

Local Governance for the Environment: Policy Directions in Solid Waste Management

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The global community has by now recognized the detrimental consequences of development on the environment. While development has contributed to economic and social progress, it has also led to the deterioration of the environment. Wastes from industrial production, business and commercial activities, and from human consumption account for the pollution and other threats to the quality of air, land, and water. In this context, this study attempts to trace the emergence and characteristics of the urban problematic with wastes and urban environmental management, focusing on solid wastes and solid waste management that have confronted major cities in Asia and other parts of the world. It presents and analyzes international, national, and local cases on policy directions and governance modes to resolve these problems. While citing cases in other countries, the study primarily uses the Philippines as an illustrative case highlighting the burdens for local governance, its problems and challenges.

Introduction

Global Initiative for Environment and Development

By now, the global community has recognized the detrimental consequences of development on the environment. The 1992 Earth Summit (United Nations Conference on Environment and Development or UNCED) laid down the factors affecting the quality of the environment (Quarrie 1992; Rio Declaration). This global initiative traced the depletion of natural resources

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to persistent extraction of materials for production and other economic ventures. On the other hand, production and consumption have contributed to the deterioration in the quality of air, land, and water. Industrial, agricultural, business, and commercial processes cause pollution and generate various types of wastes. Human consumption and lifestyles also generate wastes.

In the urban areas, the definitive character of environmental degradation derives from the very nature of urbanization, associated with accelerated industrial production, business, and commercial activities, and increased population in cities and urbanizing areas. Production processes generate emissions and various types of wastes that constitute major causes of air, water, and land pollution. With increasing population and accelerated consumption of new products and services, waste generation has increased. Post World War II systems for handling wastes, particularly disposal by open dumping, have become outmoded and were found detrimental to environment, natural resources, human health, life and safety of communities.

In the rural areas, a different pattern of environmental degradation derives from the nature of agricultural production and agribusiness. Among the factors are the use of pesticides, the emissions from agribusiness production processes, and the burning and indiscriminate disposal of agricultural and agribusiness wastes.

Such economic and social patterns adversely affect the environment and endanger health. Indications of the environment problem include water pollution from various sources; urban air pollution from motor vehicles, coal power stations, and industry; solid waste dumping on water bodies and land spaces and hazardous waste accumulation; chemical and radiation hazards from industrial and agricultural technologies; deforestation and land degradation; and climate change (WHO 1997: 7).

Unprecedented Attention on Solid Waste Management

Solid waste management has attracted attention due to the risks posed by open dumpsites for solid wastes. *Trashslides* have caused deaths and injuries to the people living nearby the open dumpsites. In some places as Cairo in Egypt and Metro Manila in the Philippines, informal settlers around the open dumpsites earned a living by scavenging for reuseable wastes (United Nations Volunteers and PHILSSA 1996). Evidence also shows that the sources of wastes and waste management practices are among the factors contributing to increased greenhouse gas (GHG) that, in turn, causes climate change with its various adverse effects such as floods, drought, among others (McMichael, Haines, Sloof and Kovats 1996: 23-25; Inter Agency Committee on Climate Change 1999: 26-27).

In the last quarter of the 20th century, efforts were directed at the global and state levels to help protect and improve the environment. With the 1992 Earth Summit's formulation of the Sustainable Development Framework and the Global Agenda 21, governments of participating states grappled with policy formulation and program directions at the national level while also turning to devolution and local governance for the environment. Cities and urbanizing centers in Asia and many parts of the world faced the imperative of shifting to alternative environmental management systems, with unprecedented emphasis on solid waste management. At the turn of the new century, some countries already introduced innovative service delivery systems and modes of governance; while others are still struggling to recognize and resolve the problem.

The Philippines recognized the public issue of solid waste management in mid-1980s. Through arduous pioneering community-based initiatives and conflict-resolving political processes, the state and civil society evolved the legislation in 2000 of Republic Act (RA) No. 9003, the Ecological Solid Waste Management Act. This mandated the shift to the new ecological solid waste management system, stipulating the responsibilities of national and local governments in adherence to the constitutional governance framework and devolution.

In this context, this study examines the challenges to public administration and governance, and to society and the state, posed by the urban environmental problem with outmoded post-World War II solid waste management systems and the change processes toward alternative ecological approaches. Specifically, this study focuses on the Philippines as an illustrative case to describe the evolving governance mode that emphasizes relationships of the national and local levels of government, the civil society, and the private business sector to resolve environmental problems on solid wastes through solid waste management. Thus, the study examines the governance mode in national legislation and policy, and in the pioneering initiatives. Considering the devolution of state powers from national to local governments by the 1991 Local Government Code, the study considers the demands upon local governments and issues of capabilities of local governments to carry out new approaches and systems of solid waste management.

Data sources include research literature, documents and records since the 1980s, key informants, participant observation and proceedings of various roundtable discussions starting in the 1990s.

Environmental Governance: The Challenge of Solid Waste Management

Many developing states, the Philippines included, have just awakened to the twin problems of increased generation of solid wastes, related to increased population and economic activities in the urban centers, and of outmoded systems of waste management (Evans 2001: 4). Three major characteristics make it imperative for countries in Asia to shift to new ways of dealing with waste generation and waste management. These are accelerated industrialization, urbanization, and mass consumption (Awaji and Teranishi 2000: 7). By this time, the developing states' pursuit of industrial and economic growth following the directions of Western Europe and the United States has caused their transformation to the so-called "*energy-intensive, mass-consumption, and mass-refuse society*" that consequently damaged their physical and natural environments (Awaji and Teranishi 2000: 7).

Three sets of variables have to be considered as factors for the environmental problem, particularly on solid waste management problem confronting government and society. One set of variables pertains to increasing population, density in urban areas, and patterns of human consumption that increase the total and per capita waste generation (1992 Earth Summit; 1992 Quarrie; Evans 2001: 2, 4, 10). The second set of factors pertains to the very nature of consumer products and services, how these are produced, the materials used, including their packaging, such that these shape the character of the wastes and the volume of waste generation (1992 Earth Summit Treaty on Waste). The third set of variables directly concerns the public administrative system and governance in the area of solid waste management, such that interventions for change are necessary to preserve and develop the urban environment.

Solid Wastes: A Public Issue for Society and State

Comparable systematic data across countries are not readily available but the study of Japan Environmental Council placed Asia Pacific's volume of municipal solid wastes at 700 million tons annually (Fumikazu 2000: 164). In Asian cities, the municipal solid wastes are expected to double by 2005, of which 30-50 percent are expected to be uncollected, unless major changes are undertaken (Fumikazu 2000: 165).

For instance, in the principal cities of Thailand—Bangkok, Chiang Mai, and Phuket—household wastes have increased to 4,530 tons daily due to rising gross domestic products and people's consumption patterns; but collection and disposal capacity can only accommodate ten percent of the household wastes (Mallikamari, Isono Yayoi 2000: 66). In Indonesia, particularly in the city of

Jakarta, some 25,404 cubic meters of trash were collected daily as of 1993 data but only 21,384 cubic meters were properly disposed; hence, a treatment and disposal center was built in 1994 to resolve the problem (Inoue Makoto and Kojima Michikazu 2000: 86). In Calcutta, per capita generation rate was estimated at 0.4 to 0.7 kilograms per day. Cities in higher income countries, e.g., Seoul produces six times as much on per capita basis (Evans 2001: 5). Generally, in Asian cities, Evans reported in a study for the Asian Development Bank (ADB) that "solid waste generation has outstripped collection and disposal capacity" causing "disposal in open water, leaching into groundwater, air pollution from open burning, and spread of insects and rodents as disease vectors" (Evans 2001: 5).

Metro Manila, the Philippines' metropolis, registered increase from 0.5 to 0.6 kilograms per capita waste generation in 1995 (MMDA 1995; JICA 1998). The alarming volume reached 5,000 to 5,565 metric tons, which at three cubic meters per metric ton translates to 16,6905 cubic meters of solid wastes bound for final disposal in open dumpsites. But of these, some 20 percent usually do not get collected and are disposed of indiscriminately in water bodies, canals, esteros, and vacant lands. Further, informal communities in peripheral and depressed areas, and in riverbanks cannot be reached by the local governments' collection system (Rebullida 2000: 19 citing Salvador Passe 1993: 5).

Separate studies on sample LGUs on their solid waste management systems by the National Engineering Center University of the Philippines (UP) (Peralta and Valencia 1992 cited in Rebullida 2000: 26-29), the UP Center for Integrative and Development Studies (Rebullida and Mistal 2001), the Department of Environment and Natural Resources-Environmental Management Bureau (1995) highlighted the deficiencies in the collection and disposal system using open dumpsites and sanitary or controlled landfills. As observed in many parts of the Philippines, problems in solid waste management take place in each of the functional components, namely: (1) waste generation at source arising from outright "throw away" of still useful materials and use of non-biodegradable packaging; (2) collection and transport of mixed wastes (biodegradable and non-biodegradable); (3) disposal at open dumpsites and improperly managed landfills (Rebullida 2000: 17, 26-29, 31-34).

On the other countries' disposal systems of municipal solid wastes, data from Japan Environmental Council (JEC 2000: 164) showed that Japan uses incineration for 74 percent of its wastes; Singapore at 65 percent and Hongkong at 30 percent. Most other countries resorted to landfilling such as Indonesia and Thailand for 80 percent of their wastes; South Korea, Brunei, and Sri Lanka for 90 percent wastes; Malaysia, 70 percent, and the Philippines, 85 percent. Australia has used landfills for 96 percent of its wastes while Bangladesh, 95 percent. Composting is the method used for ten percent of

wastes by Indonesia, Malaysia, the Philippines, Thailand; and 20 percent in India.

Compared to other policy issues with specific target client groups (example, agrarian reform for farmers and landowners), the policy issue of environmental degradation of land, air and water resources affects society and the state.

Paradigm Shift and Integrated Framework

Solid waste management used to be considered an engineering concern and as local government public delivery system. By this time, its economic, social and political dimensions have surfaced and inevitably recognized such that interdisciplinary and multidisciplinary approaches are necessary to address the solid waste problem spreading through urban and urbanizing areas. As generally conceptualized, solid waste management involves a system that starts from the generation of wastes at sources, to collection, transportation, to disposal. This has been viewed mainly as the domain of engineering and sanitation, and of government and the public administrative system for service delivery.

In most countries, the traditional system simply lays the burden upon government to collect, transport, and dispose of solid wastes. The term solid waste commonly refers to garbage or refuse that consists of the following types of materials: paper, cardboard, food wastes, plastic, textile, rubber, leather, petroleum, yard and field wastes, wood, metals, glass, inerts and fines (Cointreau 1986; Consoer, Townsend and Associates 1988; Norconsult 1992). These are collectively referred to as municipal wastes with reference to the municipality as the LGU in charge of the public service system (but a number of municipalities have since been transformed to cities).

The "throw away paradigm" underlying behavior of waste generators including the "disposal orientation" of government has contributed to the environmental problem with solid waste management. The visible consequences are increased generation and outright disposal of wastes that can no longer be absorbed by the government's traditional collection and disposal service delivery system, causing environmental degradation and health hazards.

The alternative integrated paradigm of ecological solid waste management requires a design based on an understanding of ecology, health, culture, social behavior, and governance (UNCRD and UNCHS cited in Rebullida 2000: 86). In the Philippines, the Recycling Movement of the Philippines promotes the ecological principles involved in returning recovery, recycling, reuse of materials to ease the burden upon natural resources (Sabas 1994; RCM handouts). This requires a change in mindset, a paradigm shift, that materials used are not

exactly wastes—or garbage, but waste resources—or materials that can still be used. Hence, this reduces waste generation and eases up the burden of collection, transport, and disposal. Further, this requires a change in human behavior that gives importance to the reuse of waste materials. This means that after use, materials are not thrown away and mixed with other wastes, but are sorted and segregated (into biodegradable and nonbiodegradable wastes—can decay and return to nature), then recycled or composted, and reused. This alternative is deemed appropriate to sustainable development (1992 Rio Summit).

In the Philippines, proactive individuals, civil society groups and LGUs pioneered this system in pilot sites. Eventually in 2000, RA No. 9003 adopted and mandated the alternative ecological solid waste management system, with the governance mode in respective levels of national and local government. In terms of knowledge base, this ecological system requires a multidisciplinary approach and an integrated framework that draws on ecology and environmental sciences, environment and natural resources management, social sciences and public administration.

Policy and Legislation

In selected Asian countries, legislation of national policy (JEC 178) has specifically been directed at solid waste management, as shown below, with the addition of the Philippines:

China	Law on the Prevention and Control of Solid Wastes
Indonesia	Government Regulation No. 19 of 1994 on Management of Hazardous and Toxic Wastes, Amended by Government Regulation 12 of 1995
Japan	Waste Disposal and Public Cleansing Law
South Korea	Waste Management Act
Malaysia	Environmental Quality (Scheduled Wastes) Regulations
Thailand	Hazardous Substance Act
Taiwan	Waste Disposal Act
Philippines	Ecological Solid Waste Management Act

Somehow, this indicates the recognition of solid waste management as a public issue for both state and society. Taking the Philippines as a case, policy development spanned the years from mid-1980s to the 2000 legislation with the passage of the Ecological Solid Waste Management Act (RA 9003). The history of intervention began in the 1980s with the Presidential Task Force on Solid Waste Management and the alternative advocacy by nongovernment organizations (NGOs) for zero waste management or the 3Rs—Waste Reduction,

Recovery, Reuse. Pioneering initiatives by some LGUs and NGOs provided the data base and empirical evidence that ecological waste management can work (Rebullida 2000; Rebullida 2002; Earth Day Network Philippines 2002 lists 100 models nationwide).

Governance Paradigms on the Environment

In the development literature, the definitions and frameworks of governance stipulate vital constituent elements. From the perspective of United Nations (UN) agencies, good governance includes: participation of civil society, decisionmaking processes with formal and informal actors' involvement, rule of law, transparency, responsiveness, consensus, equity and inclusiveness, effectiveness and efficiency, and accountability (UNDP 2002).

Government is only one actor given this notion of governance, which encompasses the formal and informal political structures, institutions, and processes, as well as the dynamics of the state and political system. Another major actor and component of governance is civil society, which by itself is the subject of discourses, of conceptual and empirical clarification.

Not merely governance but good governance stands at the forefront of the paradigms applied on the various development sectors and concerns. The United Nations Environment Program (UNEP) describes governance systems as "the framework of social and economic systems, legal and political structures within which humanity organizes itself" (WHAT/UNED Forum, GLOBE 2002). The Institute on Governance (2002) stands on the working definition of governance as the "process by which stakeholders articulate their interests, their input is absorbed, decisions are taken and decisionmakers are held to account," notwithstanding its own critic on the simplicity of this definition.

In a more academic sense, one view treats governance as "administering in a political context" and "directing competence toward the broadest possible public interest" (Green and Hubbell 1996). Many other definitions and frameworks are explored in the growing literature on governance, which link it to transformations in public management and application to various development issues, environment included. Various perspectives and styles of governance incorporate the elements of decentralization, empowerment, client-driven operations, equity in service delivery, civil society participation and accountability.

Discourses on governance identify various levels of operationalization: international, regional, national, and local. The level of operationalization is an important variable because the foci, approaches, issues and other dimensions

of environmental governance are certainly differentiated, considering the nuances in each level (UNEP 2001).

At the international level, governance involves interactions of various stakeholders: ministers from various states working in a global forum, international organizations such as the UN and its agencies, civil society organizations from regions around the world represented by NGOs, as well as business groups, faith-based organizations, and even research institutes (UNEP 2001a, b).

But the more important focus of this study is on local governance. Here, the participation of local civil society is deemed indispensable. In the World Bank (WB) perspective, the current framework differentiates citizen participation in local governance from the kind of community participation that limits citizen participation to structural and institutional linkages to LGUs (WB 2002).

Environmental governance is derived from the application of the governance concept, framework, and strategies to environmental issues while local environmental governance denotes the interactive processes of decisionmaking and power relations among the stakeholders—the LGUs and civil society groups.

The policy of decentralization particularly through devolution provides the mandate and the force to effect local environmental governance. “Local Agenda 21” exemplifies the strategy for local environmental governance by which local action plans can be developed at the LGU level to implement Agenda 21 of the 1992 Rio Earth Summit. This involves planning and managing the environment in an area through broad and inclusive consultation processes, with participation of key stakeholders in reconciling their conflicting or competing interests. Its outcomes are agreements on priorities and actions.

The local environmental governance framework is examined as applied to the problem on solid waste management. In the Philippine case, the attempt is exemplified by the recently enacted Ecological Solid Waste Management Act and the pioneering ventures of some LGUs even prior to the enactment of this law.

National Policy on Ecological Solid Waste Management and Local Governance

The Ecological Solid Waste Management Act marked the Philippines’ policy responsiveness to the critical environmental problem with solid waste management. This came after some two decades of painstaking advocacy for a

radical change in the system of solid waste management. This law captured the NGOs' advocacy of the shift to an ecological approach involving waste resource recovery by sorting and segregation of wastes and reuse by recycling, composting, and recrafting. The degree of urgency and timeliness of this law can be appreciated. However, some observers assert that the law itself suffers from imperfections in its stipulations; hence, it cannot cope with the crises in the collection and disposal of solid wastes by LGUs and the Metro Manila Development Authority (MMDA).

RA No. 9003 was imperative to establish the mandate and enforce compliance from all sectors of society. This was not possible in the years of experimentation with the ecological approach mainly spearheaded by NGOs and by a few pioneering LGUs (Rebullida 2001; Earth Day Network Philippines 2002).

Six legislative bills were filed in the Senate and later consolidated into Senate Bill (SB) 1505. On the other hand, three bills and one consolidated final version in the House of Representatives bills paralleled the Senate bills.

RA No. 9003 locates the governance of solid waste management within the 1991 Local Government Code's stipulations, namely: (1) civil society—NGO and community participation, (2) political and administrative accountability at the respective levels of local government, (3) public-private partnership particularly involving the business sector representation, and (4) national government in technical assistance. These are the driving forces in policy implementation (RA No. 9003 Article 1 Section 2g; SB Nos. 409, 960, 1277, 523 and 991).

The policy's responsiveness to governance can be seen from its provisions that the local ecological solid waste management board be established at each provincial, city or municipal level and that the solid waste management committee be created at the barangay level. The LGUs will develop and monitor the solid waste management plan, implement programs, provide logistical support, coordinate, and recommend measures to authorities (RA No. 9003 Ch. 2 Sec. 10-12).

Civil society organizations have a right to representation and participation in the local board at each level while local government is mandated to mobilize civil society participation. The law authorizes them to determine the processes for selection of their representatives to the LGUs. In the Provincial Solid Waste Management Board (Article 2 Section 9), right to representation is granted to the NGO sector whose principal purpose is to promote recycling and protection of air and water quality (g). Representatives can be chosen from the recycling industry (h), manufacturing or packaging industry (i). Similarly, the

City and Municipal Solid Waste Management Board (Article 2 Section 12) must include representatives from the NGO sector whose principal purpose is to promote recycling and protection of air and water quality (d), coming from recycling industry (e), and from the manufacturing or packaging industry (f).

Local governments must ensure that individuals, households, and other solid waste generation sources must comply with sorting and segregation. *Barangays*, as the grassroot units, are tasked to do collection of biodegradable or compostable reusable wastes, while the municipal and city units are charged with collection of nonrecyclable materials.

By making it mandatory for all citizens and sectors to engage in sorting, segregation and recycling of wastes (Article 2 Section 21), local governments must necessarily coordinate the participation of different social sectors and the support systems for ecological solid waste management. Even junkshop cooperatives are indispensable at the frontline of the process. Likewise, public-private sector partnerships are harnessed in the provision of the necessary supply of equipment and materials (Article 2 Section 21) such as bins, containers, color-coded bags, manpower, and transportation, among others. The private business sector's participation in the markets and buy-back centers is an important part of the total support system to motivate and encourage recycling. Furthermore, the private industries, business and commercial centers must comply with the law's provision on the use of environmentally acceptable packaging.

Aside from the ecological approach, the law integrates the disposal system by sanitary landfill for residual wastes (final throw-away). These processes complete the shift from open dumping disposal system to the ecological waste reduction and resource recovery system that leaves a small amount of residuals. Consequently, there will be private business participation in providing sanitary landfill technology and system.

Lessons from Pioneering Experiences

RA No. 9003 has barely taken off the ground from its enactment in 2000. Hence, it is only from the pioneering endeavors, prior to the law, that lessons can be learned for local governance on solid waste management. There have been few pioneering efforts of LGUs, and fewer still are those that have been successful. Sadly, the processes were hardly documented, save for the profiles of 100 cases in various parts of the country (Earth Day Network 2002). But whatever research data are available, the examples of Olongapo City, Puerto Princesa in Palawan, Batangas City, and Sta. Maria in Bulacan are noteworthy, despite gaps and problems of sustainability (UPCIDS-SWM and DILG-BLGD Round Table Discussions 2001).

Olongapo City in Zambales is a case of an LGU initiative in mobilizing citizen action on sorting, segregation, and recycling with participation from a people's cooperative and with health interventions for the recyclers. Batangas City is an example of local public-private partnership for recycling, with support from an international development agency, and mediation from an NGO for social mobilization. The drive of Puerto Princesa City in Palawan for cleanliness and waste management has been widely known, demonstrating how individual citizen action and NGO participation can make a difference. Sta. Maria in Bulacan served for quite a long time as a showcase of local government and NGO partnership for composting though recently this initiative has been slowed down. Cebu City also began legislation on its solid waste management problems. Barangay Sun Valley is an example of basic and lowest level of local government to carry out a community-based composting and recycling system.

Many NGOs have also ventured into community-based initiatives, such as *Sagip Pasig* and the Recycling Movement of the Philippines through training and mobilizing other organizations. Community-based organizations were formed and educational institutions launched their own programs.

Prior to the law, the initiatives encountered difficulties, such as lack of institutional and legal support, and lack of coordination between public and private sector entities that were crucial in implementing the integrated system. Sustainability of the initiative became problematic due to changes in political leadership arising from elections, in the case of LGU-led initiative. Even in educational institutions, changes of officials also caused the initiative to lag or to end completely. Basically, the people's lack of awareness, lack of incentives and lack of sanctions for behavior hindered the progress of the initiatives.

Summary and Conclusions

Solid waste management is now recognized as a real problem for society and the state in many parts of the world as it is found to adversely affect environment, natural resources, human health and safety. Legislation of national policy indicates the attention now given to solid waste management and the state's response to civil society advocacy. In the Philippines, the law, with its gaps and imperfections, exemplifies the application of the environmental governance to solid waste management, emphasizing local governance in a devolved setup. How this compares with legislation in other Asian states is not explored in this study; but data show similar problems and policy responses.

The local government capacities in the Philippines are generally low or weak given the few pioneering cases prior to the enactment of the law. The governance framework can be burdensome at the start when local governments

have yet to shift from their old outmoded systems of collection and open dump system of disposal to the new ecological system. Yet, local governments carry the heaviest burden for operations at the ground—for planning, designing, implementing the local system consistent with the general guidelines of the law, mobilizing individual and social behavior, and engaging civil society and business groups. Political will and leadership at the local government level are crucial to prioritizing ecological solid waste management among competing claims to attention and resources.

Fundamental to the new system is the change in individual and collective behavior that starts with sorting and segregation at the point of waste generation, which constitutes the biggest hurdle in institutionalizing the ecological system. Information and education alone requires a massive campaign and other interventions to motivate compliance.

On civil society participation, the pioneering experiences indicate the tremendous contribution of NGOs and people organizations prior to the law's enactment. More so now, these groups are vital in assisting local governments in making the system operational. On the other hand, the business sector and recycling industry have yet to be encouraged to participate since their roles are vital to returning recovered wastes to production and distribution cycles.

Meanwhile, national governance can be explored in terms of how to support local government, civil society, and the business sector, particularly in policy and coordination when necessary to fill up gaps in the system. On an international scale, a systematic and in-depth comparative study of environmental governance on solid waste management is necessary. This can bring out best practices that can be analyzed for adaptation and replication in other places.

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