



# MANAGING PLASTIC WASTE AND THE ROLE OF LOCAL GOVERNMENTS

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The Philippines is one of the top three countries (including China and Indonesia) that have high volume of plastic wastes that ends up in the oceans. Aside from the increasing population and emerging urbanization, the “sachet culture” in the Philippines is the primary culprit in this persistent plastic waste problem. Some countries have developed laws to curb this waste problem, but have not been successful due to weak regulations, especially in the manufacturing/packaging sector.

RA 9003 (or the Ecological Solid Waste Management (SWM) Act) enacted in 2001 in the Philippines was a landmark policy whose salient provisions include mandatory segregation of waste at the household level with collection vehicles having the appropriate compartments for the sorted wastes; the establishment of recycling centers or the Materials Recovery Facilities (MRFs) at every barangay nationwide; the preparation of 10-year solid waste management plans by all local government units; and the creation of a municipal and a provincial solid waste management board with functions as provided for by the law.

The recorded accomplishments showed low performance. Full implementation of the law is still wanting due to lack of capacities, lack of funds, and lack of institutional support at the local level.

To manage plastic wastes, municipal and barangay level LGUs should be provided funds to finance the systematic collection of segregated solid wastes; there must be a functional solid waste management board at all governance levels; communities must be involved in the programs; there must be regulations as a local ordinance and that LGUs need to explore partnership with the private sector who can re-use and even redesign the functionality of plastic.

To manage plastic waste thrown in rivers, a cluster of municipalities/provinces where the river flows can create a river council, with multi-stakeholder members. A river-based plan to manage waste must be developed where an investment plan can be embedded, and that this river council must have a legal identity, with LGUs support.

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## Introduction

Globally, plastic waste volume has increased from about 3.1 million metric tons in 2008 to about 3.5 million metric tons in 2013 [1]. Data show that 10% of global waste composition is from plastics and this is observed to be increasing. The Philippine situation mirrors the global trend in increasing waste generation and even at a faster rate [2]. The Philippines' Environmental Management Bureau (EMB 2018) [3] further projects that waste generation will increase significantly and that Metro Manila will contribute about one fourth of the total projected wastes. World Bank (2012) [4] estimates that solid waste in the Philippine cities will increase by 165% to 77.78 tons/day from 29.3 tons per day by 2025, due to projected increase in population.

The most important factor affecting the increasing volume of solid waste in the country, especially plastics, is the "sachet culture". Sachet-based products meet the household needs especially of the poorer segments of Philippine society. Evidence shows that Filipinos throw away 164 million pieces of sachet packets daily. This means sixty billion sachets are sold and discarded in the Philippines per year. Per capita use of sachet is 591 pieces and 174 plastic shopping bags per year. If there are 57 million plastic bags used daily in the Philippines, then this totals to 20.6 billion plastic bags used annually [5]. While there may be Philippine laws on pollution, there are no regulatory policies for manufacturers that merchandize sachet-packaged products. Thus, the strategy will be to manage these wastes.

### Laws on plastic pollution and solid waste management: The Philippines' RA 9003 - Ecological Solid Waste Management Act

In the Philippines, despite the serious problem of plastic pollution, there is no national policy that regulates its use. Some municipal and city governments have indeed started to implement plastic ban, but with several regulatory constraints. However, at the national level, the passage of RA 9003 (or the Ecological Solid Waste Management Act) in 2001[6] was a landmark policy because of its integrated approach to solid waste management, including plastics.

Among the salient provisions of RA 9003 are the provision of the mandatory segregation of waste at the household level with collection vehicles having the appropriate compartments for the sorted wastes; the establishment of recycling centers, the Materials Recovery Facilities (MRFs) at every barangay nationwide; the preparation of 10-year solid waste management plans by all local government units; and the creation of a municipal and a provincial solid waste management board with functions as provided for by the law.

Based on the salient provisions of the law, the accomplishments showed low performance (Table 1).

Low performance is due to lack of capacity building, in understanding the provisions of the law, and formulating SWM plans; lack of fund

Table 1. Score card in the local level Implementation of RA 9003 (Data Source: SEPO 2017) [2]

Provision of RA 9003	Accomplishment
Collection	85% in Metro Manila; about 40% outside MM
Waste Disposal	Open dumping is still popular; controlled dumpsites and sanitary landfills are limited. LGUs with access to SLFs is below 15%
Diversion and Recovery	31% of all barangays in the country have Materials Recovery Facilities (MRFs).
Local SWM boards	As of 2017, 68% have provincial boards, 38% have city/municipal boards; and 13% have barangay committees.
Local SWM plans	As of Sept 2017, 1460 SWM plans were submitted to the EMB as the NSWMC Secretariat, but only 318 SWM plans have been approved.

generation activities and to connect to the private sector; and lack of enforcement of ordinances in support to the MRFs [7]. Barangays also do not have enough funds to establish MRFs. Barangay officials can influence communities and households to act collectively for successful solid waste management programs.

### **A Community-based Strategy for Sustainable Solid Waste Management**

One approach that can be used by communities in establishing sustainable SWM programs is through the adaptive collaborative governance (ACG). ACG is an approach to the governance of socio ecological systems in which groups of actors purposefully base their decision-making on social learning and critical reflection, emphasize inclusion and equity and strive for balanced and strategic collaboration with other actors [8]. There are at least four steps in this protocol [9]. LGUs can lead in this activity.

The first step is to build partnership and assess the initial conditions. This implies getting commitment of the various actors and assessing the existing policy instruments that may guide the SWM program. Planning strategic actions is the second stage of the process. This involves agreeing to a shared vision, mission, objectives and ground rules as the ACG process progresses through participatory approach. The actors are the municipal governments and non-government representatives. Thirdly, actors develop SW management plans and investment plans based on the waste management problem. The last stage is the implementation of the investment plan. This stage of the ACG also sees the enactment of the local laws in support of the SWM plan.

The protocol just described was applied on water governance with actors along the Sta. Cruz River in Laguna Philippines starting 2014 by UPLB researchers. Figure 1 shows the stakeholders' forum in Sta Cruz, Laguna to build partnership, while Figure 2 illustrates the expression of commitment of community members to improve water governance by addressing the solid waste problem. Currently, the outcomes observed by actors included reduced plastics in the waterways, establishment of functional systems of MRF<sup>1</sup> (segregation, reuse, recycle, composting, etc) and linkage with junkshops and companies as wastes recipients<sup>2</sup>.



Figure 1. Stakeholders hold forum, Sta Cruz Laguna.



Figure 2. Community members commit to improved water governance via sustainable solid waste management program.

<sup>1</sup> An MRF is a solid waste management station for further sorting (first level of sorting is at the households), a composting facility, and a recycling facility. A constructed MRF is not enough but requires a system for it to become functional. An MRF system (of a barangay or cluster of barangays or municipality) should have corresponding draft policies – the products of well-thought-off decisions by the local solid waste management board (SWMB). Another consideration for a functional MRF is the manpower requirement, for example, attending to organic gardens, vehicle and equipment maintenance, driver, etc. In the construction of MRF, the location, budget, size, and bill of materials are determined during the SWMB meetings.

<sup>2</sup> One scheme to reduce solid wastes is to establish linkage with private companies (e.g. cement manufacturers) or LGUs

## Recommendations

1. Local governments must implement the national law, by regulating plastic use through ordinances and implementing these. National government can assist local government by providing ample funds for provision of the MRFs and by conducting training programs in solid waste management planning.
2. Local governments should seek partnership of communities. Communities can police the households in their waste management behaviours, but local government can provide incentives and penalties in doing so.
3. Local governments can also link with the private sector (cement factories, Nestle, Coca Cola) who now are aggressively gathering plastic wastes.
4. River councils for the protection of rivers in the dumping of wastes should be created by a cluster of municipalities/provinces where the river flows. River based solid waste management plans can be developed.
5. Local governments can partner with the academe in capacity building and monitoring of the progress of their plans.

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**Experts' talks on plastics and plastic wastes** during the NAST PHL Annual Scientific Meeting on July 10-11, 2019, are available on the **NAST PHL Talks YouTube channel**.

## References

1. Plastics Institute of Thailand. (no date).Thailand Plastic waste management and environmental challenges.[cited2019February14]Available from [thaiplastics.org/content\\_attachment/attach/plastics\\_waste](http://thaiplastics.org/content_attachment/attach/plastics_waste).
2. [SEPO] Senate Economic Planning Office. 2017.Philippine Solid Wastes AT a Glance, AAG 17-01, Senate of the Philippines, 2017, November
3. [EMB]. Environmental Management Bureau.2018. Solid waste.[cited 2019 February 14].Available from <https://emb.gov.ph/wp-content/uploads/2018/09/3-Solid-Waste-1.8.pdf>
4. World Bank. (2012). What a waste: A global review of solid waste management, Urban Development Knowledge papers. [cited 2019 February 14] Available from [siteresources.worldbank.org/.../Resources/...1334852610766/Chap5.pdf](http://siteresources.worldbank.org/.../Resources/...1334852610766/Chap5.pdf)
5. [GAIA] Global Alliance for Incinerator Initiatives. 2019. Plastics Exposed: How Waste Assessments and Brand Audits are Helping Philippine Cities Fight Plastic Pollution. [cited 2019 September 9]. Available from <https://www.no-burn.org/waba2019/>
6. [RA9003] Republic Act 9003. Ecological Solid Waste Management Act of 2001. Republic of the Philippines, Manila.
7. Lizada JC, Ibabao RA. 2013. Building resilience through solid waste management: The case of the Iloilo province, Central Philippines, Paper presented during the 28<sup>th</sup> International Conference on Solid Waste Management Technology and Management, Philadelphia, USA, March 10 - 13, 2013 and the SEPO (2017)
8. McDougall C, Jiggins J, Pandit B Hari, Sushila K, Thapa RM, Leeuwis C. 2013. Does adaptive collaborative forest governance affect poverty? Participatory Action Research in Nepal's Community Forests. *Society & Natural Resources*, 26(11): 1235-1251, DOI: 10.1080/08941920.2013.779344
9. David ME, Rola AC, and Pulhin JM. 2016. Development of a protocol on adaptive collaborative water governance for improved Santa Cruz watershed management in the Philippines. *Ecosystems & Development Journal* 6(2): 35-51.

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