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Solid Waste Management, Environmental Governance, and Sustainable Development

Empowering Intergovernmental Relations in the National Capital Region[1]

Maria Lourdes Genato Rebullida[2] and Jalton Garces Taguibao[3]

Introduction

More commonly referred to as "garbage," various types of solid wastes—including plastics—exacerbate the disasters caused by typhoons and flooding in the Philippines. This has become emblematic of the country's waste debacle. The garbage problem has evolved into a crisis, as declared recently by the Philippine government's Secretary of Environment and Natural Resources (Marquez 2019).

Since the 1970s, the persistent urban condition in the Philippines has drawn attention to issues posed by the handling of solid waste generated by various sources, mainly from households, industries, commercial establishments, and other sources in various towns and cities. Solid waste management (SWM) confronts the Philippine government at both the national and local levels, as they are required to come up with solutions to avert further urban environmental degradation and disaster risks and to contribute to the current pursuit of the 2015–2030 Sustainable Development Goals (SDGs).

The Philippines is signatory to the Rio Declaration and Agenda 21, the global commitment and comprehensive plan of action formulated during the 1992 Rio Summit aimed at "achieving the goals of quality and sustainable development." The strategy requires "efficiency in production and changes in consumption patterns in order to emphasize optimization of resource use and minimization of waste" (UNCED 1992; UNEP 2009). Global action, through the United Nations, continues to engage member-states—including the Philippines—to respond to the inter-related problems of development, climate change, and disaster management, which is both part of the SDGs and an offshoot of the SWM dilemma.

Nearly two decades since the enactment of the Ecological Solid Waste Management Act (Republic Act (RA) No. 9003), studies and observations point to lingering gaps in SWM in the country, particularly on the part of government implementation. With the prevailing crises in SWM, it is an urgent task to confront the dysfunctionalities and weaknesses in the management of solid waste by looking at and strengthening

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[1] This policy brief is based on the authors' paper of the same title which is part of the research project "A Study on the Implications of Federalism in the National Capital Region and Considerations for Forming the Federal Administrative Region" of the University of the Philippines Center for Integrative and Development Studies (UP CIDS), the Department of the Interior and Local Government–National Capital Region (DILG–NCR), and the Local Government of Quezon City. The project is funded by the DILG–NCR.

[2] Professorial Lecturer, Department of Political Science, College of Social Sciences and Philosophy, University of the Philippines Diliman • Email address: mlrebullida@gmail.com

[3] Associate Professor, Department of Political Science, College of Social Sciences and Philosophy, University of the Philippines Diliman • Email address: jgtaguibao@up.edu.ph

relationships across the national and local levels of government.

Objectives

In this policy brief, the challenges and options for solid waste management within the Philippine National Capital Region (NCR) are drawn from a study that looked into the relationship between national and local government units and the presence of the Metro Manila Development Authority (MMDA) as a regional administrative entity. Informed by institutionalist and governance frameworks, the study analyzed quantitative and qualitative data from various documentary sources, related literature, laws and policies, news, and secondary sources.

The main parts of this policy brief include a discussion of the global context of SWM, a look at the implementation of the Ecological Solid Waste Management Act, a comparison with neighboring Asian examples (namely Malaysia and Japan), and an analysis of prospects for empowering the relationship between national and local government in the context of the NCR.

Interlinking solid waste management with sustainable development, environmental governance, climate change adaptation, and disaster risk management

The Basel Convention (UNEP 1989, 10) defines *wastes* as "substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law." On the other hand, the Agenda 21 specifically defines solid wastes as "all domestic refuse and non-hazardous commercial and institutional wastes, street sweepings and construction debris" (UNCED 1992, 254). This is commonly referred to as "garbage." The waste stream covers organics as food, yard and wood wastes, paper, plastic, glass, metal, and other residues and consumer products (Hoornweg and Bhada-Tata 2012).

Increasing solid waste generation poses a problem when it is complicated further by improper waste collection and disposal. Studies point to the connection between solid wastes and greenhouse gas production (ibid.) and to health issues caused by land, air, and water pollution in communities. Across countries, evidence indicate the persistence of indiscriminate disposal practices, such as open dumping, unregulated landfills, and burning (McAllister 2015; Cogut 2016) and of the prevalence of plastic waste products to the waste stream, which adversely affects marine and aquatic wildlife (Al-Salem, Lettieri, and Baeyens 2009; Sigler 2014).

The Rio Declaration and Agenda 21, which are the resulting documents from the United Nations Conference on Environment and Development (UNCED 1992), established the links between development and environment. Later, climate change and disasters prodded state leaders to sign the United Nations Framework Convention on Climate Change (UNFCC) (UN 1992), the Hyogo Framework for Action 2005–2015, and the Sendai Framework for Disaster Risk Reduction 2015–2013 (UNISDR 2015).

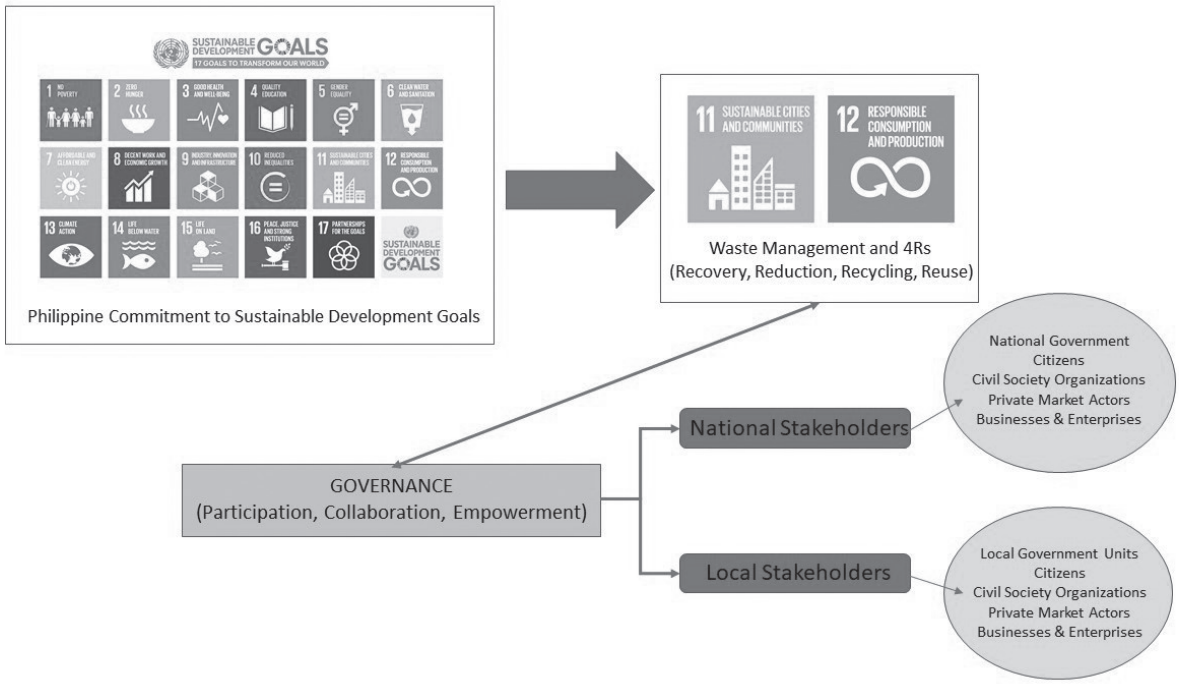
Global solid waste management governance has progressed by engaging global commitment to the Sustainable Development Goals (SDGs) 2015–2030, which superseded the UN Millennium Development Goals (MDGs) 2000–2015. In particular, SDG 11 emphasizes waste reduction in cities relative to municipal authorities and waste management systems and SGD 12 pushes for responsible consumption and production and waste minimization approaches (Rodic and Wilson 2017).

The SDGs provide guidance in linking and strengthening the national and local levels of government for solid waste management, such as in the case of the Philippines (see **FIGURE 1** on next page).

Policy and governance dilemmas for solid waste management in the Philippines

In 1987, the Presidential Task Force on Waste Management (PTFWM) acknowledged the garbage crisis in Metro Manila (Rebullida 2000). On July 10, 2000, disaster struck when a trash slide at the Payatas dumpsite killed nearly 288 people (Co 2010). In 2000, the Philippines enacted Republic Act No. 9003, which defines ecological solid waste management as a "systematic administration of activities which provide for segregation at source, segregated transportation, storage transfer,

FIGURE 1 Sustainable development and governance framework for solid waste management in the Philippines

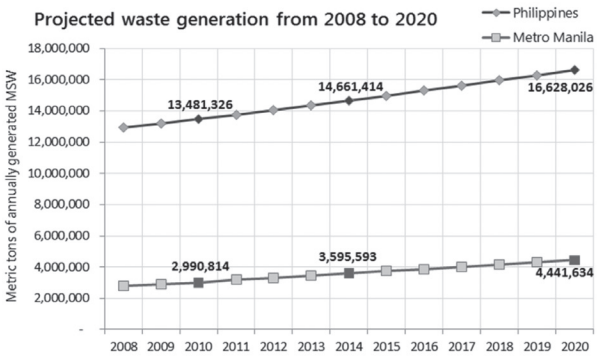


processing, treatment and disposal of solid waste and all other waste management activities which do not harm the environment" (RA No. 9003, Art. 2, Sec. 31). As an alternative to landfills, incineration, and open dumping, which cause environmental degradation, several civil society non-government organizations, community-based neighborhood associations, and local government units advocate for the 3Rs: waste reduction, recycling, and reuse (Rebullida 2000). These principles have been recently expanded to the "7 Rs of Sustainability:" refuse (the purchase of items if unnecessary or excessive), reduce waste, reuse, repair (for continuous usage), repurpose (to expand functionality), recycle, and rot (for composting) (Earth Day Network Philippines 2019).

Plastic waste has exacerbated flash floods during typhoons and storms in Metro Manila (Capacillio 2018; Marajas 2018). Site-specific studies (e.g., schools, communities, disposal sites) attribute the current situation to: (1) continued open dumping, unregulated landfills, and burning; (2) failure to organize and manage a functional local Solid Waste Management Board and to submit local solid waste management plans; (3) waste characterization showing the increasing volume of wastes and prevalence of plastic and organic wastes; (4) inadequate local government resources vis-à-vis the cost of an integrated solid waste management system; and (5) lack of public awareness on proper waste management practices, among others (Galarpe 2017; Gequinto 2017; Sapuay 2016).

Furthermore, an increase in population brings about an increase in waste generation in the Philippines. This is more pronounced in urban centers, specifically in Metro Manila (see **FIGURE 2** below). Illegal dumpsites located adjacent to Metro Manila have become a typical mode for solid waste disposal, causing environmental degradation (see **FIGURE 3** on next page).

FIGURE 2 Projected waste generation, 2008–2020



Source: *National Waste Management Status Report 2008–2018*

FIGURE 3 Projected waste generation, 2008–2020

Source: National Solid Waste Management Commission
(in *National Waste Management Status Report 2008–2018*)

Asian exemplars: Japan and Malaysia

The case of Japan is an exemplar in instituting a "culture of materials recovery" that is embedded in its policies and systems for waste reduction, recycling, and reuse. Although it is a unitary state, the Japanese experience demonstrates the integration of public culture and technologies in handling solid wastes from the processes of production and consumption.

On the other hand, Malaysia provides an example of a federate state with three levels of government: a national-central-federal government, state governments, and local governments. The Malaysian experience demonstrates in-state relations, as sub-national levels are coordinated in SWM.

These Asian exemplars offer insights for the Philippines in terms of instituting improvements for SWM in either retaining a unitary and devolved system of government or shifting to a federal system.

Enhancing national and local government relations in the Philippines

The responsibilities of the national government and of local government units are specified in the Ecological Solid Waste Management Act. The National Solid Waste Management Commission (NSWMC), which was established by the Act, takes responsibility in policymaking and in the implementation of national SWM policies. The Environmental Management Bureau of the Department of Environment and Natural Resources (DENR–EMB) is designated as the NSWMC's Secretariat. On the other hand, cities and municipalities at the local government level are tasked to undertake solid waste disposal systems and sanitation, while barangays deal with solid waste collection (see **FIGURE 4** below).

The NSWMC bears the mandate of national planning, coordination, and implementation, which include a mandate over local government units. It engages leagues of provincial governors, city and municipal mayors, and association of barangay councils in terms of SWM policies. For various regions in the country, the interrelationship among the NSWMC, the provincial, city, and municipal governments, and the barangays needs to be improved in order to resolve implementation gaps.

In the NCR, the Metropolitan Manila Development Authority (MMDA) stands as a strategic structure to improve SWM in the region. The MMDA is not a local government unit, but an organization aimed at the development of the local government units of the sixteen (16) cities and one (1) municipality that form the NCR (see **FIGURE 5** on next page).

In the current devolved setup, the MMDA and the 17 local government units face challenges in improving their relationship and in forming strategies for effective SWM in the region. The NCR

FIGURE 4 Devolution of solid waste management responsibilities

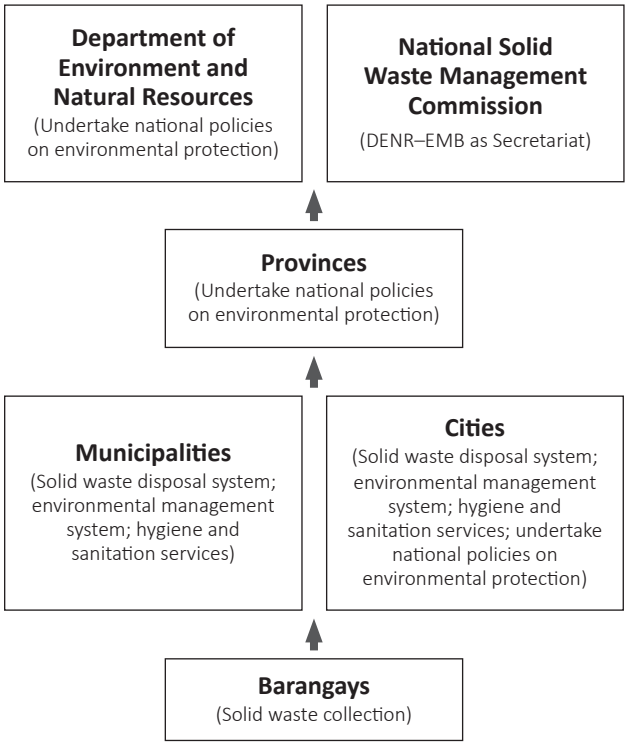
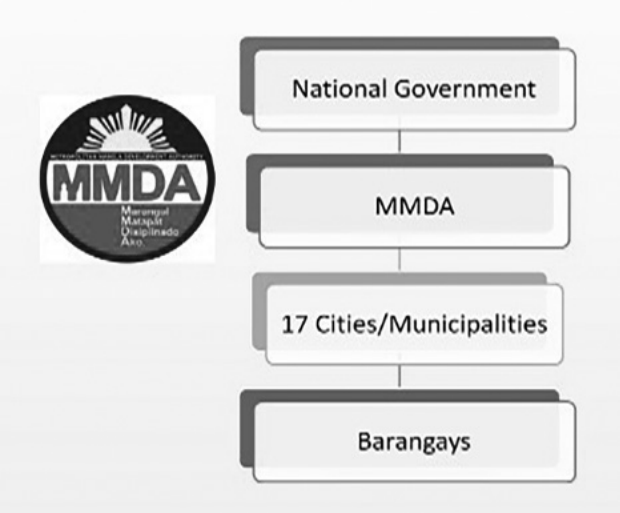


FIGURE 5 Administrative hierarchy of the MMDA



is the Philippines' most highly urbanized region, consisting of the oldest cities of Manila, Quezon (City), Pasay, and Caloocan, and of cities coming out of municipality status since the 1990s, namely Las Piñas, Makati, Malabon, Mandaluyong, Marikina, Muntinlupa, Navotas, Paranaque, Pasig, San Juan, Taguig, and Valenzuela. Pateros remains as the sole municipality in the NCR.

It is necessary to bridge vital functions between the national government and the local governments for innovations in managing solid waste, given the country's commitment to the SDGs 2015–2030 (especially SDGs 11 and 12). Current problems in implementation and the lessons from the experiences of other countries must also be taken into consideration (see **TABLE 1** below). A region-wide government entity like the NCR's MMDA elicits prospects for integrating several local government units and for linking with the national government in order to overcome issues and concerns in SWM.

Gaps in the implementation of SWM policies and lessons learned from other countries provide valuable insights on the development of strategic policy and program interventions and reforms. Some of these are:

(1) Enforcement of stakeholder accountability (government, industry, and civil society) in accordance with RA No. 9003 and the 1991 Local Government Code;

(2) Expansion and intensification of public awareness and development of a "culture

TABLE 1 Matrix of national-local responsibilities for solid waste management

National Government	Region-wide Government/ Administrative Entities	Local Government		
		Barangay	City/Municipal	Provincial
National SWM Plan	Region-wide policymaking, planning and development, and implementation (e.g., MMDA in the NCR/Metro Manila)	Barangay SWM Plan	City/Municipal SWM Plan	Provincial SWM Plan
Legislation, policies (e.g., Revised RA No. 9003)		Ordinances and resolutions	Ordinances and resolutions	Resolutions
Waste-to-energy and disposal technologies and facilities		▪ Materials Recovery Facilities (MRFs) ▪ SWM collection ▪ 4Rs	▪ Waste-to-energy and disposal technologies, sites, and facilities ▪ 4Rs	▪ Waste-to-energy facilities ▪ 4Rs
SWM financing		SWM financing	SWM financing	SWM financing
Marketing		Livelihood	Livelihood and marketing	Livelihood and marketing
Public awareness		Information, education, and communication	Information, education, and communication	Information, education, and communication
Sanctions and legal services		Sanctions	Sanctions and legal services	Sanctions and legal services
Monitoring and evaluation		Implementation, monitoring, and evaluation	Implementation, monitoring, and evaluation	Implementation, monitoring, and evaluation

of materials recovery" for waste reduction, recycling, and reuse;

(3) Financing for solid waste disposal and recycling systems;

(4) Monitoring of the use of technologies, facilities, and systems for waste collection, disposal, and resource recovery;

(5) Enhancement of the capacities of national, regional, and local government staff for governance of SWM; and

(6) Effective enforcement of penalties for violation of the Ecological Solid Waste Management Act.

Conclusion

Despite the establishment of global and domestic institutions that underscore the need for sustainable and livable urban environments, the performance of the Philippines in solid waste management has been lackluster. The current conditions in the management of solid waste in the Philippines, and especially in the NCR, have remained dismal despite the presence of legislations, standards, and policies for almost two decades. Clearly, the issue is not the lack of institutions. Rather, what is necessary is a rethinking of appropriate institutional arrangements where coordination and sharing of responsibilities between national and local governments are coupled with the effective and robust implementation of SWM programs. The presence of the MMDA poses prospects in institutional reform as it illustrates national-regional and regional-local relationships under a devolved governance setup. This is unlike the federal setup, where a middle-level government exercises particular forms of political power.

Possible interventions for the country's SWM predicament may be informed by lessons from Asian exemplars such as Japan and Malaysia, which emphasize several technological, administrative, and political requisites towards the realization of the Philippines' environmental and ecological aspirations. Gaps in implementation can be addressed through well-coordinated tasks and responsibilities that are institutionally designated to the national and local governments. Moreover, it is recommended that the gaps and deficits in the current SWM system of the Philippines be resolved through a combination of interventions that are technological, institutional, administrative, and political in nature.

The strategic intervention specifically suggested in this policy brief is the institutional coordination between the national government's NSWMC and, in the particular case of the NCR, the MMDA and its member local government units. The leadership of these institutions can steer the agenda, programs, and policies for collaborative action in solid waste management. ■

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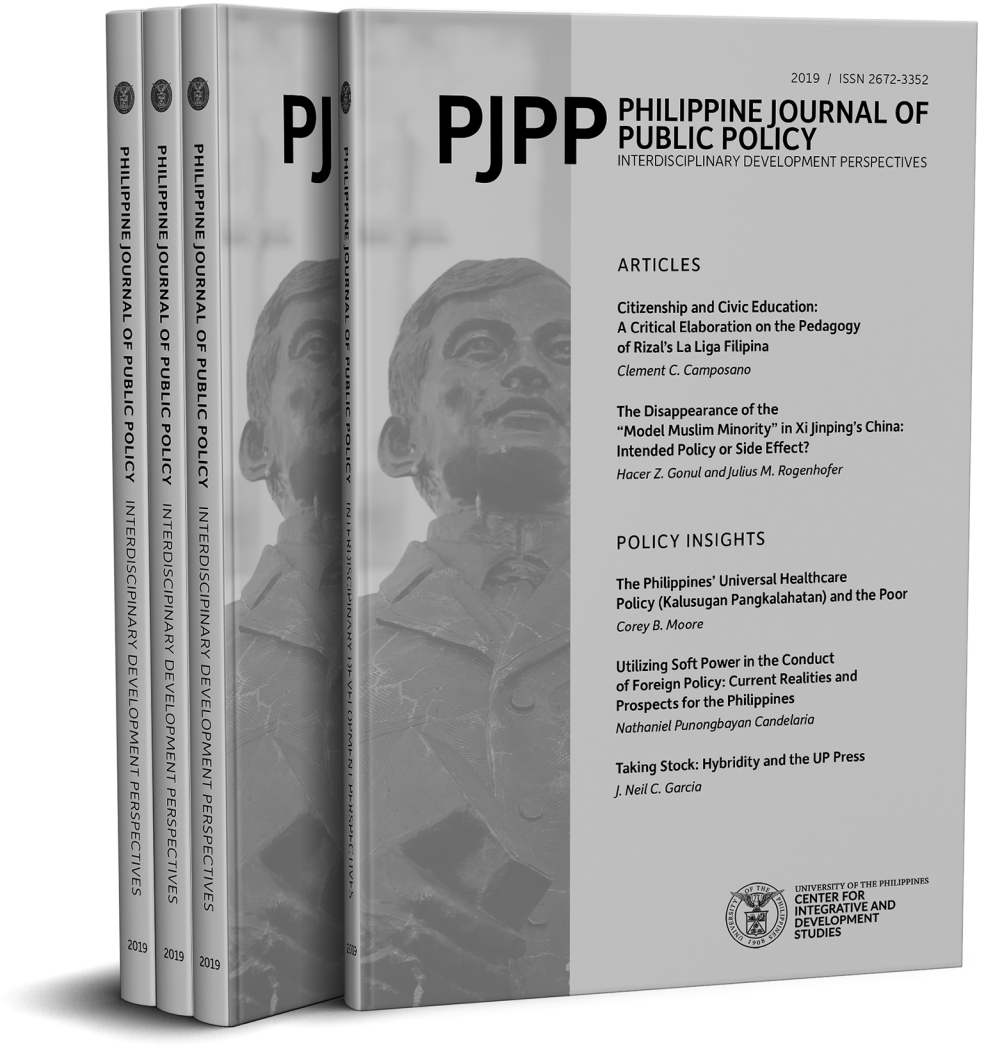

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Diliman, Quezon City 1101
Telephone: (02) 8981-8500 / 8426-0955 loc. 4266 to 4268
Email: cids@up.edu.ph / cidspublications@up.edu.ph

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CENTER FOR INTEGRATIVE AND DEVELOPMENT STUDIES

Lower Ground Floor, Ang Bahay ng Alumni
Magsaysay Avenue, University of the Philippines
Diliman, Quezon City 1101

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