



Assessment of the Implementation of Plastic and Styrofoam-Free Policy in Baguio City Public Market

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Abstract

Plastic waste has been one of the pressing problems in Baguio City. Among the largest contributors to waste is the City's Public Market. The study's main objective is to assess the implementation of the Plastic and Styrofoam-free Policy of Baguio City in its public market to draft an action plan for its possible improvement. Specifically, it sought to determine the level of implementation of the Plastic and Styrofoam-free Policy by the technical working group from the City General Services Office; to determine the level of compliance with the Plastic and Styrofoam-free Policy among the registered stall owners in the public market; and to determine significant difference between the level of compliance among the different groups of registered stall owners in the public market according to their Line of business. The findings shall be a basis for preparing and proposing an action plan. The researchers used a quantitative research design, particularly the descriptive survey research method, and a survey questionnaire as a data collection method. The overall results showed that the ordinance must be implemented and complied with. Given this, the ordinance must be amended, allowing the use of biodegradable plastics as primary packaging for fresh and wet goods. Massive information dissemination thereof will heighten the implementation and compliance therewith.

Keywords: *Plastic-free; Plastic Bags; Paper Bags; Styrofoam-free*

INTRODUCTION

Waste generation has been part of our daily lives as we are the primary contributors of waste—from the food we eat, the water we use, and other resources we consume to the household we belong to, factories we work in and malls we shop at. Materials disposed of in the general waste bin can last in the environment anywhere from hundreds to thousands of years (Eales, 2016). Thus, waste accumulates faster than it decomposes.

Furthermore, waste generation is closely related to Population—as the latter increases, the same goes for the former. Therefore, waste is inevitable (Lagerkvist and Dahlén, 2012). However, its production has caused serious environmental and safety problems that, historically, have been ignored until they became worse. Currently, plastic waste as a category of waste under solid wastes is one of the major problems our world is facing. The continuous usage and improper waste management of plastics threaten all life forms on Earth. Poorly managed plastic waste is a breeding ground for diseases and contributes to global climate change (Alabi et al., 2019). As such, the safe disposal of plastics is one of the most challenging global issues. Thus, for the sake of the current and next generations, responsible disposal of plastic waste has been emphasized worldwide through advocacies for environmental protection and implementation of programs to advance such. These advocacies include solid waste management (Ghosh, 2015).

In Baguio City, there were years that the locality combated the plastic waste issues and mountains of garbage that resulted in the overfilling of local sanitary landfills and took a huge toll on the City's financial resources. Based on the Commission on Audit report in its 2017 annual audit report, the problem of the City on solid waste management disposal took at least P 472.46 million since 2011 from the City's resources. The City also generated 56,000 tons of waste in 2017 and a yearly average of 50, 000 tons. The mentioned statistics of waste collected in the City had an

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eminent impact on the community as the open dumpsite in Barangay Irisan, in the same locality, caused a garbage avalanche that killed 6 people in 2011. In addition, the landfill receives 30 tons of the City's 190 tons of daily trash based on the data from the Department of Environment and Natural Resources. To avoid further casualties just like the Irisan Dumpsite incident, the City had already implemented countermeasures such as the formulation of the 10-year solid waste management plans, which mandate the Local Government of Baguio to close the operation of their open dump facilities and replace them with environmentally-friendly disposal facilities such as controlled dump sites, engineered sanitary landfills for the protection of the health of the people and the preservation of the state of the environment which is initial compliance to the provisions of the ESWMA (Agoot, 2019).

In the heart of Baguio City is the Public Market, one of the busiest places in the locality as it hosts the vibrancy of mixed retail and wholesale trade of public marketers. It is the central domain of the City, which is accessible to a diversity of consumers and vendors. However, based on the assessment of the local government of Baguio City on their website, it is one of the most unsanitary and dirtiest areas in the City as it is one of the major sources of biodegradable and non-biodegradable wastes coming from different stalls and shops which is why it is the target of health and sanitation policies of the local government (Belino & Belino, 2017).

In 2007, the City Council of Baguio enacted City Ordinance No. 26 series of 2007 or the Baguio Paper Bag Ordinance, which mandates the use of paper bags, *huri* bags, and other biodegradable bagging containers in all supermarkets, groceries, and other related retail business establishments in the City's commercial zone at the city market and requires the use of biodegradable packing material. In addition, Section 4 of the said ordinance provides that fresh meat, fish, vegetables, and fruits in the city market "may be packed in plastic containers or sando bags, provided these are placed in shopping bags allowed in this Ordinance." The said City Ordinance is one way of managing solid waste because plastic bags are known to clog waterways, as it takes centuries for them to totally disintegrate (Belino & Belino, 2017).

After two years of implementation, Agoot (2019) mentioned in her article that the volume of plastic waste in Baguio City has been reduced by 30 percent since the imposition of the plastic and styro-free ordinance as of January 14, 2019. As cited therein, Public Information Office Chief Aileen Refuerzo said in a telephone interview that the City General Services Office (GSO) attributed the decrease to the implementation of the City Ordinance. Refuerzo said GSO head Eugene Buyucan reported that the estimated reduction was based on the observation of the personnel assigned at the waste transfer station at the Dairy Farm for the second half of 2018. He, however, said the decrease in plastic waste did not affect the total volume of waste produced in the City, which remained at 168 tons a day. Buyucan said this was due to the increased use of other kinds of residual wastes, like paper materials for packaging, which were used as replacements for plastic packaging. The 30 percent reduction of plastic waste implies proper implementation of the said ordinance in the City as a whole.

However, such an estimate was only based on the observation of the personnel in charge. As the City Public Market was designated as the pilot testing area, it may be gleaned that the percentage reduction was primarily contributed by the implementation of the City Ordinance in the area and the corresponding compliance of the stakeholders therein. To corroborate, the study aims to assess the implementation of the Plastic and Styrofoam-free Policy of Baguio City in its public market in order to draft an action plan for its possible improvement. Specifically, it sought the following objectives: (1) To determine the level of implementation of the Plastic and Styrofoam-free Policy by the technical working group from the City General Services Office. (2) To determine the level of compliance with the Plastic and Styrofoam-free Policy among the registered stall owners in the public market. (3) To determine the significant difference between the level of

compliance among the different groups of registered stall owners in the public market according to their Line of business. (4) To propose an action plan to help address the problems encountered with plastic waste in the public market.

LITERATURE REVIEW

Laws Related to Solid Waste Management in the Philippines

The Philippine Congress passed Republic Act No. 9003, or the Ecological Solid Waste Management Act (ESWMA), one of Asia's most complete and progressive solid waste management laws (United Nations Human Settlements Programme, 2010). The passage of the ESWMA on January 26, 2001, was catalyzed by the landslide at the Payatas dumpsite in Quezon City in July 2000, which killed 200 people. A poor SWM caused such tragedy.

Republic Act No. 9003, or the Ecological Solid Waste Management Act (ESWMA)

The ESMWA, as embodied in Section 2 Article I, takes a holistic approach to the problems of solid waste management, which declares the state's intention to adopt a systematic, comprehensive and ecological solid waste management program that will ensure the protection of public health and environment. Further, it provides environmentally robust waste management programs. It implements the necessary institutional mechanisms and incentives that declare specific laws prohibiting and providing penalties for the violations of the said law and provides appropriate funds for government environmental programs. It ensures the use of environmentally- sound methods that increases the utilization of valuable resources and encourage resource conservation and recovery, providing for the proper segregation, collection, transportation, storage, treatment and disposal of wastes through the formulation and adoption of the best practices in ESWM. In addition, it prescribes a hierarchy of waste management, as follows: a) Source reduction (avoidance) and minimization of waste generated at source; b) Reuse, recycling and resource recovery of wastes at the barangay level; c) efficient collection, proper transfer, and transport of wastes by city/municipality; and d) efficient management of residuals and final disposal sites or any other related technologies for the destruction/reuse of residuals.

The ESWMA intends to solve the common problems in solid waste management, including the escalation of plastic waste in the country. According to the audit conducted by the Mother Earth Foundation (Gascon, 2019), the average Filipino uses 591 pieces of plastic sachets, 174 shopping bags and 163 plastic "labo" (translucent bags, which exposes the role of the manufacturers in the global rise of plastic wastes). The said plastic escalation problems in the country have created both environmental and health problems due to the inability of both local and national governments to implement proper waste management primarily because of scarce financial, human and technical resources. A poor waste management cycle is manifested through conventional landfills or dumpsites that may bring ecological and health-associated risks (Galarpe & Parilla, 2012).

Ordinances related to lessening plastic waste in the Philippines

Some local government units in the Philippines have already started their campaign for lesser use of plastic. In 2008, the Municipality of Los Baños in Laguna was the first municipality in the Philippines to regulate the use of plastic by passing Municipal Ordinance No. 2008-752, "An Ordinance Prohibiting the Use of Plastic Bags on Dry Goods and Regulating Its Utilization on Wet Goods and Prohibiting the Use of Styrofoam in the Municipality of Los Baños and Prescribing Penalties Thereof". Although the use of plastic cannot be eliminated, the goal of the ordinance was to reduce and minimize the amount of plastic garbage produced in the municipality. One of the main campaigns of the municipality ordinance was to advocate the use of reusable containers and bags, which pushes the customers always to carry bayong or other eco bags to lessen the need for both

plastic bags and paper bags.

Moreover, the City Government of San Fernando, in the province of La Union, has also passed an ordinance to regulate the use of plastic, especially in the public market. The implementation of the City Ordinance No. 030-2012 was an effort of the City to regulate the use of thin films, single-use, carry-out plastic bags, sandbags or plastic labo as well as styrofoam. The said city ordinance is a countermeasure of San Fernando City to the escalating volume of plastic waste being disposed of daily and remains a nuisance to the city environment for a long time. In 2014, the City Government of San Fernando passed another ordinance that can further strengthen the environmental protection campaign and ban plastic in the City. The City Ordinance No. 2014-03, also known as the "Plastic-Free Ordinance", was passed by the Sangguniang Panglunsod of San Fernando to regulate and fine the use of plastic and styrofoam in the City. In addition, the City Ordinance also prohibits the use of plastic bags for dry goods; plastic straws; and plastic or Styrofoam plates, cups, and utensils (except for take-out items), including selling plastic bags. The goal is to encourage stakeholders to minimize the use of plastic bags and styrofoam products in their daily activities and to promote the use of indigenous reusable bags or eco-bags as an alternative to plastic bags, which will also encourage livelihood projects on reusable bag-making. It also helps the City to at least mitigate flood occurrences by getting rid of solid wastes that clog waterways and drainages.

Baguio City Public Market

In 2017, the City Council of Baguio enacted City Ordinance No. 35 Series of 2017 or the Plastic and Styrofoam-free Baguio Ordinance that mandates all businesses to provide or make available to customers for free or for a cost paper bags or reusable bags or containers made of paper or materials which are biodegradable, for the purpose of carrying out goods or other items from the point of sale. The researchers accessed the full text of the ordinance on the official website of the City Government of Baguio. Here are some pertinent provisions of the said ordinance.

*Baguio City Ordinance No. 35 Series of 2017
The Plastic and Styrofoam-free Baguio Ordinance*

The Local Government Code of 1991 authorizes the Sangguniang Panlungsod to protect the environment and impose appropriate penalties for acts which endanger the environment and impose appropriate penalties for acts which endanger the environment including such activities which result in pollution, acceleration of eutrophication of rivers and lakes, waterways or of ecological imbalance. Moreover, the use of plastic bags and polystyrene foams containers constitute a percentage of the litter which is unsightly, costly and causes serious negative environmental impact and the cost associated with the use of these materials create a burden on the City's waste management system. Therefore, the creation of Baguio City Ordinance No. 35 Series of 2017, imposing the no plastic and no styrofoam in the City of Baguio, is deemed to be in the best interest of the health, safety and welfare of the residents. The ordinance also reduces the cost of solid waste disposal by the City, protects the environment and recovers the cost of promoting the use of recyclable paper bags and reusable bags in the City of Baguio. The said ordinance highlighted prohibited acts as compliance with the provisions of the said law.

Furthermore, the said ordinance states that all businesses shall provide or make available to customers for free or for a cost, paper bags or reusable bags or containers made of paper or materials which are biodegradable for the purpose of carrying out goods or other items from the point of sale. Whether the reusable bag provided by the store is free or not should be indicated in the sale/ purchase receipt or invoice. However, customers are allowed to choose whether or not

he/she will bring or use bags of any type except plastic bags in the store to help themselves for carrying away goods in lieu of bags provided by the store (City of Baguio, 2020).

To ensure the smooth implementation of the ordinance, Section 8 thereof mandates the creation of a technical working group as the monitoring and oversight committee to take the lead in the information/ education campaign, including the issuance of violations and penalties.

The technical working group is also required to submit an annual report on compliance with the ordinance by businesses/operators and government offices, schools and concerned officials/ employees in the office of the City Ecological Solid Waste Management Board and the City Council for appropriate information and action, including recommendations or appropriate changes in the ordinance for its proper implementation (City of Baguio,2020).

RESEARCH METHOD

The researchers used a quantitative research design, particularly the descriptive survey research method, to describe the relationship between the implementation of the Plastic and Styrofoam-free Ordinance in Baguio City Public Market and the compliance of the registered stall owners to the said ordinance.

The respondents were divided into two groups: (1) the registered stall owners in the Baguio City Public Market; and (2) the members of the Technical Working Group. For the first group, a total population of 3,096 are currently registered as stall owners in the Baguio City Public Market. Using the slovin's formula, with a 5% margin of error, the sample population of the study was computed and limited to 350 registered stall owners in the Baguio City Public Market. The current list of registered stall owners in the Baguio City Public Market was further categorized according to the nature of the business and the type of goods they sell.

From the computed sample size of 350 participants, the number of respondents per business category was determined using ratio and proportion, such that the greater the number of businesses in a particular category, the more participants were picked therefrom. The researchers randomly chose registered stall owners within the Baguio City Public Market, keeping in mind the number of respondents per business category.

Table 1. Group of vendors according to their Line of business

Group of vendors according to their Line of business	Total population per Line of business	Sample population per Line of business
Vegetable Vendors	1300	147
Meat and Fish Vendors	522	59
Dry good vendors	787	89
Food Vendors	115	13
Vendors selling other types of goods	372	42
Total	3096	350

For the second group, the researchers included all the members of the Technical Working Group as the respondents since they are assigned to monitor and oversee the implementation of the Plastic and Styrofoam Free Ordinance and take the lead in the information/ education campaign, including the issuance of violation and penalty. A list of the members of the Technical Working Group was obtained. All members were given questionnaires, and all responded.

The two questionnaires used the 4-degree Likert Scale; the items in the questionnaires were rated from not complied/implemented to highly complied/implemented by the registered stall owners and the technical working group, respectively. Based on the Likert scale responses, the following statistical limits and verbal interpretation table were used in interpreting the weighted means.

To answer objectives one (1) and two (2), the researchers used weighted mean to determine the specific actions undertaken by the technical working group in the implementation of the Plastic and Styrofoam Free Ordinance and to determine the compliance among the registered stall owners with such ordinance, respectively.

To answer objective three (3), the researchers utilized two-tailed ANOVA through the use of Statistical Package for the Social Sciences (SPSS) software to find out whether the result of the implementation of the Plastic and Styrofoam Free Ordinance by the technical working group and compliance of the registered stall owners has a significant relationship.

FINDINGS AND DISCUSSION

Demographic Profile of the Respondents

The population and locale of the study were limited to the 350 registered stall owners in the Baguio City Public Market, as they are subjected to comply with the policy, and 7 members of the technical working group, as they are assigned to monitor and oversight the implementation of the same. The total registered stall owners consisted of 147 vegetable vendors, 59 meat and fish vendors, 89 dry goods vendors, 13 food vendors and 42 vendors selling other types of products such as jewellery, shoes and other accessories. On the other hand, the total members of the technical working group consisted of the Baguio City Association of Barangay Captains (ABC) President, City Environment and Parks Management Officer, City General Service Officer, City Health Services Officer, Security Service Officer, Supervising Administrative Officer and the Baguio City Police Office Director. Table 2 shows the demographic profiles of the respondents.

Table 2. Demographic Profile of the Respondents

		Frequency (f)	Percentage (%)
Group of vendors according to their Line of business	Vegetable Vendors	147	42
	Meat and Fish Vendors	59	16.857
	Dry good vendors	89	25.428
	Food Vendors	13	3.714
	Vendors selling other types of goods	42	12
	Total	350	100.00
Members of the technical working group	Baguio City Association of Barangay Captains (ABC) President	1	14.29
	City Environment and Parks Management Officer	1	14.29
	City General Service Officer	1	14.29
	City Health Services Officer	1	14.29
	City Security Service Officer	1	14.29
	Supervising Administrative Officer	1	14.29
	Baguio City Police Office Director	1	14.29
	Total	7	100.00

The level of implementation of the Plastic and Styrofoam-free Policy by the technical working group from the City General Services Office

The overall level of implementation of the Plastic and Styrofoam-free Policy (The Ordinance) by the Technical Working Group from the City General Services Office obtained a mean of 3.13 (SD = 0.94), interpreted as moderately implemented. This means that the majority of the key indicators of implementation are observed. Based on the indicators in determining the level of implementation of the ordinance, the prohibition on the use of plastic bags and styrofoam for dry goods has the highest mean of 3.7, interpreted as highly implemented. The result shows a decent implementation of the ordinance in compliance with Section 8 of the Ordinance, which mandates the creation of a technical working group as the monitoring and oversight committee to take the lead in the information/ education campaign, including the issuance of violation and penalty.

Furthermore, the prohibition is evident since registered stalls are required to post signages stating therein that plastic and styrofoam are not allowed. These signages are visible to customers at the entrance of their stalls. This is compliant with Section 10 of the Ordinance. In 2019, Market Division chief Fernando Ragma Jr. reported 39 stalls which violated the ordinance; 14 were caught providing plastic bags to customers, while 25 failed to post the required signage. However, notwithstanding this prohibition, customers still prefer to use plastic bags as packaging (see discussion under Table 5). It can be gleaned that while the policy is highly implemented, the demands of the consumers are of equal importance. Due to the demand for the use of the plastic bag for certain products, such as wet goods, the City Government allowed the use of plastics. It prescribed a particular type of biodegradable plastic as packaging for these goods. This is reflected in the result for the 4th indicator, with a mean of 2.86, interpreted as moderately implemented. This indicates that the use of plastic bags on wet goods is permitted.

Table 3. Level of implementation of the Plastic and Styrofoam-free Policy by the technical working group from the City General Services Office.

Indicators	M	SD	VI
1. The use of plastic bags and styrofoam for dry goods is prohibited	3.71	0.49	HI
2. All business establishments pack dry goods products in biodegradable materials such as recycled products carton, boxes and paper bags	3.14	1.21	MI
3. Dry goods may be packed in plastic bags or non-biodegradable packing materials provided that such packing materials were supplied by the customers.	2.71	1.11	MI
4. The use of plastic bags on wet goods (fresh fish, meat products) is regulated.	2.86	1.35	MI
5. No business establishment offers or sells plastic bags to be used as secondary packaging material or as primary packaging on dry goods	3.43	0.79	HI
6. The use of styrofoam as packaging materials or as containers for food, fruits and vegetables is prohibited.	3.00	1.15	MI
7. Plastic bags are de-categorized under non-biodegradable wastes and hence shall not be collected during the collection schedule of non-biodegradable waste products.	2.57	1.27	MI
8. Styrofoam containers are hereby de-categorized under non-biodegradable wastes and hence shall not be collected during the collection schedule of non-biodegradable waste products.	2.86	1.35	MI
9. The City Environment and Park Management Office monitor the	3.43	0.98	HI

Indicators	M	SD	VI
effective implementation of the ban on plastics.			
10. The Information Education and Communication Campaign- The City continuously promotes the ordinance through massive information education and communication campaigns using media (print, radio, television and internet).	3.43	0.79	HI
11. Violators of the ordinance are penalized properly.	3.14	1.07	MI
12. The technical working group submits an annual report on the compliance of businesses/operators in the Public Market.	3.29	1.11	HI
OVERALL MEAN	3.13	0.94	MI

Note. M = mean. SD = standard deviation. VI = verbal interpretation. HI = highly implemented. MI = moderately implemented

The 7th indicator obtained the lowest mean of 2.57, interpreted as moderately implemented. Together with the 8th indicator, it can be inferred that plastic bags and styrofoam are still being collected together with non-biodegradable waste products. This result confirms the findings of the City Government in 2019 that garbage is not being segregated in identified pick-up points, not only within the Public Market but also within the City as a whole (See, 2019). In turn, the City Government strictly implemented the "no segregation, no collection" policy.

The 5th and 9th indicators obtained a mean of 3.43, interpreted as highly implemented. This means that registered stall owners are strictly prohibited from selling or using plastic bags as packaging. These results are parallel that of the 8th and 9th indicators of the level of compliance among registered stall owners in the public market. Based on the means obtained, 2.29 and 2.09, respectively, it is interpreted as less complied. This implies that the implementation is effective such that the registered stall owners avoid the use of biodegradable plastics as primary and secondary packaging for their goods.

The combined approach of the restriction and information drive on plastic bag use applied in Baguio City Public Market is an attempt to educate the public and increase their awareness of the environmental hazards of using plastic bags. The use of regulations, such as the requirement for retailers to restrict the use of plastic bags, is a method implemented to discourage the use of plastic bags. The implementers described regulations as playing a significant role in inducing ethical commitment for the retailer (Zaman, 2012). This ethical commitment can also be applied to the pro-environmental behaviour of the general public.

The implementation of the ordinance is also a method to change the behaviour of consumers depending on the use of plastic bags to carry purchased items and to reduce amounts of plastic waste in the City (Asmuni et al., 2015). As for stall owners, their role is to comply with the program. Both consumers and store operators constitute the public. The participation of the public in carrying out the Plastic and Styrofoam-free Policy is crucial in ensuring the success of the program.

However, the implementation of the ordinance in the Baguio City Public Market has not provided a clear determination in giving consideration to those who purchase plastic bags for carrying wet grocery items such as poultry, seafood and beef, which can increase the effectiveness of the policy (Asmuni et al., 2015). The implementation of the Plastic and Styrofoam-free Policy in the market needed to provide a clear provision on other ways of handling and carrying purchased items and avoiding using plastic bags at all from stores.

The level of compliance with the Plastic and Styrofoam-free Policy among the registered stall owners in the public market

The overall level of compliance with the ordinance among the registered stall owners in the City Public Market obtained an overall mean of 2.37 (SD = 0.63), interpreted as less complied. Based on the indicators in determining the level of compliance with the ordinance among the registered stall owners in the City Public Market, the “ *Paper bags are provided by the store to the customers as primary packaging bags for purchase of products*” indicator has the lowest mean of 1.42, interpreted as not complied. On the other hand, the highest indicator, “ *The customers are allowed to bring and use reusable bags as secondary packaging containers,*” obtained a mean of 3.38, interpreted as highly complied. These results show that the stall owners still prefer to use plastic bags as the primary packaging of their goods despite the implementation of the Plastic and Styrofoam-free policy of Baguio City.

In the City Public Market, paper bags are less likely to be provided by the store owners to the customers, whether as primary or secondary packaging. Since paper bags and recyclable bags are more expensive than plastic bags, they can be a heavier burden on the expenses of the stall owners (National Geographic Society, 2022). Moreover, stall owners received negative feedback from their consumers on the use of paper bags for their goods, especially during the rainy season, since paper bags can easily get wet and are less durable compared to plastic bags (Tripathi, 2014). The result shows an agreement with the study of Serrano et al. (2017) that not using plastic bags and replacing them with alternative packaging, such as paper bags, can be a real problem in Lingayen, Pangasinan, because of the difficulty of packaging heavy goods since they are not durable and that it is more convenient to use plastic bags.

However, stall owners can offer customers the option to buy eco-friendly bags as primary or secondary packaging bags for their goods since some customers forget to bring their own bags with them to the public market. Reusable bags are more durable than paper or plastic bags and are unlikely to have their handle tear off or develop a hole in the corner of a box or other sharp products pressed into them (Diringer, 2016). Reusable bags are easier to use for loading and unloading groceries and make the purchases more likely to survive the trip to and from the store.

Table 4. Level of compliance with the Plastic and Styrofoam-free Policy among the registered stall owners in the public market.

Indicators	M	SD	VI
1. Paper bags are provided by the store to the customers for their purchase of dry products.	1.92	1.31	LC
2. Paper bags are provided by the store to the customers for their purchase of food.	1.62	1.04	NC
3. Paper bags are provided by the store to the customers for their purchase of drinks.	1.31	0.72	NC
4. Paper bags are provided by the store to the customers for their purchase of take-out products.	1.91	1.23	LC
5. Paper bags are provided by the store to the customers for their purchase of wet products.	1.52	1.01	NC
6. Paper bags are provided by the store to the customers as primary packaging bags for the purchase of products.	1.42	0.88	NC
7. Paper bags are provided by the store to the customers as secondary packaging bags for the purchase of products (i.e. the product purchased is primarily bagged in plastic and contained in a paper	1.87	1.24	LC

Indicators	M	SD	VI
8. Biodegradable Plastic Bags are provided by the store to the customers as primary packaging bags for their purchased products.	2.29	1.36	LC
9. Biodegradable Plastic Bags are provided by the store to the customers as secondary packaging bags for their purchased products.	2.09	1.35	LC
10. The customers are offered the option to buy eco-friendly bags as primary packaging bags for their purchased products.	2.88	1.35	MC
11. The customers are offered the option to buy eco-friendly bags as secondary packaging bags for their purchased products.	3.03	1.29	MC
12. The customers are allowed to bring and use reusable bags as a primary packaging container.	3.50	0.99	HC
13. The Customers are allowed to bring and use reusable bags as a secondary packaging container.	3.38	1.09	HC
14. The customers are offered the option to refuse a bag.	3.22	1.19	MC
15. The customers are charged for the bags provided.	2.56	1.43	MC
16. The store has signage regarding the banning of selling plastics and styrofoam.	3.48	1.07	HC
OVERALL MEAN	2.37	0.63	LC

Note. M = mean. SD = standard deviation. VI = verbal interpretation. HC = highly complied. MC = moderately complied. LC = less complied. NC = not complied.

Finally, the result showed that less compliance by the registered stall owners in the public market of Baguio City is not caused by their unwillingness to abide by the ordinance. However, the level of their compliance is based on different factors, which include the materials used, condition and price of the paper bags as an alternative packaging to the purchase products of consumers.

The significant difference between the level of compliance among the different groups of registered stall owners in the public market according to their Line of business

It was also noted that there is a statistically significant difference ($p < 0.05$) among the registered stall owner in the public market in their level of compliance with the ordinance according to their Line of business (See Table 7). This significant difference specifically exists between dry goods stall owners and all other stall owners, such as vegetables and fruits, fish and meat and food, while a significant difference does not exist between dry goods and other stall owners. In Baguio City public market, various registered market stalls have different products to sell to their customers. Aligned to their business are the bags that they must utilize to package their products bought by the consumers, hence packaging is an important part of their business. The result shows that the registered stall owners of vegetables and fruits ($M = 2.21$; $SD = 0.60$), fish and meat ($M = 2.21$; $SD = 0.35$), food ($M = 2.40$; $SD = 0.79$) and others ($M = 1.94$; $SD = 0.72$) that include tailoring shop, flower shop, jewellery shop, and shoe repair shop in the public market less comply with the Plastic and Styrofoam-Free Policy. This means registered stall owners in Baguio City Public Market that sell wet goods still prefer to use plastic bags as primary and secondary packaging on purchased products since paper bags can get wet and lose strength and tear.

Table 5. The significant difference between the level of compliance among the different groups of registered stall owners in the public market according to their Line of business.

Different groups of registered stall owners in the public market according to their Line of business	OVERALL MEAN	
	Vegetables and Fruits (n = 147)	M
	SD	0.60
	VI	LC
Fish and Meat (n = 59)	M	2.21 ^a
	SD	0.35
	VI	LC
Dry Goods (n = 89)	M	0.35
	SD	LC
	VI	2.93 ^b
Food (n = 13)	M	0.32
	SD	MC
	VI	2.40 ^a
Others (n = 42)	M	0.79
	SD	LC
	VI	1.94 ^{a,b}
F		35.674
p		0.000**

Note. n = number of respondents per group. M = mean. SD = standard deviation. VI = verbal interpretation. F = F-test or ANOVA. p = probability (Sig.) value. ** = The difference is significant at 0.05 level (two-tailed). A significant difference exists for different superscripts. A significant difference does not exist for similar superscripts. HC = highly complied. MC = moderately complied. LC = less complied. NC = not complied.

Goods such as fish, meat and foods are really hard to handle and can easily break a container that is not resistant to wet and cold. Paper bags traditionally lend themselves to cold or damp environments and self-destruct when they get wet. A mere precipitation from strolling in the market can be sufficient to make paper bags self-destruct. Plastic bags, on the other hand, can shed water instead of engrossing dampness, which is the very nature of most products in the public market, including fish, meat and foods. In addition, Ayalon et al. (2009) stated that the ability of plastic bags to resist water makes them stiff and have a longer life span than paper bags. Moreover, plastic bags are perfect for individuals who may need to stroll in the downpour because external factors such as weather and temperature do not affect their durability.

Stall owners who sell heavy goods such as vegetables and fruits choose plastic bags over paper bags as the primary and secondary packaging of these purchased products. Plastic Bags can be made very thin and are still strong enough to carry a full load of heavy shopping (Taaffe et al., 2014). A standard plastic bag with a size of 12x6x22 inches (Width x Side Gusset x Length) can hold 13- 23 kilograms or 2,500 times its own weight and stay strong when wet (Bell & Cave, 2011). In contrast, standard paper bags with a size of 7x17x12 inches (Depth x Height x Width) are not too strong when contrasted with paper bags (Bell & Cave, 2011). While paper bags can carry a maximum of 4 kilograms, they will not be able to hold heavy goods and cannot be pressed in any shape in view of their inadaptable nature (Aurela et al., 2010).

It must also be noted that among the registered stall owners, the result shows that only those who are selling dry goods (M = 2.93; SD = 0.32) moderately comply with the ordinance. It means

that the compliance of the registered stall owners on the use of paper bags for packaging products is affected by the type of goods sold. According to the study of Deshwal et al. (2019), paper bags are accepted packaging for lightweight and dry goods since they can tolerate their weight, and their durability cannot be affected by the dryness of the goods. Moreover, paper bags are being utilized for consumable dry goods, such as bread and cookies, since they are tailored for dry food packaging and are safe for direct food contact.

The reason dry goods must be packaged in a paper bag is for them to get oxidized (Savage & Vanhanen, 2006). Registered stall owners in the City Public Market believed that dry commodities such as wheat grains, salt, sugar, flour and much more need to "breathe" to stay fresh. Paper bags actually does repel a little moisture because a certain amount of air can get in and are good at managing humidity inside the container (Ait-Oubahou et al., 2019). Dry goods can sweat in plastic bags and get lumpy because sealing them into a non-breathable package like a plastic bag traps the moisture inside, which makes them easily fouled by moisture (Alberghini et al., 2021).

CONCLUSIONS

Based on the findings, the overall implementation of the Plastic and Styrofoam-free Policy by the Technical Working Group as the monitoring and oversight committee is moderate to taking the lead in the information/education campaign, including the issuance of violation and penalties. Moreover, the massive information campaign of the City regarding the provisions of the ordinance, as well as the fine as the penalty imposed should there be a violator, has developed consciousness and awareness in the public regarding the use of plastic bags.

Even with the moderate implementation, the overall level of compliance with the Plastic and Styrofoam-free Policy among the registered stall owners in the Baguio City Public Market needs to be complied with. This is affected by different factors, including the materials used, condition and price of the paper bags as an alternative packaging of goods. More so, the significant difference in the level of compliance with the Plastic and Styrofoam-free Policy among the registered stall owners according to their Line of business is based on the nature of goods they sell, such as vegetables and fruits, fish and meat and food and the needed primary and secondary packaging of the goods.

Therefore, the researchers will prepare and propose an action plan to help the implementers develop a better strategy for dealing with Plastic and Styrofoam waste in the Baguio City Public Market in consideration of the following: (1) Certain provisions of the ordinance must be amended to include the use of biodegradable plastic only by vendors selling wet goods, frozen or fresh goods; (2) Massive information dissemination drive must be conducted among the registered and unregistered stall owners in the public market on the fines and penalties for the violation of the ordinance; and (3) Additional Implementing Task Force must be established for the implementation of the ordinance.

LIMITATION & FURTHER RESEARCH

Given these findings, looking into the key factors in determining the overall implementation and compliance of the Plastic and Styrofoam-free Policy in the Baguio City Public Market serves as the basis of proposed courses of action for a better implementation thereof. Thus, the following are recommended: The scope of the study is only limited on the public market in the City. Future researchers may look into the overall implementation of and compliance with the ordinance in other establishments, such as malls, fast-food chains, and school cafeterias, as another area to be considered. These establishments are also contributors to the accumulation of plastic waste. Since they are covered by the ordinance, the implementation within these establishments and their compliance therewith may also be delved into.

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