEMENTATION OF INITIATIVE

- As a result of all these initiatives, Vengurla is now a clean and beautiful city once again. All public places, roads and water nalas are clean and clear due to public awareness that throwing municipal waste harms the environment.
- Preparations are being made for a festival to celebrate the arrival of the nesting seasons for the Olive Ridley turtles.
- Vengurla city become plastic carry bag free city, zero garbage city. The drainage lines are free from garbage.
- Clean energy is being generated.
- Complaints regarding municipal waste, drainage are reduced to minimum.
- Because of our public awareness programs, now avoiding plastic has become part of the lifestyle of Vengurla.
- Door to door Garbage collection has been successful and now citizens have come to rely on this service.
- During Ganesha festival every year Rs.1 to 2 lakh were expended on special cleaning campaign after the festival. But due to this initiative this year, there was no need to take such a special drive and municipal council saved Rs.1 to 2 lakh.
- The Impact of this initiative has been such that the citizens enjoyed the rainy season and there has been no outbreak of epidemic diseases this year.
- In this way Vengurla municipal council is the first council of Maharashtra which developed and successfully implemented four way segregation concept.
- Vengurla citizens feel proud about this initiative it's our real achievements.

Picture: Capacity Building: Mr. R. Kokare (CO) interaction with citizens,
Vengurla



POTENTIAL FOR REPLICATION

Many councils are visiting us to replicate this model. The Kankavali Nagarpanchayat from Sindhudurg district has passed a resolution to replicate Vengurla model in their areas. This shows that the model is very much replicable. We have used very limited funds that are internally generated for the initiative and we have invested in capability building of our staff. This can be easily done. Most of all, our efforts have convinced our elected representatives that cleanliness is indeed a tangible good and that saving the environment is in the interests of the public and their own interest. Urban development Department of Maharashtra arranged workshop for 20 Municipal Councils at Vengurla Municipal council to perpetuate the ideas of segregation and scientific disposal of waste according to Vengurla pattern. Gram Panchayat, Municipal Councils, Municipal corporations, various institutes are adopting Vengurla pattern to solve their SWM problem.

Vasant Vykhyanmala Pune, Akshar manav Vykhyanmala Kagal, Kirloskar Vasundhara international Film Festival, Various news papers, news channels, Dilkhulas Radio Talk, Vanita Mandal Radio talk and various work shops arranged at divisional and state level meeting of Chief officers are become helpful to replicate vengurla pattern.

6.2 SUMMARY OF THE EFFORTS

Vengurla municipal council has been awarded by following awards by the hands of Hon. Devendraji Phadanvis, Chief minister of Maharashtra.

1. Open Defecation free city awards (2 Octomber 2015)
2. Clean city awards (3 Feb. 2016)
3. Excellent Chief officer award (20 April 2016)
4. Vasundhara award 2016 (7 June 2016)
5. Vasundhara Mitra (Activist) Award 2017 (Vasundhara Kirloskar international film festival)
6. Best Municipal council award 2017 (First in Konkan division) worth Rs. 2.5 Crores (4 May 2017)
7. Excellent Municipal council award 2017 (4 May 2017)
8. Vasundhara Award 2017 (5 June 2017)
9. Sindhudurga Bhushan award 2017 (15 Aug 2017)
10. Vasundhara Sanmaan Award 2017 (Vasundhara Kirloskar international film festival)
11. One more felicitation by the hands of Mr. Amitabhji Bacchan on the occasion of SWACH BANEGA INDIA programme organized by NDTV and Maharashtra Govt (3 Sep 2016).

(Mr. Ramdas kokare)
Chief Officer
Vengurla Municipal Council



CERTIFICATE

This is to Certify that the

Environment Management System of

INTEGRATED SOLID WASTE MANAGEMENT PROJECT VENGURLE

VENGURLE MUNICIPAL COUNCIL, VENGURLE, TQ. VENGURLE,
DIST. SINDHUDURG, PINCODE - 416516, MAHARASHTRA, INDIA

has been independently assessed and is compliant with the requirements of:

ISO 14001:2015

This certificate is applicable to the following scope of operations:

TO IMPLEMENT THE GOVT. POLICIES AND MUNICIPAL SOLID
WASTE RULES 2016 AND PROVIDE SERVICES OF DOOR TO DOOR
WASTE COLLECTION, AT SOURCE SEGREGATION IN 25 WAYS,
TRANSPORTATION AT PROCESSING SITE AND PROCESSING OF
WET WASTE BIOGAS, COMPOSTING, VERMICOMPOSTING,
PLASTIC WASTE-ROAD CONSTRUCTION, RECYCLING-PAPER,
PLASTIC BOTTLE, CARDBOARD, GLASS, CLOTHS, HAIRS, E-WASTE

Certificate No.: SPC17E1411

Date of Initial Registration:

08-08-2017

Date of This Certificate

08-08-2017

Date of Expiry*:

07-08-2020

Authorised Signatory

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