Policy Implementation of the Republic Act (RA) 9003 in the Philippines: A Case Study of Cebu City

D.G.J.Premakumara[1*], A.M.L.Canete[2] and M.Nagaishi[3]

[1]*Institute for Global Environmental Strategies (IGES), Kitakyushu, Japan*
[2]*A2D Project-Research Group for Alternatives to Development, Inc., Cebu, Philippines*
[3]*Kitakyushu International Techno-cooperative Association (KITA), Kitakyushu, Japan*
**Corresponding author: premakumara@iges.or.jp*

1. INTRODUCTION

Solid Waste Management (SWM) identified as one of the serious urban environmental issues in the Philippines (Aguinaldo, 2008). A Filipino generates between 0.3-0.7 kilogram (kg) of waste daily and the annual waste generation was estimated at 10 million tons in 2000 with an expected rise by 30% in 2010 (World Bank, 2001). The National Solid Waste Management Commission (NSWMC) reports that the country's solid waste generation per day is at 30,000 tons, including 73% from households, 26% from commercial establishments, institutions and industries, as well as 1% from healthcare facilities (Aguinaldo, 2008). Recognizing the importance of taking immediate actions to address this fast growing urban environmental issue, the Department of Environment and Natural Resources (DENR) has prioritized proper management of solid waste in its 12 points environmental agenda and established the NSWMC under the Office of the President. Further, the Ecological Solid Waste Management Act of 2000, otherwise widely known as the Republic Act No.9003 (RA 9003), has enacted to institutionalize proper SWM at local government level.

RA 9003 declares the adaptation of a systematic, comprehensive, and ecological SWM program as a policy of the country and recognizes the local government units (LGUs) as the lead implementors. The Act mandates the creation of SWM Boards from the national, provincial, city/municipal, down to barangay, a lowest-level political and administrative body in the Philippines. The Act also mandates to achieve 25% waste reduction target by 2010 through establishment of material recovery facilities (MRFs) in all barangays as a support system for establishing an integrated SWM system based on 3Rs (reduce, reuse and recycle). Further, the Act prohibited the use of open dumping and advised LGUs to improve them into sanitary landfills (Antonio, 2008).

However, RA 9003 sets the guidelines on waste reduction, the efforts of LGUs are still very limited. This paper therefore aims to present the experiences of Cebu City, a second largest city in the Philippines, and discuss its efforts to achieve 30% waste reduction involving innovative institutional and partnership strategies. The findings suggest that the impacts of the national mandate gave under the RA 9003 is achievable, if the LGUs assure the supportive institutional mechanism, strong political commitment, innovative program and local strategies, partnership building, capacity development, adequate financing/ incentives and continual monitoring and evaluation of performance.

2. MATERIAL AND METHOD

2.1 Basic facts on SWM in Cebu City

Cebu City is the highly urbanized center in the Central Philippines. It is located in the central eastern part of the Cebu Island, bounded by Mandaue City in the North and Talisay City in the South. On the East is Mactan Channel and on its West is the municipality of Balamban and Toledo. Historically, it was a small fishing village. Since 1521, Cebu City has grown into a highly urbanized metropolitan city in the Philippines. Currently, Cebu is the second largest growth center in the Philippines, next to Manila. Due to its strategic location and easy accessibility by air and sea transport, the information and communication technology (ICT) and tourism lead the economic growth in the city.

Cebu City has a total land area of 326.10 sq. km. It is composed of 80 barangays, including 50 urban barangays and 30 rural barangays. Urban area shares 24% of the city's total land area (78.09 sq. km) while the rural area shares 76% (248.01 sq. km). In terms of topography, the coastal areas accounting to about 15% of the city have a relatively flat terrain whiles 85% has elevations ranging from 40 to 400 m above sea level (Cebu City, 2012). As of 2010, Cebu City has a population of 866,171 but it rises to over a million during daytime due to the influx of the working force in the city, and with a population growth rate at 3%. On the average, the city has a population density of 2,204 persons per sq. m. There are about 161,151 households in Cebu City having an average of five (5) members per household (Ancog et. al., 2012).

The rapid urban and economic growth in the city has resulted in a corresponding growth of solid waste generation during last two decades. The total waste generation increased from 212 tons/day in 1982 to 420 tons/day in 2010. The solid wastes generation in the city includes the households that account to about 40%, commercial establishments 25%, public markets 20%, school and hospitals 10% and industries 5%. Almost 50% of wastes are biodegradable, 40 % are recyclables and 10% are hazardous and special wastes including mixed residuals (Cebu City, 2012).

The Department of Public Services of the Cebu City Government is responsible for providing solid waste collection services to its citizens. However, aiming to decentralize the service provision, the role of waste collection and transportation functions in the barangay-level are given to the respective barangays. At present, waste collection in the city operates 24 hours in three shifts collected by city government garbage trucks and complemented by the barangay trucks. Two popular collection methods practice for waste collection, including the communal method where common waste receptacles are strategically located in public places and the household collection carryout with the scheduled garbage trucks roving to different households in different barangays in Cebu City.

The only landfill facility in the city is located in Barangay Inayawan, which known as the Inayawan Sanitary Landfill (ISL) was constructed under the financial and technical assistance of the Japan International Cooperation Agency (JICA) in 1998. This disposal facility with a total area of 11 hectares and was estimated to have a life span until 2005. The continued usage of the ISL has stretched its operations to the limit as finding an alternative site has become a major challenge until it has finally closed in March 2012 (Ancog et.al, 2012). Currently, Cebu City brings its collected waste to the disposal site in Consolacion, an adjacent municipality of Cebu City, paying 700 Peso (14 US$) for tipping fees. The Cebu City collects minimal fees for waste collection that has incorporated in the Real Estate and Business Taxes. In effect, the Cebu City has been for years subsidizing the cost of waste collection, transport and disposal amounting to about 47 million Pesos (1 million US$) for the year (2007-2010). This amount does not include the costs of supervision, fuel, lubricants and aid to the different barangays (Ancog et.al, 2012).

2.2 Methodology

Since the enactment of RA 9003, Cebu City Governemnt has taken several innovative efforts to implement an integrated SWM system harnessing various institutional arrangements to enhance

participation and cooperation among different stakeholders, including citizens and private sector. These initiatives range from policy formulation to implement of model projects and information, education campaigns. According to the mandate of RA 9003, it established the Solid Waste Management Board (SWMB) and formulated a 10-year Solid Waste Reduction Plan based on 3R principles. Cebu City banned the open dumping and adopted a No Segregation No Collection policy. A system of Cebu Environment and Sanitation Enforcement Team (CESET) and the Barangay Environmental Officers (BEOs) were established to facilitate the information and education campaign and enforcement of the No Segregation and No Collection Policy. Further, Cebu City provided both technical and financial assistance for establishing MRF and composting facilities building partnership with both citizens and private sector. This supportive institutional framework helps to achieve a 30% waste reduction as shown by Figure 1.

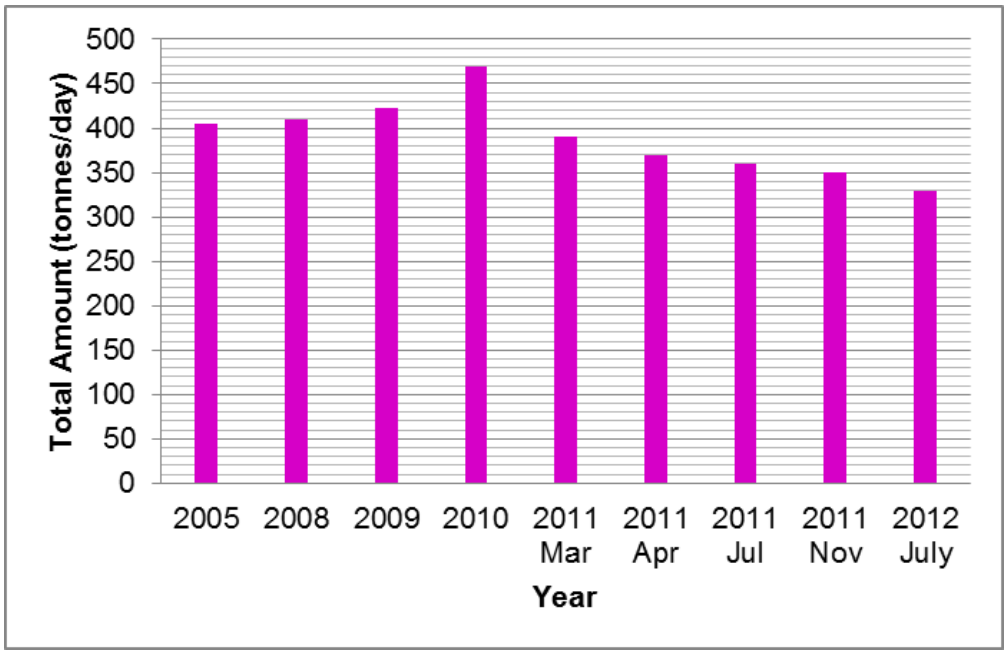

Figure 1. Total waste collected during 2005-2012 (Premakumara, 2012)

Rosensweig et. al (2012) argue that supportive institutional conditions or enabling environment is critical to the realization of a sustainable service provision in the developing countries. Institutions refer to conventions, norms and legal rules of a society that provide expectations, stability and meaning essential for coordination that in turn regularize life, support values and protect and produce interests (Vatn 2005). This study therefore analysis the supportive institutional arrangements and initiatives taken by Cebu City to implement the RA 9003. The main focused on the aspects of local policy formulation, capacity building, information, education campaign and the strategic interventions to implement the model barangay projects to establish the MRF and composting facilities.

The relevant data were gathered from the author's personal experiences involved in some of the past and on-going project activities, review of secondary data gathered from relevant institutions and personal communication with key stakeholders. Assessment of policy and institutional arrangements carried out reviewing the Cebu City's ordinances and legislations came to effect after 2000. Data related to SWM and financing arrangements analyzed through intensive review of secondary data on the volume, collection schemes, garbage fees and monitoring taken from Cebu City's Department of Public Services (DPS) and the Office of the Chair of Environmental Committee. Interview of some members of Cebu City Council and

department heads of the city government, CESET, BEOs, private sector and Non-Governmental Organizations (NGOs) of Cebu also conducted to enrich the analysis.

3. RESULT AND DISCUSSION

3.1 Local policies and institutional arrangements

Cebu City promulgated several proactive legislative measures to strengthen the policy framework in implementing the RA 9003.

3.1.1 Cebu City Ordinance No. 2017

Under the Cebu City Ordinance No. 2017, October 6, 2004, the Solid Waste Management Board (SWMB) was established under the leadership of the Mayor and including members from within and outside the city office. It gives the long-term vision for SWM in the city. A 10-year plan for Solid Waste Reduction in Cebu City was drafted in 2005 with the technical assistance of Fort Collins, Colorado, USA, under the Resource Cities Program of the International City/County Management Association. The development of the solid waste management plan (SWMP) was prepared by conducting consultations with the various sectors of the community, as well as integrates the various solid waste management plans and strategies of the City's barangays. The SWMB also mandated to adopt measures to promote and ensure the viability and effective implementation of the SWMP in its component barangays and forge cooperation with the private sector and the NGOs. In addition, the Board adopts specific revenue-generating measures to promote the viability of the SWMP. For the effective planning and implementation of the SWM programs in their respective barangays, the barangay solid waste management committee (BSWMC) was established in each barangay. Under the Kitakyushu Initiative Network for Clean Environment (2000/2010), which was initiated by Kitakyushu City and the Institute for Global Environmental Strategies (IGES) with the assistance of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Cebu City has set a target to reduce waste to be landfilled by 50% by 2015.

3.1.2 Cebu City Ordinance No. 2031

Cebu City Ordinance 2031, November 10 2004 promotes solid waste segregation at source with penalties for violations and the creation of the special fund for incentives. Since April 2011, the city has strictly enforced the segregated waste collection. No Segregation No Collection policy was established and started to educate citizens to separate waste at source into biodegradable, recyclable and residual. According to the article eight of the Ordnance 2031, barangay officials, designated barangay residents, academic institutions, civic groups, community-based organizations (CBOs), NGOs and representatives from the private sector can deputize by the Mayor to apprehend any person or entity caught violating any provision hereof. For this purpose, the CESET was established. As an enforcement team of the city, the CESET issue citation tickets to ordinance violators. This amount has increased up to 33,968 starting from the beginning of its implementation to March 2008 generating to about 1.5 million Peso (0.3 million US$). Any person who found guilty of violating Ordinance 2031 shall be punished by a fine (not less than 1,000 Peso (20 US$) but not more than 5,000 Peso (100 US$) or by imprisonment (not less than one month to not more than six months), or both fine and imprisonment at the discretion of the court (Rosensweig et.al, 2012). If the violator cannot pay the compromise fee, the person must render community service of one day to fifteen days at any barangay as determined by the Monitoring/Enforcement Unit of the Cebu City SWMB. As Figure 2 shows, the number of cases

starting from the implementation of the CESET enforcement program up to the end of 2011 has been gradually decreasing which would mean that people are becoming conscious and aware regarding the city waste enforcement program. About 50% of collected compromise fees from a barangay shall proceed to the city treasury, while 30% shall go to the same barangay where apprehension has been made and 20% of collected compromise from a violator shall go to the apprehending person. The City Government awards the incentives to the barangays and the apprehending persons on a semi-monthly basis.

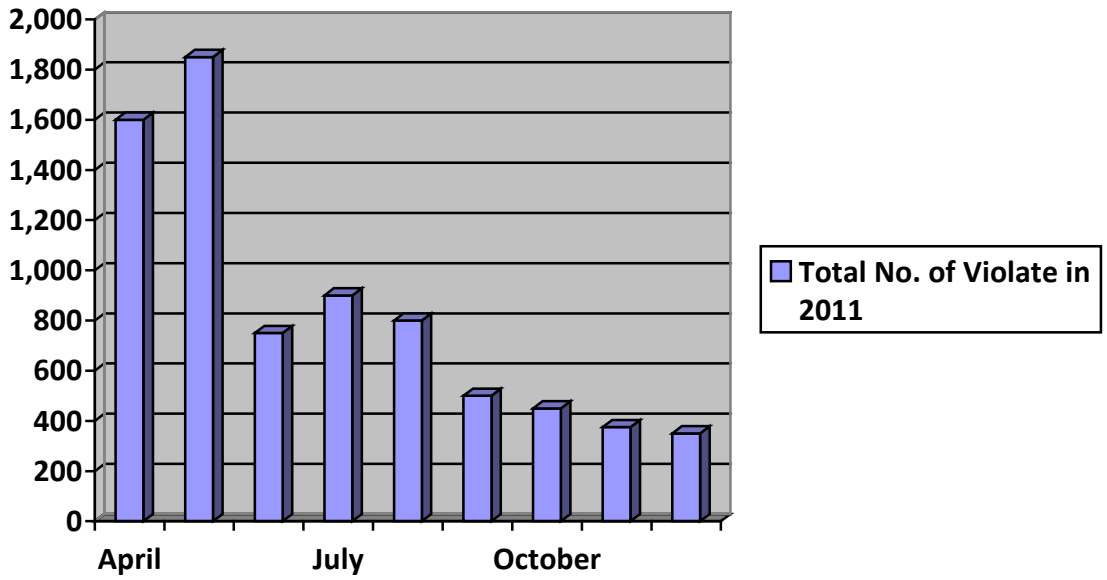

Figure 2. The total number of violate recorded during April-December, 2011 (Premakumara, 2012)

3.2 Strategies and model program

Cebu City has introduced several innovative programs and startegies in order to improve its SWM system. These strategic programs includes information and education campaign (IEC), cash from trash project, composting from organic waste, and local and international partnership in implementing SWM programs.

3.2.1 Information and Education Campaigns (IEC)

The Cebu City Government, especially the office of the environmental committee has recognized that the success of the SWM program largely depended on the level of awareness among its citizens and constituents to ensure their active participation. The environmental committee carryout various information and education campaigns aiming at making citizen understand and the need to comply with the laws and ordinances as its main objective. A system of BEOs was established recruiting at least five volunteers from each barangay based on the community-leadership elements to serve as the main initiator to start these education campaigns. Through BEOs, Cebu City government maximizes communication between City Government and the citizens. The CESET and BEOs motivate and encourage households participation, information sharing, and implementation of new waste management system and monitoring and evaluation using communication channels, such as meetings, discussions, and seminars (Figure 3 & 4). The

IEC activities in the barangays were complemented with recycling programs at schools, which are aimed at increasing the level of awareness and participation among students.

Figure 3. Community training on household Composting

Figure 4. Public seminar on SWM

3.2.2 Kwarta sa Basura (Cash from Trash) Program

Highlighting the economic value of the waste, the office of the environmental committee in assistance of CESET and BEOs organize the women's organizations to conduct a "Buying day" for the recyclables. This program called Cash from Trash program. A selected day in a week, members gather recyclables and brought them to the collection site for sale. Every barangay was assigned with a buyer of recyclable materials, which was given with seed money by the Cebu City Government. This program was fist piloted in the barangay Luz and eventually expands to other barangays. These women organizations are gradually turned into cooperatives and address other environmental, economic, and social issues faced by its members.

Further, a number of NGOs in the city have involved in implementing programs that will contribute to waste reduction and recycling, while providing alternative sources of income to the family members. These organizations help housewives to become the experts of handicraft makers and provide the initial capital as a grant to implement their programs. Members make various types of handicrafts, such as bags, slippers and wallets using the recyclable materials and then sale in the markets. The two larger malls of Cebu City, namely SM City Cebu and the Ayala Mall have created their Waste Market programs partnered with the local barangays under their corporate social responsibility program.

3.2.3 Promotion of Composting

While over 50% of municipal waste includes the organic materials, composting progarmmes has been implemented to avert the volume of organic wastes being disposed to the sanitary landfill. The model composting facilities has established at different levels. At the household level, composting baskets are distributed to make composting using the household waste. BEOs educate the users about how to use the compost baskets with the assistance of the women's organizations, homeowners associations and NGOs. To date, the city officials have distributed about 2,350 baskets. However, it was identified that the success of this type of composting largely depend on the commitment of the users, education and continuous follow-up mechanisms.

In addition to household composting, a barangay composting facilities are established at small-scale operation. These composting schemes have a capacity of less than 1 tons per day and largely rely on segregated waste collection from community. The BEOs collect the separate waste from households and make composting at the facility using a vermin composting (a special types of worms, such as the redworm, African nightcrawler and the European crawler produce compost and also multiply fast and can be sold at a high price) and/or windrow method with the fermented microorganism ("Takakura Method" introduced by Kitakyushu City) (Figure 5 & 6). The compost product is mainly used for the greenery of the barangay or market them within the barangay, where marketing strategies are limited to personal contact among the collectors or core members of the associations. Compost prices have range from eight Peso (0.16 US$) to 20 Peso (0.4 US$) which also reflects the middle and high-income users targeted in the areas where these schemes are often located. The main challenges for these schemes are cooperation of residents, finding lands in suitable locations, odour complaints by the nearby residents, especially for vermin compost facilities and the lack of capacity, interest and willingness of the barangay staff.

Figure 5. Vermin composting in baranagay Talamban

Figure 6: Takakura composting in barangay Luz

3.2.4 Financial and Incentives

The City Government has introduced several supportive financial measures to encourage the barangay efforts in establishing recycling and composting programmes. The annual municipal budget, equal to 20,000 Peso (400 US$) for each barangay is allocated based on the demand-driven approach. This budget can be used for covering the construction costs of MRF and composting, acquiring necessary equipment and community education programmes. In addition, the City Government through its volunteers in the BEO and CESET conducted lecture-demonstrations on composting. As of 2012, about 58 barangays, covering 72% of total barangays have been conducting MRF and composting programs. The City Government had appropriated budget in buying the produced compost fertilizers at 5.00 Peso/kilo (0.1 US$/kilo) that were utilized for the parks and playgrounds of Cebu City. Further, an annual competition among the barangays under the urban and rural categories is conducted to award the best environmental barangay in the city.

3.2.5 Cooperation with local and international agencies

As a largest city in the region, Cebu City has developed a strong environmental linkage and networking among different groups and institutions from both local and international. Local universities such as the Southwestern University, University of Cebu and St. Theresa College

have implemented initiatives on having in-house solid waste management program that includes IECs among its students. St. Theresa College implement a school-wide SWM program particularly in integrating environmental concerns in its curriculum and instruction. It has established a model composting facility to demonstrate the practical process in making composting.

A local NGO called Lihok Filipina, a network of Filipino women, implemented information campaigns and education program in Cebu City related to SWM program at the household level. They organized housewives to participate in a "Cash from Trash" program that produced homemade crafts that are sold in the market. Another NGO called Alyansa sa mga Lumulupyong Kabus Alang sa Pagpalambo (ALCAP) or Alliance of the Urban Poor for Development, a people's organization participated in by the wives of the Cebu port workers also engaged their free time into producing and selling paper products to generate additional income for the family. For example, Table 1 shows the average income generated from recycling activities in barangay Luz.

Table 1. A creation of job opportunities through composting and material recovery facility in barangay Luz in 2011 (Premakumara, 2012)

	No of new job opportunities are created	Average monthly income in Peso	Total monthly income generated in Peso
Direct job opportunities at the composting facility and the material recovery facility			
Waste separation, collection and transport to the facility	15	6,000 (120 US$)	90,000 (1800 US$)
Composting facility	6	6,000 (120 US$)	36,000 (720 US$)
Eco centre assistant	2	3,000 (60 US$)	6,000 (120 US$)
Indirect job opportunities created with the program			
Collection of recyclable materials	40	1,500 (30 US$)	60,000 (1200 US$)
Production of handicrafts from the recyclable materials	75	1,500 – 3,000 (30-60 US$)	112,500 (2250 US$)
Household composting and making worms for selling	200	500 – 1,000 (10-20 US$)	100,000 (2000 US$)
Total	338		404,500 (8090 US$)

The private shopping malls in the city also involve in supporting the citizen initiatives in implementing recycling programs. Ayala Mall has organized the Cebu Business Park and Neighboring Barangays Altruistic Alliance Inc. (CBPNBAAI) to enjoin all tenants and the surrounding barangays in implementing a recycling program. Ayala Mall tenants sold their recyclables so that it could be bought and reused by other potential buyers. Likewise, the SM City Cebu scheduled every Saturday of the week as Waste Market day where Cebu barangay residents could bring in their recyclables also to be sold to other interested buyers.

Figure 7. Central recycling facility in Inayawan

Figure 8. Central composting facility in Inayawan

Two central waste treatment facilities were established by the private ventures near the ISL to treat the plastic and organic waste. A plastic recycling facility managed by the Cebu Solid Waste Management Inc. can treat about 100 tons of municipal waste per day collected within the city, while the Composting Plant Bio Nutrient Waste Management Inc. operate a central composting plant to treat about 10-20 tons per day of organic waste collected from shopping malls and public markets in the city. Both these plants provides job opportunities for more than 150 people (Figure 7 & 8).

In addition to local collaboration, international partnership was also strengthened with number of foreign cities and programs. Cebu city was one of the active members of the Kitakyushu Initiative Network for Clean Environment (2000-2010). Since then, both cities have implemented several programs, including a community-based waste water treatment facility, implementation of the strategic plan for solving the SWM issue in Guadalupe River, a major river system in Cebu City. In its recent partnership, Kitakyushu City has been involved in providing technical assistance for promoting organic waste composting using the Takakura Method. In addition, both cities are looking possibilities in building partnership for achieving plastic material recycle program. During 2000-2005, Fort Collins, Colorado, USA, a sister city of Cebu, was provided technical assistance in the drafting of the city's solid waste management framework as well as in extending technical assistance to enhance capability of the local officials with regards to SWM. Haarlemmermeer, Netherlands, another sister city of Cebu, provided assistance to organize the waste scavengers at the ISL to engage in composting as their alternative source of income once the sanitary landfill was closed in 2012.

4. CONCLUSIONS

RA 9003 sets the guidelines on proper SWM among LGUs in the Philippines and aims to protect the public health, ensures environmental sustainability and economic efficiency. In this regards, the experience of Cebu City reveals that the enormous potential in achieving these objectives by establishing supportive institutional framework at local level. The data reveals about 60% of barangays currently involve in waste separation at source and 30% waste reduction target was achieved by 2012. The environmental conditions in local areas were improved through establishing appropriate waste collection and treatment methods and increased the environmental education and awareness among residents. Further, by treating solid waste at the source, it

minimizes transportation costs, reduces the amounts of waste to be landfills, prolongs the life of landfills and saves municipal costs for landfill management. There has also been a reduction of greenhouse gases (GHG) generated in landfills through composting in Cebu City. The experiences of Cebu City further recognized the potential of creating new job opportunities and extra incomes for the urban poor and waste pickers in implementing MRF, trash from cash program and composting programs. Further, lessons learned that these programs not only create economic opportunities within the neighbourhoods, but also facilitate spaces for community involvement, building partnerships and social capital for achieving sustainable development at the neighbourhood level.

However, the evidence suggest that these national policies will only be effective if they are accompanied by strong political commitment at the local government level in establishing supportive institutional framework as well as ensuring political will to implement innovative, strategic programs by allocating financial and organizational resources. Further, community participation is necessary to implement successful SWM program and that can be achieved when implemented programs provide economic incentives coupled with a strict enforcement scheme. In addition, active participation and partnership among different sectors of the society such as the businesses, non-governmental organizations, and barangay councils must be established to ensure a sustainability of the program. The international partners can play a vital role, especially at the initial stage by providing technical know-how and capacity building opportunities, facilitate research and good practices and provide development assistance to advance city waste management system.

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