

Cebu, Philippines

City Information

Population:

Based on the National Census of Population and Housing (CPH) in 2010, Cebu City, a highly urbanised city in the Central Visaya, had a total population of 866,171 persons as of May 1, 2010. The annual population growth of the city between 2000 to 2010 was 1.88%. This is higher than the 1.65% annual population growth of the city between the census years 1990 and 2000. If the average annual population growth recorded at 1.88% during the period 2000 to 2010 continues, it was estimated that the population of Cebu City will be doubled in next 37 years.



Figure 1: An areal view of Cebu City. Source: Cebu City, 2014

Area (km²):

Cebu City is located on the central part of Cebu Province, the island in Central Visayas, Southern Philippines. It is bounded by Mandaue City in the North and Talisay City in the South. In the east is the Mactan Channel and in the west are the Municipality of Balamban and the City of Toledo. It has a total land area of 326.10 square kilometres (sq.km) or 29,124.78 hectares (He). It is composed of eighty barangays, forty-six in the North District and thirty-four in the South District. Of these barangays, fifty are classified as urban and thirty as rural barangays.

Climate:

The city has a tropical climate and an average temperature of 25.6 degrees C (centigrade) with an average relative humidity of 75%. Rainfall is at its lowest levels from February to April and gradually increases from May to July.

Main Economic Activities:

Cebu City has a thriving commercial seaport, and a majority of the city's labor force (73%) is employed in trade and other related services such as banking, real estate, insurance, and community and personal services. About 19% of the population is employed in industry, and 8% in agriculture and related services. The services sector is growing and is expected to maintain its economic dominance. The city is

a major hub for the business process outsourcing (BPO) industry of the Philippines. In 2013, Cebu ranked 8th worldwide in the “Top 100 BPO Destinations Report” by global advisory firm, Tholons.

Its proximity to neighboring islands, beaches, hotels and resorts, dive spots and heritage sites fueled the city's tourism industry and increased domestic and foreign tourist arrivals. Because of its geographic location and its accessibility by air, land and sea transportation, Cebu City has become the tourism gateway to Central and Southern Philippines. The Mactan Cebu International Airport (MCIA) located in the neighboring city of Lapu Lapu has direct flights to Hong Kong, Malaysia, Singapore, Thailand, Japan, China and South Korea among others. Cebu City also has its share of heritage sites and structures like the Basilica Minore del Sto. Nino, the Fort San Pedro and the Magellan's Cross, located across the city hall building, that are often visited by tourists. Its annual Sinulog celebration held every third Sunday of January and in honor of the Sto. Niño has also become a crowd drawer.

City website:

More information about the city may be accessed through its official website, <http://www.cebucity.gov.ph>.

Country Information

Population:

The total population of the Philippines as of May 1, 2010 was 92 million, based on the 2010 Census of Population and Housing (CPH). The Philippine population has increased at the rate of 1.90 % annually, on the average, during the period 2000-2010.

Area (km²):

The Republic of the Philippines consists of an archipelago of 7,107 islands situated South East of mainland Asia and separated from it by the South China Sea. The total land area is approximately 300,000 sq km, 67% of which is contained within the two largest islands: Luzon, 108,171 sq km and Mindanao, 99,078 sq km. Other large islands include Samar, Negros, Palawan, Panay, Mindoro, Leyte, Cebu, Bohol, and Masbate. Comparatively, the area occupied by the Philippines is slightly larger than the state of Arizona. The Philippines' length is 1,851 km, and its width is 1,062 km. The Philippines' capital city, Manila, is located on the island of Luzon

Economy and GNI/Capita:

According to the World Bank classification the Philippines is rated as a “lower middle income” country with a GDP of \$250.2 billion in 2012.

Main Economic Activities:

The Philippines is considered a newly industrialised country with its transition from being agricultural to services and manufacturing. Its primary exports include semiconductors and electronic products, transport equipment, garments, copper products, petroleum products, coconut oil, and fruits while its major trading partners include the United States, Japan, China, Singapore, South Korea, the Netherlands, Hong Kong, Germany, Taiwan and Thailand.

Government Agencies responsible for guidance on waste legislation:

The Department of Environment and Natural Resources (DENR) is responsible for balancing environmental protection with economic growth. Information on the country's environmental policies may be accessed through www.denr.gov.ph.

MSW Sector Overview: City Level

Classification of MSW:

According to the Republic Act 9003, Municipal Solid Waste (MSW) refers to wastes produced from activities within local government units which include a combination of domestic, commercial, institutional and industrial wastes and street sweepings. It was estimated that most of the MSW in the city originates from households, which accounts for about 40%.



Figure 2: Inayawan Landfill Site in 2010. Source: Premakumara, IGES

MSW Generation:

Cebu City produces about 500 tonnes of MSW per day or a total of 182, 500 tonnes per year. Due to the rapid urban and economic growth in the city, the daily MSW generation has increased almost double from 212 tonnes in 1982 to 500 tonnes in 2010. However, it was estimated that only 315 tonnes of MSW per day or 114, 500 tonnes of MSW per year ends up being actually dumped into the Inayawan sanitary landfill. According to the city officials, the rest is recycled by the formal and informal sectors. While there is no exact data on actual per capita waste generation in the city, it was estimated that each of the Cebu City resident generates about 500 grams of MSW daily.

Collection Coverage and Type:

Waste collection in the city operates 24 h in three shifts and the service is provided by the Department of Public Services (DPS) in the form of garbage trucks and barangay trucks. Two popular collection methods are practiced for waste collection, including communal method where common waste receptacles are strategically located in public places, while the household collection is carried out by garbage trucks across the Cebu City. The above two methods are supplemented with private initiatives, which collect MSW from commercial establishments such as shopping malls. Starting on April 1, 2011, MSW collection in the city is done based on the following schedule:

- Biodegradable – Mondays, Wednesday, Fridays, Saturdays
- Non-biodegradable – Tuesdays, Thursdays, Sundays

Three years since its implementation, Cebu City is yet to perfect the implementation of its segregated garbage collection system. Barangay residents continue to mix biodegradable with their non-biodegradable wastes. According to city data, MSW collection coverage is 100%. However, in some instances, uncollected garbage is left to pile up on city streets, in the interior of barangays and even left floating on water bodies because of the lack of garbage trucks that will bring these to the city's transfer station at the Inayawan landfill.

Waste Composition:

Cebu City produces mostly organic wastes like leftover food and rotten fruits and vegetables, which is estimated about 67% of the total waste generation in the city. The recyclable waste is estimated about 21% and the rest is hazardous and residuals.

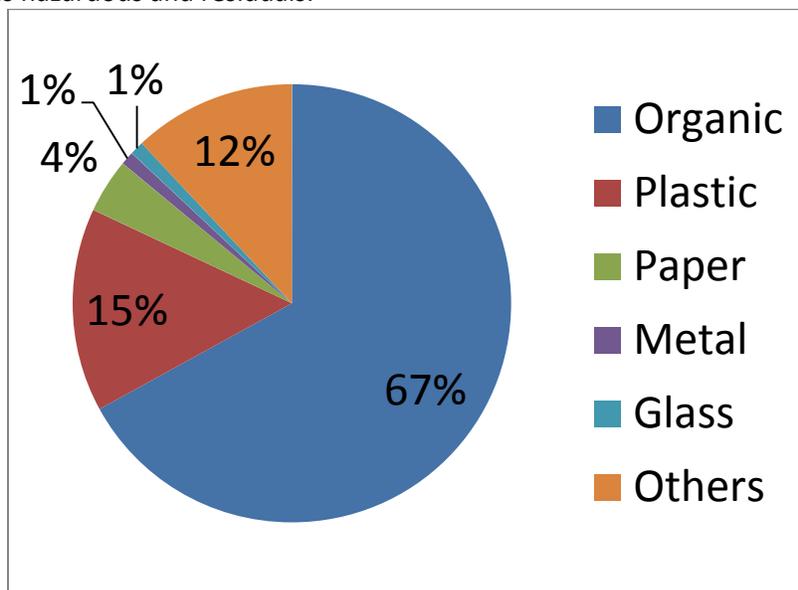


Figure 3: MSW composition in Cebu City, 2010. Source: Cebu City

Waste Management Practice:

The city government uses the Inayawan Sanitary Landfill which is located 10 kilometers south of Cebu City Hall as the final depository of its wastes. The landfill is a component of the Metro Cebu Development Project (MCDP) implemented in the 1990's with funding assistance from the Japan International Cooperation Agency (JICA). Project construction started in 1995 and was made operational on September 1, 1998. The basic facts about the landfill site:

- Total Land Area: 15.41 ha.
- Dumping Area: 11.73 ha
- Service Area: 3.68 ha
- Estimated Period to Fill: 7 years

When the landfill started its operation, it was equipped with a mechanized sorting facility and an incinerator. But the city resorted to manual sorting operations with the help of waste pickers after its sorting facility started to malfunction. Scavengers grew in number through the years. Its incinerator was never used following the passages of RA 9003 or the Solid Waste Management Act in 2001.

Through the years, the Inayawan sanitary landfill has turned into an open dump site. The current Mayor Michael Rama issued an executive order on December 2011 for the landfill's partial closure. Since then, the Inayawan landfill was converted into a garbage transfer station. Garbage collected from various parts of the city are brought into the transfer station and loaded into bigger trucks capable of traveling the 30 kilometer distance from Cebu City towards a private landfill facility located in barangay Pulog in Consolacion town in northern Cebu province. To date, at least 40% of the city's waste is being dumped at the Consolacion landfill for a fee of P700 per tonne while the remaining 60% remains at the Inayawan landfill. Cebu City spent P39.8 million in 2013 for the payment of tipping fees for the disposal of 56,884 tons of garbage to the Consolacion landfill. Because of its lack in garbage trucks, city hall spent another P8.3 million for the lease of trucks for the months of February, March, April, May and July 2013.

The hazardous and pathological wastes that are collected by the city's Department of Public Services (DPS) or private collection agencies and brought to Pollution Abatement Systems Specialists Inc. (PASSI) facility located near the landfill for treatment. Some private hospitals also have their own autoclaving treatment facilities for the preliminary treatment of their wastes.

Formal Waste Sector:

The city has involved in promoting waste separation at source and recycling, though the success of these activities is still very limited. There are three private companies are involved in formal recycling activities. It was estimated that approximately 46,000 tonnes of organic waste and 22,000 tonnes of recyclable materials are treated annually by these private companies, if they are operated in fully capacity. These private plants have signed a contract with city government and received P700 per tonne as a tipping fee. In addition, each barangay or clusters of barangays are required to have their own Material Recovery facility (MRF) according to the RA 9003. It was estimated that about 58 barangays, out of 80 barangays in the city, has their own MRF, though there is a high level of disparity concerning effectiveness amongst them. The barangay MRFs are engaged in various recycling and material recovery projects. For example, in barangay Luz, over a hundred unemployed mothers also get a livelihood by using the recycled garbage coming from industries in their barangay to produce bags, fashion accessories, rosaries, summer hats and even wine and ball pen holders. They are paid P60 to P150 for each of their products.

Samples of their products were already sold as souvenirs to both local and foreign tourists, walk-in buyers and even those who are doing their conventions in Cebu City. Recycling reduced barangay garbage volume by about 30% and their gasoline expenses as well. Instead of making six to seven trips to the landfill per day, their barangay truck now makes 3 to 4 trips. Luz officials also partnered with officials of the nearby Cebu Business Park (CBP) for the management of the business establishment's waste in a 2,800 square meter area called "Tugkaran" that located within their compound. Tugkaran, a composting and training area, is now manned by 13 ERPAT members whom the barangay tapped to segregate CBP's waste and operate their composting facility. Each of the fathers earn at P4,000 to P5,000 per month from the proceeds of recyclables and the compost that they produce to support their family's needs.

Informal Waste Sector:

The informal sector also plays a major role in the waste recycling in the city. There are now about 300 waste pickers who earn a living by picking up recyclables from the Inayawan Sanitary Landfill on a daily basis. Most of these families occupy shanties built close to the landfill compound making it easier for them to have access to the facility. The city also has a number of street pickers which include children who carry sacks to pick up recyclables like water and juice bottles, scrap iron, and other items which they sell in junk shops that are now proliferating in various parts of the city.

Financing of MSW:

The Cebu City government collects garbage fees from about 26,000 duly registered businesses using City Ordinance No. 2018 or "An Ordinance Establishing a System of Garbage Collection and Imposing Fee" as the basis. Garbage fees are based the nature of the business and its floor area. Manufacturers and producers, for example are charged an annual garbage fee ranging from P6,000 to P10,000 while bakeshops and pharmacies are asked to pay P2,000 to P4,000. Financial institutions are charged P730 to P4,000 while hospitals pay P1,500 to P9,000. Funeral parlors are imposed garbage fees ranging from P1,200 to P5,000. It was estimated that City hall collected P72.3 million in garbage fees in 2012 but this was not enough to take care of the cost of implementation of the city's garbage disposal system whose costs amount to more than P100 million. The city government is hoping to raise the same amount or even more this year to form part of its P5.9 billion annual budget and take care of its garbage management needs. City Hall will again be needing at least P169.2 million to take care of this year's

garbage collection system. A breakdown of the cost already include payment of salaries and other benefits of workers assigned to the Department of Public Services - P73.3 million; garbage collection and disposal – P51 million; city's counterpart for the salaries of barangay garbage collectors – P33.9 million; and payment of honorarium for the Barangay Enforcement Offices – P11 million.

MSW Sector Overview: Country Level

General description and overview of common practice:

In recent years MSW has been considered to be one of the most serious environmental and public health issues confronting urban areas in the Philippines. Rapid urbanisation, economic growth and development, changes in lifestyles and consumption patterns have resulted in a remarkable increase of waste volume and its diversity in recent decades. Recognising the importance of taking immediate actions to address this fast growing urban environmental issue at national level, the country's Department of Environment and Natural Resources (DENR), established under the Office of the President, prioritised proper management of MSW in its 12-point environmental agenda. Through the passage of the 2000 Ecological Solid Waste Management Act, widely known as the Republic Act No. 9003 (RA 9003), proper MSWM has been institutionalised at the LGU level. As a national policy, the RA 9003 adopts a systematic, comprehensive, and ecological solid waste management (SWM) programme that recognises the LGUs as the leader in its implementation. The policy mandates the creation of Solid Waste Management Boards (SWMB) from the national, provincial, city/municipal, down to the barangay, the lowest-level political and administrative body in the Philippines. As a support system for establishing an integrated SWM system, the RA 9003 mandates the establishment of material recovery facilities (MRFs) in all barangays based on 3Rs in order to achieve its 25% waste reduction target by 2010. Consequently, instead of using open dumping or illegal burning, the RA 9003 advises LGUs to adopt sanitary landfills.

Waste Generation (per capita/year):

With an average per-capita waste generation ratio of about 0.5 kg per day, the annual waste generation in the Philippines is 12 million tonnes in 2012. This figure is expected to double by 2025. The National Solid Waste Management Commission (NSWMC) reported that the country's solid waste generation includes 73% of households, 26% of commercial establishments, institutions and industries, as well as 1% of healthcare facilities. It was estimated that about a fourth of its garbage comes from Metro Manila area which produces a daily average of 8,400 to 8,600 tonnes of MSW.

Collection Coverage;

The 1998 National Demographic and Health Survey reported that only 30% of households in the Philippines had access to solid waste collection at varying frequencies, ranging from twice a week to once every two weeks. However, a recent estimate by the National Solid Waste Management Commission (NSWMC) has placed collection efficiency at 70% in urban areas and 40% in rural areas, respectively. In areas where residents lack access to solid waste collection, garbage continues to be thrown indiscriminately or burned.

Number of Landfills/MSW Disposal rate (tonnes/year):

The Ecological Solid Waste Management Act had set a February 2004 deadline for the shift from open to controlled dumping, but waste continues to be disposed in 866 open dump sites outside of Metro

Manila. There are another 125 controlled-dumpsites operated nationwide. While the law mandates a shift to the use of sanitary landfills by February 2006, this has not been perfected to date.

As of the last quarter of 2009, the National Solid Waste Management Commission (NSWMC) recorded 30 landfills already operating while 42 others are under construction.

Recycling Rate:

There is no reliable data on the extent of recycling and composting activities in the country, as recycling remains largely an informal sector activity. Data from some sectors indicate that recycling is on the rise. Yet, only a small percentage of the waste generated in the Philippines is being recycled or composted. In 1997, 6% of solid waste was recycled in Metro Manila. By 2000, this had grown to 13%, primarily because of efforts made by the Metro Manila Development Authority (MMDA) and its NGOs partners to promote segregation at source, composting, and recycling. An MMDA Ordinance passed in 1999 mandated source segregation. With the passage of the Ecological Solid Waste Management Act, a growing number of LGUs are now implementing integrated waste management practices which encourage reduction, recycling, composting, and reuse of materials. As of LGUs are known to already be practicing ecological waste management.

Waste Management of Organic fraction (composting, anaerobic digestion);

Composting of waste is now becoming a trend in various parts of the country. Various organizations both local and foreign have also extended assistance to Local Government Units in the implementation of composting activities. IGES helped Bago City in Negros Occidental learn the Takakura method of composting in 2008, shortly after the city's participation in a workshop in Surabaya in 2007. The program was later replicated in the cities of Bacolod and Talisay in Negros Occidental; cities of Cebu and Talisay in Cebu City; and Puerto Princesa in Palawan. The Bokashi bin and mix is now available in the Philippines and it is being manufactured and distributed by identified farming communities authorized by the religious congregation, Missionaries of the Sacred Heart.

Energy Recovery Rate:

Several projects were implemented by Local Government Units to produce energy from garbage but there is no actual data as to the volume of energy being produced in totality. In Puerto Princesa in Palawan, Mayor Edward Hagedorn adopted the use of the EnvirOcyler GTO which uses gasification and thermal oxidation process to generate electricity from dry and wet biomass. The Batangas Bay waste-to-energy project made use of the anaerobic digestion of wastes to produce energy. Even private institutions like the Asian Development Bank (ADB) and Procter & Gamble Co. (P&G) are teaming up to explore the feasibility of building "waste-to-worth" energy plants in the Philippines that will generate up to two megawatts of power using solid waste collected from homes and businesses.

Plans, Strategies, Policies [including financial instruments] and National Objectives

City Level

Aimed at improving Waste Management in General

Cebu city has taken several initiatives to improve the MSW management in the city. Under the leadership of the Mayor, a Solid Waste Management Board (SWMB) was established to prepare, submit and implement working plans and guidelines for a safe and sanitary management of MSW generated in the city. In addition a 10-year plan for Solid Waste Reduction in



Figure 4: Waste recycling at EVO private MRF. Source: Premakumara, IGES

Cebu City was drafted in 2005 with the technical assistance provided by the Fort Collins (Colorado, USA). It was also set a target to reduce waste disposal into local landfills by 50% by 2015. Since 2011, a No Segregation and No Collection Policy has been practised. Further, to reduce the waste to be landfilled, a community-based waste recycling programmes (composting and MRF) and centralized recycling facilities with private sector were established. Using the CESET and BEO staff, a public awareness campaigns on waste separation at source and strict enforcement system are established. However, the impacts of these initiatives are still in the initial stage.

Aimed at addressing Climate change and reducing SLCPs through waste related activities

Aiming to stop the burning the MSW at the landfill, open dumping was prohibited in 2011. Further, there is a plan to close the operation of landfill site, though the implementation of the plan has many challenges such as finding a site for new landfill, the high costs and tipping for private landfill in Consolacion etc. Further, city has been promoted the waste separation at source, composting and recycling (MRF) near to the source aiming to reduce the air pollution from waste transportation. Currently, about 58 of the city's 80 barangays operate their own Materials Recovery Facility to convert biodegradables into more useful byproducts, such as handicrafts.

Country Level

Aimed at improving Waste Management in General

RA 9003 mandates Local Government Units to come up with their own Local Solid Waste Management Plans that will serve as basis in the implementation of their Solid Waste Management Programs. The law mandates the adoption of segregation and waste diversion practices. LGUs are supposed to reduce their solid waste by 25 percent within a period of five years from passage of the law by means of recycling, re-use and composting activities among others. Waste diversion goals are to be increased after every three years thereafter. RA 9003 encourages the private sector participation in solid waste management.

Aimed at addressing Climate change and reducing SLCPs through waste related activities

Burning of garbage is being discouraged by RA 9003 to reduce emission of hazardous gases into the air. It instead encourages the use of controlled dumps and sanitary landfills as final depository of solid wastes in the country. Section 39 of the law says that open dumps should have inert covers and the provision of aerobic and anaerobic decomposition. Section 41 mentions of the need to equip sanitary landfills with a gas control recovery system to collect gas for treatment or productive use as an energy source.

Legislation

City Level

Legislation governing MSW management

There are number of local policies and by-laws for governing MSW in the Cebu city. The Cebu City Ordinance (CCO) No. 1361 which establishes a system of garbage collection in the city and imposes the corresponding fees was passed on October 6, 2004 on the initiative of former councilor Rodolfo Cabrera. On the same day, the council also passed CCO No. 2017 by councilor Nestor Archival Sr. which mandates the creation of the Cebu City Solid Waste Management Board. A month after, the city council passed CCO No. 2013 also by Archival Sr. which mandates garbage segregation at source. This ordinance identified four wastes classifications: the biodegradable or compostable wastes, the non-biodegradable wastes, reusable or recyclables wastes and the bulky wastes. The section 6 of the ordinance requires the adoption of the "No Segregation, No Collection" policy in the city's 80 barangays. It says that the segregation of wastes must be absolutely observed since unsorted wastes shall not be collected at all. Violators of the ordinance will be meted with fines ranging from P1, 000 to P5,000 or imprisonment of one month to six months or both subject to the discretion of the court. To avoid the filing of a complaint for the violation of CCO, violators may opt payment of a compromise fee of P500 or render community service within a period of one to 15 days. The most recent feat of the city council is the passage of CCO No. 2343 of Vice Mayor Edgar Labella and Councilor Nida Cabrera which regulates the use and sale of plastic shopping bags on Saturdays. Passed on December 12, 2012, the ordinance which is also known as the city's "No Plastic Saturday Ordinance" prohibits the use of plastic shopping bags as primary packaging for goods in department stores, malls and even at the wet markets. It instead promotes the use of woven, eco and paper bags as an alternative to plastic bags. The ordinance imposes a fine of P2, 000 for the first time violators. Fines are increased to P5,000 or imprisonment of not more than six months upon the discretion of the court or the suspension of the establishment's business permit for the second time violators. Violators may also opt to pay a compromise fee of 1, 000 within a period of seven days from their apprehension to avoid the filing of a court case against them. Pending approval of its Implementing Rules and Regulations (IRR), several establishments in the city have already shifted to using paper bags on Saturdays.

- City Ordinance No. 2031, otherwise known as "An Ordinance for the Implementation of Solid Waste Segregation at Source, Providing Penalties for Violations Thereof, and the Creation of a Special Fund for Incentives", which was approved on November 10, 2014 declaring the city's adoption of a systematic, comprehensive and ecological solid waste management system to ensure the protection of public health and environment;
- City Ordinance No. 2243, otherwise known as the "Sustainable Development Ordinance of the City of Cebu", which was passed on June 23, 2010 declaring the city government's policy to preserve and protect the sources of life - the trees, soil and water - and to focus on sustainable development in the fulfilment of human needs while maintaining the quality of the natural environment for the current generation and for generations yet to come.
- The City Government likewise commits to green the city, strictly enforce the laws protecting the life support system and initiate environmental programs such as creation of bike lanes, establishment of mass transit system, more parks, mini-forests and open spaces, granting incentives to stakeholders including barangays committed to energy efficient buildings and transportation and resources conservation. The same ordinance mandates the submission by business establishments of their respective

Environmental Sustainability Action Plan (ESAP) when securing or renewing Business License or Mayor's Permit.

- City Ordinance No. 2234, otherwise known as the "Creation of the Cebu City Environmental and Natural Resources Office (CCENRO)", passed on April 16, 2010 to make the City of Cebu one of the most environmentally attuned local government units in the country.
- City Ordinance No. 2343, otherwise known as the "No Plastic Saturday Ordinance of the City of Cebu", which was passed on December 12, 2012 and authored by the undersigned regulating the use of plastic shopping bags within the city every Saturday and mandating the establishment of a recovery system for waste plastics for purposes of recycling said waste materials.

Guidance for MSW management (after legislation, before inspection activities)

Under the leadership of the Mayor, a Solid Waste Management Board (SWMB) was established to prepare, submit and implement working plans and guidelines for a safe and sanitary management of MSW generated in the city. The SWMB was headed by the Mayor with the relevant representatives from other sectors. One of its mandates is to provide a long-term vision for SWM in the city, which includes the development of a Solid Waste Management Plan (SWMP). A 10-year plan for Solid Waste Reduction in Cebu City was drafted in 2005 with the technical assistance provided by the Fort Collins (Colorado, USA) under the Resource Cities Program of the International City/County Management Association. The SWMP, resulting from consultations with the various sectors of the community, integrates the various solid waste management plans and strategies of the barangays. The SWMB is also required to adopt measures to promote and to ensure the viability and effective implementation of the SWMP in its component barangays by forging cooperation with private sector and local NGOs. In addition, it adopts specific revenue-generating measures to promote the viability of the SWMP. To ensure an 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 for a Clean Environment (2000/2010), which was initiated by Kitakyushu City, directed by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), primarily funded by the government of Japan with the Institute for Global Environmental Strategies (IGES) as Secretariat, Cebu City has set a target to reduce waste disposal into local landfills by 50% by 2015.

Inspection activities/supervision and enforcement of legislation

The Cebu Environment Sanitation Enforcement Team (CESET) was established to make sure that environmental laws and policies are being implemented. City Hall also tapped a maximum of five workers from its 80 barangays to act as Barangay Enforcement Officers (BEOs) to help disseminate environment-related policies and programs like its garbage segregation policy and assist in the establishment of Materials Recovery Facilities at the barangay-level. A total of 365 BEOs and 21 CESET personnel are deployed every day to make sure those environmental laws and policies are implemented. These two groups are operated under the Cebu City Environment and Natural Resource Office (CCENRO).

National Level

Legislation governing MSW management

- The **Philippine Constitution**, enacted in 1987, provides the most fundamental basis for all policies concerning solid waste management in the country. Section 15 declares that the State shall protect and promote the peoples' right to health and instil health consciousness. Section

16 stipulates that ‘the State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature’.

- A series of presidential decrees (PD) were issued under the administration of President Ferdinand E. Marcos which provided specific guidelines in addressing waste management, sanitation and pollution control. In 1975, **PD 825**, more commonly known as the **Garbage Disposal Law**, was issued. It outlines penalties for improper disposal of garbage. Penalties include imprisonment from five days to one year and/or fines between P100 and P2000.
- Landmark legislation, **R.A No. 7160 - The Local Government Code (1991)** mandates the responsibility of LGUs in providing basic services to its constituents. It also directs LGUs to exercise powers and discharge functions and responsibilities for efficient and effective provision of services and facilities related to general hygiene and sanitation, beautification, and solid waste collection and disposal systems.
- **RA 8749 - The Clean Air Act of 1999** provides a comprehensive air pollution management and control program to achieve and maintain healthy air. Section 20 bans the incineration of municipal, bio-medical, and hazardous wastes.
- The most comprehensive law on waste management is the **Republic Act (RA) 9003 or Ecological Solid Waste Management Act (ESWMA) of 2000**. It declares the adoption of a systematic, comprehensive, and ecological solid waste management program as a policy of the State.

Guidance for MSW management (after legislation, before inspection activities)

The ESWMA adopts a community-based approach in waste management. The Law mandates the creation of SWM Boards from the national, provincial, city/municipal, down to barangay level. It requires reduction at source, mandatory segregation at source, recycling and recovery. It also focuses on eco-labelling of non-environment friendly packaging, gradual phase out of open dumpsites, and a citizen suit provision that encourages ordinary citizens to file administrative or criminal cases against violators. The national government approved several legislation to ensure environmental protection.

Inspection activities/supervision and enforcement of legislation

The Department of Environment and Natural Resources (DENR), as the lead implementing agency of international agreements and national laws that deal with solid waste management, issues regulations and standards for their effective implementation, enforcement and monitoring. Under the **DENR Administrative Order No.90 Series of 1993 (DAO 93-90)**, a National Solid Waste Management Commission (NSWMC) under the Office of the President, was established. The Commission is tasked to oversee the implementation of solid waste management plans and prescribe policies to achieve the objectives of the Act. Under the Commission, a National Ecology Center is to be established headed by the Director of the Environmental Management Board (EMB) in his ex-officio capacity. Regional Ecology Centers will also be established headed by EMB Regional Directors in their ex-officio capacity. The Ecology Centers shall provide technical expertise, information, training and networking services for the implementation of the provisions of the Act.

Involvement to date in CCAC MSW Initiative

Cebu City has been an active participant in the CCAC MSW Initiative since 2014. Currently, the Municipality has completed its city assessment and developed an action plan with support of IGES. In addition, the city has taken the following steps to share the experiences with relevant partners:

- Organized a kick-off meeting in January 2014 at the city office inviting the CCAC Secretariat to announce the project and its implementation. About 15 members of the City Solid Waste Management Board attended the meeting.

- A special session was organized at the Regional Workshop on MSWM in Cebu, in January 2014 inviting the CCAC-MSWMI Secretariat to present the project activities. About 60 participants, including the officials from national institutions (the Department of Environment and Natural Resources (DENR) and the Cebu Provincial Office), political representatives of Cebu and Naga cities, city officials, representatives from non-governmental organisations (NGOs), community-based organisations (CBOs), private sector, and representatives from academic institutions, were attended the workshop representing seven cities in the Region VII of the Philippines.
- As a request of the Mayor of Naga City, an introductory meeting was held on 29 January 2014 at the Mayor's Office to explain the CCAC-MSWI and its involvement in Cebu. The Mayor showed great interest to join the programme.
- Joined the CCAC-MSWI Asian Regional Workshop and Panel Session of Regional 3R Forum in Asia and the Pacific, Surabaya, Indonesia, 23-24 Feb 2014.
- Organised a session at the Eco-Cities Network South East Asia implemented by the United Nations Industrial Development Organisation (UNIDO) Workshop in Cebu City, 17-20 June 2014 and shared the progress and lessons learned from the CCAC-MSWI.
- Organised the CCAC-MSWI Workshop in Cebu on 11 July to present the action plan to the Cebu City Solid Waste Management Board for getting political and legal support for its future implementation.
- The City Hall through the Office of Councilor Environment, EMB VII (DENR) and IGES, training sessions were conducted for 60 barangays (out of 80 barangays in the city) on data collection and calculation of the emission of hazardous gases into the environment.
- Further, City Hall also forged a partnership with the Department of Trade and Industry (DTI) for the implementation of their "Cash to Crafts Program" at the barangay level. The project is aimed at teaching residents from the participating barangays of Pasil, Basak San Nicolas and Pulang Bato, among others, to produce crafts from garbage and earn at the same time.

Current Projects or activities aimed at reducing SLCP Emissions

- **Enforcement of No Segregation and No Collection Policy:** The strict enforcement of the "No Segregation, No Collection" policy starting April 1, 2011 and setup the supporting environment for establishing environmental officers in each barangays, financial and technical support for the establishment of materials recovery facilities (MRF), promotion of city-wide composting and a sustained information-education campaign through the Kitakyushu-supported Community-based Solid Waste Management aiming for 50% waste reduction by 2015.
- **Plastic Waste Material Recycling System in Cebu:** To be piloted in Barangay Talamban, Cebu City and to be undertaken in partnership with Nishihara Corp. in Kitakyushu City, the project aims to utilize non-rigid plastic wastes, which are currently transported and dumped at landfills, and transform the same into plastic boards. With plastic waste representing 15% of the daily solid waste generated by the city, this translates to a potential volume of 78 tonnes of MSW diverted from landfills.
- **Intermediate Processing Facility in Inayawan landfill:** Through JICA's "Pilot Survey for

Disseminating SME's Technologies," the Cebu City Government has entered into an agreement with Mansei Recycle Systems Co. Ltd., a Yokohama City based private company to put up an intermediate processing facility for the recycling of existing plastic waste inside the Inayawan Sanitary landfill into plastic fluff fuel (RDF) to be used as alternative fuel by cement plants and other companies.

- **Eco-Cities Programme of UNIDO:** The city is also an active partner in the project on the Promotion of an Ecological Cities (Eco-Cities) Network in South East Asia organized by the United Nations Industrial Development Organization (UNIDO) and supported by the Ministry of Foreign Affairs of Japan. This Eco-Cities project provides avenues for exchange of experiences and cross-examination of good environmental practices among five (5) selected cities in the South East Asia region. MSWM is one of the key project areas. This experience enables Cebu City to further deepen its knowledge and understanding of available techniques and technologies which help make SWM more efficient and hence lower SLCP emissions.

Key Stakeholders

- Cebu City Government, Philippines: www.cebucity.gov.ph
- Department of Environment and Natural Resources (DENR), Philippines: www.denr.gov.ph
- Environmental Management Bureau (EMB) VII, DENR, Philippines: www.emb.gov.ph/regions/region7
- Kitakyushu Asian Center for Low Carbon Society, Kitakyushu City, Japan: <http://asiangreencamp.net>, www.city.kitakyushu.lg.jp
- Institute for Global Environmental Strategies, Japan: www.iges.or.jp

Additional useful information

- The city has attained recognitions from several institutions, the most recent as the "Most Livable City" in Asia. Along the tag of being the "Retirement and Investment Hub in Asia" and the top 8 "Business Process Outsourcing (BPO) Destination" in the whole world, these acknowledgments bring honor and pride for Cebuanos.
- Further, Cebu wants to develop a work plan and implement projects to reduce SLCP emissions to promote waste separation at source, improving waste recycling efficiency, promotion of composting, improving landfill management (especially introducing Fukuoka Method) and targeting zero SLCP emissions from MSW. Cebu is willing to cooperate with other potential partners/organizations to achieve its vision to be an Eco Model City.

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