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Socioeconomic Conditions And Compliance With Environmental Management Policies Of A Coastal Community: Basis For A Coastal Resource Management Plan

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Abstract: *This study looks on the socioeconomic conditions and compliance with environmental management policies in a coastal community in Negros Occidental, Philippines. Using a descriptive-correlational study approach, data were collected from 310 household heads via survey questionnaires. Despite widespread poverty and restricted livelihood possibilities, the findings show a high to very high level of compliance with policies governing solid and liquid waste management and mangrove protection. While most socioeconomic characteristics, such as land use, housing, and utility availability, had no substantial impact on compliance, Monthly household income did. These data imply that economic capacity can influence environmental behavior, but that awareness and community engagement are also important factors. The report offers evidence-based recommendations for creating a localized Coastal Resources Management Plan targeted at improving environmental sustainability and socioeconomic circumstances in vulnerable coastal communities.*
Keywords: *Coastal community, Coastal resource management, Environmental compliance, Socio-economic condition*

1. INTRODUCTION

Coastal communities play a crucial role in the economic and social development of countries across continents and their compliance to environmental management policies have significant effects on ecological health. However, they face unique challenges due to their reliance on coastal resources for subsistence and income generation (Smith& Johnson,2023), hence, low compliance is observed especially in developing countries. The Philippines is one of the Asian countries that faces significant environmental challenges due to urbanization, industrialization, and population growth. While environmental management policies, laws and regulations are in place, their implementation and compliance remain major concerns. The non-compliance of environmental policies and laws hampers the country's efforts to achieve sustainable development and preserve its fragile ecosystems (Cruz, et al., 2022). It is along this line that the researcher, an educator, administrator, and environmental advocate, decided to conduct this study focusing on compliance to environmental management policies of a coastal community. This study intends to determine the socio-economic condition and the degree of compliance to environmental management policies as well as explore the challenges encountered and best practices implemented by a coastal community. Findings of the study will serve as basis in the formulation of the coastal resources management plan to enhance the quality and utilization of coastal resources for better socio-economic condition and improved environmental state of the community. According to the study of Smith, et.al (2023), the socio-economic condition of a coastal community is a pivotal determinant in shaping the overall well-being of its inhabitants and influencing the sustainable management of coastal resources. Understanding the intricate interplay between the community's economic activities, livelihood strategies, and their impact on the marine ecosystem is essential for formulating effective Coastal Resources Management Plans (CRMP). The socio-economic conditions of coastal communities encompass a wide range of factors that influence the well-being and quality of life of the

people living in these areas. This includes aspects such as income levels, employment opportunities, education, healthcare access, housing conditions, access to clean water and sanitation, and overall standards of living. Socio-economic conditions are closely linked to the local economy, natural resource utilization, and the presence of industries such as fishing, tourism, and maritime trade. Coastal communities worldwide face unique socio-economic challenges due to their reliance on coastal resources for subsistence, income generation, and cultural significance. Factors such as population growth, globalization, and climate change pose additional pressures on these communities, impacting their livelihood strategies and the coastal environment they depend upon. To develop effective CRMPs, an in-depth understanding of the socio-economic conditions of these communities is critical. The studies of Sparrow (2020) and INECE (2019) summarized that the main factors affecting compliance include economic, political, technological, social and personal. In poor coastal communities, economic condition tends to be the most influential factor affecting compliance. These communities frequently struggle to strike a balance between economic growth, environmental preservation, and adherence to environmental laws and regulations. However, the need to address environmental concerns and comply with relevant laws and regulations has become increasingly important as coastal and marine ecosystems are seriously threatened due to non-compliance of communities to required environmental laws. Ostrovskaya (2011) conducted a study on enhancing compliance with environmental laws in developing countries. The paper discussed that the implementations of environmental policies prove to be challenging worldwide, especially in developing countries. Study results showed that monitoring and enforcement significantly impact environmental behavior and environmental quality in developing countries, as well as indicate that there is more than one pathway to high compliance. The paper highlights important considerations for mastering enforcement strategies in developing countries while considering differing countries' contexts.

2. Method

Research Design

This study utilized the descriptive, comparative, and correlational research design. According to M.K. Tankersley (2015), the descriptive research design is used to obtain information concerning the status of the phenomena to assess what exists with respect to variables, conditions, or situations. The descriptive design is appropriate because it will describe the demographic profile, socioeconomic condition, compliance of the coastal community to environmental management policies and regulations. Moreover, the comparative method will allow the researcher to test the differences of variables in the study. In this case, the difference on the economic condition of the respondents when grouped as to their demographic profile were tested. Likewise, the relationship between the economic condition of respondents and the degree of their compliance to required environmental management policies and regulations will also be established.

Sampling Technique

Total household population of the coastal community is 1,365. Using Sloven's formula with a 0.05 margin of error and a confidence level of 95%, the computed sample respondents is 310 household heads. Snowball sampling was used to determine the 310 respondents from the coastal community.

Research Instrument

A researcher-made survey instrument based on environmental management policies and regulations such as the Ecological Solid Waste Management Act or Republic Act 9003 and the Clean Water Act was used to gather the needed data. To ensure appropriate responses, instruction on how to answer the survey was provided, together with the answer code and descriptive interpretation as follows: Likewise, a five-point Likert-type scale was used in the interpretation of degree of compliance of the coastal community to environmental

management policies in the areas of solid waste disposal and management, liquid waste disposal and management and public awareness and education. Below is the interpretative scale for the degree of compliance.

Validity and Reliability of the Instrument

The researcher-made questionnaire undergone with validity and reliability tests. The validity of the instrument was ensured using Lawshe's Content Validity Ratio. Ten validators were selected based on their qualifications and expertise on the study. Validity scores was computed and suggestions of the members of the jury was incorporated into the final questionnaire. Moreover, the questionnaire also undergone reliability testing to ensure that the questions and items included measure what they purport to measure. The instrument will be pilot tested to 30 residents of a coastal community who are not respondents of the study. Cronbach's Alpha method was used to compute for the reliability index.

Data Gathering Procedure

The researcher sought approval from the Local Chief Executive of the Local Government Unit through a letter asking permission to conduct the study. Once permission is granted, the researcher was proceeded with the distribution of questionnaires. The researcher personally administered the data gathering procedure. The questionnaire was thoroughly explained to the respondents to ensure full understanding and clarify items. Once filled up, the questionnaires were immediately retrieved. Moreover, a focused group discussion (FGD) was conducted to gather additional information and give more meaning to the data gathered especially on the challenges encountered and best practices implemented.

Data Analysis

The data gathered was encoded and analysed with the use of available statistical software. Furthermore, appropriate statistical tools were used for each specified problem. In problems number 1 which focus on the profile of the respondents on age, gender, civil status, educational background, household size and cultural ethnicity, the frequency count and percentage distribution was used. For problem 2 which deals with the socio-economic condition of the coastal community, the frequency count and percentage distribution was used. The mean will be used for problem 3, which deals with the degree of compliance to required environmental management policies and regulations, the mean was be used. Meanwhile for problem 4 which deals with the significant difference, appropriate statistical tools were used after analysis of the inferential statistics using the Mann Whitney U Test and Kruskal wallis. Finally, for problem 5 which focus on the relationship between the socioeconomic condition and the degree of compliance to the required environmental management policies and regulations of the coastal community, the Spearman Rho was used.

3. Findings and Discussions

Demographic Profile of Respondents

The study revealed that 51.0% (158 respondents) of the respondents were aged 47 and above. Most of the respondents, 80.3%, were female. A large proportion, 76.1% (236 respondents) of the respondents were married. More than half of the respondents, 51.6% (160 respondents), had an educational background up to the high school level. A significant majority, 69.4% (215 respondents) of the households had five members or fewer. Majority among the total population, 96.8% (300 respondents), identified themselves with the Ilonggo or Hiligaynon cultural/ethnic group.

Socio-Economic Condition of the Coastal Community

One of the indicators was the Approved and Actual Land Use is the same with Zoning Clearance got the highest frequency of 221 with 71.3% out of the total respondents in the community. This implies that the community had approval and ownership in the land where they situated. Thus, they were freely enjoying the

benefits of having legally owned resources and property without restrictions but in moderation as to the compliance to environmental practices as well as in preserving and nurturing its environmental resources as source of their livelihood or income. Furthermore, according to Bansard (2021), property rights play a significant role in natural resource management. Kenton (2024) added that property rights are inextricably linked to natural resource rights, which include the right to utilize a resource, as well as management rights that grant authority to make decisions about usage.

Table 1. a. Socio-Economic Condition of the Coastal Community in terms of Land Use.

Indicator	Frequency	Percentage
1. Approved & actual land use is the same with Zoning Clearance	221	71.3
2. Approved & actual land use is the same but no Zoning Clearance	59	19.0
3. Approved & actual land use not the same but compatible use Zoning Clearance	8	2.6
4. Approved & actual land use not the same but compatible use With No Zoning Clearance	6	1.9
5. Approved & actual land use are not the same & there is conflicting use	16	5.2
Total	**310**	**100.0**

Most of the respondents had a monthly income of Php 8,420- 12029 (f-105, p-33.9), that is below the 30% of the poverty threshold. It is also to note that there are families earning Below Php 8,420 (f-70, p-22.6) indicating that they exceed more than 30% below the poverty threshold suggesting that these households cannot meet their daily subsistence needs and require welfare assistance until they are able to find additional alternative income. Trisi, et.al. (2021) said that individuals and households who are unable to make ends meet may have a variety of social, physical, and mental challenges. At the societal level, high poverty rates can stifle economic progress and be linked to issues such as crime, unemployment, urban deterioration, inadequate education, and bad public health. While government programs have helped to minimize poverty gaps, future progress will necessitate more government efforts to reduce poverty and discrimination while also creating opportunities for all.

Table 2.a. Socio-economic Condition of the Coastal Community in terms of Family Monthly Income

Indicator	Frequency	Percentage
1. Above 15,665 (More than 30% above poverty threshold)	48	15.5
2. P 12,051 – 15,665 (1-30% above poverty threshold)	21	6.8
3. P 12,030 – 12,050 (With in Poverty threshold)	66	21.3
4. P 8,420-12029 (1-30% below poverty threshold)	105	33.9
5. Below P8,420 (More than 30% below poverty threshold)	70	22.6
Total	**310**	**100.0**

The findings show that most respondents rely on fishing (f-118, p-38.1) and fish vending (f-75, p-24.2) as the primary source of income. In general, this suggests that coastal community heavily relies on marine resources. Similarly, Yanda, et.al. (2023) said that crop production and fishing are the main sources of income for rural coastal households. Marine fisheries dominated the coastal livelihood system making coastal and marine resources are important drivers for coastal livelihoods.

Table 2.b.1. Socio-economic Condition of the Coastal Community in terms of Main Source of Livelihood and Income

Indicator	Frequency	Percentage

1. Fishing (fish catching/fish growing)	118	38.1
2. Fish processing	8	2.6
3. Fish Vending / buy and sell	75	24.2
4. Employee	30	9.7
5. Household-based livelihood project	6	1.9
6. Micro enterprise (sari-sari store, vending, etc.)	27	8.7
7. Others	39	12.6
8. No response	7	2.3
Total	**310**	**100.0**

On the other hand, only 13.55% (42 out of 310) of the households have alternative source of income. Alternative livelihood of these household mostly pointed to fish catching / growing (f-27, p-64.29). Only three out of forty-two receives Government Subsidy. In the study of Labayo, et.al. (2021), entitled Socioeconomic Conditions of Coastal Communities Along Albay Gulf, Bicol Region, Philippines, it was also found that there is a lack of alternative livelihoods that the community is involved in (2%-9%), and as well as there is a large percentage of fisheries dependence (94%).

Table 2.b.2 Socio-economic Condition of the Coastal Community in terms of Alternative Sources of Livelihood and Income

Indicator	**Frequency**	**Percentage**
1. Fishing (fish catching / fish growing)	27	64.29
2. Fish processing	5	11.95
3. Fish Vending / buy and sell	5	11.95
4. Part time Employment	2	4.76
5. Micro enterprise (sari-sari store, vending, etc.)	0	0
6. Pension / Financial assistance from family	0	0
7. Government subsidy (4Ps, etc.)	3	7.14
8. Has household livelihood project (swine, chicken, etc.)	0	0
9. Others	0	0
10. No response	0	0
Total	**42**	**100.0**

In terms of housing condition / materials used for housing unit revealed that the most common type of housing materials used was semi-concrete (f-98; p-31.6). Semi-concrete housing implied that the structures are partially made of concrete, indicating a certain level of durability and stability compared to completely non-concrete structures. However, it also to take note that a considerable number of households are living Makeshift housing units (f-56; p-56). Sobreviñas (2020), highlighted that poor households often have poor living conditions, notably in terms of housing and access to necessities. It appears that although these households were able to work, and while they did have a source of income, it was insufficient to cover their fundamental needs, therefore they continued to be living in a poor housing condition. Households can also be impacted by natural disasters (e.g., severe flooding, typhoons) and may become impoverished because of their losses.

Table 3.a. Socio-Economic Condition of the Coastal Community in Terms of Housing Condition / Materials used for Housing Unit.

Indicator	Frequency	Percentage
1. Concrete	84	27.1
2. Semi-Concrete	98	31.6
3. Light materials	72	23.2
4. Makeshift	56	18.1
Total	**310**	**100.0**

Data on the socio-economic condition of the coastal community in terms of ownership of lot where the respondents house was constructed revealed that majority of the households owned the lot (f-221; p-71.3) suggests that a significant portion of the community has property ownership, indicating stability and potential long-term residence in contrast to household that suggests potential changes and instability in land tenure (Free use with consent-23.5%, Rented-4.2%). In a similar study of Labayo, et.al. (2021), data revealed that most of the households owned their house and lot (56%) in Bicol Region but highlighted the remaining 44% with weak land tenure. Fabinyi (2020) found that in Southeast Asia, tourism, and coastal property development primarily favour foreigners and local elites. Fishing families and coastal communities are subject to displacement. He further identified several issues associated with poor land tenure, including the risk for displacement due to pressure from tourist developers and limited chances to participate in land-based tourism activities.

Table 3.b. Socio-economic Condition of the Coastal Community in terms of Ownership of Lot where House is Constructed

Indicator	Frequency	Percentage
1. Owned	221	71.3
2. Rented	13	4.2
3. free use with consent	73	23.5
4. Company Owned; free use while employee	1	.3
5. Free use without consent	2	.6
Total	**310**	**100.0**

In terms of access to water, results show respondents have direct access to water through piped connections with faucets in their individual houses (f-257; p-82.9). This indicates a relatively high standard of living within the community, as majority of the residents have convenient and private access to water, which is essential for daily activities, hygiene, and overall well-being. A smaller portion of the community relies on the Open-spring, dug well and is accessed in more than 15 minutes (f-4; p-1.3), level of access represents a considerable challenge for residents, as they need to travel a significant distance to fetch water, which can be time-consuming and physically demanding. Carus (2020) stated that it is necessary to assess the vulnerability of these many small villages and communities to water scarcity, as they rely on hand-dug wells for drinking water and other household activities. Lack of basic access to potable water can lead to hygienic issues, economic problems, and a decline in well-being.

Table 4.a. Socio-economic Condition of the Coastal Community in terms of Access to Water

Indicator	Frequency	Percentage
1. Pipe in with faucet to individual houses	257	82.9
2. Communal faucet/artesian well	30	9.7
3. Open Spring dug well; accessed within 10 minutes	8	2.6
4. Open Spring dug well; accessed within 15 minutes	11	3.5

5. Open Spring dug well; accessed in more than 15 minutes	4	1.3
Total	**310**	**100.0**

Discussed in the next table is the socio-economic condition of the of the coastal community in terms of Access to Electricity or Power. It revealed that 75.8% (235) of the respondents had their own connection from electric company. Only a few (f-6; p-1.9) of the respondents, have no connection to the electricity grid. The data implies that residents with their own connections likely have more control over their energy usage and billing. The small portion of the community that do not have connection but gets free electricity from Barangay implies that the electricity arrangement could sometimes lead to complexities in terms of usage limit, and tracking. To take note, there is still several households (f-9; p-2.9) that do not have connection and electricity at all. It impacts their quality of life, limiting access to modern amenities and services dependent on electricity.mAccess to electricity is critical for overcoming poverty, promoting economic growth and employment possibilities, and supporting the provision of social services such as education and healthcare that lead to sustainable human development (Panos et al., 2016; Ritchie et al., 2019). According to Amakali et al. (2024), electrification has a substantial impact on productivity, income creation, healthcare, and education. Rural electrification is vital for socioeconomic development, improving livelihoods, education, and productivity. The study also found that inequities occur because not all residents can afford electricity, aggravating socioeconomic divides. The necessity for strong policies to achieve equitable and sustainable rural development is emphasized.

Table 4.b. Socio-economic Condition of the Coastal Community in terms of Access to Electricity / Power

Indicator	Frequency	Percentage
1. With own connection from electric company	235	75.8
2. Taps/connects from neighbor with separate sub-meter	20	6.5
3. Taps/connects from neighbor with no separate sub-meter	40	12.9
4. No connection but gets free electricity from Barangay of City	6	1.9
5. No connection and no electricity	9	2.9
Total	**310**	**100.0**

The socio-economic condition of the coastal community in terms of access to communication is presented on the following table. Data revealed that nearly half of the population (f-149; p-48.1) reported having access to a variety of communication channels, including radio, television, cellphones, internet, and other mediums. This indicates a reasonably well-connected segment of the community, likely benefiting from diverse information sources. The lowest number of respondents reported having access to both radio and television (f-21; p-6.8). This group benefits from both audio and visual sources of information, offering a more comprehensive understanding of events and news. Cardy, S. et.al. (2024) claimed that any rural area's development and progress are dependent on its ability to acquire, generate, access, and use information via effective communication. Infrastructure development, such as roads and telecommunications, is a critical driver of rural transformation. People in rural areas need access to information services that will help them become more capable and productive in their everyday lives, fulfill their social and political commitments more efficiently, and become more informed citizens.

Table 4.c. Socio-economic Condition of the Coastal Community in terms of Access to Communication

Indicator	Frequency	Percentage
1. With access to radio, television, cellphone, internet & others	149	48.1
2. With access to radio, television & cellphone	65	21.0
3. with access to radio & television	21	6.8
4. With access to radio	35	11.3
5. No access to any form of communication listed above and gets communication thru face-to-face interaction	38	12.3
6. No response	2	.6
Total	**310**	**100.0**

Degree of Compliance to Environmental Management Policies and Regulations in the Area of Solid Waste Disposal and Management

The degree of compliance to environmental management policies and regulations of a coastal community in the areas of solid waste disposal and management is HIGH (gm-4.14; sd-.745). This indicates that most of the required practices in solid waste disposal and management are practiced by the community. Specifically, Segregated waste collection done by the LGU (Barangay or city), Practicing solid waste segregation at home, and Signages in compliance to environmental laws under solid waste is available in coastal community is interpreted as very high degree of compliance which means that the required practices in solid waste disposal and management are fully complied / practiced by the coastal community. All other areas also had a mean score interpreted as "high degree of compliance" implying that most of the required practices in solid waste disposal and management are complied/practiced. The results show that this coastal community or majority of the people living had been part of the implementation of environmental policies and regulations in solid waste disposal and management. The Ecological Solid Waste Management Act of 2000 (Republic Act 9003) requires local government units (LGUs) to prepare integrated solid waste management plans and reach the 25% target. According to Coracero et al. (2021), achieving a trash-free Philippines requires strict implementation of existing waste laws and frameworks, as well as increased engagement and awareness among the public. Citizens must actively participate and apply expert-taught ways to address this issue, not just through government intervention.

Table 5.a. Degree of Compliance to Environmental Management Policies and Regulations of a Coastal Community in the areas of Solid Waste Disposal and Management

	Indicator	Mean	Standard Deviation	Interpretation
1.	Practicing solid waste segregation at home	4.32	.905	VHDC
2.	Segregated waste collection done by the LGU (Barangay or city)	4.53	.753	VHDC
3.	Material Recovery Facility (MRF)available and functional in the barangay	4.15	1.028	HDC
4.	Practicing garbage composting either at household, group, or barangay	4.14	.998	HDC
5.	Practicing safe disposal of household hazardous waste (paint, households' batteries, lead acid waste, spray container and consumer electronics)	4.20	.994	HDC
6.	Collected solid wastes are transported separately to avoid mixing	4.15	1.000	HDC

7.	Practicing incentives through SWM-program (Collection of solid garbage swaps with money, rice, or grocery)	3.85	1.303	HDC
8.	Utilizing bio-degradable waste in backyard gardening as growing media	3.99	1.199	HDC
9.	Utilizing the recovered big container and tires in backyard gardening as vegetable pot	4.02	1.147	HDC
10.	Signages in compliance to environmental laws under solid waste is available in coastal community	4.25	1.047	VHDC
	Grand Mean	**4.14**	**.745**	**HDC**

On the degree of compliance to environmental management policies and regulations of a coastal community in the Liquid waste disposal and management, result showed a grand mean of 4.16 and interpreted as "high degree of compliance" which means that required practices in liquid waste disposal and management are complied/practiced by the community. Particularly, the data revealed that a "very high degree of compliance" is attained in the areas of conduct of regular monitoring by the LGU, presence of Community Task Force that regularly assists in the implementation and monitoring of liquid waste disposal and management, and availability of signages in compliance to environmental laws, rules and regulations related to liquid waste disposal and management indicating that the coastal community has a strong participatory involvement in terms of environmental management especially in liquid waste disposal and management. This kind of engagement is a good indicator and may be considered as a success in the barangay's compliance to environmental laws and policies and is indicative good governance. This is agreed by Breton (2024) who pointed out that while the Clean Water Act of 2004 (RA No. 9275) offers a framework for wastewater management in the Philippines, real improvement requires more cooperation between the public and private sectors, stricter enforcement of regulations, and stronger government control.

Table 5.b. Degree of Compliance to Environmental Management Policies and Regulations of a Coastal Community in the areas of Liquid Waste Disposal and Management

	Indicator	Mean	Standard Deviation	Interpretation
1.	Household has toilet with septic tank	4.12	1.184	HDC
2.	Commercial establishments in the community have toilet with septic tank	4.19	1.037	HDC
3.	Liquid wastes are disposed of in proper drainage system	4.08	1.097	HDC
4.	Livelihood projects have proper liquid waste disposal (e.g., septic tank or proper drainage system)	4.00	1.106	HDC
5.	Practicing safe disposal of household hazardous liquid waste (e.g.oil,lubricants, batteries,etc.)	4.05	1.068	HDC
6.	Quality of drinking water is regularly monitored by LGU or other monitoring agencies	4.13	1.015	HDC
7.	The community attends trainings / advocacy sessions related to LWM awareness at least once a year	4.12	.974	HDC
8.	The LGU conducts regular monitoring to check compliance of LWM laws and regulations	4.31	.910	VHDC

9.	The community has task force or group that regularly assist in the implementation and monitoring of LWM activities	4.33	.863	VHDC
10.	Signages in compliance to environmental laws under liquid waste is available in the coastal community	4.33	.970	VDHC
	Grand Mean	4.16	.758	**HDC**

The degree of compliance to environmental management policies and regulations of a coastal community in the area of Mangrove Protection and Management is interpreted as Very High Degree of Compliance with grand mean of 4.52. This indicates that the coastal community is largely following and implementing the rules and policies pertaining to mangroves, which may include laws, rules, and best practices pertaining to the preservation, sustainable use, and administration of mangrove ecosystems. This is true based on Climate Change Commission (2024), stating that mangroves are regarded as highly protected natural solutions to climate change. However, the most recent numbers show that coverage has reduced to 311,400 hectares from 450, 000 hectares in 1920. The Nature Conservancy (TNC) and the World Bank WAVES program began working with the government of the Philippines to carry out the Standards for assessing the protective services of mangroves and to incorporate these values into the Philippine System of National Accounts in 2016 across the Philippines while discussing how to strengthen procedures and regulations, while also prioritizing sites for mangrove restoration under the National Greening Program. Various locations across the country have become focal points for ongoing efforts to protect, preserve, and restore these critical ecosystems.

Table 5.c. Degree of Compliance to Environmental Management Policies and Regulations of a Coastal Community in the areas of Mangrove Protection and Management

	Indicator	**Mean**	**Standard Deviation**	**Interpretation**
1.	Regular Clean-up in shoreline and mangrove areas organized and conducted by the LGU / community or other agencies / authorities	4.57	.847	VHDC
2.	Mangrove Planting activity facilitated at least once a year	4.63	.802	VHDC
3.	Mangrove nursery established and functional	4.55	.845	VHDC
4.	Local enforcement team organized and functional (e.g. Bantay Katunggan)	4.51	.869	VHDC
5.	NGOs/POs participate in mangrove protection and management activities	4.50	.862	VHDC
6.	There is a designated authority or organization responsible for implementing mangrove protection and management activities (e.g. Brgy. Committee on Environment, LGU Office or authorized NGO/PO,etc.)	4.48	.906	VHDC
7.	Measures to prevent waste from entering mangrove areas, such as installing trash collection devices, etc. are in place and functional	4.47	.827	VHDC
8.	Regular inspections or audits are conducted by the barangay or other authorities to assess compliance with mangrove protection and management practices	4.47	.819	VHDC

9.	There is an active and functional mangrove resources board or similar body in charge of the over-all mangrove protection and management program of the LGU / barangay	4.48	.869	VHDC
10.	The coastal community has established. partnerships/collaborations with various groups, experts and service providers to ensure the protection, enhancement and management of the mangrove resources	4.54	.814	VHDC
	Grand Mean	**4.52**	**.728**	**VHDC**

Difference in the Degree of Compliance to Environmental Management Policies and Regulations of a Coastal Community when Respondents are Grouped as to their Demographic Profile

The significant difference in the degree of compliance to environmental management policies and regulations of a coastal community in the areas of (a) Solid Waste Disposal and Management; (b)Liquid Waste Disposal and Management; and (c) Mangrove Protection and Management when respondents are grouped according to their demographic profile revealed there were no significant differences among the three areas on the degree of compliance when grouped by age, civil status, household size, and cultural/ ethnicity implying that regardless of these demographic, respondents had the same degree of compliance in the field solid waste disposal, liquid waste disposal and mangrove and protection management. In terms of gender, the results revealed that there were no significant differences on the areas of solid waste disposal and mangrove management and protection, however, there is a significant difference in the liquid waste disposal implying that female was significantly different to the male and non-binary. Female leaders in China have grabbed opportunities to begin or lead local environmental initiatives, frequently leveraging existing government mechanisms as well as personal resources and contacts. Research from various regions of the world has indicated that women and younger people with post-materialist beliefs are more concerned than men about environmental degradation and the effects of climate change (e.g., McCright et al. 2016; Sovacool et al. 2019). A 2019 research report from the Ministry of Ecology and Environment highlighted a survey which even suggested that women also performed better than men when protecting their immediate environment. They were more likely to collect waste, recycle, and repair, and not to waste food or throw plastic into nature (Meijing Net 2019). In terms of educational background, the results showed that there was no significant difference in both liquid waste disposal and mangrove and management protection. Moreover, the results revealed that there is a significant difference in the solid waste disposal. This implies that, while education is not directly related to liquid waste disposal or mangrove protection awareness, it has a greater impact on how individuals handle solid trash. This contrasts with Asor, et.al. (2022) in the study Influence of Educational Status on Solid Waste Management in Cross River State, Nigeria. The study concludes that, while there is no significant difference between educational status and solid waste management, education can help raise awareness and promote improved attitudes toward environmental challenges. According to studies, higher education is not the only determinant of excellent waste management practices, but it can help to foster a broader sense of environmental responsibility.

Table 6. Significant Difference in the Degree of Compliance to Environmental Management Policies and Regulations of a Coastal Community when Respondents are Grouped as to their Demographic Profile.

Profile	Statistic	Solid Waste Disposal and Management	Liquid Waste Disposal and Management	Mangrove Protection and Management

Age	**u-value**	11383.500	11052.000	10701.000
	p-value	.427	.224	.081
	Decision	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho
	Conclusion	Not Significant	Not Significant	Not Significant
Gender	**h-value**	5.509	8.970	2.200
	p-value	.064	.011	.333
	Decision	Failed to Reject Ho	Reject Ho	Failed to Reject Ho
	Conclusion	Not Significant	Significant	Not Significant
Civil Status	**h-value**	2.151	6.564	2.678
	p-value	.708	.161	.613
	Decision	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho
	Conclusion	Not Significant	Not Significant	Not Significant
Educational Background	**h-value**	12.673	5.143	8.647
	p-value	.013	.273	.071
	Decision	Reject Ho	Failed to Reject Ho	Failed to Reject Ho
	Conclusion	Significant	Not Significant	Not Significant
Household Size	**u-value**	10065.500	9226.000	10101.000
	p-value	.839	.173	.872
	Decision	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho
	Conclusion	Not Significant	Not Significant	Not Significant
Cultural/Ethnicity	**h-value**	.152	.701	.434
	p-value	.927	.704	.805
	Decision	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho
	Conclusion	Not Significant	Not Significant	Not Significant

Significant relationship between the socioeconomic condition and the degree of compliance to the required environmental management policies of the coastal community

There is no significant relationship between the socioeconomic condition and the degree of compliance to the required environmental management policies of the coastal community in terms of land use and land ownership, Housing Facilities, Access to Basic Utilities. Socioeconomic factors in a coastal community, particularly land use, ownership, housing, and access to basic utilities, have no significant relationship on the community's adherence to environmental management rules. This shows that compliance is not motivated by monetary prosperity or a lack thereof, but rather by other variables such as awareness, enforcement, or community standards. On the other hand, there is a significant relationship between family income and degree of compliance to environmental management and policies. It is significantly positive correlated based on Spearman Rho results of .121 with a p-value of .034. Higher household incomes may correspond with improved compliance with environmental management and legislation, maybe due to increased resources and awareness. In contrast, lower salaries may indicate difficulties in complying with such policies due to variables such as cost and limited resources. Wang et al. (2018) discovered that household income had a

positive effect on rural trash disposal habits. Their research discovered that homes with relatively higher income levels were more likely to engage in responsible waste management practices, such as collecting and properly disposing of household waste. Lower-income households were more likely to litter, presumably due to inadequate access to waste disposal infrastructure, a lack of environmental knowledge, or conflicting financial concerns. This implies that economic capacity has a significant impact on environmental behavior in rural communities, emphasizing the importance of tailored waste management initiatives that take into account socioeconomic inequality.

Table 7. Significant relationship between the socioeconomic condition and the degree of compliance to the required environmental management policies of the coastal community

		Socioeconomic condition									
	Statistics	a1	a2	b1	b2	b3	c1	c2	d1	d2	d3
Degree of Compliance	r	-.098	.011	.121*	-.010	-.044	.031	.015	-.022	.025	-.006
	p-value	.086	.843	.034	.857	.441	.585	.788	.702	.663	.920
	Decision	Failed to Reject Ho	Failed to Reject Ho	Reject Ho	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho	Failed to Reject Ho
	Conclusion	Not Significant	Significant	Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant

4. CONCLUSION

This study provided a complete review of the coastal community's socioeconomic status as well as its environmental compliance. Despite widespread poverty and economic vulnerability—with a large proportion of households earning less than the poverty line—the community demonstrated a high to very high level of compliance with environmental management policies and regulations, particularly in the areas of solid waste disposal, liquid waste management, and mangrove protection. This demonstrates a noteworthy level of environmental knowledge and social responsibility, regardless of economic standing. Interestingly, while most socioeconomic indicators, such as land use, land ownership, housing conditions, and utility access, did not show a significant correlation with compliance, household income did. This is consistent with other research, such as Wang et al. (2018), which implies that higher-income households are more likely to engage in responsible environmental behavior due to better access to resources and information. The findings highlight the necessity for focused initiatives that not only enhance the socioeconomic situations of the coastal people, but also increase community participation in environmental programs. These include expanding alternative livelihood options, raising public knowledge, and ensuring that environmental regulations are inclusive and accessible to all income levels. Promoting fairness in environmental compliance through capacity building and government support will be critical to ensuring both community welfare and ecological integrity.

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