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Slave to sachet economy: Socio-cultural insights

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Abstract

This paper investigates the socio-cultural insights on the Philippines' massive consumption of plastic-sachets packed products and the peoples' disposal habits of single-use plastic sachet wastes. A mixed-method approach was used including a focus group discussion among 6 environmental experts, and a critical selection of concepts from the literature. Deductive thematic analysis aided the main findings. The socio-cultural lens reveals that "Tingi" culture, the society's old practice of patronizing retail products, and the peoples' preference for convenience, further fueled by multinational corporations (MNCs) marketing strategies, have enslaved the society to a sachet economy. Furthermore, people's lackadaisical attitude toward the environment shown in their massive littering habits and poor enforcement of environmental laws damaged the environment. It is recommended that the government should compel the MNCs to reduce the production and sale of plastic sachets by 5% and convert these into refillable containers. Such action will substantially reduce sachet wastes that go to the waterways by as much as 600 million packs annually. Also, the government should adopt the Extended Producer Responsibility (EPR) policy in which the responsibility of managing plastic sachet wastes is passed on to the MNCs. Environmental nudges, penalties, and incentivizing projects adhering to a circular economy should also be implemented. The issue of over-consumption and disposal of single-use plastic sachet waste in the Philippines is inadequately explored from a socio-cultural lens. This study fills the gap in knowledge and understanding of the phenomenon to address the environmental threat resulting from peoples' single-use plastic sachet consumption and disposal behavior.

Keywords: Sachet Economy; Over-consumption; Plastic sachet waste

Introduction

There is no silver bullet in the fight against global pollution due to plastics. Plastics threaten the health of the ocean, food safety, coastal tourism, normal climate state, and overall environmental condition. "Plastic problems on disposable and single-use packaging is technical, societal, and infrastructure related" (Snowden, 2020) that persist in almost all countries. In the Philippines, 2.7 million tons of plastic waste are generated annually, and 20% of these end up in the ocean (McKinsey 2015 report as cited in Turning the Tide on Ocean Plastic, 2020). The country's phenomenal use of plastic sachets is estimated to be around 60 billion packets a year. The Global Alliance for Incinerator Alternative (GAIA) 2020 reported that "the single-use plastics are a growing concern in the country as the small sealed packaging sachets are particularly alarming." The report added that "sachets comprise 52% of the residual plastic wastes that choke waterways, harm wildlife, and threaten livelihoods like tourism and fisheries."

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How the sachet economy has enslaved the Filipino consumers whose disposal behavior has brought havoc to the environment is the phenomenon being studied. The study is anchored on the fact that plastics will stay, and in the absence of any sustainable alternative, the society is left to embrace it as a necessary evil. Thus, the study embarks on an ontological assumption that the social phenomena exist as realities, i.e., massive sachet consumption despite adversarial environmental effect. It posits that the society's contemptible sachet consumption and disposal behavior is contributory to environmental problem.

The study sought to investigate the socio-cultural phenomenon that contributed to the over consumption of plastic sachet packed products and the controversial massive plastic sachet wastes problem in the country. The main problem is answered by addressing the following questions: Why is the Philippine society enslaved by the sachet economy? How does the Filipinos' plastic sachet consumption and disposal behavior affect the environment? Can environmental and financial nudges and penalties alter the society's behavior towards responsible plastic sachet consumption?

Thus, the main objective of this study is to uncover the complex socio-cultural realities that are linked to sachet consumption and how to mitigate the critical environmental impact of massive sachet wastes.

Literature Review

"The assumption that plastic is bad is probably not a sensible one" (Snowden, 2020) because plastics are indispensable to human beings. A single-use plastic food pouch "patented by Harold Ross and Yale Kaplan in 1955" (Basu, 2015) brought enormous convenience to people. In 1970s, Chinni Krishnan introduced the sachet, "making him a legend of disruption for his pioneering and innovative concept" (Krishnamoorthy, 2018). While plastic-sachets provide convenience and portability, "they, too, have ruined our environment because they are naturally difficult to recycle. Some plastics are recycled only at a rate of 20-30%, with the rest typically going to incinerators or landfills, where the carbon-rich material takes up to 1,000 years to decompose" (Snowden, 2020). While there are current alternatives to plastics, their full potential is yet to be realized. In the Philippines, numerous recycling projects supported by the local government and multinationals like Unilever and Nestle are gaining ground. However, these projects are controversial as some environmentalists see them as a form of green washing, "a practice of promoting environmentally friendly programs to deflect attention from an organization's environmentally unfriendly or less savoury activities," (Netto, Sobreal, Ribeiro, and Soares, 2020) quoting Webster's New Millennium Dictionary.

The socio-cultural practice being examined in this study is the Filipinos' *Tingi* Culture. *Tingi*, a Tagalog word that literally means retail, is a "practice of selling and buying goods in amounts less than the smallest retail packaging" (Tiquia, 2019). *Tingi* is decribed by Benosa (2020) in Nick Joaquin's essay: "What most astonishes foreigners in the Philippines is that this is a country, where people buy and sell one stick of cigarette, half a head of garlic. . . parts of the content of a can or bottle, or one single banana." *Tingi* culture is not economical but practical to most people. It is not cheaper, but it is more realistic to buy only what people need for the moment," (Veneracion and Veneracion, 2020). *Tingi* culture predates sachet use. Benosa (2020) relayed that when she was young, she would buy in a nearby store where the owner would pour a ¼ bottle of vinegar to the empty container she used to carry. She added, "today people still buy about the same quantity of vinegar, but unlike before, they no longer carry a



container because condiments of small quantity now come in sachets that are available in both *sari-sari* stores and big groceries.” Thus, “in a matter of decades, the *Tingi* culture, once characterized by sustainable practices that used reusable materials, has been redefined into a culture of convenience dominated by fast-moving consumer goods packed in non-recyclable sachets” (Liamson, Benosa, Aliño, and Bacongus, 2020).

There are two types of litterers. Some “litter only occasionally, when circumstances force them to do so and who may be embarrassed or ashamed of doing so” Kolodko, Read, and Taj, (2016). There are also people who litter habitually. For them, littering is a conscious decision, for convenience, although it is an anti-social act” Kolodko, Read, and Taj, (2016). However, identifying these people in terms of their population in the society can be very difficult, or even impossible. But why do people litter? Kolodko, Read, and Taj (2016) share these findings:

“Wesley Schultz and his colleagues (2013) attempted to answer this question: Do people litter because of the way the environment is designed or because of their personal characteristics? In a study of littering behaviour, the researchers estimated that 15% of littering acts resulted from contextual variables such as the lack of, or distance to litter bins and the amount of litter already present; and 85% resulted from personal qualities.”

Furthermore, “Robert Cialdini said, one of the things fundamental to human nature is that we imitate the actions of those around us. People are likely to do what they think is expected of them. In a study after study, it turns out that cues in their environment are a strong determining factor in what actions people take. It is about norms and expectations” (Wagner, 2014).

It is estimated that in 2018, 16.7% of the Philippine population lived below the national poverty line (“Poverty Data”, 2018). The GAIA 2020 report revealed that the proportion of those who use sachet is higher among socioeconomic classes E (65%), yet “the plastic industry is not only vital to the national economy (contributing US\$2.3 billion in 2018), but plastics also provide low-cost consumer goods to poor and middle-income families” (World Bank Report, 2021). “In Manila’s slum areas which are inaccessible to garbage trucks, sachets and other wastes are thrown in estuaries or dumped on the street and end up clogging drains and waterways” (Lema, 2019).

The Philippines generates 2.7 million tons of plastic waste annually, and 20% of these end up in the ocean (“Turning the Tide on Ocean Plastic,” 2018). In 2019, “Metro Manila alone produced around 9,000 metric tons of waste every day, where waste-collection efficiency is highest at 80 percent; thus, 20 % of the wastes remain uncollected and end up in vacant lots or clogging canals, which eventually drain to Manila Bay” (Mayuga, 2019.) This is far higher than what researchers estimate that 10 percent of plastic wastes go into the oceans per National Geographic notes (Parker, 2015).

A circular economy is “the intention of designing out waste. In fact, a circular economy is based on the idea that there is no such thing as waste” (“Circular Economy,” 2020). Among the promising initiatives in the Philippines that support the circular economy is zero-wastes and refill stores that are gaining ground all over the country. “In Negros Island, eight *sari-sari* stores have gone Zero Waste, proving that micro-refilling stations can offer a reasonably

priced alternative that meets the needs of the poor” (Liamson, Benosa, Aliño, and Bacongus 2020). There are also multiple recycling initiatives such as the Philippine Alliance for Recycling and Materials Sustainability (PARMS), a recovery plastics recycling facility, San Miguel Corporation’s asphalt road project, which down cycles some 180,000 sachets, and Nestle Eco-Bricks, among others. Yet, GAIA 2020 report argued that recycling projects are not enough because they “fail to live up to the promise of eliminating the harmful effects of plastics.”

The Philippines has numerous environmental laws. Republic Act 9003 (Ecological Solid Waste Management Act) provides for anti-littering and prescribes the fines of not more than 1,000 Pesos (20 US Dollars) plus a community service up to 15 days (Environmental Compliance Assistance Center (2021). Local governments have corresponding environmental laws. In the hotels and resorts in Boracay Island, single used plastic is banned through Ordinance 386, 2018. The Department of Environment and Natural Resources (DENR), a national government agency, is aided by these laws in overseeing the environmental issues.

Nudge theory is popularized in 2008 in a book, *Nudge: Improving Decisions About Health, Wealth, and Happiness*, by behavioral economist Richard Thaler and legal scholar Cass Sunstein. How does the nudge work? “The concept is a relatively subtle policy shift that encourages people to make decisions within their broad self-interest. It’s not about penalising people if they don’t act in certain way but making it easier for them to make decision” (Chu, 2018). Nudges aim to influence people’s choices without taking away the power to choose. Nudges are used to help craft various policies on people’s behaviour affecting the environment. “Majority of our decisions are made instinctively and unconsciously. Therefore, in order to drive a positive change in people’s behaviour, we need to tap in to that instinctive way of thinking” (Smith, 2021).

Research Design

This research takes account of the available secondary data on plastic sachet wastes in the Philippines. The reviewed literature were selected using the inclusion and exclusion criteria and were analyzed to build the foundation of the study. While there are intensive studies on plastic-sachet wastes in the country, studies on socio-cultural lens, particularly on a phenomenon of sachet consumption and waste disposal among people, are very limited. Thus, an exploratory-descriptive approach is used to frame this research.

A mixed method approach is adopted by employing a survey, focus group discussion (FGD), and analysis of secondary data. Using the snow-ball sampling technique, the survey was conducted to map the exploratory study and formulate the desired research inquiries. The self-made questionnaire, which was deployed via google drive, focused mainly on Environmental Awareness and Nudging Intentions. The scale and rank responses were used. On the other hand, a focus group discussion among environmental experts was conducted. The outcome of the survey was also discussed with experts. Priori codes were used to generate the themes. To ensure validity, the expert respondents were asked to assess the instrument. To avoid bias and ensure reliability of the responses during FGD, the transcribed data with corresponding codes were sent back to the respondents for their confirmation. The derived codes were dissected using comparison and refutation methods and reviewed for final reflection.



Respondents

The survey gathered 421 respondents consisting of college (60%, 252), senior high school (22%, 93), graduate school (15%, 63), and fresh college graduates (3%, 13) across 30 schools and universities in Central Philippines. The students were chosen since they dominate the sachet consumption in the country. The survey ran for one week only.

Furthermore, six environmental advocates participated in FGD. The expert-respondents were chosen on the bases of their environmental competence, commitment, and credentials (Table 1).

Table 1. *Respondent in Focus Group Discussion*

Respondent	Credentials/Qualifications
B	Lawyer-Environmentalist
C	Member, Waste Management Board - Consolacion Municipality, Cebu
D	Eco-Entrepreneur, Owner -Timplada Resto
E	Executive Director, Children Optimization for the Rehabilitation of Environment (CORE)
F	Former Manager, Wala Usik (No Waste), Philippine Reef and Forest Conservation Foundation (PRRFC)

Method of Analysis

The data were analyzed using the Microsoft Excel. The frequency, mean, and rank analysis were used to summarise the responses. Data transcription was initially done during the FGD and further reviewed and finalized based on the video recordings. Using Priori Coding tools, two assistants summarized the data and established the temporary codes. Codes and sub-codes were further reviewed in relation to the identified themes. Finally, the outcome of the survey and the codes were compared with the existing literature on the subject, using thematic analysis.

Findings and Discussion

The findings and discussion are presented after each research question. To address each question, analyses were done based from the socio-cultural lens, covering the economic and personal dimensions during the FGD. The analyses were correlated with the survey results and were discoursed using the concepts derived from the critically selected literature materials.

Research Question 1. Why is the Philippine society enslaved by the sachet economy?

Sachet economy in the Philippines is primarily attributed to the people's strong patronage to sachet-packed products as best explained primarily from the socio-cultural, economic, and personal dimensions.

The socio-cultural factors appear to be the root contributor due to the existence of Filipino's *Tingi* culture, a "practice of selling and buying goods in amounts less than the smallest retail packaging" (Tiquia, 2019). The environmentalists opined that *Tingi* culture is rooted into the Filipino lives. "Almost every consumer has this sachet mentality as this is prevalent not only at home, but also at work," a member of the Waste Management Board explained. Filipino culture appears to be in harmony with sachet economy.

Economic dimension plays a key role, too. Three major factors were stressed by the experts: Availability, Affordability, and Market presence.

Availability. Sachet-pack products are readily available almost everywhere owing to the fact that there are 5,000 branded convenience stores and 700,000 small stores that sprouted all over the country (“Leading Convenience Store,” 2021).

Affordability is another reason, and it is directly linked to the income level of most consumers. The experts’ collective voices state that most people do not earn much. Their spending capacity is less, and the small price of typical sachet-packed products is ideal for them. “Sachets are cheaper. This is what our respondents would often answer when we asked them why they would buy in sachet rather than in bulk,” claimed the *Wala Usik* manager.

Market Presence. This is closely connected with *Availability*. The multinational corporations (MNCs) have effectively used the right marketing approach to match with the consumers’ needs, according to the expert-respondents. “I see the piece-meal mentality because we are bombarded by MNCs, and this is their marketing strategy to ensure sales,” a lawyer-environmentalist argued. His argument is supported by the study of Sy-Changco et al. (2011) stating that, “capitalizing on the Filipino’s piecemeal purchasing habit, multinational companies adapted their marketing strategies to the concept of sachet marketing, which continues to be prevalent in the Philippines.” Furthermore, MNCs have shown to the public that they are concerned with the environment by having various recycling programs. What they did however, is just a form of green washing, as this has no serious impact on environment. The phenomenon of greenwashing is linked to cognitive legitimacy theory. “Cognitive legitimacy is based on the shared taken-for granted assumptions of an organization’s societal environment (Netto, et al., 2020). This is prevalent in the Philippines.

Personal Factor is another dimension. This is actually a consequence of the first two main factors. Convenience and accessibility are the personal motivations. It is “easy to buy, easy to throw,” one respondent lamented. Table 2 summarizes these findings.



Table 2. *Reasons why the Philippine society is enslaved by the sachet economy*

Main Theme	Sub Themes	Description/Quotation from the Experts	Literature Materials Support
Socio-Cultural	Socio-Cultural Practices	<ul style="list-style-type: none"> • <i>Tingi</i> culture (buying in retail or piece meal mentality) is prevalent. 	<ul style="list-style-type: none"> • GAIA 2020 Report
	<ul style="list-style-type: none"> • <i>Tingi</i> Culture • Consumer Habit <p>Common Use</p>	<ul style="list-style-type: none"> • People do not buy in bulk. <p>Sachet is commonly used at home and even at work.</p>	Benosa S. (2020). Did Filipino <i>Tingi</i> Culture Pave the Way for Plastic Sachets in the Philippines?
Economic	Economic Benefits	<ul style="list-style-type: none"> • Most people do not earn much. Their spending capacity is less, and the small price of typical sachet-packed product is ideal for them. 	<ul style="list-style-type: none"> • GAIA 2020 Report
	<ul style="list-style-type: none"> • Affordability • Financial Capability <p>Availability</p>	<p>Sachet-packed products are common and available in most stores.</p>	Veneracion A. and Veneracion C., (2020). Filipino Shopping Habits, the <i>Tingi</i> Culture and Plastic Pollution.
	<ul style="list-style-type: none"> • Market Presence <p>Marketing Approach</p>	<p>Multinational Corporations (MNCs) like Nestle, Unilever, Procter and Gamble, etc.) provide the marketing approach that matches with the need of the consumers.</p>	Sy-Changco et al. (2011). Managerial insights into sachet marketing strategies and popularity in the Philippines. Asia Pacific Journal of Marketing and Logistics, November 2011.
Personal	<ul style="list-style-type: none"> • Individual Benefits • Convenience 	<ul style="list-style-type: none"> • It is convenient being portable and easy to carry. 	<ul style="list-style-type: none"> • GAIA 2020 Report.
	<p>Accessibility</p>	<ul style="list-style-type: none"> • It is easy to buy and easy to throw. <p>It is easily accessible by everyone as these are common in most stores.</p>	Veneracion A. and Veneracion C., (2020). Filipino Shopping Habits, the <i>Tingi</i> Culture and Plastic Pollution.

Research Question 2. How does the Filipinos' plastic sachet consumption and disposal behavior affect the environment?

This research question is addressed by applying the thematic analysis of the experts' arguments during the FGD. The unanimous observation among the experts is that a vast number of people litter the plastic sachet wastes at any given time and place, thus, clogging the major waterways and creating environmental havoc. The analysis is divided into three main themes: Socio-Cultural; Economic; and Legal. The survey results among the respondents are likewise integrated in the analysis.

Socio-Cultural Factors. These factors have four sub-themes: Weakening social values; Lack of focus and attention among people; Littering by almost everyone; and Low environmental literacy.

Weakening social values: Values are “moral principles and beliefs or accepted standards of a person or social group” (Collins Dictionary, 2021) that shape the society’s norm. Littering behavior is attributed to weakening social values. “Apparently most people lack discipline and are hard-headed.” Such is the consensus from the experts. An environmentalist-lawyer lamented that “most people lack consciousness, complain a lot, and yet do nothing.” This observation correlates with the survey among the students in which 9 in 10 (86%, 362 of 421) pointed out “doing nothing or laziness and lack of discipline,” and 7 in 10 (70%, 295 of 421) stressed “lack of environmental awareness or being uneducated” as among the top 2 reasons for littering (see Figure 1 summary).

Littering by almost everyone. Imitating what other people do is a social nature. Sociologists call this phenomenon a social proof. “Social proofing refers to the fact that people infer what they should do from what others do (Kallgren, Reno and Cialdini, 2000; Kolodko, Read, and Taj, 2016). “If there are litters on the ground, it means that littering is a normal and accepted behavior. If you see lots of people littering, you will be more inclined to do so yourself because what you have observed makes littering normal” (Kolodko, Read, and Taj, 2016). According to a lawyer-environmentalist, “more than half of the population litter at any given time and place; even some environmentalists that go mountain climbing also litter.” This phenomenon is supported by a survey among respondents in which 1 in 3 (31%, 131) believes that most or over 50% of the population litter at any given time (see Figure 2 summary).

Lacking in focus and attention among people. It is hard to believe, but the environmental advocates declared that most “people easily forget their past actions, repeating the same mistakes.” Indeed, these “hypomnesiac, having abnormally poor memory of the past (Marks, 2021), are not conscious, and they fail to learn from their past actions that have caused menace to the environment. Worst, according to a lawyer-environmentalist, “some complain a lot but have done nothing to mitigate the plastic wastes.”

Appalling environmental consciousness: Environmental advocates stressed that “many people are not educated on waste management, and a lot of them are not conscious of their actions. They lack knowledge about their culture that play a great role in environmental sustainability. The knowledge on the nature of plastic wastes, their effects on the environment, health, safety, and climate, and how to utilize such knowledge is so critical that many plastic sachet consumers fail to understand.

In summary, the aforementioned discourse on socio-cultural aspects support the argument of “Schultz et al. (2013) that the littering act is 85% personal qualities, and 15% contextual” (Kolodko, Read, and Taj, 2016).

1. Economic: Increasing volume consumption

Economics and sachet consumption in the Philippines are inseparable. 60 billion sachet packets a year constituting the massive “residual wastes that go outside the landfill usually account for 10%,” the Manager of *Wala Usik* economy claimed. In fact, “there are more wastes in areas where stores are selling a lot of plastic sachet-packed products,” she added.



With 5,000 branded convenience stores and 700,000 retail stores that operate and patronize plastic sachets all over the country, how can there be less waste?

2. Legal: Compromising violation of environmental laws

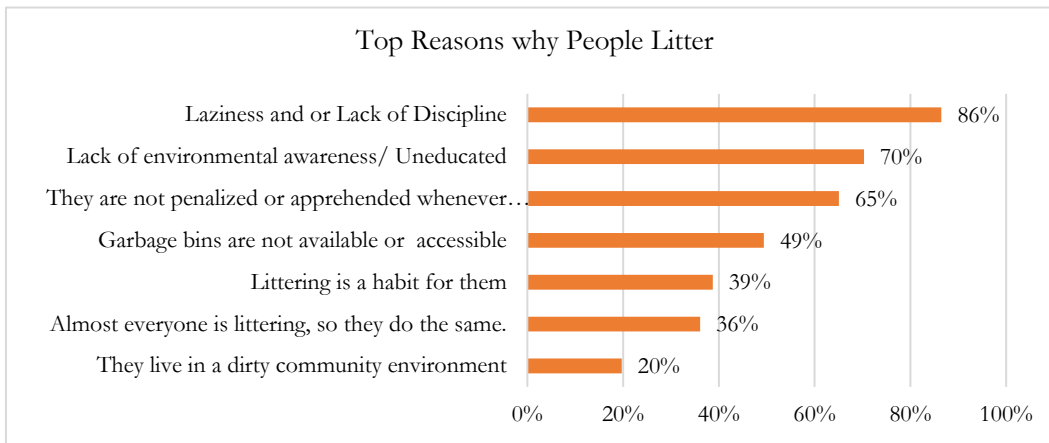
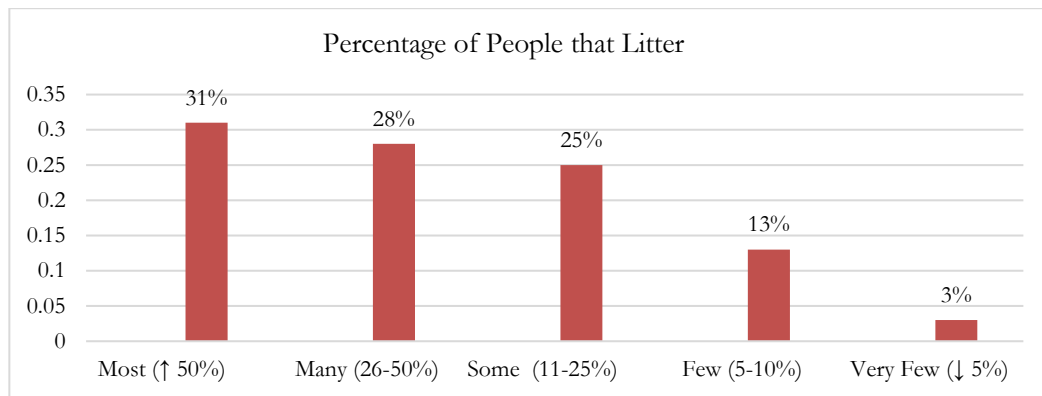
RA 9003 (Ecological Solid Waste Management Act) prohibits littering and punishes violators, but this and other “environmental laws are not strictly implemented. In fact, most Local Government Units are remiss in implementing the environmental laws,” the environmentalists claimed. Plastic-sachet wastes are unabated, and no one is penalized for littering. There is a wrong “perception that unlike common criminalities, environmental crime is not a serious crime. Even the prosecution of violators is not a government priority,” the Executive Director of a Community Organization observed. According to a lawyer-environmentalist, “we have waste segregation law, but we don’t segregate because no one enforces it.” The pro-environment entrepreneur expressed frustration claiming that their “business has been practising segregation, but when the government waste collectors come to collect the waste, they do not segregate at all.” “Full enforcement of the law will address this segregation concern, instead of simple stop-gap measures,” the lawyer-environmentalist opined.

Table 3. summarizes the voices of the experts on the subject. Figures 1 and 2 summarize the survey results.

Table 3. *Experts opinion on how plastic sachet consumption and disposal behavior affect the environment*

Theme	Sub-themes	Description/Quotation from the experts
Socio-Cultural	Weakening social values	<ul style="list-style-type: none"> • <i>Most people remain hard-headed, lacking in discipline, careless, and irresponsible.</i> • <i>Some are not conscious of the consequence of their actions. They don't value or give importance to the environment.</i> • <i>Most people have a “blank-face” regarding environmental issue. They have a “throw-away” (easy to buy, easy to throw) mentality.</i>
	Littering by almost everyone	<ul style="list-style-type: none"> • <i>More than half of the population litter at any given time and place. Some environmentalists that climb the mountain also litter. At times, the violators are the most educated people.</i> • <i>Littering is not confined to coastal areas but mostly from upper land.</i> • <i>Those that litter are not only the class C, D, or E, but even class AB populace. Business organizations litter a lot, too.</i> • <i>Some Local Government Units are not even compliant with proper waste disposal.</i> • <i>Most businesses are connected with plastics, and they dispose lots of waste, too.</i>
	Lacking in focus and attention	<ul style="list-style-type: none"> • <i>Many people fail to learn that their past actions have created environmental problem.</i> • <i>Apparently, people “easily forget” their past actions. The same mistakes are repeated.</i> • <i>Some complain a lot but have done nothing to mitigate the plastic wastes.</i>
	Education – Appalling environmental consciousness	<ul style="list-style-type: none"> • <i>Many people are not educated regarding waste management.</i> • <i>A lot of people are not knowledgeable about their actions nor about their culture that affect the environment.</i>
	Perspective	<ul style="list-style-type: none"> • <i>The presence of garbage bins encourages littering once these are full.</i>
Economic	Increasing volume consumption	<ul style="list-style-type: none"> • <i>People patronize more sachet-packed products, thus producing more sachet wastes.</i> • <i>Residual wastes that go outside the landfill account for 10%.</i> • <i>It is difficult to shift the consumption habit away from buying sachet-packed products.</i> • <i>There are more wastes in areas where stores are selling a lot of plastic sachet-packed products.</i>

Legal	Compromising environmental laws	<ul style="list-style-type: none"> • <i>Environmental laws are not strictly implemented.</i> • <i>Most Local Government Units are remiss in implementing the environmental laws; at times they are the violators too, and they are not reprimanded.</i> • <i>There is a perception that unlike common criminalities, environmental crime is not a serious crime, or even the prosecution of violators is not a government priority.</i> • <i>Some people think it is not illegal to litter as no one apprehends them.</i> • <i>No one from the authorities do the follow-up in implementing the rules (on littering).</i>

Figure 1. Top Reasons why people litter according to the respondents**Figure 2.** Percentage of people that litter at any given time according to the respondents

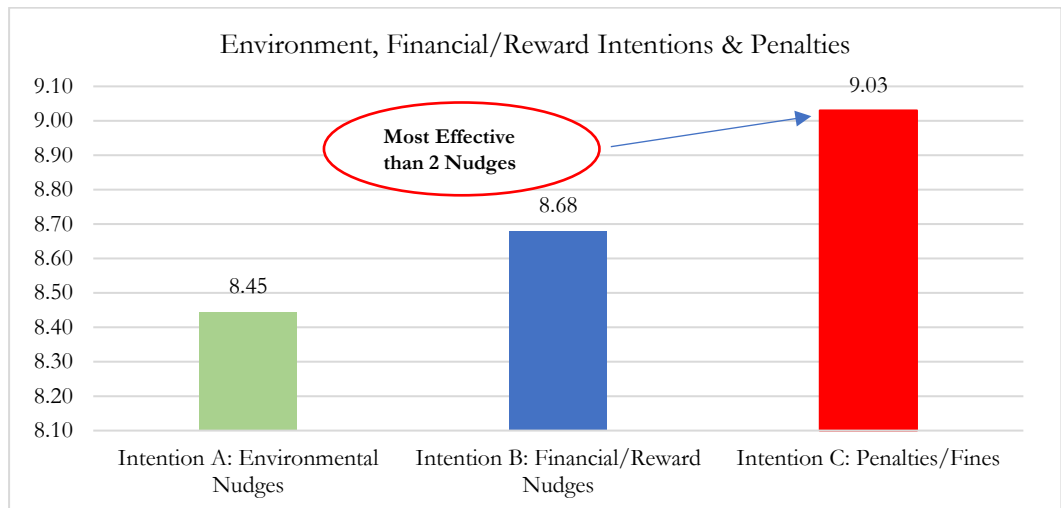
Research Question 3. Can environmental and financial nudges and penalties alter the society's behavior towards responsible plastic sachet consumption?

This question was answered through a survey where the items are clustered into three: Environmental Nudging Intentions, Financial or Reward Nudging Intentions, and Penalties. The experts' opinions were sought during the FGD to determine how likely nudging intentions can be used by various organizations and local government units in dealing with plastic wastes to shape people's behavior.



Respondents were asked to rate from 1 to 10, where “1 is unlikely and 10 is very likely” that people will adhere to environmental norms. Based on the survey, each nudging intention has the potential to influence peoples’ behaviour in curbing the littering of plastics. Of these three, the Penalties have the highest mean score of 9.03, indicating that people will curb littering habits better than the environmental and financial or reward nudges, where the mean score is 8.45 8.68, respectively. Moreover, the survey suggests that almost half or 48.6% (205) of the respondents choose the combination of three factors: Environmental nudges, Financial or Rewards nudges, and Penalties as the most potent in controlling people from littering the plastic sachet wastes, instead of only two nudges or factors. Figure 3 below summarizes the findings.

Figure 3. Nudging Intentions and Penalties to curb littering



The experts’ opinions regarding these nudging intentions were also sought. As a whole, environmental advocates agree with the survey findings. However, they view environmental and financial or rewards nudges as conditionally effective. They cite environmental nudge to work with the youth (age not determined exactly) and financial or rewards as mere reactive response. Penalties come out as the most influential, considering the current scenario in the populace. Table 4 summarizes the experts’ views on the subject.

Table 4. Experts’ views on Nudging Intentions and Penalties

Nudging Intentions and penalties	Experts’ Opinions	Interpretation
Environmental	<ul style="list-style-type: none"> This will work well for the youth who are mostly visuals. This will work well if awareness and education are included. 	<ul style="list-style-type: none"> Likely/Conditionally effective Nudge
Financial or Rewards	<ul style="list-style-type: none"> This will work and is proven already, though all nudges will be effective as well. Rewards will work but penalties will work better. This is reactive only. 	<ul style="list-style-type: none"> Likely/Conditionally effective Nudge

Penalties	<ul style="list-style-type: none"> • <i>Penalties are important, so they will be effective as tools.</i> • <i>Penalties will be effective especially for those who are hard headed.</i> • <i>Penalty is crucial in ensuring fair implementation of the laws.</i> • <i>The heavier the fine, the better is the outcome.</i> • <i>Lack of discipline or laziness is a consequence of lack of law enforcement, so penalties stipulated in the law are the key.</i> • <i>Full enforcement of the law will address the problem, instead of simple stop-gap measures.</i> 	<ul style="list-style-type: none"> • Very Likely effective
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As to the specific factors or nudges that will likely work, the respondents opined that “having clean, neat, and orderly surroundings,” an environmental nudge, is likely the top factor that will inhibit people from littering. This finding is supported by the study of Kolodko, Read, and Taj (2016) regarding social norms on littering behavior. “As long as there were just one or two pieces of litter in an area, most people did not litter (78% and 90% of people, respectively, used bins). However, as soon as there were three or more pieces visible, the number of litterers increased to 41%” (Kolodko, Read, and Taj, 2016). Apparently, the penalty like community work and fines can help alter people’s behavior on waste. Finally, the local community, educational institution, and family play a crucial role in nudging people for clean environment.

Conclusions

First, we need to note the limitations of the study. As per research protocol, an exploratory study cannot make conclusions nor establish any new theory, since the data saturation has yet to be attained. Moreover, exploring the voices of the environmental experts was done in the Central Philippines only. Therefore, one cannot generalize the outcomes of this study. However, our findings and trends from the survey are mostly correlated with the existing literature on the subject.

Plastic-sachet will not be eradicated instantly. While the effort to find an alternative material to plastic is still in developmental stage, the country will remain a slave to sachet economy. Cultural dispositions and personal convenience provided by MNCs are the two primary reasons for such high patronage, making an uphill battle to contain the plastic-sachet menace in the Philippines. Using the environmentalists’ estimate that 20% of the plastic wastes in the country goes to the ocean, that would translate roughly to 12 billion plastic-sachet wastes annually (60 billion x 20%). Thus, the battle against plastic-sachet wastes should be fought in at least four fronts: Regulation of MNC’s massive production of sachet-plastic products; Social change to refine people’s culture in relation to the environment; Government’s enforcement of environmental laws; and Support and replication of environmental initiatives that adhere to circular economy.

1. Regulate the production and sale of sachet-plastic products by the MNCs, being the creator of plastic wastes. This government effort will help reduce substantial plastic sachet wastes since 60 billion sachets are consumed, and 20% (12 billion packs) of these sachet wastes go to the waterways. The key is to shift the 5% of the products from sachet to container forms annually. The sale in sachet form will be three billion less (5% of 60 billion) or only 57 billion



a year. This alone would drastically cut the waste going to the waterways from twelve billion (20% of 60 billion) to 11.4 billion sachets (20% of 57 billion). Taking 600 million (12 billion less 11.4 billion) off from the waterways is a good start to fight the menace. This recommendation, requiring national legislation, will have minimal impact on MNCs revenue since the consumers are willing to shift to reusable containers. According to GAIA 2020 report, quoting the Social Weather Station 2019 studies, a large percentage of the population are actually willing to buy the products in recyclable and refillable containers. The same GAIA report (2020) estimates that Filipinos consume 53% of sachet products on these items: 17% for condiments, 17% on household products, and 19% on Body care (pg. 12). Thus, from these product clusters, MNCs can shift 15.9 billion sachets (see table 5 below) into container or refillable forms. The recommendation is to shift to only three billion sachets annually, a win-win situation for both the MNCs and the environment. Table 5 summarizes the analysis.

Table 5. *Analysis: Conversion from sachet form to container form*

Sachet Consumption by Type	*Total Sachet Consumption in (% and in billion)		* % of Filipinos willing to purchase in Recyclable or Refillable form	
Condiments	17%	10.20	68%	6.90 billion (68% x 10.20)
Household products	17%	10.20	42%	9.00 billion (42 x [10.2+11.4])
Body Care	19%	11.40		
Others	47%	28.20	NA	NA
Total	100%	60.00	NA	15.90 billion of sachets
The total number of sachets that can be converted into container or refillable form				

* Source: GAIA, 2020 Report

2. Refine people's culture in relation to the environment by massive effort toward social change. Scientists and conservationists have long been arguing that retrieving sachet wastes and preventing them from entering the rivers and seas will be a challenge. Heavy penalties on polluters and refinement of society's waste culture must be implemented. Culture is constantly evolving, and social change is possible with the collaboration among educational institutions, social media, civic organizations, and local government. Environmental nudging through policy creation, heavy penalties on violation of environmental laws, and sustainable environmental projects can make a difference. The study showed that apart from penalties, the best nudge is having a clean, neat, and orderly environment. Streets and surroundings must be free from litters.

3. Exert serious effort to escalate the environmental war on plastic wastes through proper law enforcement. The country's environmental law enforcement receives less priority, implying that littering is permissible. Thus, the government's myopic view on society's penchant for littering must expand. It must create concrete plans involving all stakeholders. The Extended Producer Responsibility (EPR) as an environmental policy may be applied, in which a producer's responsibility is extended to the post-consumer stage of a product's life cycle ("Development of guidance on Extended Producer Responsibility," 2014). The policy provides funding for local waste management by passing the cost of plastic wastes from the government to the producers. This means that MNCs, the creators of plastic wastes, will shoulder the cost of plastic collections, recycling, and disposal.

4. Support and replicate the environmental groups' initiatives to protect the environment. The government should incentivize these initiatives through funding or tax cuts to encourage

project propagation. These initiatives will reach wider audience and elevate environmental awareness as the first step to social change.

Table 6. *Summary of Recommendations*

Actionable Recommendation	Description	Impact	
		Stakeholders	Environment
1 Reduction of production and sale of plastic-sachet products by various MNCs	Government should require MNCs to gradually shift some of their plastic-sachet products to reusable container form.	MNCs There will be minimal impact on revenue as a big number of consumers are willing to patronize re-usable containers.	An annual shift of 5% to reusable container may reduce waste up to 600 million plastic sachets.
2 Massive effort towards Social Change	Environmental education (circular economy) should be institutionalized through <ul style="list-style-type: none"> schools social media civic organizations local government unit. 	Polluters/Society Targeting households near the waterways, ambulant vendors, small stores, children in schools, etc., will create massive awareness regarding sustainable environment.	Aiming to cut the wastes even for just 20% of the habitual polluters would easily result in 2.4 billion reduction of plastic-sachet wastes that could potentially end up to the waterways all the way to the oceans.
	Environmental laws should be enforced.	Awareness will lead to behavioral change.	
	Environmental policies should be nudged.		
3 Government to flex its role as regulator of environment and the society	Environmental laws should be enforced.	Polluters/Society Adherence to environmental laws as penalties will shape society's behavior.	
	Extended Producer Responsibility (EPR) policy should be considered to shift the burden of plastic wastes to MNCs.	MNCs will lead a proactive approach to plastic waste.	
4 Support and replication of more projects that adhere to circular economy	Projects that promote circular economy should be incentivized.	Society will escalate environmental adherence to wider audience	
	Worthwhile projects must be replicated.		

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