

# ROUTE TO ZERO WASTE

A Flood-Prone City Shows How It's Done



ZERO WASTE CITIES ASIA SERIES  
*Malabon City, Philippines*

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**M**alabon City, a highly-urbanized city in Metro Manila, Philippines, has to deal with massive flooding during the rainy season – and even during the off-season when heavy rains suddenly occur. It is a catch basin of neighboring cities as it lies below sea level on flat terrain so when the rain pours, almost half of it is submerged in water.

Although its topography may be one of the factors for the city's flooding problem, the volume of waste generated by the residents also adds to the problem as Malabon is also a densely populated city with 400,000 residents living in a total land area of 19.76 km<sup>2</sup>.

These factors made it seem hopeless for the city to take on the gargantuan task of dealing with its daily waste. But its largest and most-populous barangay, Potrero, with 54,000 residents from approximately 13,500 families, took on the challenge and emerged successful.

## POTRERO'S JOURNEY TO ZERO WASTE

Prior to implementing the Zero Waste program, Barangay Potrero generates about four tons of mixed waste daily, which all end up in landfills just outside

A waste worker composts biodegradable waste. © EIDYL KHATE NOLASCO

Metro Manila. Collected waste also include those improperly disposed of along the main roads and narrow streets and alleyways.

In 2015, the residents of Potrero received a nudge from Sen. Loren Legarda, a staunch advocate of green environment and also a resident of the barangay. According to Maricon Alvarez, Program Manager of Mother Earth Foundation (MEF), Legarda wanted to adopt the Zero Waste program for her barangay. Legarda, who is the author of the national law Ecological Solid Waste Management (ESWM) Act of 2000, envisioned transforming her village into a Zero Waste model for the city. The ESWM mandates the implementation of source-separation programs at the community-level.

Thus in 2015, MEF, together with the Office of Sen. Legarda and the National Solid Waste Management Commission (NSWMC), jumpstarted the efforts in Barangay Potrero and began the process of harnessing manpower to implement the program, which started with house-



**MALABON CITY**  
NATIONAL CAPITAL REGION  
Population: 365,525 (2015 census)  
Land area: 19.76 km<sup>2</sup>  
Population Density: 23,000/km<sup>2</sup>  
Waste Generation: .56kg per capita per day  
Waste diversion rate: 55%

to-house education campaigns for the whole barangay.

Prior to MEF's involvement, Barangay Potrero had already begun their attempt

at alleviating the never-ending problem of waste management. According to Barangay Councilor Eidyl Khate Nolasco, they campaigned for waste segregation in schools and regular cleanups in Tullahan River, a major river in Metro Manila that flows through Malabon and empties into Manila Bay. Youth organizations were also encouraged by the barangay to conduct regular cleanups in their respective areas.

Recognizing the initiatives of the barangay officials, City Mayor Antolin Oreta III decided to reinforce the efforts by tapping the assistance of MEF, which has the expertise and track record of launching successful ESWM campaigns.

MEF had already worked with four barangays in Malabon prior to working with Barangay Potrero but had to cease operations due to lack of resources from the local government. This time around, the Potrero project received funding from the Department of Environment and Natural Resources (DENR), the country's environmental ministry.



Waste workers (who call themselves waste warriors) collect segregated waste from the households. © EIDYL KHATE NOLASCO



Waste workers in barangay Dampalit tend to their materials recovery facility. Dampalit is one of the first barangays in Malabon that immediately implemented a Zero Waste program following Potrero's example. © VEEJAY VILLAFRANCA

## CHALLENGES

Initially, the project had a timeline of February-July 2015, or six months, to reach the desired Zero Waste goals, but the full implementation was completed in eight months.

Alvarez said educating — and convincing — the people to segregate their waste was the first step, and while it was the most challenging among the steps that had to be undertaken, the residents have learned to adopt the practice as part of their daily lives upon seeing and experiencing its direct benefits. In the end, MEF was able to overcome the challenge of making the residents believe in the importance of the program.

Alvarez also said that this kind of challenge is something MEF has encountered in all of their partner-barangays and not just in Potrero. Residents usually have a tendency to resist any change in the status quo. Had they convinced more people early on the program implementation, they could have met the six-month initial deadline.

When they were able to gather enough people to mobilize and get the entire ESWM program running, MEF gave the stakeholders — composed of barangay

officials and staff led by village chief, Sheryl Nolasco, waste collectors whom they called eco-aides or waste-warriors, women volunteers called Ladies Brigade, and the Barangay Ecological Solid Waste Management committee — theoretical and practical training. They worked together in ensuring that the public understood and complied with the program.

When the issue of manpower was resolved, the program then had to deal with budgetary constraints and minimal support from stakeholders who happened to be the biggest waste generators in the area.

## BASELINE ASSESSMENTS

As part of the initial step of the Zero Waste program implementation, Barangay Potrero conducted a Waste Assessment and Characterization Survey (WACS). From the results of the waste assessment, they found that 60% of waste collected from Potrero are biodegradable. Recyclable materials comprise only 15% of the wastes collected as opposed to Metro Manila's 41%. MEF explained that this is due to high percentage of respondents (50%), based on a separate baseline survey, who do not sell their recyclables to junk

Table 1. Waste Generation in Barangay Potrero (Baseline Data) in kg

Waste Generation	Value
Per Household/Day	2.8
Per Person/Day	0.56

shop owners  
Table 2. Composition of Waste Generated in Barangay Potrero (Baseline Data)

Material Class	Value
Compostable	60%
Recyclable	15%
Residuals	15%
Hazardous	0.46%
Hazardous - Special	10%?

Residual waste is at 15%, almost three times that of the average Metro Manila residents, which is pegged at 6%. This is attributed to Barangay Potrero's low waste diversion rate in general. According to MEF, this is also supported by the baseline survey, which found that only 20% of residents either compost

or give kitchen waste away as animal feeds. The assessment also revealed that hazardous wastes comprise 0.46% of the total waste generated, while special wastes (e.g. diapers and napkins) comprise more than 10% of the total

Table 3. Potential Diversion Rate Through Composting and Recycling

Method of Diversion	Diversion Rate Potential
Composting	60%
Recycling	15%
<b>Total Possible Diversion</b>	<b>75%</b>

waste generated by weight.

## COMPLIANCE

After completing the WACS, the residents were then taught the process of segregating their wastes into at least four categories: kitchen waste, garden waste, recyclable waste, and residual waste. The waste collectors were instructed to refrain from picking up trash bags which had contents that were not properly segregated. To ensure that residents were constantly reminded of their responsibilities, employed monitoring officers accompanied the waste collectors and visited houses to check on their progress.

Today, almost 90% of Potrero residents practice segregation at source.

In an effort to further comply with the law and to avoid contributing to the congestion of landfills and dumpsites, Barangay Potrero built its own materials recovery facility (MRF), where biodegradables are composted, and residuals and recyclables are temporarily stored until they are either sold to junk shops or collected by the city for proper disposal.

As the timetable progressed, Barangay Potrero experienced a significant improvement not only in its ecological solid waste management efforts but in people's attitude as well – waste segregation had become part of the household system.

Village chief Sheryl Nolasco shared that in succeeding flooding incidents, the people saw the fruits of their labor. While rising waters during typhoons



Mother Earth Foundation staff and volunteers conduct waste assessment and brand audit. © EIDYL KHATE NOLASCO



Visitors from Vigan City, a city in northern Philippines, pose for a souvenir photo. Potrero often receives visitors from various parts of the country and even the world wanting to learn from the Potrero solid waste management experience. © EIDYL KHATE NOLASCO

or high tide are inevitable due to the barangay's topography, garbage has become a thing of the past. Unlike before, there were no plastics or food waste floating in floodwaters. This was a significant eye-opening event for the residents of Potrero because they realized and experienced the direct benefits of adopting a Zero Waste mindset.

In 2016, just a year after partnering with MEF to implement Zero Waste program, Barangay Potrero received a citation from the Metro Manila Development Authority for Best Solid Waste Management Program.

## SUSTAINABILITY

Among the other challenges of maintaining a Zero Waste status is sustainability. Many programs or projects involving (if not initiated by) local officials sometimes suffer the fate of being discontinued once a new administration takes over.

By institutionalizing the program through local

ordinances and policies, Barangay Potrero's journey to becoming a Zero Waste community has become the benchmark for other barangays and communities not only for



Malabon but for the country. Alvarez also noted that because the residents have personally seen the benefits of properly taking care of their own waste and that the idea of waste segregation has been adopted into their daily routine, they now hold the power to demand new administrations to continue with the program should it become at risk of being discarded in the future.

## **OTHER BARANGAYS FOLLOW SUIT**

Encouraged by the success of Barangay Potrero, the City of Malabon decided to implement a city-wide Zero Waste program. Starting 2017, the rest of the barangays in the city started implementing Zero Waste, many of which are now in advanced implementation, among them Dampalit, Baritan, Hulong Duhat, and Concepcion.

According to Mayor Oreta, one of the challenges that they are now facing since becoming Zero Waste is managing the waste being improperly disposed around the city's borders. Waste from cities not implementing Zero Waste at times find their way into Malabon City. Despite these challenges, Mayor Oreta is optimistic that the example of Barangay Potrero will open up more opportunities to make the city's Zero Waste efforts sustainable.

Alvarez, meanwhile, noted that two things spell the success of the program: the local leaders' political will and availability of funds. And with the first requirement already fulfilled in the person of Mayor Oreta through his commitment to the Zero Waste program, funding is sure to come by. At this point, it is only a matter of time before Malabon City becomes a model Zero Waste city.



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