

# INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH

2023, Vol. 4, No. 9, 3303 – 3317

<http://dx.doi.org/10.11594/ijmaber.04.09.19>

## Research Article

### Assessment of the No Plastic Policy Implementation: A Basis to Plastic Waste Management Action Plan

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#### Article history:

Submission September 2023

Revised September 2023

Accepted September 2023

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#### ABSTRACT

This paper assessed the extent of the implementation of the Provincial Ordinance 2012-09 or the No Plastic Policy in the Municipality of Balagtas, Bulacan. Since plastic waste is one of the evident issues in the municipality, the study aimed to assess the extent and determine the challenges encountered in the implementation of the No Plastic Policy which was signed in order to address the issues related to plastic wastes. The extent of the implementation of the policy was gathered through survey questionnaires distributed to business sectors and households while semi-structured interviews were conducted among the key implementers to determine the challenges encountered. The findings of the study showed that the extent of the implementation of the No Plastic Policy was somewhat implemented and the challenges encountered include costly and limited alternatives; lack of clarity in the operational guidelines; non-compliance of the residents; and lack of strict implementation efforts. Thus, the findings of the study showed that there is a need to strengthen the existing ordinance in the Municipality of Balagtas, Bulacan.

**Keywords:** *Provincial Ordinance No. 2012- 09, Municipality of Balagtas, Household, Business Sector, Plastic Waste, Implementation, Plastic Waste Management Action Plan, SDG 13, Oxo- biodegradable Plastic Bags, Implementation Efforts*

#### Introduction

Plastic pollution has been one of the dominant causes of climate change, due to its greenhouse gas emission, and its harmful effect on the environment, marine ecosystem, and human health (McDermott, 2016). With the hazardous effects of using plastics, people still opt to use such things due to its durability and

accessibility (GAIA, 2019). Hence, the massive consumption and improper disposal of these kinds of plastics becomes a global issue that countries aim to address.

The Philippines play a significant role in the global plastic crisis. In fact, it is alleged to be the third largest plastic polluting country in the world with approximately four million

#### How to cite:

Valenzuela, V. P., Sultan, L. M. DC., Calatrava, M., C. A., P. G., & Montero, D. G. B. (2023). Assessment of the No Plastic Policy Implementation: A Basis to Plastic Waste Management Action Plan. *International Journal of Multidisciplinary: Applied Business and Education Research*. 4(9), 3303 – 3317. doi: 10.11594/ijmaber.04.09.19

recorded mismanaged plastic waste in 2021. Given the accessibility and affordability of plastics, a 2019 study by the Global Alliance for Incinerator Alternatives (GAIA) found that every day, Filipinos used more than 163 million plastic sachet packets, 48 million shopping bags, and 45 million labo plastic (thin film) bags.

In the province of Bulacan, Provincial Ordinance No. 2012-09, or the No Plastic Policy was implemented to primarily address the plastic problems of the province by prohibiting the use and sale of non-biodegradable plastic bags, styrofoams, and similar products as packaging materials to the 569 barangays in the Province of Bulacan. However, up to this date, plastics are still prevalent in the Province of Bulacan. The continual usage and improper disposal of plastics has contributed a huge amount of plastic waste and results to environmental and health problems that affects the society at whole.

## Literature Review

**Plastic Pollution.** Plastic Pollution. According to the study of Paler and Nacorda (2019) entitled, "Plastic waste occurrence on a beach off southwestern Luzon, Philippines", the Philippines has been one of the countries with the highest amount of plastic waste which is mostly plastic wrappers as sachet as the most abundant plastic litter in the country thus, plastic pollution is really evident in the environment. In almost every aspect of our lives, we cannot deny the presence of plastic including plastic wares, appliances, and even in the packaging of different products.

According to the study entitled, "The Challenge of Single- Use Plastics", by Dayrit (2019), the majority of plastic production comes from single-use items, which makes up 36% of all plastic output. Single-use plastic is the most noticeable and problematic sort of plastic pollution. Since as it is intended for disposal, a huge amount of plastic waste will be generated in using such items, and because single-use plastic is not intended to be reused; solving the problem using the 3rs - reduce, reuse, recycle, will not totally addressed the problem in the prevailing usage of SUP considering how to difficult uneconomical it is to recycle.

According to the study of GAIA (2020) entitled, "Regulating Single- Use Plastic in the Philippines: Opportunities to Move Forward". In the midst of a global plastic pollution crisis, an increasing number of shopping bags and other single-use plastics are prohibited by laws that have been approved by towns and municipalities in the Philippines. Numerous LGUs have taken the initiative and created ordinances. Therefore, there is indication that plastic restrictions are effective when they are properly enforced.

In the study of Cowan et. al., (2021), entitled, "Single-Use Plastic Bans: Exploring Stakeholder Perspectives on Best Practices for Reducing Plastic Pollution", the solution to the plastic problem would be greatly aided by legislative initiatives and programs like the Single-Use Plastic Directive and the circular economy, as well as infrastructure that allows for the reuse or recycling of plastic that is currently in use.

The findings also indicated that the identification and appropriate evaluation of the major sources of the plastic are still necessary in order to find a solution, and that attempts to address the issue would be ineffective without the full involvement of these sources.

## Ecological Solid Waste Management Act.

According to a study entitled "Philippines: Banning Single-Use Plastics at the National Level and Strengthening Existing Laws Needed to Curb Plastic Pollution Crisis" by Jed Alegado (2020), The Ecological Solid Waste Management Act of 2001, also known as Republic Act 9003, was passed by the Philippines in 2001. This law is controlled by several local offices and community-focused, which is the right of the people to participate in making decisions that affect their lives toward waste as well as the resource management systems, that is why this law is regarded as a model law.

According to the study entitled, "A Community-Based Approach to Solid Waste Management for Riverine and Coastal Resource Sustainability in the Philippines." by Wynne et al., (2018), riverine and coastal ecosystems are harmed by improper solid waste management techniques. Republic Act No. 9003, also known as the, "Ecological Solid Waste Management

Act”, decentralized the management in the Philippines which required local governments (LGUs) to implement this new integrated solid waste management (SWM) plans. However, it resulted that LGUs frequently lack the initiative, comprehension and enforcement power to implement effective and efficient SWM plans.

**Provincial Ordinance No. 2012- 09 or the No Plastic Policy Guidelines in the Province of Bulacan.** According to the “Implementing Rules and Regulations of the No Plastic Policy in Bulacan” by the Provincial Government (2012), Provincial Ordinance No. 2012- 09, aims to strengthen the foundation of the Bulakenyos participation in reducing plastic waste in the country by giving awareness and adequate knowledge to government officials, and to the public on the harmful effects of using non- biodegradable plastic bags, styrofoam, and similar products as packaging materials to the environment. The usage and distribution of non- biodegradable plastic bags such as sando bag, pouch, plastic shopping bag, and plastic film bags that are made in artificial, synthetic, and semi- synthetic polymer are prohibited, as well as styrofoams, as packaging material in the Province of Bulacan.

### Research Questions

The general problem of the study is to assess the extent of the implementation of the Provincial Ordinance No. 2012- 09 or the “No Plastic Policy” in the Municipality of Balagtas, Bulacan. Specifically, it intends to answer the following:

1. What is the demographic profile of the respondents in terms of:
  - b. Age
  - c. Gender
  - d. Educational Attainment
  - e. Occupation
2. What is the extent of implementation of the No Plastic Policy in selected barangays in the Municipality of Balagtas, Bulacan in terms of:
  - a. Prohibition of Use of Non-Biodegradable Plastic Bags
  - b. Penalties to Violators
  - c. Information Dissemination

3. Is there a significant difference between the Business Sector and the Households in terms of:
  - a. Prohibition of Use of Non-Biodegradable Plastic Bags
  - b. Penalties to Violators
  - c. Information Dissemination
4. What are the challenges encountered by the respondents with the implementation of No Plastic Policy?
5. Based on the results of the study, what plastic waste management action plan may be proposed to further strengthen the implementation of No Plastic Policy?

### Methods

The researchers used a mixed method research design, particularly concurrent triangulation, a design involving the simultaneous gathering of qualitative and quantitative data for single investigation. The participants of the quantitative study are 160 residents from four selected barangays of Municipality of Balagtas, Bulacan including Barangays Wawa, San Juan, Borol 1st and Panginay selected through convenience sampling. The participants that are selected are individuals belonging in the business sector and those of households who have various perspectives on and experiences with using plastic in the Municipality of Balagtas. While, the participants in qualitative study were five (5) implementers, including barangay officials and head of MENRO in the Municipality of Balagtas.

The researchers respectively conducted an interview and distributed the questionnaire to the participants upon obtaining permission, from both the municipal and barangay level, and approval of the authorization and validation of the questionnaire. Moreover, the respondents were required to include their demographic profiles with agreement and assurance of confidentiality of their survey questionnaire in order for the researchers to be certain that the data that will be collected are accurate and will help them to better evaluate their data. The survey was a voluntary activity on the part of the respondents.

## Measures

The implementation of the No Plastic Policy in the Municipality of Balagtas, Bulacan was assessed using a 12-item questionnaire that will measure the level of implementation of the aforementioned policy, as well as semi-structured interview guide questions to determine the challenges and barriers in the implementation.

The *Level of the Implementation Scale*, is a 12-item self-administered questionnaire, focused on assessing the level of the implementation of the No Plastic Ordinance based from the respondents perspective. The scale consists of items equipped to assess the regulation and the implementation efforts of the local government units, particularly the Municipality of Balagtas, Bulacan, in prohibiting the use of plastics from the local public market up to the establishments and households, within the target area, that uses plastics in their operation. The questionnaire was divided into 3 parts namely: Prohibition of Using Non-Biodegradable Materials, Penalties to Violators and Information Dissemination wherein statements from these questionnaires were based from the Implementing Rules and Regulations of the No Plastic Policy in Bulacan. This was a 5-point scale, ranging from 5 - Highly Implemented (HI) to 1 - No Idea (NI).

The *semi-structured interview* was utilized to determine the challenges and barriers encountered during the implementation of the ordinance, including the cooperation, awareness, and compliance of the participants from the Municipality of Balagtas, Bulacan.

## Data Analysis

The data gathered from the respondents of quantitative study are recorded, tabulated and measured through descriptive statistics techniques. In particular, the measure of central tendency was used to obtain the weighted mean of the data in which the following scale was used to interpret the result of the data gathered in terms of implementation: 4.21 - 5.00 - Fully Implemented (FI); 3.41 - 4.20 - Implemented (I); 2.61 - 3.40 - Not Implemented (NI); 1.81 - 2.60 - Not Fully Implemented (NFI); 1.00 - 1.80 - No Idea. Meanwhile, the qualitative

data collected from the interview were interpreted using thematic analysis. This enables the researchers to assess all data necessary for the assessment of the No Plastic Policy.

## Results and Discussion

For the quantitative data, the researchers utilized a 12-item questionnaire composed of statements based on the implementing rules and regulation of the No Plastic Policy. The findings of the study are as follows:

### Profile of the Respondents

**1.1. Barangay.** The study has covered respondents from four barangays— Panginay, Wawa, San Juan, and Borol 1st with 40 respondents, respectively, for a total of 160 respondents.

**1.2. Category.** The research has successfully covered 160 respondents with 80 coming from households, and another 80 from the business sector.

### Demographic Profile of the respondents

**2.1. Age.** Thirty-seven (37) or twenty-three point one percent (23.1%) of the respondents were between the ages of 25 and 34, which made up the majority of the respondents.

**2.2. Gender.** Majority of the respondents are female with one hundred and eight (108) respondents or 67.5 % of the respondents.

**2.3. Educational Attainment.** Majority of the respondents were able to attain secondary education, with seventy (70) responses or forty-three point eight percent (43.8%) of the total.

**2.4. Occupation.** 30 or 18.8 percent of the respondents were from the business sectors wherein business owners who operate a variety of businesses. While 31 or 19.4 percent of the respondents are unemployed

### Respondent's Idea to the No Plastic Policy

128 (80%) or majority of the respondents have an idea of the ordinance banning the use of plastics.

In the Extent of the Implementation of Provincial Ordinance 2012-09 according to households, it showed that the ordinance is Not Implemented. (See table 1)

The first part of the table presents the first sub-variable, the prohibition of using non-biodegradable plastic bags, that covers items 1 to 6. With a verbal interpretation of Fully Implemented, the sixth statement, "Burning and improper disposal of non-biodegradable plastic bags is prohibited"—received the highest mean score, or 4.36. Following it came the fourth statement, "Plastics labeled 'Oxo-biodegradable' may be used as packaging", which had a mean score of 3.14 and a verbal interpretation of "Not Implemented". Moreover, the first statement received a mean score of 2.86, the

second received a mean score of 2.74, and the third had a mean score of 2.7, all of which have the verbal interpretation "Not Implemented". Lastly, the fifth statement "Markets and similar establishments collect an amount of Php 5.00 per piece on Oxo- Biodegradable Plastic Bags that the customer purchases to store their wet goods" had a mean score of 2.58 with a verbal interpretation of "Not Fully Implemented". This shows that the prohibition of use of non-biodegradable plastic bags is Not implemented according to households.

Table 1. Extent of Implementation of Provincial Ordinance No. 2012- 09 according to Households

	Statements	Mean	Verbal Interpretation		
<b>Prohibition of Using Non-Biodegradable Plastic Bags</b>					
1	It is not permitted to use plastic bags as packaging or containers for dry goods. ( <i>Ipinagbabawal ang paggamit ng plastic bags bilang pambalot o sisidlan ng dry goods</i> )	2.86	Not Implemented		
2	Plastic bags are not permitted to be used for primary or secondary packing of wet items. ( <i>Ipinagbabawal ang paggamit ng plastic bags bilang primarya o sekondaryang pambalot ng mga wet goods</i> )	2.74	Not Implemented		
3	Markets are not allowed to purchase, sell, or use plastic bags. ( <i>Ipinagbabawal sa mga pamilihan na magbenta, gumamit at bumili ng plastic bags</i> )	2.7	Not Implemented		
4	Plastics labeled "Oxo-biodegradable" may be used as packaging. ( <i>Pinahihintulutan ang paggamit ng "Oxo- biodegradable" na plastik bilang pambalot sa mga binili</i> )	3.14	Not Implemented		
5	Markets and similar establishments collect an amount of Php 5.00 per piece on Oxo- Biodegradable Plastic Bags that the customer purchases to store their wet goods. ( <i>Naniningil ng Php 5.00, para sa kada piraso ng "Oxo- biodegradable" na nagagamit sa mga biniling wet goods</i> )	2.58	Not	Fully	Imple- mented
6	Burning and improper disposal of Non- Biodegradable Plastic Bags is prohibited. ( <i>Ipinagbabawal ang pagtata- pon o pagsusunog ng mga plastic bags</i> )	4.36	Fully Implemented		
<b>Penalties to Violators</b>					
7	Those who are found guilty of violating the implemented rules and regulations are being penalized. ( <i>Pinapatawan ng kaukulang parusa ang mga napatunayang lumabag sa kautusan</i> )	2.33	Not	Fully	Imple- mented
8	Stores and commercial establishments that are found guilty of violating the rules and regulations have their business permits revoked. ( <i>Tinatanggalan ng business permit ang mga tindahang lumabag sa kautusan</i> )	2.19	Not	Fully	Imple- mented
9	Whoever violates are penalized and apprehended and may face jail time or community service for a period of time.	2.2	Not	Fully	Imple- mented

	Statements	Mean	Verbal Interpretation
	<i>(Ang mga napatunayang lumabag ay ikinukulong o isinasailalim sa Community Service)</i>		
	<b>Information Dissemination</b>		
10	Posters about the rules and regulations can be seen in all commercial establishments. <i>(Nakapaskil ang mga karatula tungkol sa pagbabawal ng plastik sa mga tindahan o establisyementong pang-komersyal)</i>	2.99	Not Implemented
11	There are signages and tarpaulins about the banning of the use of plastics in public spaces. <i>(Nagkakaroon ng mga karatula at tarpaulins sa mga pampublikong lansangan at lugar sa buong munisipalidad)</i>	3.13	Not Implemented
12	Corresponding orientations in barangays, schools and universities and commercial establishments are given to inform the public about the rules and regulations. <i>(Nagkakaroon ng mga kaukulang oryentasyon sa mga barangay, paaralan/ pamantasan, at mga establisyementong pang-komersyal upang ipaalam ang mga alituntunin at patakaran na nakasaad sa kautusan.)</i>	3.09	Not Implemented
	Grand Mean	2.857	Not Implemented

The first part of the table presents the first sub-variable, the prohibition of using non-biodegradable plastic bags, that covers items 1 to 6. With a verbal interpretation of Fully Implemented, the sixth statement, "Burning and improper disposal of non-biodegradable plastic bags is prohibited"—received the highest mean score, or 4.36. Following it came the fourth statement, "Plastics labeled 'Oxo-biodegradable' may be used as packaging", which had a mean score of 3.14 and a verbal interpretation of "Not Implemented". Moreover, the first statement received a mean score of 2.86, the second received a mean score of 2.74, and the third had a mean score of 2.7, all of which have the verbal interpretation "Not Implemented". Lastly, the fifth statement "Markets and similar establishments collect an amount of Php 5.00 per piece on Oxo- Biodegradable Plastic Bags that the customer purchases to store their wet goods" had a mean score of 2.58 with a verbal interpretation of "Not Fully Implemented". This shows that the prohibition of use of non-biodegradable plastic bags is Not implemented according to households.

Furthermore, the second section of the table presents the second sub variable – penalties to violators, which covers items 7 to 9. The seventh statement — "Those who are found guilty of violating the implemented rules and regulations are being penalized" — received a mean score of 2.33, the eighth received a mean score of 2.19, and the ninth had a mean score of 2.2, all with verbal interpretation of "Not Fully Implemented". This shows that the enforcement of the ordinance's penalties may have not been fully implemented according to the households.

Items 10 to 12 were presented under the third sub-variable which covers the statements about information dissemination. The eleventh statement — "There are signages and tarpaulins about the banning of the use of plastics in public spaces" — garnered the highest mean score, 3.13, with verbal interpretation of "Not Implemented". This is followed by the twelfth statement with a mean score of 3.09, and tenth statement with 2.99 mean score, both with verbal interpretation of "Not Implemented". This demonstrates that initiatives like putting up posters or tarpaulins and setting up orientations on the ban on the use of plastics were somewhat implemented.

In the Extent of the Implementation of Provincial Ordinance 2012-09 according to Business Sector, it showed that the ordinance is Not Implemented. (See Table 2).

Table 2. Extent of Implementation of Provincial Ordinance No. 2012- 09 according to Business Sector

	Statements	Mean	Verbal Interpretation
<b>Prohibition of Using Non-Biodegradable Plastic Bags</b>			
1	It is not permitted to use plastic bags as packaging or containers for dry goods. ( <i>Ipinagbabawal ang paggamit ng plastic bags bilang pambalot o sisidlan ng dry goods</i> )	2.98	Not Implemented
2	Plastic bags are not permitted to be used for primary or secondary packing of wet items. ( <i>Ipinagbabawal ang paggamit ng plastic bags bilang primarya o sekundaryang pambalot ng mga wet goods</i> )	2.79	Not Implemented
3	Markets are not allowed to purchase, sell, or use plastic bags. ( <i>Ipinagbabawal sa mga pamilihan na magbenta, gumamit at bumili ng plastic bags</i> )	2.77	Not Implemented
4	Plastics labeled "Oxo-biodegradable" may be used as packaging. ( <i>Pinahihintulutan ang paggamit ng "Oxo- biodegradable" na plastik bilang pambalot sa mga binili</i> )	3.25	Not Implemented
5	Markets and similar establishments collect an amount of Php 5.00 per piece on Oxo- Biodegradable Plastic Bags that the customer purchases to store their wet goods. ( <i>Naniningil ng Php 5.00, para sa kada piraso ng "Oxo- biodegradable" na nagagamit sa mga biniling wet goods</i> )	2.7	Not Implemented
6	Burning and improper disposal of Non- Biodegradable Plastic Bags is prohibited. ( <i>Ipinagbabawal ang pagtatapon o pagsusunog ng mga plastic bags</i> )	4.15	Implemented
<b>Penalties to Violators</b>			
7	Those who are found guilty of violating the implemented rules and regulations are being penalized. ( <i>Pinapatawan ng kaukulang parusa ang mga napatunayang lumabag sa kautusan</i> )	2.4	Not Fully Implemented
8	Stores and commercial establishments that are found guilty of violating the rules and regulations have their business permits revoked. ( <i>Tinatanggalan ng business permit ang mga tindahang lumabag sa kautusan</i> )	2.12	Not Fully Implemented
9	Whoever violates are penalized and apprehended and may face jail time or community service for a period of time. ( <i>Ang mga napatunayang lumabag ay ikinukulong o isinasailalim sa Community Service</i> )	2.17	Not Fully Implemented
<b>Information Dissemination</b>			
10	Posters about the rules and regulations can be seen in all commercial establishments. ( <i>Nakapaskil ang mga karatula tungkol sa pagbabawal ng plastik sa mga tindahan o establisyementong pang- komersyal</i> )	3	Not Implemented
11	There are signages and tarpaulins about the banning of the use of plastics in public spaces. ( <i>Nagkakaroon ng mga karatula at tarpaulins sa mga pampublikong lansangan at lugar sa buong munisipalidad</i> )	3.06	Not Implemented

	Statements	Mean	Verbal Interpretation
12	Corresponding orientations in barangays, schools and universities and commercial establishments are given to inform the public about the rules and regulations. <i>(Nagkakaroon ng mga kaukulang oryentasyon sa mga barangay, paaralan/ pamantasan, at mga establisyementong pangkomersyal upang ipaalam ang mga alituntunin at patakaran na nakasaad sa kautusan.)</i>	2.95	Not Implemented
	Grand Mean	2.862	Not Implemented

The first part of the table presents the sub-variable, the prohibition of using non-biodegradable plastic bags, which covers items 1 to 6. The sixth statement - "Burning and improper disposal of non-biodegradable plastic bags is prohibited", received the highest mean score of 4.15 and has a verbal interpretation of "Implemented". Moreover, the first statement received a mean score of 2.98 and has a verbal implementation of "Not Implemented", while the second statement received a mean score of 2.79 and has a verbal interpretation of "Not Implemented". The third statement also has a verbal interpretation of "Not Implemented" which received a mean score of 2.77 and the fourth statement received a mean score of 3.25 which also has a verbal interpretation of "Not Implemented". Lastly, the fifth statement received a mean score of 2.7 and has a verbal interpretation of "Not Implemented".

Statements 7-9 are presented under the second sub-variable which is the Penalties to Violators. The seventh statement - "Those who

are found guilty of violating the implemented rules and regulations are being penalized", received the highest mean score of 2.4 and has a verbal interpretation of "Not Fully Implemented". While the eighth statement received a mean score of 2.12 and has a verbal interpretation of "Not Fully Implemented". Lastly, the ninth statement received a mean score of 2.17 and has a verbal interpretation of "Not Fully Implemented".

The last sub-variable which is Information Dissemination covers statements 10-12. The eleventh statement — "There are signages and tarpaulins about the banning of the use of plastics in public places" received the highest mean score of 3.06 and has a verbal interpretation of "Not Implemented". While the tenth statement received a mean score of 3 and has a verbal interpretation of "Not Implemented" and the twelfth statement received a mean score of 2.95 and has a verbal interpretation of "Not Implemented".

Table 3. T-Test for Difference in Mean Between Business Sector and Households

	Mean	t-value	Sig.	Interpretation
Business Sector	2.863	.060	.463	Not Significant
Households	2.857			

Table 3 presents the t-test for difference in mean between business sector and households. The table shows that the average response for the business sector is 2.862, while 2.857 for households. Moreover, the "Independent Samples Test" shows that the p-value (sig. 2-tailed) is at .952, implying that there is no significant difference in means at .1, .05 and .01 levels.

For the Qualitative data, the researchers were able to gather data through conducting a semi-structured interview to selected key in-

formants and were able to determine the challenges encountered by respondents with regards to the implementation of the No Plastic Policy in the Municipality of Balagtas, Bulacan. The responses of the respondents were analyzed using thematic analysis.

**Plastic Waste: A Problem to Everyone.** In the Province of Bulacan, there is an existing provincial ordinance which prohibits the use of non-biodegradable plastic bags mandated to



every city and municipality across the province. However, the usage of plastics is still evident among the municipalities, such as in the Municipality of Balagtas, both in their business sector and households. Hence, when the researchers asked the MENRO Head of Balagtas on which barangays are the highest contributor of plastic waste in the Municipality, she answered the Barangays of Panginay, Borol 1st, San Juan, and Wawa, as they have numerous establishments and manufacturing areas. Thus, these barangays produce an excessive amount of plastic waste.

In addition, existing problems regarding plastic wastes were seen by the majority of informants as a common phenomenon that exist in any place. The researchers then asked the implementers if their barangay was facing problems and challenges directly related to plastics. Implementers then answered and explained that they see it as an unavoidable issue that greatly affects not just their community, but other areas as well, as the usage of plastics was rampant in every locality, since the public are more accustomed to using it.

**'No Segregation, No Collection' Policy: A Start on Combating Plastic Waste Problems.** The municipality took an initiative to implement a policy in pursuance to Ecological Solid Waste Management Act of 2000, wherein waste are separated—the non-biodegradables from biodegradables, and a particular day was scheduled in collecting these garbages depending on its type. Furthermore, with the efforts of the barangay, they made sure that the people in the community are well-aware of the, “No Segregation, No Collection” policy and is now currently being implemented.

Aside from the issue of the availability and pricing of the alternatives, ensuring the public's awareness and their compliance with it, is also challenging, as these operational guidelines were not properly disseminated and unclear to the public, as explained by the following informants. Furthermore, non-compliance of the public was seen by the informants, particularly Engr. Reyes of MENRO, and Councilor Pangan of Barangay Borol 1st, as one of the challenges as to why the ordinance was not strongly implemented in the locality.

Thus, the dissemination of information was not entirely effective. Consequently, there are instances that Implementers have disseminated this kind of information, however, people still choose to not comply, and prefer ways that are more convenient for them. Therefore, these issues and challenges were inevitable as alternatives are costly and limited, operational guidelines were unclear and not properly disseminated among the residents, non-compliance of the public, and no continuous nor strict implementation efforts and communication with regards to this ordinance.

### **Implication of Findings**

This study aided the researchers to identify the issues and challenges with the implementation of the No Plastic Policy. With the results gathered from this study, it showed the respondents willingness to comply with the ordinance and minimize their usage of plastic bags, as they are knowledgeable of its adverse effects to the environment, and to the society at large, but they were without a choice as the available alternatives were limited and costly for their personal preference. Hence, these findings can be used to strengthen the aforementioned policy as well as to develop related future policies that would be formulated and put into effect for the benefit of the general public and the environment. Thus, the researchers have formulated an action plan to further strengthen the implementation of the No Plastic Policy and addressed the prevailing issue on plastic waste management.

### **Conclusion**

The findings of the study were able to determine the extent of the implementation of the No Plastic Policy in the Municipality of Balagtas, Bulacan whereas the ordinance is Not Implemented and the challenges encountered in its implementation are costly and limited alternatives, lack of clarity of the operational guidelines, non-compliance of the residents, and lack of strict implementation efforts.

### **Limitation**

As the limitation to the study, due to the limited resources, the researchers opted to conduct and focus its scope on certain areas,

specifically, on just four barangays in the municipality of Balagtas—namely, Barangay Borol 1st, Barangay Panginay, Barangay San Juan, and Barangay Wawa. Hence, it may not be sufficient and may not be able to offer data that represents the population of the municipality of Balagtas, Bulacan as a whole.

**Direction of Future Research**

This study suggests further research into how the local government could be able to more successfully enforce the application of the ordinance from the viewpoint of the community. This is to let the local government become aware regarding what interventions could be

made in accordance to the circumstances of the community. Furthermore, more research could be conducted to be able to formulate alternatives which the community may use that is aligned with the ordinance and at the same time, does not compromise the circumstances the community are in.

**Action Plan**

The researchers have presented an action plan that the implementers might use to strengthen the implementation of the provincial ordinance not only in the municipality of Balagtas, Bulacan, but also throughout the entire province of Bulacan.

**PROPOSED PLASTIC WASTE MANAGEMENT ACTION PLAN**

<b>Objective 1:</b> Strengthen the implementation of the Provincial Ordinance No. 2012- 09 through the creation of a comprehensive Municipal Ordinance			
Action No.	Action	Timeline	Responsibility
1.1	Review the Implementing Rules and Regulation of the Provincial Ordinance No. 2012- 09	Short- term	Sanggunian
1.2	Initiate a collaborative discussion with Barangay Officials, and business sector with regards to the provisions that will be adopted from the Provincial Ordinance No. 2012- 09	Short- term	LGU and MENRO
1.3	Formulate municipal ordinance suitable for the public’s compliance without compromising the income of the business sector	Long- term	Sanggunian
<b>Outcome:</b> Mutual understanding and agreement among the business sector, households, and implementers.			
<b>Objective 2:</b> To achieve an effective enforcement of the ordinance and careful monitoring of community compliance as well as the community engagement			
Action No.	Action	Timeline	Responsibility
2.1	Creation of a committee that will focus on the monitoring of the compliance of the community including the markets and households with regards to the No Plastic Policy.	Long-term	Barangay Officials, SK Officials and MENRO

2.2	Expand the No Segregation, No Collection Policy by providing color-coded garbage bins and bags according to the types of waste (non-recyclable, recyclable, food waste, etc.) in common areas in public places.	Short-term	MENRO, LGU
2.3	Increase community involvement by opening up avenues of communication between the community and the government	Long-term	Barangay Officials and MENRO
2.4	Award Green Certificates to Barangays, business establishments and stalls, as means to their compliance with the policy.	Long-term	MENRO
<b>Outcome:</b> A community compliant to the No Plastic Policy achieving a zero to lesser plastic waste			
<b>Objective 3:</b> Limit the use of non-biodegradable plastic bags and promote the usage of alternatives.			
Action No.	Action	Timeline	Responsibility
3.1	Increase tax of non-biodegradable plastic bags through a municipal resolution	Long-term	Sanggunian
3.2	Initiate partnerships with private sectors to launch Zero Waste Store within the community to promote, "bring your own containers and eco bag to avail products on a cheaper price".	Long-term	Private Sector, LGU and MENRO
3.3	Establish partnership between manufacturers of biodegradable plastics, brown bags, and eco bags to reduce its cost and increase its production supply in the community.	Long-term	LGU and MENRO
3.4	Start a "bring your own bag day" initiative. Every Wednesday, buyers are obligated to bring their own eco bags, bayong or baskets, to the local market to store their dry items. The usage of plastic bags or labo by sellers is then restricted on that specific day.	Long-term	Sanggunian, MENRO, Barangay Officials, and SK Officials
<b>Outcome:</b> Reduced usage of non-biodegradable plastic bags and strengthened practice of using alternatives.			
<b>Objective 4:</b> Strengthen the execution through strict enforcement of penalties and fines.			
Action No.	Action	Timeline	Responsibility

4.1	Develop comprehensive guidelines regarding the penalty and fine system, in line with the Provincial Ordinance No. 2012- 09.	Long- term	Sangguniang Bayan
4.2	Conduct an information campaign to every barangays with regards to the penalties and fines that will be imposed on violators of the policy.	Long- term	MENRO and Barangay Officials
<b>Outcome:</b> Strong compliance from the general public and developed awareness on the consequences of non-compliance.			
<b>Objective 5:</b> Enhance awareness and strengthen the knowledge of the public with regards to the No Plastic Policy through an intensive Information Education and Communication (IEC) Campaign.			
Action No.	Action	Timeline	Responsibility
5.1	Provide seminars to every barangay, twice a year, for a continuous flow of information that will strengthen the resident's knowledge with regards to the No Plastic Policy and further develop their practice on plastic waste management.	Long-term	MENRO
5.2	Conduct awareness seminars in educational institutions.	Long-term	MENRO
5.3	Initiate a collaborative discussion with store owners with regards to the implementation of the policy.	Short-term	MENRO
5.4	Post tarpaulins and signages on areas visible to the public such as on the entrance of public markets, cashiers' area on grocery stores, entrance of school establishments, and in barangay halls.	Short-term	MENRO and Barangay Officials
5.5	Constant posting of reminders through social media platforms such as facebook, to raise awareness and connect with a more vast audience.	Short-term	MENRO, Barangay Officials and SK Officials
<b>Outcome:</b> Increase awareness, knowledge, and understanding of the public with regards to the implementation of the No Plastic Policy and develop their practice on plastic waste management.			
<b>Objective 6:</b> To encourage users and producers to think and act in ways that reduce waste, reuse, and properly dispose of plastic waste in order to contribute achieve Sustainable Development Goals (12)			

Action No.	Action	Timeline	Responsibility
6.1	Incentivize business establishments that can manage waste at source, and reduce the use of plastics and waste generation	Short-term	LGU, Private Sector
6.2	Establish youth groups to drive reuse, reduce, recycle activities in communities in line with school activities	Long-term	LGU, Educational institutions
6.3	Develop programs, such as waste to art competition, that would exhibit transformed wastes into work of art to encourage the public to practice recycling, as well as to carry out plastic recycling as a profitable venture	Short-term	MENRO, Barangay Officials
<b>Outcome:</b> Consistent practice of Reuse, Reduce, Recycle (3Rs) in plastic wastes achieved			
<b>Objective 7:</b> To help in maintaining cleanliness within the community and to keep people safe from diseases caused by improperly disposed waste.			
Action No.	Action	Timeline	Responsibility
7.1	Provide a weekly timetable for cleaning day in every barangay.	Long-term	Barangay Officials and SK Officials
7.2	Disseminate announcements to attend plastic waste orientations, every month, with at least one member of each household to participate.	Long-term	MENRO and Barangay Officials
7.3	Provide signages on open areas to inform people to not dispose nor dump their waste and garbage in such areas.	Short-term	Barangay Officials
<b>Outcome:</b> Cleanliness in the community is maintained and severe flood cases are reduced.			

This proposed action plan can be beneficial to further strengthen the implementation of the No Plastic Policy, and could be adopted from the barangay level up to the provincial level.

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