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Extent of Compliance of Ordinance Prohibiting the Use of Styrofoam Containers and Regulating the Use of Single Use Plastics in Cabugao Public Market

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ABSTRACT

This study aimed to examine the extent of compliance with Ordinance No. 17, series of 2022 which prohibits the use of styrofoam containers and regulates the use of single-use plastics in Cabugao Public Market. The research addresses the detrimental environmental, public health, and economic impacts of these materials. The study employed a descriptive research design and snowball sampling technique to gather data from wet market vendors through a survey-checklist. The findings indicate a high level of awareness and compliance among the vendors. All respondents were aware of the ordinance and its objectives, actively participated in regulating plastic use, and reported consistent monitoring by the local government. However, some vendors faced challenges related to customer complaints about the durability of alternative packaging and the higher cost compared to plastic bags. Vendors provided suggestions to address these issues, such as allowing the use of environmental-friendly alternative plastic bags.

INTRODUCTION

The Philippines, as an archipelagic nation, is blessed with abundant biodiversity. Ironically, it is the third-ranking contributor to plastic pollution in the world. According to Schachter, J., and R. Karasik. (2022), the country generates plastic pollution with estimates ranging between 2.7 and 5.5 million metric tons annually. Of this estimate, 20% ends into ocean environments (Braganza 2017). About 74% of plastics that leak into the ocean were initially collected but were escaped from open landfills that are located near vulnerable waterways (World Wildlife Fund, 2018).

As a country with extensive coastal communities and a heavy reliance on marine resources, the environmental impact of pervasive styrofoam containers and single-use plastics has been particularly deleterious. The problems caused by these materials are manifold, ranging from environmental degradation, public health concerns, and economic implications. These problems have strengthened local governments across the country to enact local ordinances aimed at regulating the use of these materials.

In a review conducted by Borg *et al.* (2022), the behavioral change of implementing interventions as to regulating plastic use showed that passing legislations are the most efficient approach to mediation and potentially prohibit the use of plastics, more than habits, norms, and situational factors.

A foremost concern regarding the use of styrofoam containers and single-use plastics is its potential impact on the environment. These materials are non-biodegradable, which persists in the environment for hundreds, if not thousands of years. Consequently, they contribute to the accumulation of solid waste which will eventually end up

in landfills, rivers, and oceans.

As an archipelagic nation, the Philippines is particularly vulnerable to marine pollution, with plastic waste posing a significant threat to its marine ecosystems. This poses a critical problem on marine animals often mistake plastic debris for food, which leads to ingestion, entanglement, and often death (International Union for Conservation of Nature, n.d.).

Furthermore, these materials break down into microplastics over time, which leads to widespread environmental contamination. Microplastics are readily ingested by marine organisms, infiltrating food chains, and potentially reaching humans through the consumption of seafood. Udovički and his team, (2022) reported that microplastics may enter drinking water through different ways. The long-term effects of microplastic ingestion on human health are still being researched; however, it is a growing concern.

The public health implications of styrofoam containers and single-use plastics are another critical factor. These materials can leach harmful chemicals into food and beverages, especially under high temperatures. Contamination due to microplastics affects the source of food as well as the public health (Cverenkárová *et al.*, 2021). Chemicals such as styrene from Styrofoam and Bisphenol A (BPA) from certain plastics have been linked to various health issues, including hormonal disruption, reproductive health problems, and increased risk of certain cancers.

The economic implications of styrofoam containers and single-use plastics also pose a significant factor. The persistent nature of these materials imposes considerable costs on waste management systems. In their study of macroplastic pollution in specific tourism areas in the

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Philippines, Inocente and Bacosa (2022) have found out that food packaging, plastic bags and fragments are the most dominant pollutants that contaminate coastal and marine areas of the country as a result of tourism and other unsustainable economic activities. Cities and municipalities are compelled to allocate substantial resources to manage plastic waste, diverting funds from other crucial public services. Moreover, plastic pollution can negatively impact sectors like tourism and fisheries, which are vital for many local economies in the Philippines.

Given the alarming environmental, health, and economic problems caused by styrofoam containers and single-use plastics, various local governments in the Philippines have been spurred into action. Various municipalities have enacted ordinances prohibiting the use of these materials and imposing penalties for non-compliance.

These ordinances typically involve bans styrofoam containers and single-use plastics for food packaging, with penalties ranging from fines to revocation of business permits. The aim is not just to curb the consumption of these materials but also to foster a culture of environmental responsibility among businesses and consumers. The enactment of these ordinances underscores the recognition by local governments of the urgent need to address the plastic pollution crisis.

In Cabugao, Ilocos Sur, the local government is currently implementing Ordinance No. 17, series of 2022 which aims to curb the use of single-use plastic and styrofoam. However, the use of these packaging is still evident in the said locality even with the promulgation of the ordinance. The problems caused by styrofoam containers and single-use plastics in the Philippines are multifaceted and severe. These materials, while offering convenience, carry a steep environmental, health, and economic toll. Their pervasive use and subsequent disposal have led to significant challenges, prompting local governments to enact ordinances to curb their consumption.

While these measures signify a positive step towards mitigating the impacts of plastic pollution, the path to a sustainable future is complex and requires the concerted effort of all stakeholders.

Statement of the Problem

This study aimed to examine the extent of compliance of Ordinance No. 17, series of 2022 (i.e., Ordinance Prohibiting the Use of Styrofoam Containers and Regulating the Use of Single-Use Plastic and Providing Penalties Thereof in the Municipality of Cabugao, Ilocos Sur) in Cabugao Public Market.

Specifically, it sought to answer the following questions:

1. What is/are the constitutional and legal provisions that is/are in support to Ordinance No. 17, series of 2022 in Cabugao, Ilocos, Sur?
2. What is the extent of compliance of Ordinance No. 17, series of 2022 in Cabugao Public Market?
3. How valid is the proposed educational campaign material in addressing the concerns on single-use plastic and Styrofoam in terms of:

- a. Accuracy and credibility;
- b. Relevance and appropriateness;
- c. Clarity and understandability;
- d. Engagement and interactivity; and
- e. Objectives and outcomes?

Significance of the Study

The study is of immense significance as it addresses the detrimental impact of styrofoam containers and single-use plastics the environment, public health, and economic sector. By understanding the beneficiaries of this study, the wider implications of this research can be comprehended and its potential to bring about progressive change on multiple fronts.

Foremost, this study is of great significance to the Local Government of Cabugao. It provides an assessment of the current level of compliance with the Ordinance No. 17, series of 2022; thereby, giving a clear understanding of its effectiveness. If the compliance level is high, it indicates that the policies have been successful which could boost their reputation and public approval. Conversely, a low compliance level would suggest a need for policy revision or better enforcement strategies; thereby, guiding future actions and decisions.

Through this study, the local business operators and sellers will also be enlightened, educated, and refreshed about their role in sustaining the environment. The findings of this study will help them understand the extent to which they need to adjust their operations to comply with the ordinance fully. This could mean replacing styrofoam containers and single-use plastics with more sustainable alternatives. As more consumers are becoming environmentally conscious, businesses that fully comply with the ordinance may also gain a competitive advantage by aligning their practices with consumer values.

The study will also be deemed beneficial to environmental non-government organizations (NGOs) and advocacy groups. The findings of the study will provide them with data to support their campaigns and initiatives. It strengthens their case for stricter regulations on single-use plastics and styrofoam containers, not only in the Municipality of Cabugao but also in other places. The study also provides them with a reference point for their advocacy, which will give them concrete evidence to lobby for similar ordinances in other locations.

Furthermore, the local community and consumers frequenting the Cabugao Public Market also stand to gain from this research study. The prohibition of styrofoam and single-use plastics aims to reduce environmental pollution, contributing to a cleaner, healthier environment for residents. If compliance is high, this indicates a successful reduction in local pollution levels, which will directly benefit the community by improving their living conditions.

The environment itself and, by extension, the broader global community will be the major beneficiaries of this study. The reduced use of styrofoam and single-use plastics means less pollution and waste to healthier

ecosystems. This study could serve as a precedent for similar initiatives worldwide, contributing to global environmental conservation efforts.

Lastly, the findings of the study can also serve as reference to future researchers and academic scholars who may be interested to replicate and widen the scope of the study, specifically with regard to environmental stewardship and sustainability. The implications of the study aim to be far-reaching as it aims to provide valuable insights that can guide policy-making, business practices, advocacy work, and community awareness in working towards the shared goal of environmental sustainability.

Scope and Delimitation of the Study

This study aimed to examine the extent of compliance of Ordinance No. 17, series of 2022 (i.e., Ordinance Prohibiting the Use of Styrofoam Containers and Regulating the Use of Single-Use Plastic and Providing Penalties Thereof in the Municipality of Cabugao, Ilocos Sur) in Cabugao Public Market.

Apparently, the study was delimited to the wet market vendors in Cabugao Public Market. The research employed descriptive as its research design and snowball sampling technique through the use of a checklist as its research instrument.

The research instrument has two parts. The first part aimed to gather the socio-demographic profile of the respondents and delimited only to their age, sex, and product/s offered. Consequently, the second part is a checklist on the degree of compliance of the respondents to Ordinance No. 17., s. 2022. The checklist is only delimited to 11 dichotomous questions (i.e., answerable by “yes” or “no”) yielded in the ordinance. There is two open-ended questions for respondents to justify their answer.

LITERATURE REVIEW

The review of literature and studies is organized under general headings that conforms to the major aspects in the study namely: a) An Overview of Plastics and Styrofoam; b) Public Health Concerns on the Use of Single-used Plastics and Styrofoams; c) Environmental Impacts on the Use of Single-used Plastics and Styrofoams; d) Economic Implications on the Use of Single-used Plastics and Styrofoams; e) Local Ordinances on Prohibition of Styrofoam Containers and Regulation of Single-Use Plastics in the Philippines; and e) Ordinance No. 17, series of 2022.

An Overview of Plastics and Styrofoam

Plastics and styrofoam have become ubiquitous materials affecting nearly every aspect of our lives at present (Plastic in the Daily Life, n.d.). These synthetic polymers have revolutionized numerous industries due to their durability, versatility, and cost-effectiveness from food packaging to medical equipment (Niyitanga *et al.*, 2021). However, the environmental implications of their widespread use have raised significant concerns.

According to the British Plastics Federation (n.d.), plastics are a group of synthetic materials made from polymers, long chains of molecules derived primarily from petroleum and natural gas. The plastic family is diverse, including several different types, each with its distinct properties and applications. Hardin (2021) identified eight types of plastics and they are as follow:

Polyethylene Terephthalate (PET or PETE)

Commonly used in packaging food and beverages, particularly bottled water and soft drinks;

High-Density Polyethylene (HDPE)

Used for containers for milk, detergents, and shampoos, as well as grocery bags;

Polyvinyl Chloride (PVC)

Used in a multitude of products, including pipes, cables, clothing, and toys;

Low-Density Polyethylene (LDPE)

Used in the production of plastic bags, containers, tubing, and various types of packaging due to its flexibility and toughness;

Polypropylene (PP)

Used in various applications, including automotive parts, food containers, and medical equipment;

Polystyrene (PS)

Used in disposable cutlery, CD cases, and other products;

Bisphenol a (BPA)

Used on plastic bottles for beverages, water bottles, containers for food and canned goods; and

Polycarbonate (PC)

This type of plastic has been characterized as harmful to health. Various applications of this chemical compound can be seen in electronics, automotives and construction. Around 80% of the waste that is generated ends up accumulating in landfills or the natural environment. In certain conditions, ultraviolet light can break down plastics into their original monomeric components, creating “microplastics” which are highly complex and extremely difficult to recover or remove. This disruption of food chains has detrimental impacts on both human and environmental health. (Niyitanga *et al.*, 2021). Plastics and styrofoam can also leach harmful chemicals into the environment, posing potential health risks to wildlife and humans. Moreover, chemicals used in the making process of plastics do have a great contribution in environmental pollution (Proshad *et al.*, 2017).

Plastics and styrofoam have brought significant convenience and efficiency to various industries and our daily lives. However, their environmental costs cannot be overlooked. The challenges posed by plastics and Styrofoam are substantial, but they are not

insurmountable. Through concerted efforts in research, policy-making, and public awareness, we can navigate our way towards solutions that balance convenience and cost-effectiveness with environmental sustainability.

In the study of Schuyler and her team (2018), the concept of Container Deposit Legislation (CDL) has been discussed. This focuses on imposing deposits to bottles and containers which gives an urge for individuals to return such. It has been discussed that this economic policy focusing on reducing waste products is effective. The path may be complex, but the potential rewards—a healthier, cleaner, and more sustainable planet—are certainly worth the journey.

Public Health Concerns on the Use of Single-Used Plastics and Styrofoams

The global escalation in the use of single-use plastics and Styrofoam has sparked an array of public health concerns. These materials, primarily used for packaging, have become omnipresent in our daily lives due to their convenience, low cost, and lightweight. Issac and Kandasubramanian (2021), the buoyancy and persistent nature of microplastics allow them to be widely dispersed through aquatic environments as a marine pollutant, transported by ocean currents. This enables microplastics to act as a vehicle for the transfer of other contaminants to the organisms living in the water.

Issac and Kandasubramanian (2014) claims that plastic bags are the most common type of trash found in Manila Bay. Plastics dumped in water bodies can cause severe damage to marine ecosystems, as plastic bags and cans can choke animals or harm coral reefs. Additionally, microplastics ingested by marine life can poison fish and sea turtles, ultimately leading to the contamination of the human food supply when these animals are consumed (Ranada, 2014).

One of the primary health risks stems from the leaching of toxic chemicals from these materials. Plastics and styrofoam often contain harmful additives such as phthalates and Bisphenol A (BPA), which can leach into food and drinks, especially when heated. These chemicals are known endocrine disruptors, which can interfere with our hormonal systems, leading to a host of health issues including reproductive disorders, developmental problems in children, and an increased risk of certain cancers.

In addition to its endocrine disrupting characteristic, Ahmad and his team (2024) indicated that exposure to BPA is “injurious” to human health as it can result to enumerations of diseases including congenital disabilities, diabetes, kidney and cardiovascular complications and poses serious adverse complications to immunological, metabolic and neurological systems of the human body. There are also scientifically-proven effects of being exposed to plastics especially with its chemicals and contaminants. Cancer and changes in hormonal activity which can be the reason for reproductive, growth, and cognitive impairment are one of the effects of being

exposed to plastics (Geneva Environment Network, 2024).

Ingesting microplastics, either directly through contaminated food and water or indirectly through the food chain, poses a significant public health concern. Siddique *et al.* (2024) reported that microplastic particles are most commonly detected in sea salts threatening food security and human health. Although research on the health impacts of microplastics is still in its infancy, early studies suggest that they can accumulate in the body and potentially cause inflammation, oxidative stress, and even genetic damage.

The environmental pollution caused by single-use plastics and styrofoam also has indirect health impacts. Large quantities of these materials end up in oceans, leading to the degradation of marine ecosystems. This not only threatens marine life but also affects human health. For instance, the decline in fish populations can impact food security for communities that rely on seafood.

Moreover, improperly disposed of plastic waste can serve as breeding grounds for disease vectors such as mosquitoes. This can increase the transmission of diseases like dengue and malaria, which pose additional public health challenges.

Public awareness plays a crucial role in this endeavor. By understanding the health risks associated with these materials, consumers can make informed decisions and contribute to reducing demand. Furthermore, embracing a circular economy, where materials are reused and recycled, can significantly mitigate the environmental and health impacts.

The public health concerns associated with single-use plastics and styrofoam are significant and warrant urgent attention. While these materials may offer convenience, the hidden health costs are too high to ignore. Moving forward, it is crucial to balance convenience with sustainability, ensuring that actions taken today do not compromise the health of future generations.

Environmental Impacts on the Use of Single-Used Plastics and Styrofoams

In the contemporary era of convenience and disposable culture, single-use plastics and styrofoams have become integral components of an individual’s daily lives. Their utilization spans across various domains, which includes food packaging, consumer goods, and medical supplies. They are primarily attributed to their durability, lightweight, and perceived hygiene. However, the environmental impacts of these materials are profound and alarming.

The adverse effects of single-use plastics and styrofoams extend to wildlife, particularly marine organisms. These materials frequently end up in oceans and other bodies of water, where they pose a significant threat to aquatic life. Marine animals often mistake plastic debris for food, leading to ingestion and potential starvation, as the indigestible material fills their stomachs.

Entanglement is another significant concern. Sea

creatures, especially larger ones like seals, turtles, and even birds, can become entangled in plastic waste, leading to injury and often death. These threats to individual animals have ripple effects on broader ecosystems, disrupting food chains and contributing to biodiversity loss.

Single-use plastics and styrofoams can leach harmful chemicals into the environment. Over time, under the influence of sunlight and heat, these materials can release toxic substances such as Bisphenol A (BPA) and styrene. These chemicals contaminate the soil, groundwater, and surface water, posing potential health risks to both wildlife and humans.

The environmental impacts of single-use plastics and styrofoams are extensive and multifaceted. While these materials have brought convenience and efficiency to human lives, the environmental costs are too substantial to ignore. It is crucial to redefine relational lifestyle with these materials, shifting from a linear 'take-make-dispose' model to a more circular approach that prioritizes resource efficiency, waste reduction, and sustainability.

Addressing this issue requires concerted efforts from all stakeholders - policymakers, businesses, consumers, and researchers. Regulatory measures to restrict the use of these materials, along with research and development into sustainable alternatives, are urgently needed. Consumers can also play a crucial role by reducing their consumption of disposable plastics, recycling wherever possible, and opting for reusable and biodegradable products.

Economic Implications of the Use of Single-Used Plastics and Styrofoams

In the age of convenience and consumerism, single-use plastics and Styrofoam have become an integral part of an individual's daily life. These materials, cherished for their versatility, durability, and low cost, are widely used in various industries, especially packaging and food service. However, beneath the veneer of convenience lies a complex web of economic implications that are often overlooked. This essay aims to shed light on the economic ramifications of people's reliance on single-use plastics and Styrofoam.

At first glance, single-use plastics and Styrofoam seem to offer significant economic advantages. They are cheap to produce, lightweight, and durable, making them an attractive option for businesses seeking to minimize costs and maximize efficiency. These materials have enabled the growth of the fast-food industry, online shopping, and other sectors that rely heavily on disposable packaging.

The environmental impact of single-use plastics and Styrofoam is well-documented. These materials contribute significantly to pollution, both on land and in our oceans, leading to the degradation of ecosystems and biodiversity loss. The economic cost of this environmental damage is immense. For instance, the United Nations Environment Programme (UNEP) estimates that marine plastic pollution alone costs approximately \$13 billion per year in damages to marine ecosystems.

Another significant economic implication of single-use

plastics and Styrofoam pertains to waste management. The non-biodegradable nature of these materials means they persist in the environment for hundreds to thousands of years. Managing this ever-growing mountain of waste is a significant challenge that comes with a hefty price tag. For instance, municipalities have to invest heavily in waste management infrastructure, including collection, transportation, and disposal. Despite these efforts, a significant portion of these materials still ends up in landfills or the environment, exacerbating the aforementioned environmental and health costs.

Lastly, reliance on single-use plastics and Styrofoam represents a missed economic opportunity. The linear "take-make-dispose" model of these materials results in a considerable waste of resources. According to the World Economic Forum, 95% of the value of plastic packaging material, worth \$80-120 billion annually, is lost to the economy after a short first use.

In contrast, a circular economy approach, where materials are reused and recycled, could unlock significant economic potential. The Ellen MacArthur Foundation estimates that transitioning towards a circular economy for plastics could generate \$706 billion in economic opportunities.

In conclusion, the economic implications of single-use plastics and Styrofoam are far-reaching and complex. While these materials may offer short-term economic benefits, their long-term costs, in terms of environmental degradation, public health impacts, and waste management challenges, are substantial and cannot be ignored. Moving forward, it is imperative to shift towards more sustainable alternatives and embrace a circular economy, thereby ensuring that economic prosperity does not come at the expense of the planet and public health.

Local Ordinances on the Prohibition of Styrofoam and Single-Used Plastics

In recent years, the global community has seen an increasing awareness about the detrimental impact of single-use plastics and styrofoam on the environment. These materials, while offering convenience and cost-effectiveness, pose a significant threat to ecosystems, wildlife, and human health. The Philippines, an archipelago boasting rich biodiversity, has been particularly impacted due to its extensive coastline and dependency on marine resources. Recognizing this, the Philippine authorities have enacted a series of legal measures to curb the use of Styrofoam containers and single-use plastics.

In addition to national laws and resolutions, many local government units (LGUs) have enacted ordinances to regulate the use of single-use plastics and Styrofoam in the Philippines. They share common features complete ban on the use of styrofoam containers and single-use plastic for food packaging and other goods. The ordinances apply to all establishments, including markets, grocery stores, restaurants, and retail outlets.

Moreover, these ordinances stipulate penalties for non-compliance. Penalties may include fines, the revocation of business permits, or even imprisonment. These

penalties serve to deter violations and ensure adherence to the regulations. The following are some of the local ordinances that prohibits the use of styrofoam containers and regulates the use of single-use plastics:

In Laoag City, Ilocos Norte, the local government issued Ordinance No. 45, series of 2012. It is an ordinance regulating the use of plastic bags as secondary packaging and banning the use of styrofoam. Business establishments who fail to follow will be sanctioned with PhP. 3,000.00 as its first offense, PhP. 4,000.00 as second offense, and PhP. 5,000.00 and closure-order as third offense. Furthermore, carinderias that will be caught using styrofoam for their products will be fined PhP. 200.00 to PhP. 300.00 as its sanction.

In City of Batac, Ilocos Norte, the local government, through their Sangguniang Panglungsod issued Ordinance No. 4SP 2017-09 titled, "An Ordinance regulating the Sale and Use of Non-Biodegradable Plastic Bag as Carry Out Bags in All Commercial Establishments in the City of Barac, Ilocos Norte and Providing Penalties Thereof." It aims to regulate, generation, reduction, and disposal of wastes that can harm the environment. It enhances, the total improvement and maintenance of the environment through the necessary control and mitigation of the negative environmental impacts of solid wastes such as the use of non-biodegradable packaging. It also declares Monday, Wednesday and Friday as "Plastic-free Holiday" in all residential, commercial, agricultural, and institutional establishments within the city. The local government encourage the local populace to use other alternatives packaging such as "bayong" and eco bags, as well as reusable drinking containers, metal drinking straws and utensils. Sanctions are also enforced to ensure compliance to the ordinance.

In Vigan City, Ilocos Sur, the local government issued Ordinance No. 17, s. of 2002, known as "Vigan City Code on the Maintenance of Cleanliness and Sanitation in Public Places." Although the ordinance heavily focused on garbage disposal, solid waste management and littering, the said ordinance has a specific provision in prohibition of burning rubber tires, plastic refuse, styrofoam and other materials that are harmful to the environment, specifically on Section 14 of the ordinance. Corresponding sanctions are also imposed for violators of the said ordinance.

In National Capital Region (NCR), similar local ordinances were imposed on the prohibition of Styrofoam Containers and regulation of single-use plastics. In Quezon City, the local government implemented Ordinance No. SP-2868, which prohibits the distribution and use of single-use plastic and Styrofoam in hotels, restaurants, and other similar establishments.

In 2011, the City of Las Pinas, Philippines passed the "Plastic Bag Regulation Ordinance" which banned the use of both plastic bags and polystyrene foam. This was an effort by the local government to maintain the ecological balance within their jurisdiction by reducing solid waste that often ends up polluting the city's waterways and

ultimately, the nearby bay. The banning of these single-use plastics was intended to significantly decrease the amount of waste generated by the local community that would otherwise accumulate in the region's canals, rivers, and streams.

In Marikina City, Ordinance No. 18, s. 2012 prohibits the use of plastic bags as primary packaging together with Styrofoams. As for wet goods, it does not prohibit the use of plastic and is to just encourage consumers to bring and use reusable containers.

In Mandaluyong City, implementing Ordinance No. 523, s. 2013 regulating the use of plastic and Styrofoams in commercial and business establishments on two days of the week particularly on Mondays and Wednesdays. Gradually, year 2014 the said city has finally prohibited the use of plastic bags and sanctioned monetary fines up to imprisonment and revocation of business permit with non-compliance.

Other cities outside of the Greater Manila Area had similar ordinance on the prohibition of Styrofoam containers and regulation of single-use plastics. In San Fernando City, Pampanga, the local government adopted the Plastic-Free City Ordinance in 2014, which prohibits the use, sale, and distribution of plastic bags and Styrofoam containers. The ordinance also encourages the use of reusable bags and containers. Violators face penalties such as fines and community service, with stricter penalties for repeat offenders.

In Los Baños, Laguna, the "Plastic-free Baños Ordinance" strictly prohibits the use of plastic bags, plastic drinking straws, plastic cups, plastic plates, plastic spoon and fork and styrofoam as well as plastic banderitas and tarpaulins.

Similarly, in Davao City, the "Plastic-free Davao City" through the "No to Single-Use Plastics Ordinance of 2021" is their way of becoming sustainable and being effective in prohibiting cups, condiment packets and containers, stirrers, straws and cutlery with the goal of addressing the problem of plastic pollution.

The implementation of these ordinances has led to a noticeable reduction in plastic and styrofoam waste in these municipalities. Moreover, it has fostered an increased awareness among citizens about the environmental impact of their consumption choices.

However, these ordinances also raise certain challenges. The transition away from plastic and Styrofoam necessitates the availability of affordable, sustainable alternatives. There is a need for investment in research and development to produce such alternatives. Furthermore, the enforcement of these ordinances requires robust monitoring mechanisms and the active participation of the community.

While these legal measures signify a positive step towards environmental sustainability, numerous challenges persist. These range from enforcement issues, lack of public awareness, resistance from certain industry sectors, to the absence of affordable and practical alternatives to single-use plastics and Styrofoam. Addressing these challenges

requires a holistic approach that involves all stakeholders - from policymakers, businesses, consumers, to researchers and educators.

Ordinance No. 17, Series of 2022

The Local Government of Cabugao in the Province of Ilocos Sur issued Ordinance No. 17, series of 2022. It is officially titled, "Ordinance Prohibiting the Use of Styrofoam Containers and Regulating the Use of Single-Use Plastic and Providing Penalties Thereof in the Municipality of Cabugao, Ilocos Sur." It was enacted by the Sangguniang Bayan of Cabugao, Ilocos Sur on October 24, 2022 aimed at promoting environmental sustainability through the prohibition of Styrofoam containers and the regulation of single-use plastics within the Municipality of Cabugao, Ilocos Sur.

It was authored by Sangguniang Bayan Member (SBM) Jemaima S. Tan-Yee, MD, grounded in various constitutional and legal provisions that advocate for the protection of ecological balance and the promotion of a healthful environment.

In the definition of terms, the ordinance provided provides clear definitions for terms such as alternative packaging materials, Bring Your Own Bag (BYOB) Program, cloth bag, dry goods, plastic bag, primary and secondary packaging materials, reusable bag, single-use, styrofoam, wet goods, and wet market to ensure clarity and avoid ambiguity in its enforcement.

The ordinance specifically highlights various sections to ensure clear and transparent implementation of the ordinance:

(1) The ordinance prohibits business establishments, food outlets, and vendors from using styrofoam as packaging materials;

(2) The ordinance bans the use of plastic bags as packaging materials for dry goods across various establishments;

(3) The ordinance states that establishments dealing with wet goods are restricted from using plastic bags as primary packaging materials;

(4) The sale of plastic bags as primary or secondary packaging materials for dry goods is banned;

(5) The local government encourages the use of recyclable, reusable, and biodegradable materials as alternatives to plastic and Styrofoam, promoting the Bring your Own Plastic (BYOB) Program;

(6) The local government assigns the Municipal Environment and Natural Resources Office (MENRO) the responsibility of monitoring the ordinance's implementation and reporting on its progress

(7) The local government mandates the conduct of an extensive campaign to educate the public about the ordinance and promote alternative biodegradable materials;

(8) The local government requires the issuance of necessary rules for the ordinance's effective implementation within 30 days of its approval;

(9) The local government grants a three-month compliance period for all concerned parties from the ordinance's passage date;

(10) Before its implementation, the MENRO was mandated to study the feasibility of alternative receptacles to ensure trade and commerce are not adversely affected;

(11) The local government also mandates MENRO to initiate livelihood projects for creating and distributing environmentally friendly receptacles, with coordination from the appropriate office;

(12) The ordinance is to be implemented upon approval and local publication;

(13) The ordinance also listed specific prohibited actions related to the use and provision of Styrofoam and plastic bags;

(14) The ordinance also establishes fines and penalties for violations, including a cancellation of the license to operate for businesses on their third offense; and

(15) The local government provides legal safeguards to ensure the ordinance's parts are independently enforceable and repeals any conflicting previous ordinances.

The ordinance is a significant step toward reducing pollution and promoting sustainable practices within the Municipality of Cabugao, which reflects a broader commitment to environmental protection and sustainability.

Theoretical Framework

This study was anchored in Functionalist Theory by Emile Durkheim, Social Learning Theory by Albert Bandura, and Social Contract Theory by Thomas Hobbes, John Locke and Jean-Jacques Rousseau.

The functionalist Theory by Emile Durkheim supports the idea that social institutions play a pivotal role in shaping society's stability and harmony. The social norms that continue to revolve around institutions are the reason for the ideologies and behaviors of people. The theory viewed that non-compliance to such policies and social norms constitutes to not being able to participate in socialization which threatens the ideal stability of societies. Durkheim believed that social institutions are able to influence an individual by the means of social norms and general beliefs (Lukes, 2015).

According to Mcleod (2024), Social Learning Theory by Albert Bandura proposed that behaviors acquired by an individual are products of modeling and imitation. This explains that practices, actions, and norms of people can be influenced by the things that they observe in society. In terms of compliance with an ordinance, social learning theory supports the idea that people may or may not follow an ordinance depending on how the people around a certain individual comply.

McCartney and Parent (2015), claimed that Social Contract Theory by Thomas Hobbes, John Locke and Jean-Jacques Rousseau serves a guide in understanding that there is a give and take between people and the government. The people follow rules and laws while the government provides security to the people.

One of the reasons why laws are pivotal in society is to prevent behaviors that are harmful and not beneficial to a certain population (McCartney & Parent, 2015).

Conceptual Framework

Given the theoretical framework which supports the study, Figure 1 shows the research paradigm of the study.

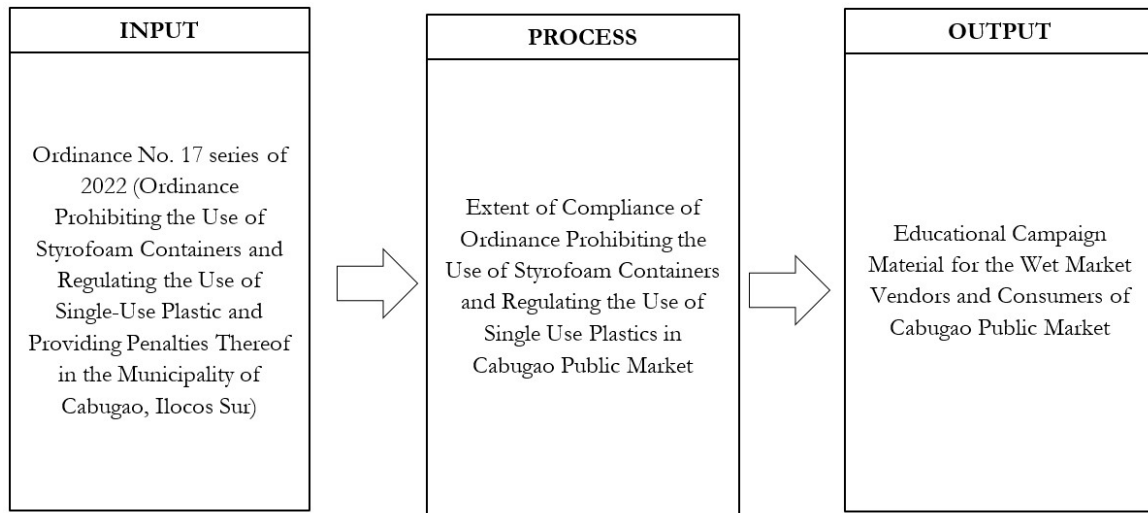


Figure 1: Research Paradigm

The conceptual framework of this research study follows an Input-Process-Output (IPO) model. The input component is Ordinance No. 17, series of 2022, which prohibits the use of styrofoam containers and regulates the use of single-use plastics in the Municipality of Cabugao, Ilocos Sur.

The process component involves the development and provision of educational campaign materials for the wet market vendors and consumers of the Cabugao Public Market. These educational materials are intended to facilitate compliance with the ordinance among the key stakeholders.

The output of the study is the assessment of the extent to which the market vendors and consumers comply with the ordinance prohibiting the use of styrofoam containers and regulating the use of single-use plastics.

Through this conceptual framework, the researchers aim to evaluate the effectiveness of the ordinance and the educational campaign in driving compliance among the target population in the Cabugao Public Market.

Research Hypotheses

Based on the theoretical and conceptual framework, the research study hypothesizes that there is an alignment between the constitutional and legal provision to the Ordinance No. 17, series of 2022 prohibiting the use of single-use plastic and styrofoams and the wet market vendors in Cabugao Public Market are compliant with the provisions stated in Ordinance No. 17, series of 2022.

MATERIALS AND METHODS

Research Design

This study made use of the research and design (R&D) and descriptive research.

According to Mirasol (1987), R&D methodology is fundamentally a process intended to develop and validate

educational outputs, which can be utilized and extended over a wide area

There are three stages that were followed by the researchers in the R&D methodology. These includes the planning stage, the development stage, and the evaluation stage.

In the planning stage, the researchers gathered information on the socio-demographic profile of the respondents and identified their degree of compliance of Ordinance No. 17, series of 2022. In the development stage, the researchers developed an educational campaign material that can be proposed to address the concerns of the respondents on their compliance to the ordinance. Meanwhile, in the evaluation stage, the validity of the proposed educational campaign material was evaluated by a panel of professor experts in environmental ordinances, professor of marine biology and environmental science and an expert in Information and Communication Technology in terms its

- (1) Accuracy and credibility;
- (2) Relevance and appropriateness;
- (3) Clarity and understandability;
- (4) Engagement and interactivity; and
- (5) Objectives and outcome.

On the other hand, using a descriptive research design, the researchers described the degree of compliance of Ordinance No. 17, series of 2022. Through this research design, the researcher aimed to gather both qualitative and quantitative data to gain a comprehensive understanding of the extent of compliance of the respondents with the ordinance.

By utilizing a descriptive research design vis-à-vis R&D methodology, the researchers are able to provide a detailed description of the compliance level with the ordinance in Cabugao Public Market and shed light on the usage of styrofoam containers and single-use plastics;

thereby, came up with a proposed educational campaign material that can be proposed to address the concerns of the respondents on their compliance to the ordinance.

Locale of the Study

The study was conducted in Cabugao Public Market located in Municipality of Cabugao in Province of Ilocos Sur, Philippines. It serves as a hub for fresh produce, meat, fish, and other goods. However, the research study specifically targets the wet market area.

Additionally, the Old Cabugao Public Market was the first project of the former Mayor Pacifico P. Apostol. It has now been converted into Cabugao Park. The Municipal Government Center, where several public buildings and structures converge, is also located in the vicinity.

The strategic location of Cabugao Public Market, situated on a spacious municipal property along the national highway north of the poblacion proper, is further enhanced by its proximity to the “dayo” (i.e., the slaughterhouse compound) and the municipality-owned Cabugao Ice Plant.

Population and Sampling Procedure

The respondents of the study were wet market vendors. At the time the data gathering procedure was conducted, there were 116 wet market vendors who are willing to participate in the study. Snowball sampling technique was used in the research study to identify and recruit participants who are directly affected by the ordinance.

This non-probability sampling method involved starting with a few initial respondents (i.e., wet market vendors) who have knowledge and experience related to the compliance with the ordinance. These initial respondents were then asked to refer other respondents who may also have insights and experiences regarding the use of Styrofoam containers and single-use plastics in the market.

The sampling technique was particularly useful since the respondents were not specifically identified. By leveraging the social networks and connections of the initial participants, the sample size was expanded, and a diverse range of perspectives was gathered.

Through this sampling technique, enables the researchers to gather information on the extent of compliance with the ordinance from a variety of stakeholders, such as vendors, consumers, and market authorities. It helps to capture a more comprehensive understanding of the challenges and successes in implementing the ordinance in the Cabugao Public Market.

Research Instruments

The study used a survey-checklist as its research instrument. The questionnaire contained a set of questions that are carefully derived from the sections of the ordinance. For better understanding and communication interaction, the said questionnaire was translated into Ilocano language. The questionnaire consists of two parts: Part I-Socio-demographic Profile and Part II-Degree of Compliance

to the Ordinance.

The first part of the survey questionnaire obtained information about respondents’ socio-demographic profile in terms of age, sex, and product/s offered.

Consequently, the second part was a checklist on the degree of compliance of the respondents to Ordinance No. 17., series of 2022. The checklist consists of 11 dichotomous questions (i.e., answerable by “yes” or “no”) yielded in the ordinance and two open-ended questions for respondents to justify their answer.

Data Gathering Procedures

Prior to the conduct of the study, the researchers sought permission from the office of the Municipal Mayor through a written communication. The letter was endorsed by the course teacher, who also served as the research adviser.

Upon approval and acceptance, the researchers went to the Cabugao Public Wet Market to conduct the data gathering procedures to the wet market vendors using the survey-checklist as primary tool. An unstructured interview was conducted to the respondents to further elaborate their challenges in complying in the ordinance and their suggestions for improvement.

After collecting responses through the questionnaires, the researchers organized, tabulated, and statistically analyzed and interpreted the data gathered. The researchers also conducted ocular observations to validate the respondents’ self-reported practices and compliance to the said ordinance.

Based on the results of the checklist questionnaire, the researchers developed an educational campaign material to address concerns of single-use plastics and styrofoam, which was later validated by three professors in their own field of expertise of environmental ordinances, marine biology and environmental science and Information and Communications Technology in terms of its accuracy and credibility of the information, the appropriateness and relevance to the target audience, the clarity and understandability of the content, the level of engagement and interactivity, and the alignment with the intended learning objectives and outcomes. The comments and suggestions then of the validators were incorporated in the final revision of the said material.

In scoring the responses to the items in the validation instrument for the proposed educational campaign material, the scale developed by Tuckman (1978) was used with modifications made to suit the need of the study:

Scale	Descriptive Interpretation
5	Very Highly Valid (VHV)
4	Highly Valid (HV)
3	Moderately Valid (MV)
2	Slightly Valid (SV)
1	Not Valid (NV)

The computed means were interpreted using the range interval of point scores developed by De Leon (1989):

Scale	Range Interval	Descriptive Interpretation
5	4.51 – 5.00	Very Highly Valid (VHV)
4	3.51 – 4.50	Highly Valid (HV)
3	2.51 – 3.50	Moderately Valid (MV)
2	1.51 – 2.50	Slightly Valid (SV)
1	1.00 – 1.5	Not Valid (NV)

Statistical Treatment of Data

The data was collated, organized, and subjected to statistical analysis to answer the problems of the study. The following statistical tools were used in analyzing the data gathered.

Frequency and percentage count were used for the socio-demographic profile and to the level of compliance of wet market vendors on the Ordinance No. 17, s. of 2022 of the Public Market of Cabugao, Ilocos Sur.

Ethical Considerations

The researchers gave an oral explanation to wet market vendors of the purpose of the research, their right to refuse to participate, and their understanding of their right to have a copy of the results of the study upon request. The responses to the checklist and interview were treated with confidentiality. The data gathered from the survey-checklist and in the informal interview were kept secure and were used only for the study’s intended purpose.

Overall, the researchers followed strict ethical guidelines to ensure that the respondents’ rights were protected and that the research was conducted with utmost confidentiality.

RESULTS AND DISCUSSION

The constitutional and legal provisions supporting Ordinance No. 17, series of 2022 in the Municipality of Cabugao, Ilocos Sur are as follow:

Article II Section 16 of the Philippine Constitution

It states that “the state shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.” It underscores the government’s obligation to safeguard the environment for the well-being of its citizens.

The extent of compliance with the ordinance prohibiting the use of styrofoam containers and regulating the use of single-use plastics in Cabugao Public Market is directly related to Article II, Section 16 of the Constitution. By implementing and enforcing such an ordinance, the local government of Cabugao is taking concrete steps to protect and advance the right of the people to a balanced and healthful ecology.

The ordinance’s aim to reduce the use of styrofoam containers and single-use plastics aligns with the constitutional mandate of preserving the environment in harmony with nature. These non-biodegradable materials

have a significant negative impact on the environment, contributing to pollution, waste accumulation, and harm to wildlife.

By complying with the ordinance, the Cabugao Public Market demonstrates its commitment to fulfilling the constitutional duty of protecting the environment, promoting sustainability, and ensuring a healthier and more balanced ecosystem for the benefit of its citizens.

Section 3 of Republic Act 7160 (Local Government Code of the Philippines 1991)

It stipulates that Local Government Units (LGUs) share the responsibility with the national government for the management and maintenance of ecological balance within their territorial jurisdictions, subject to the provisions of this Code and national policies. This law empowers LGUs to enact local policies for environmental protection.

The relationship between Section 3 of Republic Act 7160 and the extent of compliance with the ordinance prohibiting the use of styrofoam containers and regulating the use of single-use plastics in Cabugao Public Market is significant. The provision in the Local Government Code empowers the management of Cabugao Public Market to take proactive measures to manage and maintain ecological balance within their jurisdiction.

By enacting the ordinance to restrict the use of styrofoam containers and single-use plastics, the Local Government of Cabugao is exercising its authority under Republic Act 7160 to implement local policies for environmental protection. This demonstrates the commitment of the local government to fulfilling its mandate to safeguard ecological balance and promote sustainable practices within its community.

Furthermore, the ordinance’s compliance aligns with the spirit of Section 3 of the Local Government Code, as it reflects the proactive approach of the local government to environmental management and protection. By regulating the use of environmentally harmful materials, the local government contributes to the overall ecological balance and supports national policies on environmental sustainability.

In essence, the relationship between Section 3 of Republic Act 7160 and the compliance with the ordinance in Cabugao Public Market showcases the synergy between national legislation empowering LGUs to enact environmental policies and local initiatives aimed at promoting environmental conservation and sustainability.

Section 447 (vi) of Republic Act 7160

It specifically empowers the Municipal Council to “protect the environment and impose appropriate penalties for acts which endanger the environment, such as dynamite fishing and other forms of destructive fishing, illegal logging and smuggling of logs, smuggling of natural resources products, and such other activities which result in pollution, acceleration of eutrophication of rivers and lakes, or of ecological imbalance.”

This provision grants Local Government Units (LGUs) the authority to create ordinances and enact regulations for environmental conservation and protection within their respective jurisdictions.

The relationship between Section 447(vi) and the ordinance prohibiting the use of styrofoam containers and regulating the use of single-use plastics in Cabugao Public Market is that the Municipal Council of Cabugao is exercising its legal mandate under the Local Government Code to protect the environment.

By enacting this ordinance, the Local Government of Cabugao is using its legislative powers to address environmental issues caused by the improper disposal of styrofoam and single-use plastics. These non-biodegradable materials contribute to pollution, waste accumulation, and disruption of ecological balance.

The ordinance aligns with the authority granted to the Municipal Council under Section 447(vi) to “impose appropriate penalties for acts which endanger the environment.” By regulating the use of these environmentally harmful materials, the ordinance aims to mitigate their negative impact and promote more sustainable practices in the public market.

The extent of compliance with this ordinance by the wet market vendors in Cabugao Public Market is a measure of the local government’s effectiveness in implementing its environmental protection mandate under the Local Government Code. The high compliance levels of the wet market vendors indicate the successful exercise of the Municipal Council’s authority to safeguard the local environment.

The Ecological Solid Waste Management Act of 2000

It provides the overarching legal framework for waste management in the Philippines, which is highly relevant to the ordinance prohibiting the use of styrofoam containers and regulating single-use plastics in Cabugao Public Market.

Specifically, it mandates local government units (LGUs) to “promote, develop, and implement programs for proper solid waste management” (Section 10). This includes measures to reduce, reuse, recycle, and compost waste. While RA 9003 does not specifically mention styrofoam or single-use plastics, it sets the legal foundation and expectation for LGUs to enact their own policies and ordinances to address local waste management issues.

Furthermore, the local ordinance also aligns with the national policy objectives under RA 9003 to minimize waste generation, promote recycling, and establish an effective and efficient solid waste management system.

Lastly, RA 9003 provides LGUs the authority to enforce waste management laws and ordinances, including the imposition of penalties for non-compliance. This empowers the Local Government of Cabugao to ensure high compliance levels with its styrofoam and single-use plastic regulations.

Socio-Demographic Profile of the Respondents

Table 1 shows the socio-demographic profile of the respondents. On the first part of the survey questionnaire, it obtained information about respondents’ socio-demographic profile in terms of age, sex, and product/s offered.

Table 1: Socio-demographic profile of the respondents (n=116)

	Characteristics	f	%
Age	71 – 80	5	4.3
	61 – 70	9	7.8
	51 – 60	19	16.4
	41 – 50	18	15.5
	31 – 40	35	30.2
	21 – 30	27	23.3
	18 - 20	3	2.6
	Mean Age = 42		
Sex	Male	26	22.4
	Female	90	77.6
Product/s	Fish	36	31.0
	Frozen	20	17.2
	Meat	32	27.6
	Fruits	11	9.5
	Vegetables	7	6.0
	Beverages	4	3.4
	Cooked Foods	6	5.2
	Total	116	100.0

Age

In terms of age, most of the respondents are in the age

range of 31 to 40, which makes up 30.2% of the entire respondents. Followed by respondents who are in the age

range of 27 (23.3%).

In the study of Marcial and his team (2016) titled “Effectiveness in Implementation of Anti-Plastic Ordinance in Batangas City”, similarly, reports that compliance to ordinances when grouped according to age profile of 31-40 years old posed a “highly significant” relationship which means younger people in comparison to other age groups are more likely to comply with no-plastic policies.

Sex

In the study, the majority of the respondents are females (90 or 77.6%) while there are only 26 males (22.4%). This suggests that there is a higher representation of females in the survey, which may have implications for understanding compliance behavior. However, compliance with legal ordinances can be influenced by various factors, including gender norms, socialization, and individual characteristics without further analysis; hence, it is difficult to draw definitive conclusions about the relationship between gender and compliance.

Product/s Offered

In terms of product/s offered, wet market vendors sell fish with 36 (27.6%) the most followed by meat products of 32 (27.6%) that use plastic in packaging the said goods.

Extent of Compliance of the Respondents to Ordinance No. 17, s. 2022

Table 2 shows the extent of compliance of the respondents to Ordinance No. 17., s. 2022. It consists of 11 dichotomous questions (i.e., answerable by “yes” or “no”) yielded in the ordinance and two open-ended questions included on this part for respondents to justify their answer.

Awareness of the Ordinance

The first question checks whether the respondents are aware of Ordinance No. 17 s., 2022, which is focused on the prohibition of Styrofoam containers and the regulation of single-use plastics. Awareness is the first step toward compliance; hence, this question seeks to understand if the ordinance has been effectively communicated to the stakeholders. All (116) respondents answered yes, there is a high level of awareness of the respondents to the ordinance indicating that there is a successful communication effort done by the Local Government of Cabugao.

Awareness of the Ordinance’s Objectives

The second question probes deeper into the respondents’ understanding by asking if they are aware of the purpose and objectives behind the ordinance. With 11 (94.8%) respondents who answered yes, this indicates that the

Table 2: Extent of Compliance of the Respondents to Ordinance No. 17, s. 2022

Questions	Yes		No	
	f	%	f	%
1. Are you aware of Ordinance No. 17 s., 2022 (i.e., Ordinance Prohibiting the Use of Styrofoam Containers and Regulating the Use of Single Use Plastics)?	116	100%	0	0%
2. Are you aware of the purpose and objectives of the ordinance?	110	94.8%	6	5.2%
3. Are you actively participating in the ordinance regulating the use of single use plastics by not using plastic bags as a primary packaging material to customers when buying wet products (i.e., meat, fish, etc.)?	116	100%	0	0%
4. Do you provide reusable or biodegradable bags as an alternative to single-use plastic bags?	115	99.1%	1	0.9%
5. Do you observe consistent monitoring from the Municipal Environment and Natural Resources Office (MENRO) on the effective implementation of the ordinance?	116	100%	0	0%
6. Have you received training or guidance on the proper use of alternative packaging options (i.e., recyclable, reusable, and/or biodegradable packaging materials) either from local government or non-government organizations?	111	95.7%	5	4.3%
7. Do you observe massive information education and communication campaigns from the local government for the promotion of alternative biodegradable materials?	116	100%	0	0%
8. Are you enforcing the ordinance consistently and uniformly?	114	98.3%	2	1.7%
9. Are you aware of the penalties or consequences for non-compliance with the ordinance?	113	97.4	3	2.6%
10. Are there any challenges or obstacles that you face in complying with the ordinance?	33	28.4%	83	71.6%
11. Do you have any suggestions or recommendations on how to improve the implementation of the ordinance?	22	19.0%	94	81.0%

respondents were aware of the objectives behind the ordinance. Understanding the reasons for the regulation helps them in fostering a sense of responsibility and commitment toward environmental conservation.

Participation in Regulating Plastic Use

The third question seeks to ask if the respondents were actively participating in the ordinance by avoiding the use of plastic bags as a primary packaging material

for wet products. With 116 (100%) respondents who answered yes, it indicates that the respondents are actively participating in reducing single-use plastics and using alternative packaging which demonstrates the ordinance's practical impact and effectiveness in promoting change.

Provision of Alternative Packaging

The fourth question seeks to inquire whether the respondents provide reusable or biodegradable bags as an alternative to single-use plastic bags. It also aims to assess the practical steps taken by the respondents to comply with the ordinance and contribute to reducing plastic waste. With 115 (99.1%) respondents who answered yes, it indicates that the respondents are willing to adapt and the availability of viable, sustainable options. Moreover, the provision of alternatives also helps maintain business operations while adhering to environmental goals.

Consistent Monitoring by MENRO

The fifth question evaluates the enforcement aspect by asking if there is consistent monitoring from the Municipal Environment and Natural Resources Office (MENRO) regarding the effective implementation of the ordinance. With 116 (100%) respondents who answered yes, it indicates that there is consistent monitoring and strong enforcement of the ordinance; hence, the enforcement mechanism is robust. Monitoring and enforcement are crucial for ensuring that the regulations are not only followed but also have the desired impact on reducing plastic usage.

Training on Alternative Packaging

The sixth question aims to find out if the respondents have received any form of training or guidance on the proper use of alternative packaging options, such as recyclable, reusable, and/or biodegradable materials. With 111 (95.7%) respondents who answered yes, it indicates that there is a good support system on the provision of training and guidance on alternative packaging. The training or guidance came from local government units or non-government organizations. The purpose is to assess the efforts made in educating stakeholders about sustainable packaging alternatives.

Information Campaigns on Alternatives

The seventh question probes whether there have been widespread information, education, and communication campaigns by the local government promoting the use of alternative biodegradable materials. With 116 (100%) respondents who answered yes, it indicates that there is a proactive approach to promoting sustainable practices and education within the community.

Enforcement of the Ordinance

The eighth question checks if the ordinance is being enforced consistently and uniformly across all stakeholders. With 114 (98.3%) respondents who answered yes, it indicates that there is uniform and fair

enforcement, ensuring that all stakeholders are held to the same standards, promoting equity and preventing any perception of bias. Consistent and uniform enforcement is crucial for the success of any regulatory measure, ensuring fair treatment and compliance from all parties involved.

Awareness of Penalties

The ninth question asks if the respondents are aware of the penalties or consequences for non-compliance with the ordinance. With 113 (97.4%) respondents who answered yes, it suggests that the consequences of non-compliance are clear, acting as a deterrent mechanism. Awareness of penalties is a key aspect of ensuring adherence to regulations as it underscores the seriousness of the ordinance and the commitment to enforcing it.

Challenges in Compliance

The tenth question is an open-ended question where it seeks to identify any challenges or obstacles that respondents face in complying with the ordinance. With 33 (28.4%) respondents who answered no, it suggests that feedback mechanisms are working.

However, 83 (71.6%) of the respondents answered yes of having challenges in complying to the said ordinance. Buyers often complain about the durability of the single-use plastic which causes them to ask for another one. It highlights the need for addressing some challenges to improve compliance. This information can be used to make necessary adjustments to the ordinance or its implementation strategies, making it more effective and easier to comply with. Understanding these challenges is essential for addressing barriers to compliance and making necessary adjustments to the ordinance or its implementation strategies.

Masapol ado nga plastic pagikabilan aglalo no angkaten agiti taga away 1/2 karne. Kaspagarigan 5 kilos nga karne iti inda angkaten a sag 1/2, 10 met a sapot nukwa masapol kayat na sawen ado latta iti mausar. (There is a need to use multiple plastic bags, especially when they are purchased by customers from our market. For instance, if someone buys five kilos of meat, it would require approximately 10 sheets of plastic bags. This indicates that even more plastic bags would still be needed.)

-Wet Market Vendor A

The respondent mentions the need for multiple plastic bags, especially when customers make purchases from the market. It highlights a practical challenge in complying with the ordinance prohibiting the use of styrofoam containers and regulating the use of single-use plastics in Cabugao Public Market. The need for multiple plastic bags, particularly when customers make purchases like five kilos of meat, indicates that the reduction of single-use plastics may pose difficulties in certain situations.

Hence, this indicates that even with efforts to reduce single-use plastics, there are practical challenges that may hinder full compliance. The implication of this response is that there might be a tension between the objective of

reducing single-use plastics and the practical needs of customers. In some cases, customers may require multiple plastic bags to accommodate their purchases, such as when buying large quantities of meat or other items. This challenge highlights the need for alternative solutions and strategies to address the practical needs of customers while still promoting environmental sustainability

To overcome this challenge, it might be beneficial for the market management and Local Government of Cabugao to consider alternative packaging options, such as reusable bags or biodegradable alternatives. Additionally, educating customers about the environmental impact of single-use plastics and promoting the use of reusable containers or bags could help foster a culture of sustainable practices.

The response from the respondent underscores the importance of considering practical challenges and finding alternative solutions to promote compliance with the ordinance while addressing the needs of customers in the Cabugao Public Market.

Naimpis unay diay biodegradable plastic. Tay brown paper no mabasa wennu mamantikaan ket mapisang. Nakangin-gina pay ken naimpis agitoy alternative packaging isu agiti dadduma agusar da latta nukwa ti plastic ket mairamraman kami met nukwa. (Biodegradable plastics tend to be thin, while brown papers are prone to tearing when exposed to wet or oily products. Alternative packaging options are often expensive and thin, which is why many people still resort to using single-use plastic.)

-Wet Market Vendor B

The challenges mentioned by the respondent is the limitations of alternative packaging options in terms of durability, cost, and suitability for wet products.

The implication of this response is that the availability and practicality of alternative packaging options are crucial factors in determining the extent of compliance with the ordinance. If biodegradable plastics are thin and prone to tearing, and brown papers are not suitable for wet products, customers and vendors may face difficulties in finding suitable alternatives that meet their needs.

To address this specific challenge, it is important for the market management and the Local Government of Cabugao to explore and promote more viable alternative packaging options. This could involve working with suppliers to identify more durable and cost-effective biodegradable plastics or seeking out innovative packaging solutions that meet the specific requirements of the market.

Suggestion for Improvement

Question 11 question invites respondents to offer suggestions or recommendations on how to improve the implementation of the ordinance. Majority of the respondents suggested that buyers must bring an eco-bag or an extra bag for them not to worry about the durability of the single-use plastic which is the main reason for the buyers in asking for another one.

Feedback from stakeholders is invaluable in refining regulatory approaches and making them more effective

and practical for all parties involved.

Mangpalubos iti munisipyo nga pagusaren da kami iti sando bags nga clear ngem nalaka nga marunot. Panangpalubos iti agusar iti clear nga sando bag nga biodegradable. (The municipal office should grant permission for the use of clear and transparent biodegradable sando bags.)

-Wet Market Vendor C

The suggestion provided by the respondent is for them to be permitted to use clear and transparent biodegradable sando bags. Allowing the use of clear and transparent biodegradable sando bags could address some of the challenges faced by vendors and customers. Clear and transparent biodegradable bags can provide a practical alternative for packaging items while still complying with the ordinance. They can offer visibility, durability, and a more environmentally friendly option compared to traditional single-use plastics.

By granting permission for the use of clear and transparent biodegradable sando bags, the market can strike a balance between compliance with the ordinance and meeting the practical needs of vendors and customers. It allows for the reduction of single-use plastics while still providing a suitable packaging option that addresses concerns such as durability, visibility, and environmental impact.

However, any decision to grant permission for specific types of packaging should be made in line with the overall goals of the ordinance and after considering factors such as the availability and accessibility of alternative packaging options, cost implications, and environmental considerations.

Natibker nga biodegradable plastic nga haan nga masapol idoble packaging nan. Ken dapat mabagaan man agiti tattaon ta nasyaat pannaka-implementar na. (We need durable biodegradable plastics to eliminate the need for double bagging. The municipal office should reinforce public awareness of the ordinance to ensure a more effective implementation.)

-Wet Market Vendor D

The response from the respondent suggests two potential improvements to enhance compliance with the ordinance prohibiting the use of styrofoam containers and regulating the use of single-use plastics in Cabugao Public Market.

The respondent suggests that the market requires durable biodegradable plastics to eliminate the need for double bagging. Providing durable biodegradable plastics as an alternative to single-use plastics can address the challenge of using multiple bags. By offering stronger biodegradable options, vendors and customers can reduce the need for double bagging and promote compliance with the ordinance. Consequently, the respondent also suggests that the municipal office should reinforce public awareness of the ordinance to ensure more effective implementation. By enhancing public awareness, people will have a better understanding of the reasons behind the ordinance and the importance of compliance. Reinforcing public awareness can be achieved through educational campaigns, signage, and communication efforts to inform both vendors and customers about the negative impacts

of single-use plastics and the benefits of compliance with the ordinance.

If they are successfully implemented, the wet market vendors will potentially improve compliance with the ordinance. By providing durable biodegradable plastics and enhancing public awareness, the market can offer practical alternatives to single-use plastics and foster a culture of compliance among vendors and customers.

Validity of the Proposed Educational Campaign Material

In Addressing Concerns on Single-Use Plastics and Styrofoam

Another concern of this study is to determine the validity of the proposed educational campaign material. A panel of three professor experts in environmental ordinances, professor of marine biology and environmental science and an expert in Information and Communication Technology in terms its

- (1) Accuracy and Credibility,
- (2) Relevance and Appropriateness,

- (3) Clarity and Understandability,
- (4) Engagement and Interactivity and
- (5) Objectives and Outcome.

On Accuracy and Credibility

Table 3 presents the results on the validation of the proposed educational campaign material in terms of its accuracy and credibility. With an overall 4.53 out of 5.0 as a component mean and very highly valid as its descriptive interpretation, it indicates that the material provides accurate information supported by reliable sources, with proper references and citations. It also avoids misinformation or misleading statements and explains complex concepts clearly.

The proposed educational campaign material is highly reliable and credible in its approach to addressing the concerns related to single-use plastics and Styrofoam. The material is well-researched, provides accurate and well-supported information, and effectively communicates complex concepts to the target audience.

The high level of accuracy and credibility is a crucial

Table 3: Results on the validation of the proposed educational campaign material on accuracy and credibility

Criteria	Mean	Descriptive Interpretation
A. Accuracy and Credibility		
1. The material provides accurate information that is supported by reliable sources.	4.67	VHV
2. References or citations are provided to back up the claims made in the material.	4.67	VHV
3. The material avoids misinformation or misleading statements.	4.33	HV
4. Complex concepts or data are explained accurately and in a clear manner.	4.33	HV
5. The material is up-to-date with the latest research or information in the field.	4.67	VHV
Component Mean	4.53	VHV

Legend:

Range Interval

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.5

Descriptive Interpretation (DI)

Very Highly Valid (VHV)

Highly Valid (HV)

Moderately Valid (MV)

Slightly Valid (SV)

Not Valid (NV)

aspect of the educational campaign, as it ensures that the information presented is trustworthy and can effectively inform and educate the target audience. The strong performance in this component suggests that the material is well-suited to address the concerns related to single-use plastics and Styrofoam in a factual and reliable manner.

On Relevance and Appropriateness

Table 4 presents the results on the validation of the proposed educational campaign material in terms of its relevance and appropriateness. With an overall 4.67 out

of 5.0 as a component mean and very highly valid as its descriptive interpretation, it indicates that the material is tailored to the specific characteristics and needs of the audience, considering their cultural, social, and educational contexts. It also ensures that the content and approach resonate with the target audience, making the material more effective in addressing their concerns and interests related to single-use plastics and Styrofoam.

The high scores in this component suggest that the material is well-designed to engage the target audience and provide them with relevant and meaningful information. This is crucial for the success of the educational campaign, as it increases the likelihood of the audience being receptive to the message and taking appropriate actions to address the issues of single-use plastics and Styrofoam.

The material is highly effective in communicating the information related to single-use plastics and Styrofoam in a clear and understandable manner. It also utilizes various techniques, such as the use of clear language, simplification of complex concepts, and incorporation of visual aids, to ensure that the target audience can easily comprehend the content.

Table 4: Results on the validation of the proposed educational campaign material on relevance and appropriateness

Criteria	Mean	Descriptive Interpretation
B. Relevance and Appropriateness		
1. The material is tailored to the specific age group or educational level of the target audience.	4.33	HV
2. Cultural and social contexts of the target audience are considered in the material.	4.67	VHV
3. The material addresses the specific needs or interests of the target audience.	4.67	VHV
4. Examples or scenarios used in the material are relatable and relevant to the target audience.	5.00	VHV
5. The material takes into account the diverse backgrounds and experiences of the target audience.	4.67	VHV
Component Mean	4.67	VHV

Legend:

Range Interval

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.5

Descriptive Interpretation (DI)

Very Highly Valid (VHV)

Highly Valid (HV)

Moderately Valid (MV)

Slightly Valid (SV)

Not Valid (NV)

On Clarity and Understandability

Table 5 presents the results on the validation of the proposed educational campaign material in terms of its clarity and understandability. With an overall 4.67 out of 5.0 as a component mean and very highly valid as its descriptive interpretation, it indicates that the material uses clear and concise language, simplifies complex concepts, utilizes visual aids and graphics, and has a well-organized structure to facilitate understanding.

The high level of clarity and understandability is integral for the success of the educational campaign, as it enables the target audience to effectively understand and retain

Table 5: Results on the validation of the proposed educational campaign material on clarity and understandability

Criteria	Mean	Descriptive Interpretation
C. Clarity and Understandability		
1. The material uses clear and concise language that is easily understandable by the target audience.	4.67	VHV
2. Complex concepts are explained in a way that simplifies and clarifies understanding.	4.67	VHV
3. The material uses visual aids or graphics to enhance comprehension and clarity.	5.00	VHV
4. Technical terms or jargon are defined and explained within the material.	4.33	HV
5. The organization and structure of the material facilitate logical and coherent understanding of the content.	5.00	VHV
Component Mean	4.67	VHV

Legend:

Range Interval

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.5

Descriptive Interpretation (DI)

Very Highly Valid (VHV)

Highly Valid (HV)

Moderately Valid (MV)

Slightly Valid (SV)

Not Valid (NV)

the information presented. When the material is clear and easy to understand, the audience is more likely to engage with the content, grasp the key messages, and ultimately take the necessary actions to address the concerns related

to single-use plastics and Styrofoam.

On Engagement and Interactivity

Table 6 presents the results on the validation of the proposed educational campaign material in terms of its engagement and interactivity. With an overall 4.73 out of 5.0 as a component mean and very highly valid as its descriptive interpretation, it indicates that the material demonstrates a very high level in engaging and interacting with the target audience. The material utilizes a variety of interactive and engaging elements, such as hands-on activities, multimedia, and real-life examples, to capture the audience’s attention and foster active participation.

The high level of engagement and interactivity is important for the success of the educational campaign, as it increases the likelihood of the audience retaining the information and applying the knowledge or skills learned. When the audience

Table 6: Results on the validation of the proposed educational campaign material on clarity and understandability

Criteria	Mean	Descriptive Interpretation
D. Engagement and Interactivity		
1. The material includes interactive activities or exercises that actively engage the audience.	5.00	VHV
2. Visuals, multimedia, or interactive elements are used to enhance the learning experience.	5.00	VHV
3. The material encourages audience participation through discussions or reflection questions.	4.33	HV
4. Real-life examples or case studies are incorporated to make the material more relatable and engaging.	4.67	VHV
5. The material stimulates critical thinking and problem-solving skills through interactive elements.	4.67	VHV
Component Mean	4.73	VHV

Legend:

Range Interval

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.5

Descriptive Interpretation (DI)

Very Highly Valid (VHV)

Highly Valid (HV)

Moderately Valid (MV)

Slightly Valid (SV)

Not Valid (NV)

is actively engaged and involved in the learning process, they are more likely to develop a deeper understanding of the issues related to single-use plastics and Styrofoam, and be motivated to take appropriate actions.

It suggests that the proposed educational campaign material is well-designed to create a dynamic and immersive learning experience for the target audience. This, in turn, can lead to more effective communication of the campaign’s message and a higher impact on the audience’s understanding and behavior regarding single-use plastics and Styrofoam.

On Objective Outcomes

Table 7 shows the results on the validation of the proposed educational campaign material in terms on its objective outcomes.

With an overall 4.87 out of 5.0 as a component mean and very highly valid as its descriptive interpretation, it indicates that the material demonstrates a very high level of alignment with the intended learning goals and objectives, and the inclusion of practical and applicable activities to facilitate the achievement of the desired learning outcomes.

The proposed educational campaign material is exceptionally well-designed to achieve the intended learning goals and objectives related to addressing concerns on single-use plastics and Styrofoam. The material clearly articulates the desired outcomes and includes a range of practical and applicable activities that enable the audience to actively engage with the content and apply the knowledge or skills learned.

The high level of alignment between the material and the intended learning objectives, coupled with the inclusion of engaging and practical activities, suggests that the Proposed Educational Campaign Material is

Table 7: Results on the validation of the proposed educational campaign material on Outcome Objectives

Criteria	Mean	Descriptive Interpretation
E. Objective Outcomes		
1. The material aligns with the intended learning goals and objectives of the educational campaign.	5.00	VHV
2. The educational campaign material clearly articulates the intended learning objectives, stating what the audience should be able to know, understand, or do as a result of engaging with the material.	5.00	VHV
3. The material includes practical and applicable exercises or activities that enable the audience to actively apply and practice the knowledge or skills learned, facilitating the achievement of the desired learning outcomes.	4.67	VHV
4. The material includes practical and applicable exercises or activities that enable the audience to actively apply and practice the knowledge or skills learned, facilitating the achievement of the desired learning outcomes.	4.67	VHV

5. The material includes practical and applicable exercises or activities that enable the audience to actively apply and practice the knowledge or skills learned, facilitating the achievement of the desired learning outcomes.	5.00	VHV
Composite Mean	4.87	VHV

Legend:

Range Interval

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.5

Descriptive Interpretation (DI)

Very Highly Valid (VHV)

Highly Valid (HV)

Moderately Valid (MV)

Slightly Valid (SV)

Not Valid (NV)

well-positioned to effectively communicate the message, promote understanding, and ultimately facilitate the desired behavioral changes among the target audience regarding the use of single-use plastics and Styrofoam.

Summary of the Validity of the Proposed Educational Campaign Material In Addressing Concerns on Single-Use Plastics and Styrofoam

Table 8 shows the overall results on the validation of the proposed educational campaign material.

With an overall mean of 4.69 as a component mean and very highly valid as its descriptive interpretation, the proposed educational campaign material is accurate, relevant, clear, engaging, and targets its objectives. Specifically, it covers areas such as the accuracy and credibility of the information, the appropriateness and relevance to the target audience, the clarity and understandability of the content, the level of engagement and interactivity, and the alignment with the intended learning objectives and outcomes.

However, the validators also gave some remarks and

Table 8: Summary of the results on the validation of the proposed educational campaign material

Criteria	Component Mean	Descriptive Interpretation
Accuracy and Credibility	4.53	VHS
Relevance and Appropriateness	4.67	VHS
Clarity and Understandability	4.67	VHS
Engagement and Interactivity	4.73	VHS
Objectives and Outcomes	4.87	VHS
Overall mean	4.69	VHS

Legend:

Range Interval

4.51 – 5.00

3.51 – 4.50

2.51 – 3.50

1.51 – 2.50

1.00 – 1.5

Descriptive Interpretation (DI)

Very Highly Valid (VHV)

Highly Valid (HV)

Moderately Valid (MV)

Slightly Valid (SV)

Not Valid (NV)

suggestions for the improvement of the proposed educational campaign materials.

It would be better if you use Sans Serif fonts and adjust text colors to fit in the needs in consideration of your target image.

The validators recommended the use of Sans Serif fonts and adjusting the text colors to suit the needs of the proposed educational campaign material. Using Sans Serif fonts can enhance the readability and modernize the overall look of the material. Sans Serif fonts are known for their clean and simple appearance, making them suitable for conveying information clearly and effectively.

On the other hand, adjusting the text colors is important to ensure that they complement the overall design and theme of the campaign material. The colors chosen should be visually appealing and easy to read. Furthermore, it is essential to consider the target audience and their preferences when selecting the color scheme. The colors should also align with the message and purpose of the campaign, which is to promote compliance with the ordinance and raise awareness about the impact of Styrofoam containers and single-use plastics.

Make it more scientific information by incorporating citations of relevant information. You could change the introduction section to trivia to make it eye-catching. “Cabugao is Green” is not an impactful phrase, suggesting “Cabugao: Embracing Green”. Please do not make it too literal regarding the green these to color for all your green text and background. As much as possible, it should have the same orientation, if portrait, throughout the flyer. For the ordinance, you can include the penalties if applicable. The validators recommended that the educational campaign material more scientific by incorporating citations of relevant information. Additionally, they suggested changing the introduction section to trivia to make it more eye-catching. Instead of using the phrase

“Cabugao is Green,” it recommends using “Cabugao: Embracing Green” for a more impactful message.

Regarding the design, the validators advise against using too literal interpretations of the color green for all the text and background. Instead, they suggest using green elements that are visually appealing and in line with the overall design. They also recommended to maintain the same orientation throughout the flyer, preferably in portrait mode.

For the ordinance, the validators suggest that the researchers including information about the penalties, if applicable. This will provide a clear understanding of the consequences for non-compliance with the ordinance.

The educational campaign material hopes become more scientific and engaging. The inclusion of relevant citations will add credibility to the information presented. The use of trivia in the introduction section will make it attention-grabbing, while the revised phrase “Cabugao: Embracing Green” will convey a stronger message. The design considerations, such as the use of green elements and maintaining a consistent orientation, will contribute to a visually appealing and cohesive flyer. Finally, including information about the penalties will emphasize the importance of complying with the ordinance.

Content of output should be commensurate with Ordinance 17, series of 2022, with consideration of the local context. If possible, the EIC material, can be translated using the local dialect and should justify the set of criteria used for validation.

The validators recommended that the content of the output should align with the provisions of Ordinance 17, series of 2022. The information presented in the material should be in accordance with the regulations and guidelines stated in the ordinance to ensure that the content reflects the specific requirements and objectives outlined in the ordinance.

Furthermore, the content should be relevant and applicable to the specific community or area where the ordinance is being implemented. It should take into account the local customs, practices, and preferences to ensure that the material resonates with the target audience. If possible, the validators also suggested that the educational campaign material must be translated using the local dialect. This will help in effectively communicating the message to the local community, as using their native language can enhance understanding and engagement.

CONCLUSION

This study provides valuable insights into the attitudes and behaviors of wet market vendors towards Ordinance No. 17, s. 2022. With a higher representation of females among the respondents, there is an intriguing gender dynamic that may influence compliance behavior. The study’s diverse age range offers a rich perspective on generational differences in attitudes towards environmental regulations. The types of products offered by vendors also play a crucial role in understanding compliance with packaging requirements. Despite

potential complexities, the findings reveal an encouraging level of awareness and commitment to the ordinance.

However, some vendors face challenges in implementing the ordinance, primarily tied to consumer complaints and the cost implications of using single-use plastics. Suggestions for improvement include allowing biodegradable bags and expanding enforcement to vendors outside the marketplace. Overall, the study reinforces the importance of continuous engagement, communication, and cooperation for sustainable development. Recommendations include addressing vendor challenges, increasing awareness campaigns, providing incentives for compliance, and cooperation for sustainable development. Collaboration with stakeholders and ongoing refinement of the ordinance will further strengthen sustainable practices in Cabugao Public Market.

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