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ORIGINAL ARTICLE

ENVIRONMENTAL CONSERVATION PRACTICES IN BAYBAY CITY LEYTE

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ABSTRACT

This quantitative study utilized the descriptive method of research that aimed to assess the implementation of environmental conservation practices in Baybay City Leyte with 92 officials and 115 zone residents of the 23 barangays in the city. Data were gathered through online and pen-paper surveys using frequency mean and Chi-square test. Barangay officials & Zone residents showed the same level of awareness of the environmental conservation practices implemented in Baybay City. Based on the results, the highest average weighted mean environmental conservation practices were the Ordinance on Solid Waste Management. Whereas, the Ordinance on the Use of Plastics Bags has the lowest average weighted mean. There is no significant difference in the level of awareness of the environmental conservation practices between the barangay officials and zone residents. The findings on the level of implementation of the environmental conservation practices, barangay officials asserted a high level of implementation while zone residents claim to have implemented of all the (3) ordinances. For barangay officials, the Ordinance on Solid Waste Management had the highest weighted mean. While the Ordinance on the Use of Plastics Bags had the lowest weighted mean. Whereas, for the zone residents the Ordinance on Regulating the Use of Plastics Bags had the highest weighted mean. While the Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, or Improper Urinating into Streets and Canals had the lowest weighted mean. There is a significant difference in the level of implementation of the environmental conservation practices between the barangay officials and zone residents on the Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal and Ordinance on Solid Waste Management. However, there is no significant difference in the level of implementation of environmental conservation practices in the Ordinance of the Use of Plastics Bags.

Keywords: *Environmental Conservation Practices, City Ordinance, Level of Awareness, level of Implementation*

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INTRODUCTION

The environment is a vital location where living and non-living things coexist. It provides natural services that are necessary for human health, quality of life, and survival. Taking care of the environment is one of the major things that humans must undertake. Since then, there have been a wide variety of issues and news environmental issues, particularly pollution headlines regarding environmental

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sustainability are one of the biggest issues faced by mankind at present (Arora, 2018). Urbanization is the process through which cities grow and higher percentages of the population come to live in the city (National Geographic). With this, the world is experiencing environmental problems occurring in the surroundings, especially in urban areas.

The Philippines as a developing country is experiencing environmental problems most especially in urbanized areas. Thus, laws on the environment are in place as a measure to regulate and implement environmental practices. Department of Environment and Natural Resources (DENR) enshrined with the major environmental laws which are Republic Act No. 9003 – Ecological Solid Waste Management Act of 2000, Republic Act 9275 – Philippine Clean Water Act of 2004, Republic Act No. 8749 – The Philippines Clean Air Act of 1999, Republic Act No. 6969, Toxic Substance and Hazardous and Nuclear Waste Control Act of 1990, and Presidential Decree No. 1685 – Environmental Impact Statement (Environment Compliance Assistance Center, n.d.).

According to Phil Atlas, Baybay is the province's second-largest non-urbanized city after Ormoc. Aside from that, it has a number of tourist attractions that people somewhere in the Visayas like to visit. The rise of commercial buildings that support business and services in the city, increase the population due to job opportunity. This phenomenon calls for people's concerted efforts to protect the environment.

Thus, environmental ordinances were established by Baybay City Local Government Unit to strengthen the environment and natural resources of the city. The following are specific local ordinances of the City of Baybay. Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal, Ordinance on Solid Waste Management, and Ordinance on the Use of Plastics Bags. (City of Baybay Environment Code, 2014).

With these ordinances, the study aimed to assess the environmental conservation practices of Baybay City that the LGU (Local Government Unit) has imposed to ensure the city's long-term sustainability and its level of awareness and level of implementation to the citizens. The findings of this study are beneficial to the residents of Baybay that would enhance their degree of environmental awareness and implementation to maintain the sustainability of the community.

Research Questions

Generally, this study aims to assess in implementation of environmental conservation practices in Baybay City. Specifically, it answered the following questions:

1. What is the level of awareness of environmental conservation practices between the Barangay Officials and Zone Residents?
2. Is there a significant difference in the level of awareness of the environmental conservation practices between the Barangay Officials and Zone Residents?
3. What is the extent of implementation of the environmental conservation practices between the Barangay Officials and Zone Residents?
4. Is there a significant difference in the extent of implementation of the environmental conservation practices between the Barangay Officials and Zone Residents?

RESEARCH METHODOLOGY

Research Design

The study used quantitative research and utilized the descriptive survey research method to assess the implementation of environmental conservation practices in Baybay City. The survey collected the data needed to describe the level of awareness and level of implementation of the environmental conservation practices in Baybay City. Moreover, it gathers information that is used to respond to a variety of inquiries to obtain the aim of this study. Stratified random sampling was the statistical tool used in this study.

Research Respondents

The Barangay Officials' respondents consist of 23 Punong Barangay, 23 SK Chairman, and 46 selected Barangay Kagawad based on availability, for a total of 92 officials. For Zone Residents' respondents, five residents were chosen for each zone based on their availability and multiplied by 23, generating a total of 115.

Research Instrument

The research utilized a tool designed based on the environmental conservation practices ordinances issued by CENRO Baybay. Data were gathered through online and pen-paper surveys. The Likert scale was used to determine the level of awareness and level of implementation of the barangay officials and zone residents. Significant differences in the level of awareness and level of implementation of environmental conservation practices among the barangay officials and zone residents were interpreted using the Chi-Square equation.

Data Analysis

To describe the level of awareness of the environmental conservation practices by the barangay officials and zone residents these indicators of interpretation with the corresponding rating and weighted mean were used:

Mean	Description	Interpretation
3.25-4.00	Fully Aware	The barangay officials and zone residents are well acquainted with environmental conservation practices.
2.50-3.24	Aware	The barangay officials and zone residents are acquainted with environmental conservation practices.
1.75-2.49	Slightly Aware	The barangay officials and zone residents are moderately acquainted with environmental conservation practices.
1.00-1.74	Not Aware	The barangay officials and zone residents are not acquainted with environmental conservation practices.

To describe the level of implementation of the environmental conservation practices by the barangay officials and zone residents these indicators of interpretation with the corresponding rating and weighted mean were used:

Mean	Description	Interpretation
3.25-4.00	Fully Implemented	The environmental conservation practices are extremely established.
2.50-3.24	Implemented	Environmental conservation practices are established.
1.75-2.49	Slightly Implemented	The environmental conservation practices are moderately established.
1.00-1.74	Not Implemented	Environmental conservation practices are not established.

Significant difference calculations are based on the percentage of responses from zone residents and barangay officials for each indicator of environmental conservation practices with a significance level (α) of 5% (0.05). Therefore, significance based on the p-value, less than or equal to 0.05 is significant while a p-value greater than 0.05 is not significant

RESEARCH FINDINGS AND DISCUSSION

It systematically shows the level of awareness and level of implementation of environmental conservation practices between the barangay officials and zone residents. It also highlights the significant relationship between the level of awareness and the level of implementation.

Level of Awareness on the Environmental Conservation Practices Between Barangay Officials and Zone Residents

The environmental conservation practices in Baybay City were categorized into three ordinances as Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal, the Ordinance on Solid Waste Management, and the Ordinance on the Use of Plastics Bags.

Table 1a. Barangay Official's Level of Awareness on the Environmental Conservation Practices in Baybay City

ENVIRONMENTAL CONSERVATION PRACTICES	LEVEL OF AWARENESS	
	Weighted Mean	**Description**
A. **Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal**		
1. Throwing and leaving of garbage anywhere such as cigarettes, butts, match sticks, pieces of papers, plastic wrappers or refuse is prohibited.	3.47	Fully Aware
2. Spitting on the streets, canals or other places is prohibited.	3.21	Aware
3. Urinating on the street's is forbidden in all areas of the city.	3.68	Fully Aware
B. **Ordinance on Solid Waste Management**		
1. Garbage is separated into different containers.	3.74	Fully Aware
2. Waste containers placed in front of the gates, doors, unit, and compound or along the route of vehicle during the collection period.	3.73	Fully Aware
3. Open burning of solid waste in the rural areas of Baybay is prohibited.	3.55	Fully Aware
C. **Ordinance on the Use of Plastics Bags**		
1. Reuse grocery bags for shopping and buying foods in supermarkets.	3.63	Fully Aware
2. Customers who don't even bring their own reusable bags will be charged a price to exchange them for a new plastic bag.	3.15	Aware
3. Plastic bags with no handles, holes or strings are used for wrapping unpacked fresh foods and cooked foods at supermarkets.	2.99	Aware
AVERAGE WEIGHTED MEAN	**3.46**	**Fully Aware**

Barangay Official. Table 1a, shows the level of awareness of the barangay officials in the implementation of environmental conservation practices in Baybay City is described to be "Fully Aware" with an average weighted mean of (3.46). This statistical data can be explained that among the nine indicators six were rated "fully aware" and three were rated "aware".

The highest weighted mean indicator is the Ordinance on Solid Waste Management with the highest indicator stated "Garbage is separated into different containers" with a weighted mean of (3.74) interpreted as "fully aware". This ordinance was done by segregating the solid waste into biodegradable and non-biodegradable and enclosed using a container. Since they are the people in charge that will put signage with the containers to execute this rule in their area, barangay officials found that everyone was fully aware of it. The practice is considered to have a high level of awareness by barangay officials who deal with waste management ordinance because "Section 10 of R.A 9003 stipulates that

segregation and collection of solid waste shall be conducted at the barangay level, specifically for biodegradable, compostable, and reusable waste," per memorandum released in DILG (2018).

The lowest weighted mean indicator is the Ordinance on the Use of Plastics Bags, with the lowest indicator stated “Plastic bags with no handles, holes or strings are used for wrapping unpacked fresh foods and cooked foods at supermarket” with a weighted mean of (2.99) which is described to be “aware”. This ordinance was found to be not fully aware by the barangay officials because plastic bag with handles were commonly used in the supermarkets.

Table 1b. Zone Residents Level of Awareness on the Environmental Conservation Practices in Baybay City

ENVIRONMENTAL CONSERVATION PRACTICES	LEVEL OF AWARENESS	
	Weighted Mean	**Description**
A. **Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal**		
1. Throwing and leaving of garbage anywhere such as cigarettes, butts, match sticks, pieces of papers, plastic wrappers or refuse is prohibited.	3.44	Fully Aware
2. Spitting on the streets, canals or other places is prohibited.	3.19	Aware
3. Urinating on the street’s is forbidden in all areas of the city.	3.61	Fully Aware
B. **Ordinance on Solid Waste Management**		
1. Garbage is separated into different containers.	3.62	Fully Aware
2. Waste containers placed in front of the gates, doors, unit, and compound or along the route of vehicle during the collection period.	3.70	Fully Aware
3. Open burning of solid waste in the rural areas of Baybay is prohibited.	3.50	Fully Aware
C. **Ordinance on the Use of Plastics Bags**		
1. Reuse grocery bags for shopping and buying foods in supermarkets.	3.57	Fully Aware
2. Customers who don't even bring their own reusable bags will be charged a price to exchange them for a new plastic bag.	3.03	Aware
3. Plastic bags with no handles, holes or strings are used for wrapping unpacked fresh foods and cooked foods at supermarkets.	2.98	Aware
AVERAGE WEIGHTED MEAN	**3.40**	**Fully Aware**

Zone Residents. In Table 1b, the level of awareness of the zone residents in the implementation of environmental conservation practices in Baybay City is described to be “Fully Aware” with an average weighted mean of (3.40), similarly as the findings in the barangay official that the data also can be explained that among the nine indicators six were rated “fully aware and three were rated “aware”.

The highest weighted mean indicator for the zone residents is the Ordinance on Solid Waste Management, with the highest indicator stated “Waste containers placed in front of the gates, doors, unit, and compound or along the route of vehicle during the collection period” with a weighted mean of (3.70) interpreted as “fully aware”. The zone resident’s high awareness result of the environmental

conservation practices reflects on the barangay officials' findings. The result demonstrates that barangay officials also disseminated the information to place this waste in an appropriate container during the collection time.

The study of Jeremias & Fellizar (2021) indicate that the barangay official and city government units are the sources of waste management information of the resident's level of environmental knowledge, awareness, and perception of the Solid Waste Management. Barangay officials are the primary source of information for locals on SWM policies, initiatives, and programs as they have direct contact with households. This highlights the important part that barangay officials must play in disseminating information about the city's SWM initiative.

For the lowest weighted mean result shows similarities with the findings in barangay officials of the Ordinance on the Use of Plastic Bags, with a lowest indicator stated "Plastic bags with no handles, holes or strings are used for wrapping unpacked fresh foods and cooked foods at supermarkets." with a weighted mean of (2.98) interpreted as "aware". Similarly, with the barangay officials the zone residents found this widely utilized in supermarkets almost everywhere.

Table 2. Test for the Difference on the Level of Awareness on Environmental Conservation Practices Between Barangay Officials and Zone Residents

Variables	Computed Chi-Square	df	Critical Value	Calculated p-value	Interpretation
Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal	0.241	3	7.81	0.971	Not Significant
Ordinance on Solid Waste Management	1.922	3	7.81	0.589	Not Significant
Ordinance on the Use of Plastics Bags	1.297	3	7.81	0. 730	Not Significant

$\boldsymbol{\alpha = 0.05}$

Based on the results in Table 2, Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal has a p-value of 0.971 > 0.05, Ordinance on Solid Waste Management has a p-value of 0.589 > 0.05, and Ordinance on the Use of Plastics Bags has a p-value of 0. 730> 0.05.

As a result, there is no significant difference between the barangay officials and zone residents in terms of their level of awareness all over the three environmental conservation practices. This means that the results reflect on the "fully awareness" of both barangay officials and zone residents in the environmental conservation practices in Baybay City. To clarify in depth, the results of both respondents' average weighted mean are not far behind considering barangay officials' average weighted mean is (3.46) and for zone residents' is (3.40). There is no such enough evidence to conclude that there is significant difference of the barangay officials and zone residents. It could also explain with or without the assistance of the higher officials the residents are responsible to follow and adopt the practices. According to the findings of Yin et. al., (2021) public environmental concerns have no significant impact on residents' environmental engagement.

To explain thoroughly, Valmonte et. al., (2021) conclude the fact that people view leaders as reliable sources who can be relied upon to the extent that they serve as a representative of a given institution's standards and as a result, leaders have a greater impact on manipulating public towards solid waste segregation. Therefore, the city residents of Baybay are aware of how their surroundings are changing and conscious of their primary duty to protect the environment.

Level of Implementation on the Environmental Conservation Practices Between Barangay Officials and Zone Residents

Similarly, with the level of awareness, the environmental conservation practices in Baybay City were categorized into three ordinances.

Table 3a. Barangay Official's Level of Implementation on the Environmental Conservation Practices in Baybay City

ENVIRONMENTAL CONSERVATION PRACTICES	LEVEL OF IMPLEMENTATION	
	Weighted Mean	Description
A. **Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal**		
1. Anti-littering and throwing of garbage's or refuse in the city.	3.51	Fully Implemented
2. Not-spitting anywhere on the streets.	3.22	Implemented
3. Inappropriate urination wherever on the streets.	3.40	Fully Implemented
B. Ordinance on Solid Waste Management		
1. Segregation of solid waste into biodegradable and non-biodegradable and placed in containers.	3.63	Fully Implemented
2. Residual waste due for collection is inside the containers to facilitate collection by the LGU.	3.63	Fully Implemented
3. Open burning of solid waste in the rural areas of Baybay.	3.41	Fully Implemented
C. **Ordinance on the Use of Plastics Bags**		
1. Use recycles plastic bags for groceries in all wet and dry market.	3.39	Fully Implemented
2. Plastic bags purchased with corresponding transaction payment for the buyers.	3.05	Implemented
3. Unpacked fresh foods and cooked foods at supermarkets must wrapped a plastic bag with no handles.	3.08	Implemented
AVERAGE WEIGHTHED MEAN	**3.37**	**Fully Implemented**

Barangay Official. As shown in Table 3a, the barangay officials' level of implementation of environmental conservation practices in Baybay City is described as "fully implemented," with an average weighted mean of (3.37). Out of the nine indicators six were rated as "fully implemented" and three were rated "implemented" based on the statistical data.

The findings of the level of implementation on the environmental conservation practices found to be fully implemented by the barangay officials demonstrate that the LGU (Local Government Unit) has fully implemented these ordinances in the appropriate municipal zones. It is also related to the findings on the level of awareness, where barangay officials claimed to be fully aware of the practices. So, once these practices are fully implemented in the area, everyone will be fully aware.

The lowest weighted mean indicator was the Ordinance on the Use of Plastics Bags, with the lowest indicator stating “Plastic bags purchased with corresponding transaction payment for the buyers” with a weighted mean of (3.05) interpreted as “implemented”. The result of this practice can be explained that it did not adequately implement in the relevant city supermarkets. Similarly, Table 2a connects this finding to the level of awareness acquired by the barangay officials.

Table 3b. Zone Residents Level of Implementation on the Environmental Conservation Practices in Baybay City

ENVIRONMENTAL CONSERVATION PRACTICES	LEVEL OF IMPLEMENTATION	
	Weighted Mean	**Description**
A. **Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal**		
1. Anti-littering and throwing of garbage’s or refuse in the city.	2.99	Implemented
2. Not-spitting anywhere on the streets.	2.62	Implemented
3. Inappropriate urination wherever on the streets.	2.78	Implemented
B. **Ordinance on Solid Waste Management**		
1. Segregation of solid waste into biodegradable and non-biodegradable and placed in containers.	3.14	Implemented
2. Residual waste due for collection is inside the containers to facilitate collection by the LGU.	3.17	Implemented
3. Open burning of solid waste in the rural areas of Baybay.	2.83	Implemented
C. **Ordinance on the Use of Plastics Bags**		
1. Use recycles plastic bags for groceries in all wet and dry market.	3.27	Fully Implemented
2. Plastic bags purchased with corresponding transaction payment for the buyers.	3.07	Implemented
3. Unpacked fresh foods and cooked foods at supermarkets must wrapped a plastic bag with no handles.	2.99	Implemented
TOTAL AVERAGE WEIGHTED MEAN	**2.98**	**Implemented**

Zone Residents. As shown in Table 3b, the results of the level of implementation by the zone residents in the environmental conservation practices in Baybay City described as “Implemented” with an average weighted mean of (2.98). This can be explained based on the data, that among the nine indicators only one was rated “fully implemented” and eight were rated “implemented”.

The highest weighted mean indicator was the Ordinance on the Use of Plastic Bags, with the highest indicator stated “Use recycles plastic bags for groceries in all wet and dry market” with a weighted mean of (3.27) interpreted as “fully implemented”. The findings that pertain toward the zone residents indicated in Table 2b, that they are "fully aware" of the practice of reusing grocery bags for shopping and buying foods in supermarkets. However, barangay officials' finding of this ordinance generates to be the lowest in an alternative indicator stated “Plastic bags purchased with corresponding transaction payment for the buyers” because certain supermarkets or grocery stores do not take charge of the new purchase plastic bag and then provide to customers for free. To support its findings, Perera et. al., (2020) reveal that several plastic bag alternatives have a high ecological impact and would need to be reused frequently in order to be useful as a replacement.

However, in other cases, customers who preferred to hand-carry their purchases or have them packaged in eco-friendly bags or boxes did so because they believed it was a long-term investment, easy, cost-effective, and environmentally friendly (Braganza, 2017).

Whereas the lowest weighted mean indicator was the Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal, with the lowest indicator stated “Not-spitting anywhere on the streets.” with an average weighted mean of (2.62) interpreted as “implemented”. The finding implies that zone residents are "fully aware" of the practice, but full implementation is still necessary.

The results of the level of implementation of the city ordinances showed differences in the findings of both respondents. This can be supported by the study of Limon et al. (2020) that reveal there was insufficient reuse and recycling of waste materials among the residences and that participants were inadequately knowledgeable about the several aspects of waste management. In this case, Ruiz et. al., (2021) highly recommend that all the respondents should have undergone a seminar that talks about Solid Waste Management policies, discipline, proper disposal, segregation of waste, and even the three R’s (Reuse, Reduce, and Recycle). Moreover, both respondents' findings indicate that they were aware of the provisions of the city ordinance yet, the level of compliance of public market vendors varied when grouped according to the market location.

Table 4. Test for the Difference on the Level of Implementation of Environmental Conservation Practices Between Barangay Officials and Zone Residents

Variables	Computed Chi-Square	df	Critical Value	Calculated p-value	Interpretation
Ordinance on Anti-Littering and Prohibiting Persons from Throwing any Refuse or Garbage, Spitting, Improper Urinating into Streets and Canal	24.280	3	7.81	0.000022	Significant
Ordinance on Solid Waste Management	18.998	3	7.81	0.000274	Significant
Ordinance on the Use of Plastics Bags	3.531	3	7.81	0.316751	Not Significant

$\boldsymbol{\alpha = 0.05}$

The Table 4 shows that there is statistically significant difference in the implementation of these ordinances between barangay officials and zone residents. The evidence of the result may refer on the responses from the respondents on the extent of implementation of the practices. The significant result of these ordinances dealing with waste management is affected by the extent of implementation of the environmental conservation practices, where the barangay official claims it is "fully implemented" but zone residents claim it "implemented."

However, the ordinance is found to be not significant is the Ordinance on the Use of Plastics Bags, with the p-value of 0.316751 > 0.05. It implies that there is no significant difference in the level of

implementation of environmental conservation practices between the barangay officials and zone residents. The extent of the respondents' implementation is associated with the result in Table 4a and Table 4b in which both the barangay officials and zone residents have the same findings of this ordinance. So, there is no such enough evidence to conclude that there is a significant difference between the barangay officials and zone residents of this ordinance implementation.

This finding can be supported by the study conducted by Misgana & Tucho (2022) that indicate both respondents have used or applied the ordinance and communities are aware of the environmental issues brought on by the extensive usage of plastic shopping bags, as well as the garbage they produce and the need for substitutes. However, unless cheap and environmentally friendly options are offered, it will continue to present serious environmental problems. It implies based on the result, that the environmental conservation practices and level of implementation may involve continuing environmental education and the development of some programs to increase implementation.

CONCLUSION

Based on the findings, it is concluded that Baybay City residents and officials were knowledgeable of the environmental conservation practices implementation. This is a manifestation of the people's concern for the environment, although there are areas that need enhancement, particularly in terms of implementation and development.

It was recommended that there should be strong coordination between the barangay officials with the LGU to enhance public awareness of environmental conservation practices. Also, upgrading facilities are one of the challenges faced by barangay officials in continuing the activities and motivating residents to cooperate with environmental conservation practices.

Moreover, conduct seminars/training for barangay officials and including zone residents to boost public awareness, facilitated by the officials of CENRO. Barangay officials conduct environmental education in their engagements with the zone residents, specifically on the use of plastic bags in the wet and dry market.

Lastly, strengthen the monitoring, organizing, and assessment of environmental conservation practices in the city, facilitated by CENRO.

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