

A phenomenological analysis on the waste separation behavior and awareness on plastic recovery capability of a barangay in Manila

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Abstract

This research followed an interpretative phenomenological analysis to explore the attitude, practices and behavior of low-income households concerning waste separation of Barangay 852 in Pandacan, Manila. It also examined their current waste management system and households' awareness and participation in the plastic recovery initiatives of Fast Moving Consumer Good (FMCG) Companies.

Results revealed that while residents were aware and knowledgeable of the concept and practice of separating wastes, they still fail to perform proper and complete waste segregation. The barangay's current waste management system is also not clearly communicated and weakly implemented, as conflicting perspectives on the processes were documented. Participants also showed little knowledge, awareness and participation in plastic recovery programs of FMCG companies within the barangay. Only Unilever's Misis Walastik program is the most visible and present among the community members. Deterrents to their waste separation behavior were identified to be due to (1) difficulty to change old habits and inability to form and sustain new desirable habits (discipline); (2) limited knowledge and access to proper and complete waste segregation; (3) lax implementation and monitoring of barangay waste management system and municipal waste collection; and (d) delegation of waste separation responsibilities to others.

Furthermore, this paper asserts that tackling the issue on waste separation at its source (household) in integral, necessary and crucial for any solid waste management or initiatives to convert trash into resources to be effective.

Key Words: waste separation behavior, attitude; awareness of FMCG plastic recover initiatives; waste management system; municipal waste collection; plastic issue

Introduction

For decades, the solid waste management (SWM) that people have been accustomed to is reduce, reuse, and recycle, and yet, waste management (to minimize or keep it at its lowest level) is still a global challenge. Although overall recycling rates have increased globally, growing population has increased waste generation (Messenger, 2018).

In 2016, National Capital Region (NCR) has posted the greatest volume of wastes, around 9,212.92 tons per day in 2016. In a study by World Bank (2012, as cited in SEPO, 2017 and Messenger, 2018), Philippine municipal solid waste generation per capita per day for the Philippines is expected to generate 77,776 tons of waste per day by 2025.

The Philippines is the third largest plastic polluter, only behind China and Indonesia (Deutsche Welle, 2017). As a sachet economy, the country relies on sachet packaging or more commonly known to Filipinos as *tingi-tingi* system. The system has been effective in augmenting the budget of low-income households due to their affordable prices as needed, but it has also been generating plastic wastes from packaging of fast-moving consumer goods which are becoming environmental hazards (e.g., flooding) (Posadas, 2014).

Fast moving consumer good (FMCG) companies have already been called out to be held accountable for the waste created and left behind by their products, and they have been urged to implement long-term solutions in which consumers can participate (Deutsche Welle, 2017). However, efforts must not be coming from manufacturers and policy makers alone. Household consumers must be willing to participate to make the environmental programs effective.

Initiatives have failed to produce the desired outcome of managing waste. There has been disconnection between the effectivity of recycling programs and household participation is the fact that they do not know how to segregate or separate their wastes (McAllister, 2015). Before people get to participate in return plastics programs or any other initiative done by companies and the government, it must be established first if those belonging in the low socioeconomic status, the biggest consumers of plastics and sachets, have the knowledge and discipline to segregate their wastes, which the researchers ought to know.

This research focused on low-income households that reside in one community or barangay in Manila because it is the biggest solid waste polluter in the country. Low-income households (monthly family income is below P31,560 per month) were chosen because they are the biggest players of the sachet economy (Deutsche Welle, 2017; Albert et al., 2015).

To understand why plastic recycling initiatives are ineffective the researchers explored how residents experience waste management and participate from waste generation to waste collection by answering the following research questions:

1. What kind of attitude do people exhibit towards waste separation and how do they separate their wastes?
2. What influences their waste separation behavior and what could encourage them to separate wastes?

3. How do they perceive the current waste management system and its implementation?
4. What do the households recommend in solving the issue on waste management?
5. How aware are they of the various FMCG programs on plastic waste management?

Conceptual Framework

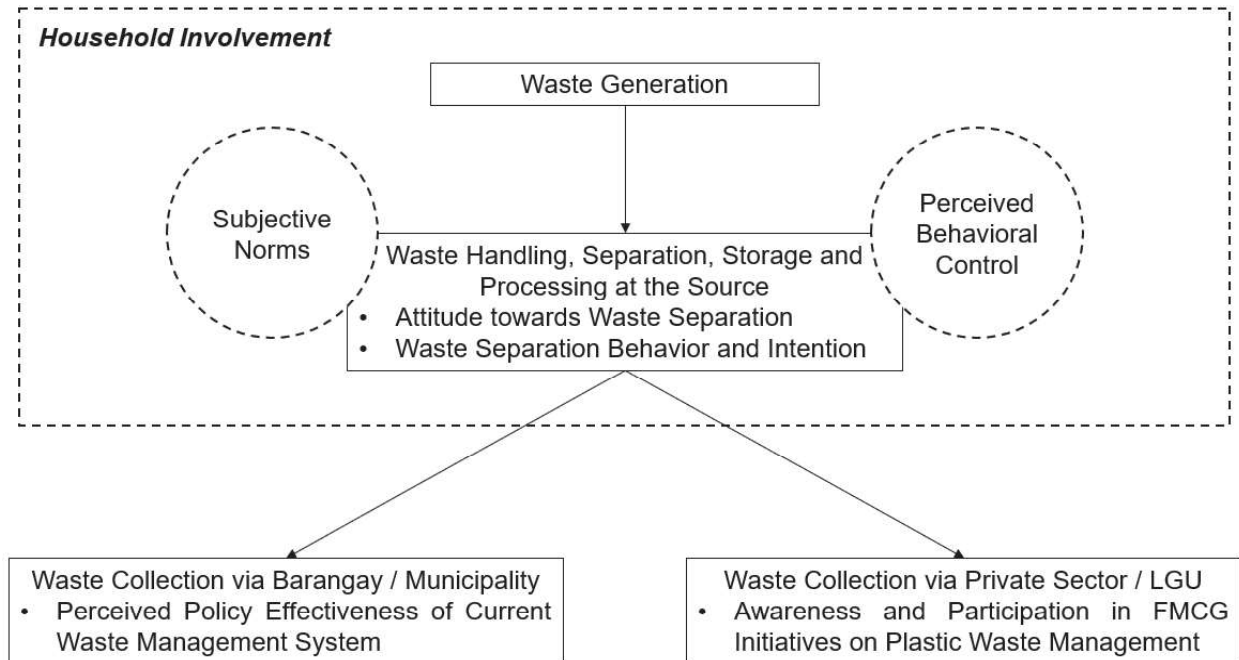


Figure 1. Proposed conceptual model

The proposed conceptual framework illustrated in Figure 1 made use of concepts designed by Xu and colleagues (2017), while merging it with Rousta' (2018) research wherein the functional elements in a municipal solid waste management are interrelated; Rousta's (2018) framework enumerated process from waste generation to waste disposal, but for this study, researchers only considered until collection. The influence of the expanded theory of planned behavior as conceptualized by Xu et al. (2017) can be seen through the concepts of attitude, behavior and intention to separate wastes, subjective norms, perceived behavioral control and perceived policy effectiveness. Following the private sectors' involvement in solid waste management as proposed in R.A. 9003, this study also explored the households' awareness of and participation in FMCG initiatives on plastic waste management. There have been many programs implemented by several FMCG companies to recover and recycle plastic waste in partnership with various organizations that also entail consumer participation. Awareness is a consumer's evaluation of his familiarity of the listed program and its mechanics, while participation is one's involvement in the said activity or with direct contact in the program.

Methodology

Research Design and Paradigm

The strategy of inquiry used in the study is an interpretative phenomenological analysis (IPA), which aimed to explore the participants' experience of waste separation and of the barangay's current waste management system from their perspective.

A constructivist approach was used to encourage participants to share their personal experience, while critical theory was also applied to understand participants' background and analyze where they are coming from.

IPA specializes in rich discussions and lived experiences, this approach allows the best views in their natural environment. The IPA was utilized to highlight the experience of the leaders of the barangays and some members (who mostly interact) to waste separation behavior and awareness of certain people (in the low-income households) in the programs of the FMCG companies. Based on pilot research before this manuscript, the best way to get rich data will be through heavy interviews in the IPA approach.

Respondents and Sampling Procedures

Barangay 852, Pandacan, Manila, which is composed of at least 500 households, participated in the study. It is composed of 1.24 percent total population in Manila. It was chosen the community for data collection as leaders and members were responsive in sharing its previous and current practices with waste separation and waste management awareness. Moreover, Purposive and snowball sampling were still used with the following criteria set: the respondents must (a) be at least 18 years old, (b) be a Filipino citizen, (c) understand basic conversational Filipino, (d) have an estimated average monthly household income of Php 31, 560 and below, (e) represent one unique household (primary caretaker). No case of two or more respondents representing one and the same household was recorded. The researchers have identified that a *household* would entail that they have their own gas/electric stove.

Table 1

Demographics of Participants

Count	Pseudonym	Sex	Age	Occupation
1	Goyo	Male	58	Barangay Official
2	Mayumi	Female	48	Barangay Official
3	Chedeng	Female	35	Barangay Official
4	Jacinto	Male	45	Barangay Official
5	Mutya	Female	42	Barangay Secretary
6	Claudio	Male	58	Market Seller
7	Yasmin	Female	48	Teacher
8	Gemma	Female	28	Office Employee
9	Amihan	Female	35	Sari-Sari Store Owner
10	Irma	Female	52	Sari-Sari Store Owner
11	Rodrigo	Male	60	Garbage Collector
12	Ramil	Male	61	Garbage Collector

Table 1 enumerates the twelve participants' profiles whose ages ranged from 28 to 61, with five males and seven females interviewed. Five participants were common barangay members with their own day jobs, while five were barangay officials and the other two were self-employed garbage collectors within the barangay. These three distinctions played a major role in the analysis of the interviews.

Results and Discussion

Waste Separation Behavior, Attitude and Intention

Waste separation is not foreign to the residents of Barangay 852, Pandacan, Manila. Many of the participants expressed that they observe waste disposal and segregation even before the barangay carried out their waste management system. In this regard, barangay officials expected more residents to separate wastes and treat this behavior as common knowledge, especially since they have devised a waste collection scheme that emphasizes the importance of it.

Participants practiced improper and incomplete waste separation. Even though most of the participants perform waste segregation, not everyone does it properly and completely. The researchers noticed that some residents separate their wastes according to their priority, consumption and judgment.

“Yun, kasi diba Pampers. May mga pupu ng bata. Kaya sineseparate namin. The rest, pinagsasama na namin. Kasi hindi naman kami masyadong nagluluto. Bumibili lang kami talaga. So hindi siya talaga, more on Pampers at tsaka mga basura lang na candy-candy. The rest, wala naman. [Pampers (diapers) have child's feces, which is why we separate them. We mix the rest. Because we seldom cook, we buy food outside. We don't generate too much waste from food. Pampers (diapers) and small wastes are what we mostly separate.]” (Gemma, 28, Office Worker)

Even if some incorrectly perform waste separation, it has become an everyday routine for most of the participants. There were some who have designated times in a day to manage their wastes. On the other hand, some separate their wastes as soon as they generate them since biodegradable wastes produce a foul odor and may attract insects.

“Tuwing may basura po kami, nagbubukod agad. Diretso na, lalo na yung kapag may nabubulok, tapos agad kasi mamamaho talaga... Kasi siyemre para sa kalusugan namin yun. Kaya talagang kumbaga yung pagtali, saradong sarado, kasi namamaho talaga yung nabubulok. [Every time we have trash, we separate them immediately especially if it is biodegradable because it spoils easily... And of course, it is for our health. We make sure we seal them by tying them well because biodegradable wastes smell badly.]” (Jacinto, 45, Barangay Official)

When asked about their motivations to separate waste and recycle, they have cited the importance they give to environmental cleanliness and protection, their health and hygiene, as well as the possibility of gaining additional income from it.

Residents are aware of the current plastic pollution situation in Manila, which is why as much as possible, they would want to contribute to its reduction. Collecting recyclable wastes like plastic bottles and sachets will reduce the risk of it being transferred and improperly disposed of in prohibited areas such as water channels and drainage. Thus, if these will be sorted correctly and reused, there would be no issues anymore with any clogging and flooding.

“Para [sa] kalinisan naman yun [waste separation] e, hindi lang para dito, kahit saang lugar kasi cause yan ng pagbabaha e kaya dapat sa isip nila maging ano, [environmental] sila. [Waste separation is for our cleanliness, not only here, but in other places, as wastes causes flooding, therefore they should think about the environment.]” (Goyo, 58, Barangay Official)

Some residents are well-informed of the detrimental effects of organic wastes to one's health. These pose a serious threat since the growth of bacteria can lead to infectious and chronic diseases.

“Kasi siyempre para sa kalusugan namin yun. Kaya talagang kumbaga yung pagtali, saradong sarado, kasi namamaho talaga yung nabubulok. [Of course, it is for our health. We make sure we seal them by tying them well because biodegradable wastes smell badly.]” (Jacinto, 45, Barangay Official)

Apart from the intrinsic motivations mentioned, several participants consider the separation and collection of recyclable wastes as a method of gaining additional income. One of the garbage collectors mentioned that he goes over through the plastic bags he collected to check for rubbish and recyclables that can be sold in junkshops. A sari-sari store owner noticed that most of her customers and neighbors would also collect papers, cardboards, tin cans and plastics – anything useful for them and sell them to earn money.

“Kasi ang napapakinabangan nila, binebenta na nila. Yung pwede na nilang itapon, sa basura yun na yung tinatapon nila. [Those that are useful, they sell them. Others that can be disposed of, they throw them away.]” (Mayumi, 48, Barangay Official)

Attitude Towards Waste Separation and Intention.

Residents generally show a positive disposition towards the act of separating wastes. One resident who does not practice waste management properly expressed her intention and willingness to do it correctly this time.

“Maganda nga yun. Yung binubukod. Para din malinis. Kasi diba pagsasama din sa trash can, masyadong madumi. Tapos yung mga amoy, sama sama na. Yung mga pagkain, yung basa, pag sinama mo diba ang baho? Pag pinagsama mo ang panget. Ganun nga. [It is good to separate wastes. It is cleaner. If wastes are mixed in the trash can, they are more dirty. And they produce mixed odor. Food and wet wastes, when mixed together, smells foul right? It's bad to mix them.]” (Gemma, 28, Office Worker)

Similarly, the secretary of the barangay shared that their community has the same optimistic mindset towards waste segregation. Even before the local mandate on cleanliness, it has already become a habit for them to clean the streets and corners of the barangay.

Participants in the community have the “Ningas Cogon” mentality. Intention and attitude towards waste separation is not always positive. One of the garbage collectors observed that even if some residents display enthusiasm and dedication at the start to participate in waste management initiatives of the barangay, they return to their old habits of not separating wastes after a week. Government collection agencies act similarly. For some time, they control the types of wastes they collect each day, but as weeks progress after implementation, they became more lenient.

“Dapat nga nakasegregate nga yan eh. Siguro one week lang nakasegregate tapos bumabalik na naman na hindi nakasegregate.... At tsaka ningas kugon lang, Brother. Halimbawa may na implement na na ganoon. Mga 1 week lang siguro mapalig low. Okay na rin sila sa ganun (halo-halo na basura). [Ideally, they should be segregated. Segregation only happens for a week, after that, they go back to not segregating. They are not consistent, brother. For example, there is an implementation. Then after one week, the practice will lie low. It is alright for them to mix (wastes).]” (Rodrigo, 60, Garbage Collector)

Perceived Behavioral Control and Subjective Norm

The participants discussed how important it is to have available resources, support and influence from their family, community and the government for it to be easier for them to perform waste separation.

The ability of residents to perform waste segregation activities is heavily influenced by their available time, space, government facilities and resources, knowledge and convenience. Since most of the participants have daily jobs, they resort to handling their wastes at designated times of the day.

The lack of space for separated wastes in households is also a factor that hinders the residents from segregating. Residents coming from low-income families are unable to provide an allotted space for their wastes inside their homes. Most of them do not have any choice, but to place their plastic bags outside.

“Sa labas lang sinasabit namin kasi yung bahay naming maliit lang, kaya sa labas po nakasabit. [We hang them outside since our house is small.]” (Jacinto, 45, Barangay Official)

When the researchers roamed around the barangay to observe their current waste situation, they found garbage bins for biodegradable and non-biodegradable wastes. However, these are placed hard-to-locate areas and these are not in a good condition anymore. Some of the garbage bins were removed because these were not properly maintained and utilized.

“Oo, mga separating bins, ang kaso, niligpit namin kasi nga yung mga constituents na iba, inaasa na lamang nila yung basura nila sa amin, sa pagtatapon. At tsaka, minsan yung basura ng bahay nila, doon na rin nila nilalagay. Napakahirap kasi sa aming street sweeper na lahat nang... marami...Meron kasi dito sa gitna, meron din sa kanto... Kaya pinatanggal po namin yung para po yung mga constituents matuto silang magatapon ng sarili nilang basura. At matuto na ring magsegregate. [We have separating bins. However, we removed them because other constituents relied their waste disposal on us. And sometimes, they put their house wastes in our separating bins. It is hard for us street sweepers to attend to many locations... here at the middle or across the street... We removed them so that our constituents will learn to throw their own trash. And to learn how to segregate.]” (Mutya, 42, Barangay Secretary)

In one household, it is consistent that only few members of the family practice waste separation. It is noted that most of them are either the mothers, the head of the households or those who are left to guard their homes.

“Hindi, hindi ako yung nagbubukod yung, asawa, ko kasi siya yung laging nasa bahay. Kasi may trabaho ako. [No, I do not segregate, but my spouse because she is always at home. Because I have a job.]” (Jacinto, 45, Barangay Official)

The housewives are often supported by their husbands in separating wastes. One resident mentioned that it is actually her husband who pushes her to learn how to separate wastes because they can gain something from it.

“Siya nga nagsasabi na “ibukod mo yan kasi mabebenta pa natin yan. Wag mo itapon yan. [He is the one who tells me to separate those because we can still sell them. Do not throw them.]” (Amihan, 28, Sari-Sari Store Owner)

One of the mothers also mentioned that she taught her children to practice waste separation, and she has been gaining support from them ever since. The recyclable wastes they collect are used for their school projects.

Aside from family, one of the barangay officials mentioned that they have been very proactive when it comes to persuading their neighbors and community members to manage their wastes properly. For example, during barangay assemblies, they would often announce the rules and regulations of the barangay on waste management as well as the advantages they will get from doing it. He keeps on reminding them that their wastes should always be properly disposed of and if they see wastes lying around, they should already take initiative to pick these up.

Current Waste Management Program

To further understand the waste management system of the barangay, the researchers asked the participants to illustrate the process of which wastes are collected in their community. During the interview, it was noticed that people started to complain and give criticisms as feedback to the current waste management system.

The study found conflicting perspectives of the participants. Interestingly, their accounts of how wastes are collected were seemingly in sync only up to the extent of their class or group, while some key information differed from one group to another. Other than the first step in which the barangay announces that wastes are about to be collected in the morning, all the other succeeding steps differ. The researchers synthesized three perspectives on the barangay's current waste management program and were summarized in Figure 2.

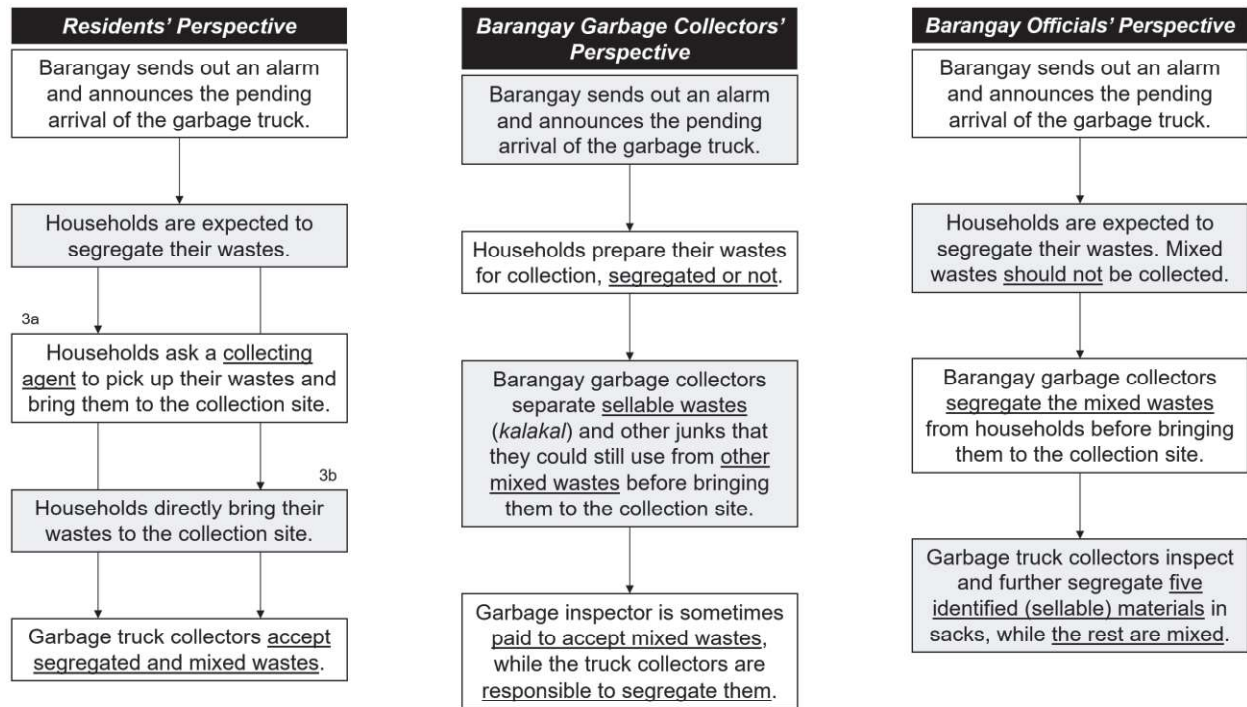


Figure 2. Three perspectives on Barangay 852's current waste management program

Garbage collection were done by different agents. It transpired in the interview that residents have someone collect their garbage in the morning and pay for their services. Although most of them employ the services of the barangay's appointed garbage collectors, others have their other collecting agents, or they themselves bring their wastes to the collection site.

"Bata lang. Pinapakuha lang namin kasi may pasok kami sa umaga... 'Yung mga taga-Ilang-Ilang, kabilang barangay... kaso bihira siya kumuha. Minsan after 3 days. [Only children. We ask them to get the wastes because we have work during the morning... Those from Ilang-Ilang, another barangay, also get them... but they seldom collect. Sometimes it takes them three days.]" (Gemma, 28, Office Worker)

Some barangay programs were discontinued. Participants mentioned that large waste bins were once available in every street of the barangay; however, it was discontinued due to some residents throwing their household wastes there when in fact, the bins were supposed to be for wastes found in the streets. Additionally, before, there were streets weepers, but now the barangay officials themselves are the ones cleaning the streets.

“Inalis na kasi nga kung sino-sino na lang nagtatapon nagkahalo-halo minsan yung nasa ‘yung basura nasa loob ng bahay nilalabas nila. Dapat kasi ang lalagay sa mga basurahan dito yung dito nakalat sa kalsada. [They were removed because random people put their wastes without segregation, and sometimes, they put wastes coming from their houses. The garbage bins are for wastes picked-up from the streets.]” (Jacinto, 45, Barangay Official)

Recommendations from Households

Even though barangays are mandated by the local government to perform waste segregation and proper waste management, some residents still fail to handle their garbage properly and sort their waste accordingly. Participants were asked to recommend how to solve the issues on waste management and persuade community members to separate waste and recycle.

Education plays a role. They mentioned how training community members and having practical seminars can be used as tools to further instruct and guide them on proper waste management, especially because this worked for the youth in their barangay. Previously, an organization named AKAP sa Bata Philippines (AKAP) trained the youth on the basics of waste segregation. Because of AKAP, the children have been cooperating and helping them maintain the cleanliness of their barangay.

“Sa amin kasi ngayon ito ang barangay namin na wala ka masyadong nakikitang kalat kasi ‘yung mga kids namin dito, naging member ng grupong AKAP, sila mismo na-train para malaman nila kung saan nila itatapon yung mga waste nila...nabubulok...naglilinis yung mga bata every Saturday. [Currently in our barangay, you will not see too much litter because our kids became members of AKAP group. They were trained to know where will they throw their biodegradable waste... The kids clean every Saturday.]” (Mutya, 42, Barangay Secretary)

Penalties and incentives can be imposed. The majority of the interview participants conveyed their approval of imposing both rewards and penalties for residents who follow the right practices of waste management and those who do not respectively.

“Parang sa tingin ko, kung mai-implement yung inaano [pinaplano] ni Mayor Isko ngayon, na ‘yung mga basurang mga pwedeng mapakinabangan meron kang points para ipalit mo ng pagkain or ipapalit mo ng mga grocery, bigas o asukal. Baka makatulong pa. [In my opinion, if the plans of Mayor Isko will be implemented, wastes which can still be utilized can be given points to have them exchanged for food or grocery, rice or sugar. This can help.]” (Mayumi, 48, Barangay Official)

However, some interview participants did not see the need to give rewards and incentives. For them, residents should already be motivated by the possible advantages and disadvantages of proper waste management since it is for their own sake.

“Palagay ko, kahit hindi na bigyan reward e kasi para sa kanila na rin ‘yun ‘di ba? [For me, even if there are no rewards, because it is still for their own good, right?])” (Goyo, 58, Barangay Official)

Some think that imposing penalties or getting fines from people who were not able to separate their wastes could be done. Funds raised from fines may also be used by the barangay for their planned activities.

“Parang lagyan mo na ng multa. Para maging fund din nung barangay. Tsaka para maging lesson din sa mga tao. [It is like we add penalty This can be a fund of the barangay. Also, it will teach the people a lesson.]” (Gemma, 28, Office Worker)

Implementation of Current Waste Management System and Barangay Support should become stricter. The barangay may have an existing waste management system that they follow, but both residents and barangay officials believe that they lack strict implementation. When the program was first implemented, people were following the ordinance on waste separation, but after which, they started to go back to their old habits again, as the garbage truck collectors and resident garbage collectors were getting more lenient with them. Given this, most of them suggested that it would be better if the collecting agents would be stern in collecting the residents' wastes. They should not accept the wastes given to them if these were not segregated properly.

A barangay official approved of this suggestion; he also deemed it necessary for residents to be informed that the garbage collection agencies or the garbage trucks would not collect their wastes. This could persuade the residents apart from imposing penalties since having garbage piled up and stocked in their homes would be more difficult for them. He also noted that it is important to have the support of both the barangay and community members to make this initiative more plausible.

Plastic Recovery Programs of FMCG Companies

FMCG companies partnered up with the local government of Manila for their plastic reduction and recovery programs. A barangay official mentioned that the residents who are knowledgeable of the Misis Walastik program keep and collect their used sachets, cut it out into small pieces and place it in a sack until it fills up. After the sacks were amassed, these were then given to the barangay representatives and were brought to Sacramento (Unilever's Plastic Recovery Center) for weighing. The secretary of the barangay, who is their representative for the “*Misis Walastik Program*,” mentioned that the company weighs and gathers their accumulated plastic wastes every 28th of the month and in return, they receive two bars of laundry soap per kilo. When asked what the company uses these for, the barangay representative divulged that they were informed that the plastic sachets will be hauled over to Unilever and will be converted into chairs or hollow blocks that could be used by schools.

Even if plastic recovery initiatives such as the “*Misis Walastik Program*,” are widely implemented in the city, some residents remain unfamiliar with them. A barangay official mentioned that there are several sari-sari stores that collect the used sachets purchased by their customers to reap the rewards. However, when surveyed, not all sari-sari store owners were aware that plastic wastes and sachet products can be exchanged for consumer products or rewards of any kind. A resident sari-sari store owner shared that she has not heard about any of these initiatives, and none of her customers return sachets. One of the garbage collectors revealed that even though he knew of such programs through advertisements in television, he observed that these have not

reached their whole barangay and not everyone is knowledgeable about it; hence, not all have taken advantage of the program.

The awareness and knowledge of some residents also did not translate to their participation in such activities. A sari-sari store owner chose not to involve herself in these recovery programs. She does not bother to collect the sachets anymore and gives them directly to those who ask it from her. Her customers also do not return their plastic wastes because they immediately exchange it for load.

“Dito naman wala silang ganun, tinatamad silang mag-ganun. Hindi ako nagkokolekta, kasi pag binili nila, kanila na yun. Sa Surf palit nila ng load, sila na yun. Hindi na nila binabalik.... Ako, yung aking plantsadora, hinihingi tapos kinikilo nila sa Sacramento, hinihingi sakin yung mga foil, kasi tinitimbang yun sa kanila. Kaya binibigay ko na talaga yun. [Here, they do not have that, they are lazy to do that. I do not collect, because when they buy, it is theirs. For Surf, they exchange load by themselves. They do not return them. My housekeeper asks for the foils and have them weighed at Sacramento, which is why I give them away.]” (Mayumi, 48, Barangay Official)

Aside from exchanging sachets with consumer products, some residents sought for alternatives that can easily turn wastes into money. For instance, the garbage collector, after receiving the plastic wastes from the residents, found it easier to just sell these to junk shops across their barangay.

“Kapag may nagbibigay samin ng mga plastic diyan, amin na yun, pera kasi yun eh... [Ibenebenta naming] dito sa may highway lang. Maraming bentahan dito. Sa highway lang meron na diyan, bakal lahat. Titimbangin nila.[When someone gives me plastic wastes, I consider them ours as they mean money... We sell them along the highway. Many shops are located nearby. Along the highway, there are shops, all of them buying metal scraps. They weigh the plastic wastes.]” (Rodrigo, 60, Garbage Collector)

Moreover, one resident opts to reuse his plastic products instead of giving it to plastic recovery programs or selling them to junk shops.

“Hindi kami nangogolekta ng mga resiklong plastic, kasi yung mga Wilkins namin na bote ng bata. Iniipon namin, pinaglalagyan namin ng tubig. So hindi namin siya sinasama sa basura. [We do not collect recyclable plastic because like Wilkins bottle which we use for children are collected and filled with water. Which is why we do not mix them with our wastes.]” (Gemma, 28, Office Worker).

The barangay's lack of participation in FMCG initiatives is not only explained by the residents' indifference or how they find these insensible for them to take part in. The reason for the non-involvement of some is just simply ignorance. These programs are not clearly communicated and circulated in the barangay, which is why not all are aware and participate. In fact, the barangay secretary disclosed that even if people are encouraged to participate in plastic recovery, they do not really put much effort to inform and persuade the community of these

initiatives. They work under the assumption that some are not willing to segregate, and the others just seem unconcerned.

Lastly, there were plastic recovery programs before that convert plastic wastes into eco-bags. Residents were asked to participate by bringing plastic wastes to the program. The resident teacher hoped that they would continue these kinds of projects because it was useful for her when buying food in the marketplace.

“Matagal na pala yun e nangyari...yung naging ecobag yung mga plastic na tinatahi nila. Kasi meron pa akong ganyan na binigay nila...pero wala na matagal na yun...Pero maganda ibalik yun kasi maganda sa pamamalengke... kasi ano siya e hindi na siya mabubutas din, makapal na yun e parang mga denwood. Yung tulo ng pinamelengke mo na mga ano, at least nandun. Kaysa ang daming mong plastic bag, pag nabutas din wala din. Dagdag lang ang dumi at mahirap tunawin yun. [It happened long ago... they converted the plastic wastes to ecobag through sewing. I still have the bag given to me... but it was a long time ago... But its good if they bring the program back because the ecobag is useful when shopping... It does not get punctured; it is thick like denwood. The liquid coming from items you bought from the market do pass through the bag. Instead of having many plastic bags, which gets punctured easily. They add to pollution and are difficult to degrade.]” (Yasmin, 48, Teacher).

The importance and effectivity of these plastic recovery programs were also observed by one of the residents. She noticed the gradual decrease of the amount of wastes they had when she gave back plastic wastes to the companies.

Synthesis of Theory and Practice

Rousta (2018) claimed that studying the waste separation at its source is integral to understand the solid waste management, because contributing to the waste sorting system is essential to change waste into a value-added resource. Her claim was consistent with the EcoGov Project (2011) research which noted that one of the best practices is the full enforcement of proper waste segregation at its source. In this study, it was found that there is already a bottleneck at the source with some people not participating in waste separation.

Garbage is continued to be mixed after segregating wastes that can be bartered. These results were consistent with the call of previous studies of waste management in developing countries to create an efficient source separation system (Rousta, 2018). Rousta (2018) mentioned that generally, people have the wrong information on how to sort correctly, especially because knowledge is commonly transmitted through word of mouth via friends and family members. Similarly, in the study, the residents implied that segregation is a no-brainer, habitual (automatic) activity learned through common sense, but in fact, they are practicing incomplete and improper segregation, even based on the barangay's ordinance on how to separate wastes. Hence, there is a lack of knowledge and information on sorting wastes in the barangay, as likewise reported by Rousta (2018).

Although residents reported positive disposition towards waste separation, some still do not adhere to it. Rousta (2018) mentioned that factors to consider are “personal situations, convenience, task knowledge, opportunities and abilities [that] influence both behavior and attitude” (p. 24).

In the study, convenience was a great factor to consider among residents, may it be through having time, space, and enough facilities to perform waste separation. In Xu and colleagues’ (2017) research, they characterized these as elements of perceived behavioral control. Non-segregating residents of Barangay 852 shared that they fail to segregate because they are busy and have no nearby garbage bins to dispose of their trash. Such inconvenience may also explain why some residents employ a trash collector to have their wastes segregated and brought to the collection site every day. Another thing to consider is that each resident has their own lifestyle and situations that make waste separation impossible. Hence, how they perceived convenience is also affected by their subjective and personal circumstances (Rousta, 2018).

To further understand waste separation behavior, Rousta and Dahlen (2015, as cited in Rousta, 2018) identified three categorical factors: internal (attitude and intention), external (perceived behavioral control – knowledge, infrastructure, facilities, time, space) and socio-demographic factors (gender, age, income). Of these three, however, the last is unclear how it affects separation behavior (Rousta & Dahlen, 2015, as cited in Rousta 2018), while the other two have a similar foundation as the model proposed by Xu and colleagues (2017).

Due to the richness of qualitative responses, this research could further provide evidence for the Motivation-Opportunity-Ability-Behavior (MOAB) model by Olander and Thøgersen (1995, as cited in Rousta, 2018). Motivation was greatly established in this research, while it could be assessed that what disconnects residents’ positive intention to segregate with behavior are their abilities (knowledge, habit, resources) and opportunities (overall situation). In summary, this study highlighted the following, which may explain why separating at its source is not being practiced:

1. Ability – Difficulty to change old habits and inability to form and sustain new desirable habits (discipline)
2. Ability – Limited knowledge and access to proper and complete waste segregation.
3. Opportunity – Lax implementation and monitoring of barangay waste management system and municipal waste collection; and
4. Opportunity – Delegation of waste separation responsibilities to other agents.

Information should be properly disseminated. Furthermore, the local solid waste management and collection in the barangay is not properly communicated, as exemplified by the conflicting perspectives that the residents shared. Rousta (2018) shared that for waste sorting and recycling behaviors to increase, “the design of information, types of information, types of communication channels, and the timing of dissemination are vital” (p. 24) and that first impressions of the waste management system can deeply influence waste sorting and recycling behavior among residents.

Moreover, this study exemplified how past behavior can significantly affect habit formation and behavior (Xu et al., 2017). The residents' "*ningas cogon*" mentality can be explained by how past behavior (non-separation of wastes) strongly dictates the residents' current inaction to separate wastes. It seems to be difficult for them to change what they have already been accustomed to, and so even if they believe that waste separation is positive and contributes to the general welfare and health of the people and the environment, these attitudes are not enough to change their old habits, thereby, again, constituting an attitude-behavior gap.

Recommendations

Resource/Partnering with a FMCG Company. Another key learning is to partner up with an FMCG company proactively pushing for plastic waste management to gather more information on how programs were conceptualized. Through the partnership, the researchers may gain an understanding of the objectives of the program and cross-check with the participants' experiences. It would also provide another perspective on the issued from the manufacturer side while reconciling how households perceive their program. Through this, it could elucidate a more detailed discussion on why a program is effective or ineffective. This may also attract more research participants due to sponsorship and brand awareness.

Expanding Scope of Study to City Government Level. This research was only able to tackle to the extent of the household and barangay level's perspective on waste separation and waste management system. Therefore, it is recommended to examine the planned and implemented waste management policies, activities and programs initiated by the city government. Gaining perspective from contracted garbage collecting agents and city officials would carry out a deeper understanding of the interaction and responsibility of all levels (from household to barangay to city governments) and ultimately demonstrate the end-to-end process from waste collection, treatment and safe disposal as depicted in the waste management hierarchy framework.

Implement Action Research. In the future, Barangay 852 can implement the program in San Fernando, Pampanga where they hired residents as civil servants to collect food scraps and recyclables from every house daily and to pre-sort the recyclables before delivering it all to one of the 35 designated waste warehouses and be picked up by trucks (McDermott, 2017). This could work for a small community like 852, because scraps could be used as organic fertilizers as what Marikina does (Palafox, 2017), while recyclables could be exchanged for rice or cash equivalent (Visaya, 2019). In fact, this ongoing practice in Pampanga has also decreased their trash percentage to landfill by 68%. Waste warehouses usually perform further segregating, composting and recycling to prepare the wastes for transfer to disposal landfills or to long-term storages (Mateo, 2019). In effect, this could help residents to practice proper waste segregation while pushing them to be responsible and accountable for their wastes.

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