

**A CASE STUDY ON THE ILLEGAL GARBAGE DUMPING IN  
ANGLIONGTO, DAVAO CITY**

Lady Leslie L. Francisco

Rona L. Paquera

Moises C. Torrentira, Jr., PhD.

Graduate School of Government and Management, University of Southeastern Philippines,

Davao City, Philippines

[leslieonglao@yahoo.com](mailto:leslieonglao@yahoo.com)[rona.luy.paquera@gmail.com](mailto:rona.luy.paquera@gmail.com)[moises.torrentira@usep.edu.ph](mailto:moises.torrentira@usep.edu.ph)**ABSTRACT**

Solid waste has become an increasing environmental problem due to the rapid rise of population, especially in highly urbanized areas like Davao City, Philippines. Just like in any other urban centers, garbage is a huge problem that it does not only cause environmental destruction but also takes a toll on human health. As part of the city's urban center, Angliongto, which is within the 50-kilometer radius from the downtown area, faces a huge challenge in relation to littering and illegal garbage dumping. This study tried to look into the dimensions that have compounded the problem as it wants to unravel the behavior of residents and shortcomings in the policy implementation of solid waste management laws. Using case study of qualitative research, the researchers were able to conduct key informant interview to residents, law enforcers and policy makers. Results of the study revealed the dimensions of illegal garbage dumping in Angliongto which include forms of illegal garbage dumping, ineffective waste management practices, resources and equipment, resident's practices and behaviour, policies and procedures, environment, and enforcers' practices and capabilities.

**Keywords:**

Illegal garbage dumping, case study, qualitative research, Davao City

**INTRODUCTION**

Asia has the fastest growing population in the world. It is estimated that by 2050, urban areas will account for more than 65% of Asia's total population, doubling to more than 3.3 billion people. Globally, this will produce 10 billion metric tons of solid waste that can be generated from urban households, commerce, industry, and construction, of which Asia accounts for about 25% (ADP, 2017).

According to a study conducted by World Bank, highly developed countries have more efficient solid waste management practices compared with developing countries. The study said that 90% of the waste in these developing countries are often disposed of in unregulated dumps or are being burnt. Poorly managed wastes can pose serious risk to the ecosystem and human health. This can turn into a breeding ground for vector-borne diseases and would cause global warming (World Bank, 2018). Hence, there is a need to heed to the worldwide call for a collective effort to address the garbage problem.

Singapore is a highly urbanized and industrialized small island nation with a land area of 697 kilometers and a population of 4.2 million (Singapore Department of Statistics). Due to its limited land area, the country aimed for a zero waste landfill. Its National Environment Agency has formulated a range of strategies and programs to achieve its objectives to curb waste growth and to support sustainable waste management (Teo, 2007). Stakeholders, private and public agencies, as well as the general public work hand in hand to achieve the ambitious target.

In the Philippines, the government enacted Republic Act 9003, An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds, and for other Purposes. This environmental law defines key initiatives, including penalties, to at least curb, if not completely solve, the enormous garbage problem in the country. It set forth policies to adopt a systematic, comprehensive and ecological solid waste management system to ensure protection of public health and environment. The law was promulgated to ensure the proper segregation, collection, transport, storage, treatment and disposal of solid waste. Further, the act also aims to institutionalize public participation in the development and implementation of national and local integrated, comprehensive and ecological waste management programs. The last criterion of RA 9003 is the local government unit's compliance to build Materials Recovery Facilities (MRF) and access to sanitary landfills.

As its way of reinforcing the national law, the city government of Davao passed City Ordinance 0361-10 or the Davao City Ecological Solid Waste Management Ordinance in 2010 as its guidebook. Section 47 of this local law prohibits, littering, scattering, throwing and dumping of waste matters in public places. Those found violating the law face the fine of P300 (approximately USD6) and a mandatory seminar for the first offense, P500 (approx. USD10) and a five-day community service for the second offense, P1,000 (approx. USD20) and a 10-day community service for the third offense, and succeeding offenses will be prosecuted in court with a maximum fine of P5,000 (approx. USD100) and six months imprisonment. Section 18 of the ordinance cites that it is the responsibility of the barangay to ensure that residual solid wastes and special waste from all sources within the barangay are properly brought to the designated collection points. Based on the summary report of the city government, the highest number of violations committed under City Ordinance 0361-10 both in 2017 and 2018 were littering, scattering, throwing and dumping of waste matters in public places at 447 and 612, respectively.

Barangay Alfonso Angliongto Sr. (Angliongto), the subject of this study, has adopted the provisions of City Ordinance 0361-10. The barangay officials know that addressing the garbage problem is crucial as the barangay is prone to flooding, and one of the biggest contributory factors is illegal garbage dumping. Illegal garbage dumping refers to the deliberate disposal of waste in non-permitted areas, such as sidewalks, streets, creeks, etc. (United States Environmental Protection Agency, 1998) In this study, illegal dumping also points to intentional disposal of wastes in designated areas, but performed in non-permitted schedule.

#### **OBJECTIVE OF THE STUDY**

The main objective of the study was to explore the various dimensions that explain the occurrence of illegal garbage dumping among residents in Angliongto, Davao City. The study was also able to extract the specific factors from the identified dimensions which further explained the nature of the identified dimensions.

#### **METHODOLOGY**

Qualitative research method was employed throughout the study. Keeping in mind the nature of qualitative research, the data collection method used was exploratory. Primary data was gathered through key informant interviews while secondary data was collected from Davao City Environment and Natural Resources Office (CENRO). The data was collected from September to October 2018 through validated interview schedules with six informants: (1) the barangay captain, (2) barangay councilor/concurrent environmental committee chair, (3) barangay secretary, (4) *purok* leader, (5) resident, and (6) a child waste collector. The study team purposively selected these informants based on their legal authority and functions, and/or personal knowledge and experiences on the research problem. The individual interview sessions happened inside the barangay hall and inside two different food establishments in the barangay.

Face-to-face interviews were conducted. The interview questions developed were open-ended designed to encourage full, meaningful answers using the informants' own knowledge and/or feelings. Probing questions

were used to gather in-depth information and/or clarify ideas. The study team adopted the data analysis framework developed by Mile and Huberman (1994): data reduction, data display, verification and conclusion. The study team also observed designated garbage dumping and collection areas in the vicinity, more specifically the areas near the barangay hall.

The study was conducted in Barangay Angliongto. The barangay is one of the 182 barangays in Davao City, the second largest city in the country based on land area. It is located five kilometers north of the city center. Based on 2015 Philippine Statistics Authority record, the barangay had a population 18,967 in its 334.453-hectare land area. Barangay Angliongto used to be part of Barangay Pampanga, which in 2002, was divided into three barangays including the mother barangay. A plebiscite for the division of the mother barangay was held in 2004, and its separation only took place a year later. Between 2005 until 2017, Barangay Angliongto had to rely assistance from the city government as a law had yet to get approved for it to fully become independent. It was only in 2017 when President Rodrigo R. Duterte signed Republic Act 10953, the law that made Angliongto a distinct and independent barangay, thereby allowing it to collect Internal Revenue Allotment from the national government. Additionally, Barangay Angliongto has a total 14 *puroks* or small communities, with each *purok* having a designated garbage collection point.

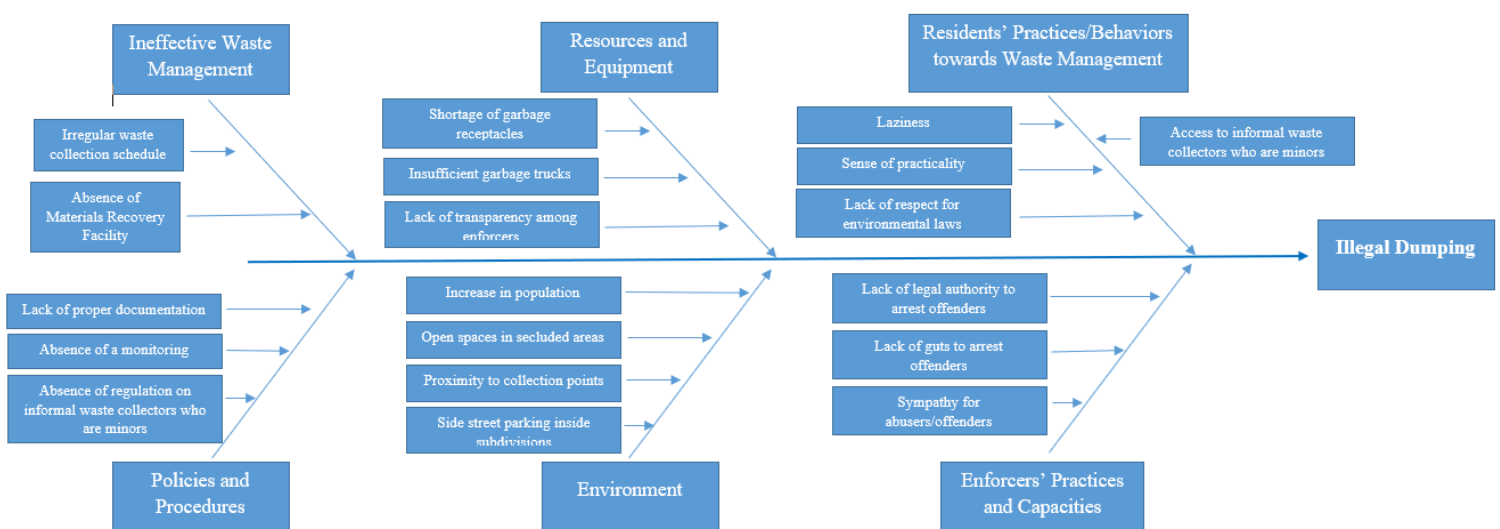
## RESULTS AND DISCUSSIONS

Below are the information generated from the interviews and observations.

### Forms of Illegal Garbage Dumping

The study was able to identify the following forms of illegal garbage dumping: dumping of waste on a non-designated waste disposal site on the correct collection schedule, dumping of waste on a designated waste disposal site but not on the correct waste collection schedule, midnight dumping, and dumping of waste on a non-designated area on a non-collection day.

An Ishikawa or Fishbone diagram was further used to provide a clearer view of the causes that contribute to the illegal dumping of waste in Barangay Angliongto.



*Illustration 1. Fishbone Diagram showing the reasons behind the illegal dumping problem.*

**Ineffective Waste Management**

One of the dimensions that contributed to the illegal garbage dumping is ineffective waste management. Although a framework was already provided through an ordinance, household wastes are still poorly managed. The study discovered the following factors that led to this condition:

- **Irregular Waste Collection Schedule.** Barangay Angliongto experiences irregular waste collection. The City and Environment Resources Office (CENRO) schedules garbage collection in the barangay twice a week. Different collection days and time are scheduled per *purok*. On the day and time of collection, barangay police officers or *tanods* are instituted to watch over the collection points. However, there are several reports of missed episodes of waste collection. As garbage collectors sometimes fail to show up and follow their schedule, residents are left no choice but to throw their wastes anywhere for as long as it is far from their houses.
- **Absence of Materials Recovery Facility.** According to Section 10 of the RA 9003, segregation and collection of solid waste shall be conducted at the barangay level specifically for biodegradable, compostable and reusable wastes. Based on the interviews from the key informants, the residents of this barangay are knowledgeable on waste segregation. However, due to the inefficiency of the waste collection, residents are tempted to deliver their wastes to other areas. Because there is no way to recover the wastes that can be recycled, residents find no incentive to recycle and just dump their garbage anywhere. This finding supports the study of Ichinose and Yamamoto (2011) in Japan, who found that a smaller number of available waste processing facilities led to increased disposal rates and greater amounts of illegal dumping.

**Resources and Equipment**

Another dimension that contributes to illegal garbage dumping is the shortage/scarcity of resources and equipment in the barangay level.

- **Shortage of Garbage Receptacles.** The city has always been facing scarcity of garbage bins because some are destroyed, others cannot withstand the test of times and that it is costly to replace them. The CENRO emphasizes that the city, being a government entity, needs to follow government guidelines in buying new facilities or implementing programs, so buying garbage bins must follow the government procurement process despite it being urgent. The process involves the submission of the proposal to the executive department which looks for the funding source, and the executive department submitting it to the city council for its approval. It is only after the approval that the city government can announce the bidding process, declare the winner and eventually make the purchase. This is very problematic because when the time the purchase is made for the new bins, the old ones will again need to be replaced.
- **Insufficient Garbage Trucks.** Sometimes, delay in garbage collection is due to unavailability of garbage trucks. Based on the report of Philippine Statistics Authority, Region XI, Davao City has a booming population from year 2000 to year 2015. Due to the huge demand of garbage collection, these limited number of garbage trucks need to operate 24 hours a day. As a result, garbage trucks easily get damaged and, therefore, cannot serve their purpose. According to CENRO, the efficiency in the collection of garbage is also dependent on the availability of trucks, which in turn, is dependent on the contractors who own these vehicles. The study also revealed CENRO could not even ascertain the number of trucks available because the contractors do not report this data to them. The last data from CENRO was in 2012 when the city had 57 trucks to collect 500 tons daily, or 10 tons per truck per trip, which is usually dependent on whether the barangay is a commercial area or a residential one. In case of barangays that are mostly residential like Angliongto, the collection is just once or twice a week. Just last year, there was a three-week lull in the collection of garbage, the longest time period for one *purok* in the barangay to experience non-collection. One can only imagine the volume of garbage accumulated during the period.

- **Lack of Transparency among Enforcers.** Barangay Angliongto has a total number of 19 *puroks*. Each *purok* has one dedicated barangay garbage enforcer. Thus, there are 19 enforcers for the total population of 10,887 residents. These enforcers are not regular employees of the barangay, and only receive honoraria for services rendered. Based on the interview with barangay officials, majority of the illegal dumping offenders do not comply with the proper time of disposal. When enforcers are not on sight, residents dump in their wastes on open areas. Just this year, the barangay received its first Internal Revenue Allotment (IRA). It is now taking initiatives to train and deputize additional garbage enforcers to assist the barangay in its solid waste management programs.

#### **Residents' Practices and Behavior Towards Waste Management**

The practices and behaviour of Angliongto residents towards waste management further aggravated the problem of illegal garbage dumping.

- **Laziness.** A glaring result of the research showed that most residents are just plain lazy to throw away their garbage properly. They end up deliberately throwing their wastes in places that are not designated collection points. This behavior has bred a culture of habitual illegal dumping.
- **Sense of Practicality.** In some communities in Barangay Angliongto, some residents find it inconvenient and time consuming to throw their garbage during designated schedules because the times are either too early in the morning or too late at night. As a result, they end up throwing their garbage elsewhere. Additionally, three of the six informants exposed that it would be practical for them to bring their garbage somewhere else, be they collection points or simply places far from their homes. This is because they will just have to place their wastes in their cars' cargo compartments and drop them off in designated collection points while, let us say, they are on their way to work. Even with the garbage brought to designated areas, this still could not be collected because the act of dumping is not made during the proper collection schedule.
- **Lack of Respect for Environmental Laws.** This is a basic example of the so-called "we-are-above-the-law" mindset. Some residents do not respect the enforcers, as the latter even fear the former. Because of this, the enforcers end up turning a blind eye on violators.
- **Access to Informal Waste Collectors who are Minors.** All six key informants are one in saying that this is a major problem. Some children not living in the barangay go there, knock on the doors of houses and request homeowners to allow them to throw the garbage for a fee. In some cases, homeowners have become the regular clients. This is a big problem because no one ensures that the children throw the garbage in the identified dumping points during scheduled times. Some homeowners even justify their act by saying that by allowing these children to do this menial job, they are able to help these children earn their keep.

Three of the informants even revealed that in some cases, this created animosity among neighbors because some children, after getting their fee, throw the garbage indiscriminately, including in front of the yards of their client's neighbors. In one instance, one neighbor who thoroughly dug into the garbage thrown in front of his house found a receipt bearing his neighbor's name, an obvious indication of the source of the garbage. What ensued next was a confrontation between neighbors, resulting in a conflict between them. This is not only a major but a special problem because the barangay does not have a policy to address the issue, adding to the fact that these children are residents of poor neighboring barangays. In one instance, one of the informal waste collectors was collared by barangay enforcers, but since he was a minor, he could not be punished or fined. The most that the enforcers did was just to reprimand him and inform his parents about it. He then became another recidivist.

**Policies and Procedures**

No matter how noble the ordinance of ecological solid waste management of the city, the policies and procedures are poorly implemented in the barangay level. This is further revealed in the following factors:

- **Lack of Proper Documentation.** The barangay does not keep a record or logbook of anti-littering and illegal dumping offenders. According to RA 9003, section 58, any person or persons violating the provision of this Article, will be punished with fines according to the frequency of violation.
- **Absence of Monitoring.** No record means no monitoring.
- **Absence of Regulation on Informal Waste Collectors who are Minors.** Due to irregular waste collection schedule and inconvenience to go to the designated areas, residents prefer to let the informal waste collectors collect their garbage and dispose of them. The informants identified these informal waste collectors as children between the ages 9 and 13 years. The children, who are from adjacent barangays, collect garbage for a fee. The country and its local government units, however, have not passed a law to regulate and/or address the concerns informal waste collectors who are minors.

**Environment**

An important dimension is the changing environment of Barangay Anglionto. This unprecedented change was not anticipated, and the barangay local government unit is left with no measures to address the following specific factors as revealed in the study.

- **Increase in Population.** It is significant to note that the Philippine Statistics Authority in 2015 bared that Davao City had a population of 1.6 million people, with a growth rate of 2.3% annually. This made the city among the top five most populous highly urbanized cities in the country. Being a highly urbanized city, among the key challenges that it faces is effective solid waste management as those living in the urban centers have double garbage volumes than those living in the rural areas (World Bank, 2012). Just like any other village that is close to the center of the city, Barangay Anglionto, being only five kilometers away from city hall, has attracted residents as there are nearby places of business. According to barangay officials, in-migration has become more evident with the rise of so many businesses in the nearby areas. This has become a very huge factor in the garbage problem because, although the number of people is increasing, the waste management mechanisms, i.e., number of collection points and frequency, remain the same.
- **Open Spaces in Secluded Areas.** Some residents take advantage of many open spaces within or outside of their subdivisions by bringing their garbage to these areas which can hardly be monitored by the enforcers. The sad fact is that it proves the theorem “litter attracts litter” as even when a single resident dumps the garbage, other people who see him, know what he is doing, or get informed about it will follow. So, a simple open space becomes a non-designated landfill.
- **Proximity to Collection Points.** As population grows garbage volume grows. The numbers of garbage collection points, however, have remained the same in the last five years. Using this premise, residents, especially those who live far from the designated collection areas, tend to throw their wastes in the most convenient way possible, not minding if the area is the proper garbage disposal place. Proximity to collection points also contribute to residents opting to hire informal waste collectors who are minors.
- **Side Street Parking Inside Subdivisions.** In the past when residents were just few, CENRO’s garbage collection was house-to-house, making it very convenient to homeowners. However, because population density has become higher, and many of them have opt to buy vehicles, the subdivision streets have become parking spaces on both sides. This situation is true in most urban subdivisions that even lawmakers have proposed that only those who have parking spaces can buy new vehicles. In the case of Barangay Anglionto, CENRO has refused to collect the wastes from houses because the garbage trucks have difficulty in passing through the streets.

**Enforcer's Practices and Capacities**

Finally, the enforcers need to be capacitated in implementing the policy. However, the study revealed that this is one of the dimensions that contributed to poor waste management in Barangay Angliongto. The following are the specific factors of this dimension.

- **Lack of Legal Authority to Arrest Offenders.** Information gathered from interviews revealed that barangay enforcers, who get deputized annually, are not even issued citation tickets as they have not been deputized although the year is about to end. Ergo, they do not legally have the authority to implement the law. One reason for the delay is because of the recent reorganization in the barangay council where changes were made in committee chairmanships.
- **Lack of Guts to Arrest Offenders.** In most cases, the enforcers, who consider themselves as the lowest in the rungs of residents, do not have the courage to arrest the violators as they get intimidated by the former, being more educated and belonging to middle- and upper-income classes.
- **Sympathy to Abusers/Offenders.** Some enforcers, who belong to the same community with the offenders, often end up merely reprimanding the latter because of the notion of *pakikisama* or comradeship, considering that both are from the same community.

**CONCLUSION**

What came out in the study was that, just like in any other urban center, there was a confluence of factors that motivated residents to illegally dump their garbage. Inefficient or poor garbage collection system, legislation not fully implemented and monitored, attitudes of residents, not enough financial and human resources, capacities of enforcers, and even the environment contribute to improper waste disposal.

However, one special issue exposed in this study was the involvement of children in the illegal dumping of garbage, making the problem more multifaceted than usual.

**ACKNOWLEDGEMENTS**

We wish to express our sincerest gratitude to Professor Moises Torrentira for his valuable technical support on this project.

We wish to thank the officers and staff of Barangay Angliongto for enabling us to conduct and perform the data collection: Barangay Captain JJ Bongcawil; Mr. Sepe, Ms. Gonzales and Mr. Doroy.

Special thanks should also be given to the Department of Interior and Local Government Director Alex Roldan for his useful and constructive recommendations on this study.

**REFERENCES**

- [1] Asian Development Bank. (2017). *Integrated Solid Waste Management for Local Governments*. Retrieved from <https://www.adb.org/sites/default/files/institutional-document/324101/tool-kitsolid-waste-management.pdf>
- [2] Asian Diversity Project (ADP). (2017). *Characterizing private and shared signatures of positive selection in 37 Asian populations*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5386408/>
- [3] Akintunde, E. (2017) *Theories and Concepts for Human Behavior in Environmental Preservation*. Retrieved from <http://www.fortunejournals.com/articles/theories-and-concepts-for-human-behavior-in-environmental-preservation.html>
- [4] Ichinose, D., & Yamamoto, M. (2011). On the relationship between the provision of waste management service and illegal dumping. *Resource and Energy Economics*, 33(1): 79-93.
- [5] Huberman, A. M., & Miles, M. B. (1994). Data management and analysis methods. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 428-444). Thousand Oaks, CA: Sage Publications

- [6] Philippine Statistics Authority, Region XI (2017 August 4) Davao Region Population Almost 4.9 Million (Results from the 2015 Census of Population) Retrieved from <http://rso11.psa.gov.ph/article/davao-region-population-almost-49-million-results-2015-census-population>
- [7] Republic Act 9003 (2001). Ecological Solid Waste Management Act of 2000
- [8] Singapore in Figures 2018. Singapore Department of Statistics. Retrieved from <https://www.singstat.gov.sg/-/media/files/publications/reference/sif2018.pdf>
- [9] Somera, E. (2013). The Implementation of the Solid Waste Management Plan in the Cities of Davao and Tagum, Philippines: A Comparative Study. Unpublished Thesis. Davao City: University of Southeastern Philippines.
- [10] Teo, Vincent. (2007). Integrated Thinking: Solid Waste Management in Singapore Retrieved from <https://waste-management-world.com/a/integrated-thinking-solid-waste-management-in-singapore>
- [11] UN Environment (2015). UNEP report on Global Waste Management key feature at International Solid Waste Congress in Antwerp Retrieved from <https://europa.eu/capacity4dev/unep/blog/unep-report-global-waste-management-key-feature-international-solid-waste-congress-antwerp>
- [12] United States Environmental Protection Agency. (1998). Illegal dumping prevention guidebook. Chicago, IL: United States Environmental Protection Agency, Region 5 Waste, Pesticides and Toxics Division.
- [13] World Bank. (2012). What a waste: a global review of solid waste management. Urban development series knowledge papers.
- [14] World Bank. (2018). Global Waste to Grow by 70 Percent by 2050 Unless Urgent Action is Taken: World Bank Report [Press Release]. Retrieved from <https://www.worldbank.org/en/news/press-release/2018/09/20/global-waste-to-grow-by-70-percent-by-2050-unless-urgent-action-is-taken-world-bank-report>