

PARAÑAQUE CITY, PHILIPPINES

BEATING THE PLASTIC CRISIS THROUGH A PRIVATE-PUBLIC SECTOR PARTNERSHIP

The Story in Short



Parañaque City is at the nexus of local, regional, and international waste management crises. Waste production across the 17 local governments in Metro Manila will continue to grow, and Parañaque generates the 4th-most among its peers.

In response, Parañaque has partnered with the Philippine Alliance for Recycling and Materials Sustainability (PARMS) through a Memorandum of Agreement to house the plastic waste recycling facility in the city's Materials Recovery Facility (MRF). Parañaque hopes to address the environmental challenges of plastic waste, support enacting the city's 10-year Solid Waste Management Plan, and increase compliance with the Ecological Solid Waste Management Act of the Philippines (RA 2003).

Figure 1: Mr Bert Guevarra, Vice President of PARMS, standing in front of collected plastic waste. With high participation from the residents, collection was later suspended as the facility could not handle the volume of plastics.

City Government of Parañaque: Facts and figures

Population

665,822 (2015)

Total area

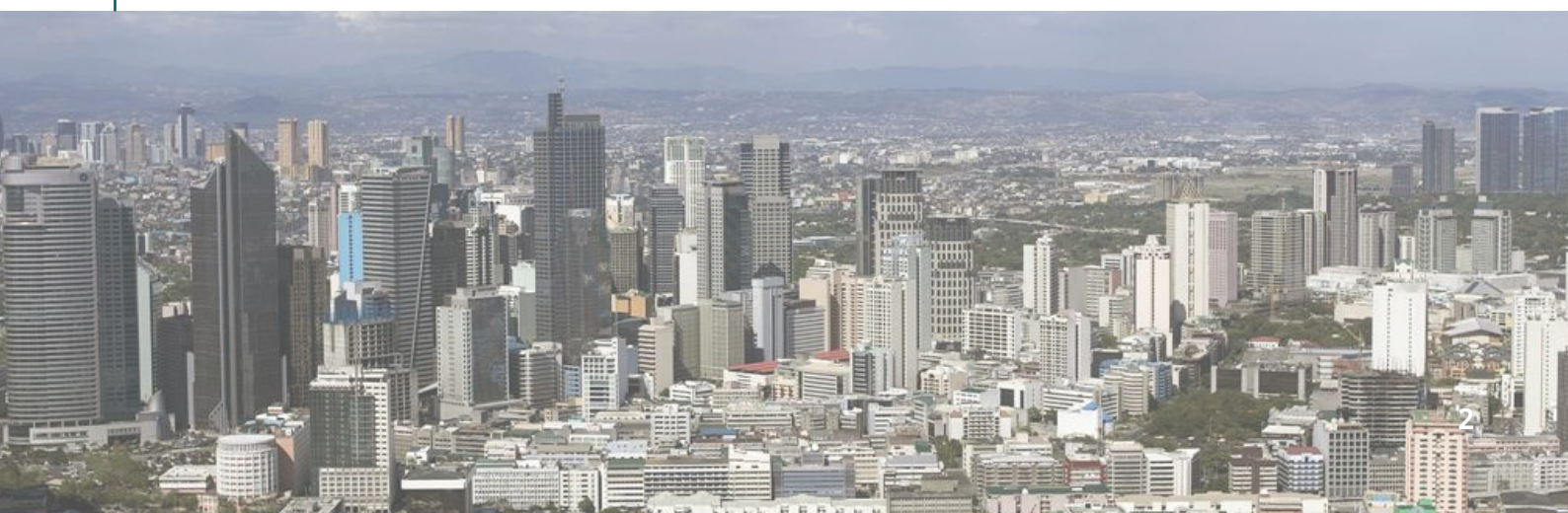
47.69 km²



As a booming city with business centers, residential hubs, and industrial pockets, Parañaque City's rapid urbanization and industrialization caused sharp increases in energy consumption, traffic, and waste generation. Residents in numerous subdivisions are over reliant on private vehicles with inadequate public transportation within Parañaque and across Metro Manila.

The local government has demonstrated its commitment to low emission development and a climate adaptive agenda. Parañaque is active in solid waste management, waterways cleanup, rehabilitation, and preservation, monitoring of pollution generators along waterways, and solar-powered street lights.

Figure 2: Location of Parañaque City, National Capital region, Philippines



Estimated Waste Generation (EWG) for Metro Manila January 1, 2018

LGU	LGU's 10-year Solid Waste Management (SWM) plan	
	Tons/day	Cubic Meters/day
<i>North District</i>		
Quezon City (QC)	3,610.13	13,571.94
Caloocan City (CC)	912.81	4,060.55
Malabon City (MB)	304.29	2,393.18
Navotas City (NV)	78.72	804.05
Venezuela City (VA)	226.98	6,857.25
<i>East District</i>		
San Juan City (SJ)	53.24	372.22
Marikina City (MR)	459.93	3,641.59
Pasig City (PG)	411.24	3,103.47
Pateros (PT)	29.38	125.84
Taguig City (TG)	220.75	1,527.28
<i>West District</i>		
Manila City (MN)	1,174.82	7,650.07
<i>South District</i>		
Mandaluyong City (MI)	278.45	1,283.64
Makati City (MK)	474.09	3,030.08
Pasay City (PC)	355.09	2,520.89
Parañaque City (PQ)	634.63	2,021.10
Las Piñas City (LP)	356.21	1,245.49
Mintinlupa City (MU)	290.78	1,843.74
TOTAL	9,871.54	56,052.38



A Potential Circular Business Model for Plastic Waste in the Philippines

Our business-as-usual is one of high fossil fuel consumption, extremely limited recycling, and common polluting. Greenhouse gas (GHG) emissions are present in every stage of the plastics value chain. However, adopting a circular business model could reduce emissions by up to 62 million metric tonnes CO₂e annually. The journey to that goal, however, will not be easy.

Parañaque's centralized MRF began operations in 2019, rendering a partnership with PARMS possible later in the same year. The MRF's operation is aligned with PARMS's program to increase resource recovery and reduce landfill dependence. Parañaque does not have its own sanitary landfill and dumps its waste at the Rizal Provincial Sanitary Landfill, like other cities in Metro Manila. Reducing landfill trips saves revenue for the city.

Plastic wastes are collected from the barangays, commercial establishments, institutions, and residents. As to avoid competing with junk shops and other local MRFs, the city only collected low-cost plastics, sachets and flexible packaging materials from households.

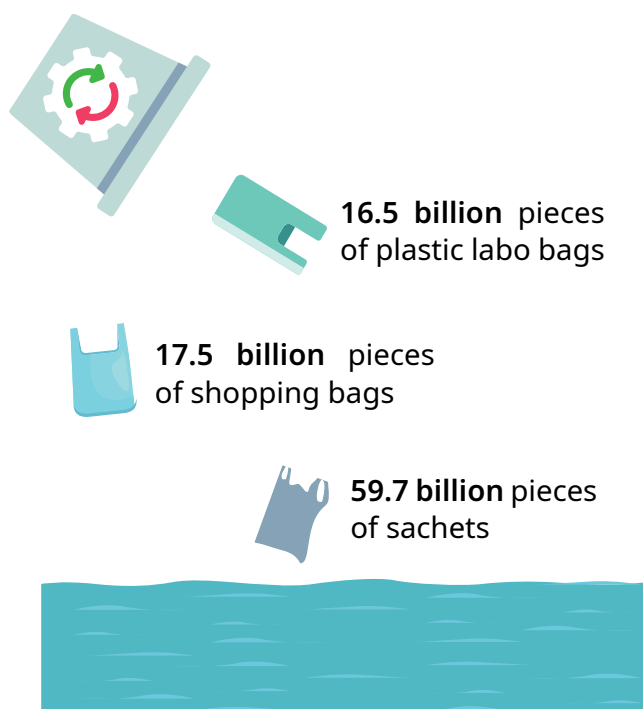
The City Environment and Natural Resources Office (CENRO) created an alternate garbage collection route. CENRO's communication was vital in informing the community about the alternate route and plastics-specific collection schedule. Plastics will be delivered to the Parañaque City-PARMS facility to process the waste into something profitable.

What is PARMS?

Per Mr. Crispian Lao, Co-Convener and Founding President of the non-profit PHilippine Alliance of Recycling & Material Sustainability (PARMS), "PARMS is a multistakeholder group composed of corporate members, industry associations, NGOs, academia, including retail, waste management services working with the government – the whole value chain." He added that these member companies and corporations are also the investing partners of the organization. Besides multinationals like Nestlé and Unilever, PARMS includes the Philippine Chamber of Commerce and Industry and the Philippine Plastic Industry Association, plus the NGOs Zero Waste Recycling Movement and the Philippine Business for the Environment.



Figure 3: CENRO personnel conducting manual segregation of plastics.



Ocean plastic pollution in Southeast Asia

Most plastic pollution in oceans originates in four Southeast Asian countries, with the Philippines ranking third on the list. The Philippines' plastic waste generation amounts to 59.7 billion pieces of sachets, 17.5 billion pieces of shopping bags, and 16.5 billion pieces of plastic labo bags annually. According to WWF Philippines, up to 74% of plastic wastes in the country that find their way into the oceans are wastes that have already been collected. Their report claimed that an annual leakage of 386,000 tons of wastes is due to haulers dumping these into water bodies on the way to disposal sites to cut costs.

Progress and Future Expectations

PARMS replicated a model from the Villar SIPAG Waste Plastic Recycling Factory in Las Piñas City that produces school chairs from plastic wastes. In Parañaque City, the PARMS facility will create plastic products depending on users' needs. Using the extruder and eco-brick equipment as well as sachet shredder, concrete mixer, and concrete hollow block machine plastic wastes can be initially transformed into eco-bricks, school chairs, bollards, parking bumpers, pallets, tiles, and plastic lumber. PARMS recently was able to obtain a 3-phase power system for some of their extruder and washer lines, and hope it will be fully operational by the 3rd quarter of 2021.

According to Engr. Ma. Teresa Quiogue, Supervising Environmental Management Specialist of CENRO, the facility temporarily ceased operations from April to August 2020 for COVID-related concerns. This particularly affected the plastic extrusion operation. Despite the shutdown, a total of 29,976.75 kgs of plastic waste were recycled from September 2019 to December 2020.

Low-value plastics such as single-use sachets are prevalent in the Philippines due to their affordability. However, these plastics

are difficult and costly to recycle with poor existing infrastructure. Single-use plastics exponentially increased during COVID-19, used to curb the spread of infections, in delivery services and food packaging.

The partnership between PARMS and Parañaque CENRO has sparked innovation, from which PARMS can more successfully and sustainably create ventures with more local and regional governments. In Parañaque, product sales sustain facility operations, with a portion going to the waste workers cooperative. Additionally, the city employment and livelihood program will institute an incentivized waste recovery program for upcycling. Collected low value plastics can also be exchanged for food. PARMS hopes to venture beyond Parañaque to cities across the region and country. PARMS hopes to standardize packaging and plastics to facilitate local recycling, and is developing a plastic credit mechanism for polluting companies to recover plastic waste. PARMS hopes to facilitate dialogue among local and national government agencies and banks, replicating its healthy engagement with Parañaque CENRO.

Costs and Funding

PARMS only supplied equipment, while the the City of Parañaque provided the land and shoulder the operational expenses (since the facility workers are CENRO personnel). Parañaque allotted Php 25,000,000 (514,975 USD) annual budget for solid waste management operations across the city (2019).



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