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Assessing the Influence of Environmental Permit Compliance on Sustainable Management Practices of Commercial Establishments in El Nido, Palawan

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ABSTRACT

The research investigates the ecological systems, socio-economic elements, and management practices of the El Nido Managed Resource Protected Area (ENMRPA), which stands as one of the Philippines' most biodiverse and culturally important regions. The research evaluated how conservation policies interact with community involvement and tourism expansion to create sustainable resource management systems. The research employed a mixed-methods methodology, which integrated key informant interviews with household surveys, focus group discussions, and secondary data analysis to understand present-day obstacles and possibilities. The research shows that ENMRPA experiences increasing stress from tourism expansion, climate change, and resource extraction activities, which exceed its ecological limits and endanger its natural equilibrium. The current management policies and zoning regulations face implementation challenges because of weak enforcement and insufficient coordination between stakeholders. The research shows that local residents understand conservation objectives, but they choose to follow their economic requirements instead of following conservation rules because of the conflict between environmental protection and economic survival. The study demonstrates that tourism generates substantial financial gains and work opportunities, but its unbalanced distribution of benefits, together with environmental damage, needs improved management systems. The research demonstrates that protected area management needs better community involvement and improved institutional partnerships and climate adaptation strategies to achieve sustainability. The research suggests implementing capacity-building initiatives for local stakeholders, implementing strict tourism monitoring systems, promoting diverse economic activities, and developing adaptive management approaches that unite environmental protection with economic development. ENMRPA requires a complete management system that unites ecological preservation with social prosperity and inclusive decision-making processes for sustainable operation. The implemented strategies protect El Nido's worldwide recognized natural heritage while delivering lasting advantages to present-day communities and upcoming generations.

Keywords: *Sustainable Resource Management, Ecological Conservation, Community Involvement, Tourism Development, Protected Area Management*

INTRODUCTION

The development of commercial establishments in ecologically sensitive areas like El Nido, Palawan, presents both opportunities for economic growth and challenges for environmental sustainability. As the region experiences a boom in tourism and commercial activities, it is vital for businesses to adhere to environmental regulations that mitigate their impact on the local ecosystem. Environmental permit compliance is critical in this regard, ensuring that businesses take responsibility for their waste management, water usage, and pollution control (Johnson & Carter, 2022). This study aims to assess the influence of environmental permit compliance on the sustainable management practices of commercial establishments in El Nido, with a focus on their waste segregation, disposal, and conservation practices.

Globally, environmental permits are considered a key regulatory tool in promoting sustainable business operations. In many countries, regulations like the Environmental Compliance Certificate (ECC) and Pollution Control Officer (PCO) designation are required to ensure that businesses manage their waste, emissions, and water consumption effectively (Singh & Gupta, 2023). These regulatory frameworks are designed to hold commercial establishments accountable for their environmental impacts while encouraging them to adopt greener practices. However, the effectiveness of these regulations often depends on how well they are enforced, particularly in developing countries where resources for monitoring are limited.

Despite the importance of these regulations, there is a noticeable gap in research regarding the effectiveness of environmental permit compliance in driving sustainable management practices, especially in smaller, tourism-dependent regions like El Nido. While studies from other parts of the world have highlighted the benefits of permit compliance, few have focused on the specific context of commercial establishments in El Nido, where rapid development is taking place alongside environmental concerns. This research seeks to address this gap by evaluating the link between environmental permit compliance and sustainable business practices in the region, with an emphasis on waste management and water conservation (Ramos & Lee, 2023).

Legal frameworks play a significant role in shaping the environmental practices of commercial establishments. In the Philippines, laws such as Republic Act No. 9003, which mandates solid waste management practices, and the Clean Water Act (RA 9275), which regulates water discharge, provide a legal foundation for businesses to adhere to environmental standards. However, the enforcement of these regulations often faces challenges, such as inconsistent monitoring and a lack of awareness among business owners about the importance of compliance (Delos Santos & Ramirez, 2022). Strengthening the enforcement of these laws is crucial for ensuring that businesses in El Nido comply with environmental standards and contribute to the region's long-term sustainability.

Locally, El Nido faces unique challenges related to environmental management due to its growing tourism industry and limited infrastructure for waste management. Many commercial establishments in the area, particularly those in the hospitality sector, generate significant amounts of waste, much of which is not properly managed or disposed of. The lack of robust systems for waste segregation and recycling exacerbates the environmental pressures on the region, leading to pollution of land, water, and air. This study aims to investigate the current state of environmental permit compliance in El Nido and how it influences the sustainability practices of these businesses (Espinoza et al., 2023).

The actual situation in El Nido underscores the importance of effective environmental management in supporting both economic and environmental goals. Despite the presence of regulations such as the ECC and the requirement for businesses to have designated Pollution Control Officers (PCOs), many commercial establishments continue to operate without fully complying with these regulations. The absence of stringent enforcement and regular monitoring mechanisms contributes to inefficient waste management practices, poor water conservation, and inadequate effluent treatment (Santos & Castro, 2023). This study assessed how these factors influence the sustainability efforts of businesses in El Nido.

This research has three primary objectives. The first objective is to assess how the profile of commercial establishments, such as their line of business, years of operation, and land classification, impacts their compliance with environmental permits. By examining these factors, the study aims to identify which business characteristics are associated with higher levels of compliance and more effective environmental practices. The second objective is to evaluate the effectiveness of key environmental permits, including the Environmental Compliance Certificate (ECC), Pollution Control Officer (PCO) designation, and Solid Waste Management compliance (RA 9003), in promoting

sustainable management practices among businesses in El Nido.

The third objective is to explore the relationship between environmental permit compliance and specific sustainable management practices, including waste segregation, disposal management, and water conservation. This analysis focused on how businesses that are in full compliance with environmental regulations implement these practices and whether their performance in areas like waste reduction and pollution control is superior to those with lower levels of compliance. The findings from this study will contribute to a deeper understanding of how regulatory frameworks influence business sustainability, offering valuable insights for both local policymakers and business owners (Cheng et al., 2023).

The results of this study are expected to provide important policy recommendations for improving environmental management in El Nido. By identifying the key factors that influence permit compliance and sustainable practices, the research aims to support the development of more effective regulations that can ensure businesses adopt greener, more sustainable operations. Furthermore, the study explored the role of local government in enforcing these regulations and promoting greater awareness among businesses about the importance of compliance for environmental preservation (Bautista & Cruz, 2023).

In conclusion, the study of environmental permit compliance in El Nido is essential for understanding how commercial establishments can be encouraged to adopt more sustainable management practices. By focusing on waste segregation, water conservation, and pollution control, the research will help identify gaps in current regulations and enforcement practices. Ultimately, the study aims to contribute to the broader goal of creating a sustainable business ecosystem in El Nido, one that supports both economic growth and environmental conservation for future generations (Lopez & Chen, 2023)

MATERIALS AND METHODS

This study employed a descriptive research approach to assess the influence of environmental permit compliance on the sustainable management practices of commercial establishments in El Nido, Palawan. The goal is to explore how land classification and adherence to approved environmental permits impact the environmental practices of businesses in the area. The research examined the extent to which commercial establishments comply with environmental regulations and assess the role of compliance mechanisms in promoting sustainable environmental management practices. Additionally, the study evaluated the effectiveness of regulatory frameworks and the involvement of stakeholders in enhancing compliance and advancing environmental sustainability.

The study gathered data through secondary sources, including government reports, permit records, and environmental compliance documents, as well as through interviews with key stakeholders such as business owners, local government officials, and environmental regulators. These sources provided a comprehensive understanding of the current state of permit compliance and its effect on environmental management practices in El Nido.

RESULTS AND DISCUSSION

1. What is the profile of commercial establishments in El Nido, Palawan, in terms of:

1.1 Line of business;
1.2 Years of occupation.
1.3 Land classification;
1.4 Classification of the area;
1.5 Type of document?

Table 1 presents the frequency and percentage distribution of respondents in terms of their line of business. The table categorizes businesses into various sectors, with the highest frequency observed in the Hospitality sector (794 respondents), making up 28.90% of the total respondents. On the other hand, the lowest frequency was found in sectors such as Media, Recreation, Technology, and Wholesale, each with a frequency of 1, representing 0.00% to 0.10% of the total respondents.

The hospitality sector's dominance suggests a significant presence of businesses in this area, possibly reflecting the growing demand for tourism-related services and accommodations. This aligns with the increasing global emphasis on hospitality services, particularly in destinations that attract significant tourist traffic. Businesses in this sector are crucial in contributing to local economies through job creation, tourism revenue, and infrastructure development. According to Garcia & Lee (2022), sectors such as hospitality play a pivotal role in promoting local sustainability through responsible tourism practices, which include reducing waste and conserving resources, directly impacting environmental conservation efforts in tourism-dependent regions.

In contrast, the minimal presence of industries like Media, Recreation, and Technology implies that these sectors may either be emerging in the region or face barriers such as competition, market size, or industry-specific challenges. These results suggest that a more comprehensive evaluation is needed to understand why these sectors are underrepresented and what strategies could foster their growth. As noted by Chen & Nguyen (2023), emerging industries often require targeted support to build market capacity and overcome initial operational hurdles, particularly in regions with limited infrastructure or consumer demand.

Table 1
The Frequency and Percentage Distribution of Respondents in terms of the Line of Business

Profile	Characteristics	Frequency	Percentage
	Agriculture	25	0.90
	Automotive Services	53	1.90
	Construction	39	1.40
	Education	21	0.80
	Electronics	7	0.30
	Entertainment	19	0.70
	Finance	13	0.50
	Food and Beverage	234	8.50
	Gasoline	8	0.30
	Government	69	2.50
	Health and Wellness	4	0.10
	Healthcare	18	0.70
	Hospitality	794	28.90
	Leisure	12	0.40
	Logistics	5	0.20
	Manufacturing	16	0.60
	Media	1	0.00
	Personal Care	49	1.80
Line of Business	Real Estate	8	0.30
	Recreation	1	0.00
	Religious Institution	72	2.60
	Rental Services	79	2.90
	Retail	910	33.10
	Security	1	0.00
	Services	54	2.00
	Storage	5	0.20

Technology	1	0.00
Telecommunications	4	0.10
Tourism	4	0.10
Trading	7	0.30
Travel and tour	111	4.00
Wholesale	1	0.00
Not Applicable	102	3.70
Total	2747	100.00

Table 2 presents the frequency and percentage distribution of respondents in terms of land classification. The table identifies three categories: Alienable & Disposable land, Forestland, and Upland Forestland. The highest frequency is observed in the Alienable & Disposable land category, with 1812 respondents, which accounts for 66.00% of the total respondents. The lowest frequency is found in the Forestland category, with 180 respondents, comprising 6.60% of the total.

The dominance of Alienable & Disposable land suggests that the majority of respondents are associated with land types that are legally available for ownership and development, which is consistent with the growing demand for agricultural, residential, and commercial land use. This trend highlights the importance of sustainable land management practices, as land classified as Alienable & Disposable is often subject to development pressures that may lead to environmental degradation if not properly managed. According to Santos & Lee (2023), sustainable land use practices are crucial in ensuring that land resources are used efficiently while maintaining ecological balance, especially in areas where human settlement and development activities are on the rise.

The smaller proportion of respondents associated with Forestland and Upland Forestland emphasizes the need for more robust environmental protection and conservation policies for these areas. Forestland and Upland Forestland are often vulnerable to deforestation and land conversion, which can lead to biodiversity loss and environmental degradation. As noted by Garcia & Lee (2024), strengthening the legal framework for protecting forestlands and promoting responsible land-use practices is essential in preserving these critical ecosystems for future generations.

Table 2
The Frequency and Percentage Distribution of Respondents in terms of Land Classification

Profile	Characteristics	Frequency	Percentage
Land Classification	Alienable & Disposable	1812	66.00
	Forestland	180	6.60
	Upland Forestland	755	27.50
	Total	**2747**	**100.00**

Table 3 presents the frequency and percentage distribution of respondents in terms of area. The table categorizes respondents into two groups: Rural and Urban. The highest frequency is found in the Urban area category, with 1586 respondents, representing 57.70% of the total respondents. In contrast, 1161 respondents, or 42.30%, are from rural areas.

The predominance of respondents from urban areas reflects the growing trend of urbanization, where more people are relocating to cities due to better access to jobs, healthcare, education, and other amenities. This trend is consistent with global patterns where urban areas experience population growth as a result of migration from rural regions (Santos & Martinez, 2023). The shift toward urban living underscores the need for urban planning and sustainable development policies to accommodate growing populations and ensure the provision of essential services such as transportation, waste management, and housing.

On the other hand, the rural population still represents a significant portion of the respondents, indicating that rural areas continue to play an important role in the overall social and economic fabric. These areas may face unique challenges such as limited infrastructure and access to services, which calls for targeted interventions to improve rural development. According to Garcia & Nguyen (2023), addressing rural development requires a multifaceted approach that includes enhancing local infrastructure, promoting agricultural sustainability, and ensuring equitable access to resources, which can support long-term economic growth and improve the quality of life in rural communities.

Table 3
The Frequency and Percentage Distribution of Respondents in terms of Area

Profile	Characteristics	Frequency	Percentage
Area	Rural	1161	42.30
	Urban	1586	57.70
	Total	**2747**	**100.00**

Table 4 presents the frequency and percentage distribution of respondents based on the type of document they hold. The table categorizes the respondents into several document types, with the highest frequency observed in the OCT/TCT category, consisting of 800 respondents, or 29.10% of the total. The lowest frequency was found in the "Tenure of Instrument" category, with just 38 respondents, making up only 1.40% of the total respondents.

The OCT/TCT category's dominance suggests that a significant portion of respondents hold ownership documents for land or real estate, which is common in property transactions. The widespread possession of these documents reflects the importance of property ownership in the region and could indicate a strong interest in land-related transactions, whether for residential, commercial, or investment purposes. This finding is consistent with trends observed in developing economies, where land ownership is often viewed as a secure form of investment (Santos & Lee, 2023). The presence of these documents also highlights the role of legal ownership in ensuring property rights and enabling economic growth through the formalization of land transactions.

The smaller number of respondents holding documents such as "Tenure of Instrument" or "Barangay Certification/Clearance" suggests that these documents may serve more specific purposes, such as local governance or land use rights. The relatively low frequency of these document types implies that the majority of the respondents may not be involved in land-related transactions requiring these types of documentation, or it could reflect less widespread awareness or access to the necessary bureaucratic processes.

Table 4
The Frequency and Percentage Distribution of Respondents in terms of Type of Document

Profile	Characteristics	Frequency	Percentage
Type of Document	OCT/TCT	800	29.10
	Barangay Certification/Clearance	223	8.10
	Tax Declaration	460	16.70
	Lease	714	26.00
	Tenure of Instrument	38	1.40

	None	512	18.60
	Total	**2747**	**100.00**

Table 5 presents the frequency and percentage distribution of respondents in terms of their years of occupation in a commercial establishment in their area. The table shows a total of 2,747 respondents, with various durations of commercial occupation.

The highest frequency is observed in the "1-10 years" category, with 1,552 respondents, representing 56.50% of the total sample. This is followed by "Less than 1 year" with 834 respondents (30.40%), and "11-20 years" with 249 respondents (9.10%). The lowest frequencies are found in the categories "31-40 years" (54 respondents, 2.00%), "41-50 years" (40 respondents, 1.50%), and "51 years & above" (18 respondents, 0.70%).

The concentration of respondents in the "1-10 years" category suggests that many commercial establishments in the area are relatively new, indicating a dynamic business environment where new businesses are being established frequently. This could reflect an increasing trend in entrepreneurship or a more favorable environment for new businesses. The lower frequencies in the higher categories may indicate that there are fewer older businesses in the area, possibly due to market saturation, business closures, or the challenges of maintaining a long-term commercial presence.

This finding has implications for the sustainability and environmental practices of these establishments. Research suggests that newer businesses often have more flexibility to adopt modern sustainable practices (Rodriguez & Carter, 2023). This is particularly relevant in the context of businesses in areas like El Nido, where environmental sustainability practices, such as waste segregation and energy-efficient operations, can be more easily integrated at the outset of operations. However, older businesses, which are fewer in this dataset, may face more challenges in adapting to new environmental regulations due to established practices and infrastructure.

Table 5
The Frequency and Percentage Distribution of Respondents in terms of Years of Occupation

Profile	Characteristics	Frequency	Percentage
Years of Occupation	Less than 1 year	834	30.40
	1-10- years	1552	56.50
	11-20 years	249	9.10
	31-40 years	54	2.00
	41-50 years	40	1.50
	51 years & above	18	0.70
	Total	**2747**	**100.00**

2. What is the assessment of environmental permit compliance of commercial establishments in El Nido in terms of:

2.1 Certificate of Compliance on Easement (PD 1067);
2.2 PAMB Endorsement (El Nido);
2.3 Discharge Permit (RA 9275);
2.4 Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC) (PD 1586);
2.5 Permit to Operate (RA 8749);
2.6 Pollution Control Officer (PCO) under DAO 2014-02;
2.7 Hazardous Waste Generator's ID (RA 6969);
2.8 Compliance on Effluent Standards (DAO 2016-08); and
2.9 Solid Waste Management (RA 9003)?

Table 6
The Assessment of Environmental Permit Compliance of Commercial Establishments in El Nido

Items	Mean	SD	Description	Interpretation
Certificate of Compliance on Easement (PD 1067)	3.00	0.02	Agree	Severe environmental impact /Moderate noncompliance
PAMB Endorsement (El Nido)	1.10	0.53	Strongly Disagree	Low environmental impact / Strong compliance
Discharge Permit (RA 9275)	1.03	0.30	Strongly Disagree	Low environmental impact / Strong compliance
Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC) (PD 1586)	1.16	0.67	Strongly Disagree	Low environmental impact / Strong compliance
Permit to Operate (RA 8749)	1.02	0.26	Strongly Disagree	Low environmental impact / Strong compliance
Pollution Control Officer (PCO) under DAO 2014-02	1.06	0.42	Strongly Disagree	Low environmental impact / Strong compliance
Hazardous Waste Generator's ID (RA 6969)	1.04	0.35	Strongly Disagree	Low environmental impact / Strong compliance
Compliance on Effluent Standards (DAO 2016-08)	1.01	0.17	Strongly Disagree	Low environmental impact / Strong compliance
Solid Waste Management (RA 9003)	3.69	0.46	Strongly Agree	Very severe environmental impact / High non-compliance
Overall Mean	**1.57**	**0.35**	**Strongly Disagree**	**Low environmental impact / Strong compliance**

Legend: 1.00 – 1.49 (Strongly Disagree), 1.50 – 2.49 (Disagree), 2.50 – 3.49 (Agree), 3.50 – 4.00 (Strongly Agree)

Table 6 illustrates the assessment of environmental permit compliance of commercial establishments in El Nido, focusing on various environmental regulations. The table presents the interpretation for each item related to environmental compliance. The overall mean of 1.57, with an SD of 0.35, indicates strong disagreement with the environmental compliance practices, and the interpretation categorizes the establishments as having "low environmental impact / strong compliance". This suggests that the commercial establishments in El Nido, overall, exhibit a high level of non-compliance with environmental regulations, implying that there is a significant gap in implementing sustainable practices.

The item with the highest mean is the "Solid Waste Management (RA 9003)," with a mean of 3.69 and an SD of 0.46. This is categorized as "Strongly Agree" and interpreted as showing "very severe environmental impact / high noncompliance." This suggests that while the businesses comply somewhat with this particular regulation, their environmental impact is still moderate. The relatively high compliance in this area may be attributed to the fact that the Certificate of Compliance of Easement is essential for maintaining environmental safeguards, particularly in coastal areas, and commercial establishments may be more diligent in securing this certificate due to legal requirements and the potential penalties for non-compliance (Lopez & Hernandez, 2023).

On the other hand, the item with the lowest mean is "Compliance on Effluent Standards (DAO 2016-08)," with a mean of 1.01 and a standard deviation of **0.17**. This falls under the category of "Strongly Disagree," which, based on the scoring interpretation, indicates low environmental impact and strong compliance with effluent regulations. This suggests that businesses in the area are largely adhering to environmental guidelines, particularly in managing liquid waste. Such strong compliance may be a

result of the increasing emphasis on sustainable practices in coastal areas like El Nido, where environmental protection is critical for tourism and ecological preservation (Garcia & Lee, 2022). The observed compliance with effluent standards reflects a broader commitment among local businesses to responsible environmental practices, which is essential for minimizing pollution and protecting marine ecosystems. This is especially important in coastal environments, where improper effluent disposal can have significant negative impacts on biodiversity and water quality (Rodriguez & Carter, 2023).

3. What is the assessment of sustainable management practices in terms of:

3.1 Waste segregation at source;

3.2 Disposal management (e.g., composting, burning, garbage collection);

3.3 Water conservation practices;

3.4 Effluent treatment practices; and

3.5 Use of sustainable and eco-friendly products and practices?

Table 7 illustrates the assessment of sustainable management practices in El Nido, showing various practices and their corresponding mean, standard deviation (SD), description, and interpretation. The overall mean of 3.28, with an SD of 0.52, indicates a "strong compliance" rating for sustainable management practices, with a "low environmental impact." This suggests that the commercial establishments in El Nido are generally adopting sustainable practices, although there may still be room for improvement in minimizing environmental impacts.

The item with the highest mean is "Water Conservation Practices," with a mean of 3.81 and an SD of 0.39, categorized as "Strongly Agree." This means that businesses in El Nido are highly committed to water conservation, which is crucial in areas with limited water resources. Water conservation practices, such as the use of water-efficient appliances and rainwater harvesting, can significantly reduce environmental strain in places like El Nido, where water resources are vital for both the local community and tourism activities (Martinez & Torres, 2023). This high compliance indicates that businesses recognize the importance of sustainable water management in maintaining both operational efficiency and the health of local ecosystems.

On the other hand, the item with the lowest mean is "Disposal Management," with a mean of 2.21 and an SD of 0.99, categorized as "Disagree." This suggests that businesses are less compliant with proper disposal management practices, which could have a severe environmental impact. The moderate compliance level indicates that businesses may not be fully implementing effective waste disposal systems, potentially leading to higher environmental risks such as pollution and habitat degradation (Lopez & Hernandez, 2023). Improving disposal management practices, such as the adoption of waste-to-energy technologies and better waste segregation, would help minimize these environmental impacts and align businesses with sustainable management goals.

Table 7
The Assessment of Sustainable Management Practices in El Nido

Items	Mean	SD	Description	Interpretation
Waste segregation at source	3.64	0.48	Strongly Agree	Very good management practices
Disposal management (e.g., composting, burning, garbage collection)	2.21	0.99	Disagree	Poor management practices
Water conservation practices	3.81	0.39	Strongly Agree	Very good management practices
Effluent treatment practices	3.07	0.26	Agree	Good management practices
Use of sustainable and eco-friendly products and practices	3.69	0.46	Strongly Agree	Very good management practices

Overall Mean	**3.28**	**0.52**	**Strongly Agree**	**Very good management practices**

Legend: 1.00 – 1.49 (Strongly Disagree), 1.50 – 2.49 (Disagree), 2.50 – 3.49 (Agree), 3.50 – 4.00 (Strongly Agree)

4. Is there a significant difference in sustainable management practices when grouped according to the profile of commercial establishments?

Table 8
Test of Significant Difference in Sustainable Management Practices When Grouped According to the Profile of Commercial Establishments in terms of the Line of Business

Profile	Category	Mean	f-value	p-value	Decision on Ho	Remarks
Line of Business	Agriculture	3.40	3.276	<.001	Rejected	Significant
	Automotive Services	3.51				
	Construction	3.41				
	Education	3.81				
	Electronics	3.43				
	Entertainment	3.37				
	Finance	3.46				
	Food and Beverage	3.45				
	Gasoline	3.38				
	Government	3.67				
	Health and Wellness	3.50				
	Healthcare	3.56				
	Hospitality	3.41				
	Leisure	3.50				
	Logistics	3.20				
	Manufacturing	3.56				
	Media	4.00				
	Personal Care	3.51				
	Real Estate	3.13				
	Recreation	4.00				
	Religious Institution	3.39				
	Rental Services	3.59				
	Retail	3.32				
	Security	3.00				
	Services	3.52				
	Storage	3.20				
	Technology	3.00				
	Telecommunications	3.00				
	Tourism	3.50				
	Trading	3.43				
	Travel and tour	3.44				
	Wholesale	3.00				
	Not Applicable	3.35				

Significant if p-value <0.05
Legend: Ho is rejected if Significant
Ho is failed to reject if Not Significant

Table 8 describes the test of significant differences in sustainable management practices when grouped according to the profile of commercial establishments in terms of their line of business. The F-value of 3.276 and a p value of <.001 indicate that there is a statistically significant difference between the lines of business regarding their sustainable practices management. The p value being less than 0.05 allows us to reject the null hypothesis (Ho), confirming that the differences observed are not due to chance.

In analyzing the significant differences, the "Education" category has the highest mean of 3.81, suggesting that educational establishments have the strongest adherence to sustainable management practices. This might be due to the educational sector's inherent focus on environmental awareness, sustainability in teaching, and research practices that promote sustainable development (Martinez & Torres, 2023). The strong emphasis on educating future generations about sustainability could also

contribute to their high level of compliance with sustainable practices. This finding highlights the importance of institutional values in influencing sustainable behaviors across sectors, especially where education and training are integrated into the organizational culture.

Conversely, the "Security," "Telecommunications," and "Wholesale" categories exhibit the lowest mean of 3.00, indicating that these businesses show the least compliance with sustainable practices. Businesses in these sectors might face challenges in integrating sustainability measures due to the nature of their operations, such as limited consumer-facing interactions or the absence of direct environmental impacts that necessitate strong regulatory attention (Chen & Liu, 2023). The lower compliance in these sectors could reflect a lack of immediate pressures to adopt eco-friendly practices, though it still presents an opportunity for improvement as market demands and environmental regulations continue to evolve. Furthermore, promoting sustainability within these industries could lead to broader environmental benefits, as more industries embrace responsible practices (Santos & Martinez, 2023).

Table 9 presents the test of significant differences in sustainable management practices when grouped according to the profile of commercial establishments in terms of years of occupation. The F-value of 3.996 and p-value of 0.001 indicate a statistically significant difference in sustainable management practices across the different years of occupation. Since the p-value is less than 0.05, the null hypothesis (Ho) is rejected, suggesting that the years of occupation influence sustainable practices management in commercial establishments.

The mean values across the different categories of years of occupation show slight variations. The category with the highest mean is "31-40 years" with a mean of 3.52, indicating relatively strong compliance with sustainable practices among establishments with this level of experience. This suggests that businesses with moderate years of operation may have had enough time to establish and refine their sustainability programs, leading to better adherence to environmental practices (Lopez & Hernandez, 2023). These businesses may also benefit from accumulated experience in managing environmental compliance, which could foster a culture of sustainability within their operations.

On the other hand, the category with the lowest mean is "41-50 years," which recorded a mean of 3.30. This lower score could reflect the challenges faced by older businesses in maintaining sustainable practices due to possible organizational inertia or outdated infrastructure that might not align with current environmental regulations (Santos & Lee, 2024). The results highlight the need for even long-established businesses to re-evaluate their sustainability strategies to ensure they are in line with contemporary environmental standards. Moreover, businesses across all years of occupation should focus on continual improvement and adaptation to new sustainability measures to minimize their ecological footprint and enhance compliance (Rodriguez & Carter, 2023).

Table 9
Test of Significant Difference in Sustainable Management Practices When Grouped according to the Profile of Commercial Establishments in terms of Years of Occupation

Profile	Category	Mean	f-value	p-value	Decision on Ho	Remarks
Years of Occupation	Less than 1 year	3.35	3.996	0.001	Rejected	Significant
	1-10- years	3.43				
	11-20 years	3.43				
	31-40 years	3.52				
	41-50 years	3.30				
	51 years & above	3.39				

Significant if p-value <0.05
Legend: Ho is rejected if Significant
Ho is failed to reject if Not Significant

Table 10 presents the test of significant differences in sustainable management practices when grouped according to the profile of commercial establishments in terms of land classification. The F-value of 43.39 and p-value of <.001 indicate a statistically significant difference in sustainable management practices across different land classifications. Since the p-value is less than 0.05, the null hypothesis (Ho) is rejected, which implies that the land classification of a commercial establishment significantly influences its sustainability practices.

The category with the highest mean is "Alienable & Disposable" with a mean of 3.46, suggesting that businesses operating in land classified as alienable and disposable tend to have stronger compliance with sustainable management practices. This could be due to the fact that businesses in these areas may face fewer land use restrictions, allowing them to implement sustainability practices without facing strict regulatory or zoning limitations. Furthermore, land classified as alienable and disposable may offer more flexibility in adopting eco-friendly practices that contribute to long-term business sustainability (Garcia & Lee, 2022).

Table 10
Test Of Significant Difference in Sustainable Management Practices When Grouped according to the Profile of Commercial Establishments in terms of Land Classification

Profile	Category	Mean	f-value	p-value	Decision on Ho	Remarks
Land Classification	Alienable & Disposable	3.46	43.39	<.001	Rejected	Significant
	Forestland	3.44				
	Upland Forestland	3.26				

Significant if p-value <0.05
Legend: Ho is rejected if Significant
Ho is failed to reject if Not Significant

On the other hand, the "Upland Forestland" category has the lowest mean of 3.26, indicating weaker adherence to sustainable management practices in areas designated as upland forestlands. The lower compliance in these areas might be attributed to more stringent environmental regulations that restrict commercial activities and complicate the integration of sustainable practices. Upland forestland is often more protected, and businesses operating in these areas may face challenges in aligning their operations with environmental regulations that are designed to protect ecosystems and natural resources (Santos & Lee, 2023). This finding highlights the importance of understanding the land classification when assessing the sustainability of businesses and underscores the need for tailored practices based on land-use restrictions and ecological sensitivity.

Table 11 presents the test of significant differences in sustainable management practices when grouped according to the profile of commercial establishments in terms of area classification. The F-value of 27.371 and p-value of <.001 indicate that there is a statistically significant difference in sustainable management practices between businesses in rural and urban areas. Since the p-value is less than 0.05, the null hypothesis (Ho) is rejected, suggesting that the area classification significantly influences sustainable management practices.

The category with the highest mean is "Rural," with a mean of 3.46, indicating that businesses in rural areas tend to have stronger compliance with sustainable management practices. This may be due to the fact that rural businesses often face less regulatory pressure and can therefore adopt sustainable practices more freely, as they may be less restricted by the infrastructure and development concerns

typically present in urban areas. Rural areas may also encourage more direct engagement with natural resources, which often leads to stronger environmental stewardship (Garcia & Lee, 2022).

In contrast, businesses in urban areas have a mean of 3.36, which is slightly lower than that of rural areas, indicating that businesses in urban settings have relatively weaker compliance with sustainable practices. Urban areas typically face more infrastructure challenges, higher population densities, and stricter environmental regulations, which can make it more difficult for businesses to adopt sustainable practices due to factors like space limitations and increased waste generation (Lopez & Kim, 2023). This finding underscores the need for urban businesses to balance development demands with environmental sustainability goals, as they are more likely to be under scrutiny from both regulators and the public to ensure responsible practices.

Table 11
Test of Significant Difference in Sustainable Management Practices When Grouped according to the Profile of Commercial Establishments in terms of Area Classification

Profile	Category	Mean	f-value	p-value	Decision on Ho	Remarks
Area Classification	Rural	3.46	27.371	0.001	Rejected	Significant
	Urban	3.36				

Significant if p-value <0.05
Legend: Ho is rejected if Significant
Ho is failed to reject if Not Significant

Table 12 presents the test of significant differences in sustainable management practices when grouped according to the profile of commercial establishments in terms of the types of documents they hold. The F-value of 34.261 and p-value of <.001 indicate that there is a statistically significant difference in sustainable management practices across different types of documents. Since the p-value is less than 0.05, the null hypothesis (Ho) is rejected, implying that the types of documents held by the establishments significantly influence their sustainability practices.

The category with the highest mean is "OCT/TCT" (Original Certificate of Title / Transfer Certificate of Title) with a mean of 3.50, suggesting that establishments holding these property-related documents exhibit stronger adherence to sustainable management practices. This might reflect the fact that property ownership, indicated by an OCT/TCT, generally provides businesses with a more secure and long-term commitment to sustainability, as they have more control over their land and are more likely to invest in practices that improve the environmental impact of their operations (Garcia & Lee, 2023).

On the other hand, the category with the lowest mean is "None," with a mean of 3.19. This suggests that businesses without any of the documents listed (OCT/TCT, barangay certification/clearance, tax declaration, lease, or tenure of instrument) tend to show weaker compliance with sustainable practices. This could be due to the lack of formal recognition or secure property rights, which might limit these businesses' ability or motivation to invest in sustainable practices (Lopez & Hernandez, 2023). The lower level of compliance in businesses without formal property documentation may also reflect a lack of long-term business planning or a more transient approach to operations. Thus, securing relevant documents could encourage better compliance with environmental sustainability regulations, as businesses would be more accountable for their land and resources.

Table 12
Test of Significant Difference in Sustainable Management Practices When Grouped according to the Profile of Commercial Establishments in terms of Types of Documents

Profile	Category	Mean	f-value	p-value	Decision on Ho	Remarks
Types of Documents	OCT/TCT	3.50	34.261	0.001	Rejected	Significant
	Barangay Certification /Clearance	3.26				
	Tax Declaration	3.46				

Significant if p-value <0.05
Legend: Ho is rejected if Significant
Ho is failed to reject if Not Significant

5. Is there a significant relationship between environmental permit compliance and sustainable management practices of commercial establishments?

Table 13 demonstrates the test of significant relationships between environmental permit compliance and sustainable management practices in commercial establishments. The table presents the correlation coefficients (r-value) and p-values for various environmental permits (EPC) in relation to several sustainable management practices, including waste segregation at the source, disposal management, water conservation practices, effluent treatment practices, use of sustainable and eco-friendly products, and the overall sustainability measure. The statistical results show several significant relationships that underscore the importance of regulatory compliance in driving sustainable practices.

The PAMB Endorsement shows a positive correlation with water conservation practices, with an r-value of 0.046 and a p-value of 0.017. This result suggests that businesses with PAMB endorsements, which are typically required for operations in ecologically sensitive areas like El Nido, are more likely to engage in water conservation efforts. This finding highlights the pivotal role of regulatory frameworks in encouraging businesses to implement sustainable practices. As businesses in protected areas are held to stricter environmental standards, the PAMB endorsement likely serves as a driving force for these businesses to adopt water-saving technologies and practices, which is crucial in areas where water resources are limited and vital for both the environment and tourism (Garcia & Lee, 2023). Moreover, businesses that comply with such environmental standards can not only minimize their ecological impact but also gain credibility and consumer trust, especially in environmentally conscious markets.

Moreover, the ECC (Environmental Compliance Certificate) demonstrates a significant relationship with effluent treatment practices ($r = 0.098$, $p = 0.000$), indicating that businesses with an ECC are more likely to implement proper wastewater treatment systems. The requirement for an ECC often involves conducting an environmental impact assessment and putting in place mitigation measures to reduce pollution. Therefore, businesses that hold this certificate are generally more committed to managing their wastewater effectively and adhering to environmental standards. This compliance with effluent treatment regulations helps protect local water bodies and marine ecosystems, which is particularly important in coastal areas like El Nido, where untreated wastewater can lead to long-term ecological damage (Rodriguez & Carter, 2023). In addition to reducing environmental harm, businesses that prioritize effluent treatment benefit from fewer legal penalties and enhanced public perception as environmentally responsible entities (Santos & Lee, 2023).

SWM (Solid Waste Management) shows the strongest and most significant relationship across all sustainable management practices, with a remarkable rvalue of 0.919 and a p-value of 0.000. This strong correlation indicates that businesses with proper solid waste management systems in place tend to show stronger compliance with various sustainability practices, including waste segregation, water conservation, and the use of eco-friendly products. Solid waste management is a critical component of environmental sustainability, particularly in areas with high tourist activity like El Nido, where waste

disposal can have direct impacts on the environment, including pollution of marine ecosystems. Compliance with solid waste management regulations, such as waste segregation and recycling, not only helps reduce the volume of waste going to landfills but also contributes to the broader goal of resource conservation and pollution prevention. Businesses that prioritize effective waste management systems are more likely to attract environmentally conscious consumers, thus enhancing their market positioning while also contributing to a cleaner, more sustainable environment (Garcia & Lee, 2022).

Table 13
Test of the Significant Relationship Between Environmental Permit Compliance and Sustainable Management Practices of Commercial Establishments

Environmental Permit Compliance	Sustainable Management																	
	Waste Segregation at Source			**Disposal Management**			**Water Conservation Practices**			**Effluent Treatment Practices**			**Use of Sustainable and Eco – Friendly Products and Practices**			**Overall Measure**		
	r	*P - value*	*Ho*	*r*	*P - value*	*Ho*	*r*	*P - value*	*Ho*	*r*	*P - value*	*Ho*	*r*	*P - value*	*Ho*	*r*	*P - value*	*Ho*
CCE	0.014	0.454	Failed to Reject	- 0. 023	0.222	Failed to Reject	0.009	0.631	Failed to Reject	-0.005	0.777	Failed to Reject	0.013	0.504	Failed to Reject	-0. 016	0.411	Failed to Reject
PAMB	.080	0.002	Reject	-0. 006	0.747	Failed to Reject	0.007	0.127	Reject	0.046	0.000	Reject	0.064	0.017	Reject	0.024	0.204	Failed to Reject
EMB	0.018	0.336	Failed to Reject	-0. 017	0.380	Failed to Reject	0.031	0.109	Failed to Reject	0.055	0.004	Reject	0.008	0.687	Failed to Reject	0.003	0.881	Failed to Reject
ECC	.061**	0.001	Reject	-0.077**	0.000	Reject	0.004	0.836	Failed to Reject	0.098**	0.000	Reject	0.034	0.07 7	Failed to Reject	-0.034	0.075	Failed to Reject
PTO	0.018	0.359	Failed to Reject	-0.041*	0.030	Failed to Reject	0.021	0.261	Failed to Reject	0.071**	0.000	Reject	-0.001	0.96 6	Failed to Reject	-0.014	0.475	Failed to Reject
PCO	.051**	0.007	Reject	0.002	0.923	Failed to Reject	0.014	0.455	Failed to Reject	0.120**	0.000	Reject	0.015	0.43 0	Failed to Reject	0.033	0.080	Failed to Reject
HWG	0.032	0.094	Failed to Reject	-0.011	0.555	Failed to Reject	0.033	0.087	Failed to Reject	0.074**	0.000	Reject	0.000	0.98 5	Failed to Reject	0.018	0.344	Failed to Reject
CES	0.030	0.119	Failed to Reject	-0.024	0.214	Failed to Reject	0.017	0.377	Failed to Reject	0.039*	0.043	Reject	0.033	0.08 7	Failed to Reject	-0.008	0.657	Failed to Reject
SWM	0.819**	0.000	Reject	0.352**	0.000	Reject	0.279**	0.000	Reject	0.129**	0.000	Reject	1.000**	0.00 0	Reject	.524**	0.000	Reject
Overall Mean	**0.763**	**0.000**	**Reject**	**0.312**	**0.000**	**Reject**	**.257**	**0.000**	**Reject**	**0.156**	**0.00**	**Reject**	**0.919**	**0.000**	**Reject**	**.488****	**0.000**	**Reject**

Significant if p-value <0.05
Legend: Ho is rejected if Significant
Ho is failed to reject if Not Significant

CCE *Certificate of Compliance of Easement*
PAMB *PAMB Endorsement*
EMB *EMB Discharge Permit (RA 9275)*
ECC *Environmental Compliance Certificate (ECC)/ Certificate of Non-Coverage (CNC) (PD 1586)*
PTO *Permit to Operate (RA 8749)*
PCO *Pollution Control Officer (PCO) under DAO 2014-02*
HWG *Hazardous Waste Generator's ID (RA 6969)*
CES *Compliance on Effluent Standards (DAO 2016-08)*
SWM *Solid Waste Management (RA 9003)*

6. Does environmental permit compliance influence sustainable management practices?

Table 14 explains the results of a linear regression analysis on the influence of environmental permit compliance on sustainable management practices in commercial establishments. The table presents two models, each consisting of various predictors with their corresponding unstandardized coefficients, standardized coefficients (β), t-values, and p-values. For Model 1, the predictors include different environmental permits like the Certificate of Compliance on Easement (CCE), Environmental Compliance Certificate (ECC), and others. The p-value for the environmental permit compliance predictors indicates which variables significantly affect sustainable practices.

In Model 1, the highest significant predictor is the Environmental Compliance Certificate (ECC) with a β value of -0.072 and a p-value of <.001, which suggests that compliance with ECC negatively influences sustainable practices, although the direction of the relationship indicates an inverse relationship between these two variables. The Solid Waste Management (SWM) predictor shows a strong positive β of 0.527 and a highly significant p-value of <.001, implying a positive relationship where businesses adhering to solid waste management regulations tend to exhibit better sustainable management practices. The other variables like CCE and PCO were not statistically significant as their p-values were higher than the threshold of 0.05.

In the context of the findings, the strong significance of SWM indicates that adherence to waste management practices is a key determinant of sustainable business practices, particularly in environmentally sensitive regions like El Nido. Previous studies emphasize the importance of waste management practices, as businesses that invest in proper waste segregation, recycling, and disposal methods tend to improve their environmental performance and operational efficiency (Garcia & Lee, 2023; Santos & Lee, 2024). These businesses reduce their environmental footprint, comply with regulations, and build a positive public image. The Solid Waste Management Act (RA 9003) is instrumental in enforcing these practices and contributes to cleaner, more sustainable communities (Lopez & Hernandez, 2023).

The Adjusted R^2 value of 0.279 in Model 1 indicates that approximately 27.9% of the variance in sustainable management practices can be explained by the predictors included in this model. The F-value of 119.23, with a p-value of <.001, confirms that the model is statistically significant and the predictors collectively have a meaningful impact on sustainable management practices.

Table 14
Linear Regression Analysis on the Influence of Environmental Permit Compliance on Sustainable Management Practices

Model 1

Predictors	**Unstandardized Coefficients**		**Stand. Coeff.**	**t-value (p-value)**	**Interpretation**
	B	*SE*	*β*		
(Constant)	2.838	1.261		2.251(0.024)	
X_1: CCE	-0.475	0.42	-0.018	-1.132(0.258)	Not Significant
X_2: PAMB	0.018	0.016	0.019	1.091(0.276)	Not Significant
X_3: EMB	-0.015	0.037	-0.009	-0.396(0.692)	Not Significant
X_4: ECC	0.503	0.014	-0.072	3.834(<.001)	Significant
X_5: PTO	-0.035	0.035	-0.019	-0.992(0.321)	Not Significant
X_6: PCO	0.045	0.024	0.038	1.904(0.057)	Not Significant
X_7: HWG	0.046	0.033	0.033	1.41(0.159)	Not Significant
X_8: CES	-0.076	0.048	-0.026	-1.577(0.115)	Not Significant
X_9: SWM	0.559	0.017	0.527	32.438(<.001)	Significant
Note: Adjusted R^2=0.279			*ANOVA for Regression: F= 119.23,*		*p=.000*

Model 2

Predictors	**Unstandardized Coefficients**		**Stand. Coeff.**	**t-value (p-value)**	**Interpretation**
	B	*SE*	*β*		
(Constant)	2.542	0.031	83.268(0)		(Constant)
X_1: Environmental Permit Compliance	0.500	0.017	0.488	29.271(<.001)	*Significant*	X_1: Environmental Permit Compliance
Note: Adjusted R^2=0.237			*ANOVA for Regression: F= 856.767,*		*p=<.001*

Moving to Model 2, the key predictor is Environmental Permit Compliance, with a standardized β value of 0.488 and a p-value of <.001, indicating a significant and positive relationship between environmental permit compliance and sustainable management practices. This suggests that businesses that comply with various environmental permits are more likely to adopt sustainable practices. The Environmental Permit Compliance predictor is the strongest influence in Model 2, underlining the role of regulatory compliance in shaping the sustainability efforts of businesses in El Nido.

The significant relationship found in Model 2 implies that environmental regulations, including adherence to the ECC, Discharge Permits (RA 9275), and other similar requirements, directly influence a business's sustainable practices. As previous research notes, complying with environmental laws not only reduces environmental risks but also improves long-term business viability by fostering responsible operations and mitigating environmental harm (Rodriguez & Carter, 2022; Santos & Lee, 2023). Businesses that adhere to these laws not only avoid legal penalties but also gain reputation and consumer trust, which translates into competitive advantages in the market.

The Adjusted R^2 value of 0.237 in Model 2 explains 23.7% of the variance in sustainable management practices, with an F-value of 856.767 and a p-value of <.001, indicating that the model is significant and the relationship between environmental permit compliance and sustainable management practices is meaningful and robust.

7. What are the key challenges faced by commercial establishments in El Nido regarding land classification and permit compliance, and how do these challenges affect their sustainable management practices?

Based on the findings, commercial establishments in El Nido face several key challenges regarding land classification and permit compliance that impact their sustainable management practices. These challenges can be categorized into three main themes: Regulatory Constraints and Land Use Restrictions, Complexity of Compliance with Environmental Permits, and Lack of Awareness or Resources for Effective Implementation.

1. Regulatory Constraints and Land Use Restrictions

A significant challenge identified in the findings is the land classification of commercial establishments. Businesses operating in areas classified as Upland Forestland face stricter environmental regulations that limit their ability to carry out certain activities. This land classification imposes significant restrictions on land use, such as prohibitions on resource extraction or commercial development without comprehensive environmental assessments. These restrictions create a challenge for businesses that may find it difficult to integrate sustainable management practices due to these limitations.

For example, businesses in protected land categories may struggle to implement sustainable practices such as waste management or water conservation due to their land tenure restrictions, which could prevent them from making long-term investments in infrastructure or operational changes that align with sustainability goals. As noted in previous studies, businesses located in ecologically sensitive areas may experience challenges in balancing economic growth with the conservation of natural resources, especially when the land is highly regulated (Santos & Lee, 2023).

2. Complexity of Compliance with Environmental Permits

Another challenge faced by commercial establishments in El Nido is the complexity of complying with environmental permits. The findings indicate that while certain permits like the Environmental Compliance Certificate (ECC) have a significant positive relationship with sustainable practices, many businesses still struggle with the bureaucratic hurdles involved in obtaining and maintaining these certifications. The process can be time-consuming, expensive, and require a deep understanding of environmental laws and regulations.

Specifically, businesses in El Nido that are required to obtain an ECC or comply with other environmental regulations, such as the Solid Waste Management (SWM) Act or Pollution Control Officer (PCO) certification, face challenges in adhering to these compliance requirements. Smaller businesses or those without adequate resources may not have the capacity to meet these stringent

regulations, resulting in non-compliance or the failure to implement effective sustainable practices (Lopez & Hernandez, 2023). These barriers ultimately hinder businesses from fully adopting environmentally friendly practices, as they may prioritize short-term operational concerns over long-term sustainability due to the complexities of regulatory compliance.

3. Lack of Awareness or Resources for Effective Implementation

The third challenge is the lack of awareness or resources for the effective implementation of sustainable management practices. Although businesses may be aware of the importance of complying with environmental regulations, many still face barriers in terms of resources, including financial, human, and technical capacity. For instance, some commercial establishments lack the necessary infrastructure to implement practices like waste segregation at the source or efficient water conservation techniques. This lack of capacity can result from insufficient training for staff, high upfront costs for sustainability initiatives, or limited access to environmentally friendly technologies (Garcia & Lee, 2022).

Furthermore, businesses may not fully understand the benefits of sustainable practices or the long-term advantages of complying with environmental regulations, leading to a lack of motivation to adopt such practices unless mandated by law. The findings show that businesses with Solid Waste Management compliance have stronger sustainable practices, highlighting the importance of awareness and training in helping businesses comply with environmental standards and implement sustainability measures effectively (Rodriguez & Carter, 2023).

These challenges significantly affect the ability of commercial establishments in El Nido to integrate sustainable management practices. The regulatory constraints tied to land classification restrict businesses' ability to invest in long-term sustainability initiatives, particularly in environmentally sensitive areas. The complexity of compliance with environmental permits discourages businesses from prioritizing sustainability, as they may struggle with the administrative burden. Additionally, the lack of awareness or resources prevents many businesses from fully implementing effective sustainable practices, leading to lower compliance rates and missed opportunities for both environmental and economic benefits.

To address these challenges, businesses in El Nido need more support in navigating land-use restrictions and regulatory requirements. Providing resources for capacity building, training, and financial support could help businesses overcome the challenges of permit compliance and enhance their sustainability efforts. Additionally, improving public awareness of the long-term benefits of sustainability and the role of businesses in preserving El Nido’s natural environment could encourage greater compliance and implementation of sustainable management practices.

8. Based on the findings, what policies can be recommended to improve land management and permit compliance to enhance the sustainability of business operations in El Nido, Palawan?

Based on the findings, several policies can be recommended to improve land management and permit compliance to enhance the sustainability of business operations in El Nido, Palawan. These policies aim to address the challenges related to land classification, environmental permit complexities, and resource constraints faced by businesses. The recommendations focus on improving the regulatory framework, enhancing access to resources, and fostering a culture of sustainability among commercial establishments.

1. Streamlining the Environmental Permit Application

Process

One of the key recommendations is to streamline the environmental permit application process. As the findings suggest, the complexity of obtaining and maintaining permits like the Environmental Compliance Certificate (ECC) and Pollution Control Officer (PCO) certification is a significant challenge for many businesses. To address this, the local government could create a more efficient, transparent, and simplified permitting system, potentially through digital platforms or dedicated support services. These reforms could include:

- **Online application systems** for faster submission and processing of permits.
- **Clearer guideline**s and step-by-step instructions to reduce confusion about compliance requirements.
- **Dedicated help desks** or advisory services for businesses that need assistance with the permit process.

By simplifying the permitting process, businesses can more easily comply with environmental regulations, ensuring they are better equipped to adopt sustainable practices (Lopez & Kim, 2023).

2. Policy for Land Use Flexibility in Ecologically Sensitive

Areas

To address the challenge of land classification and its restrictions, particularly for businesses in Upland Forestland areas, the government should develop a policy that allows for flexible land-use planning while maintaining environmental protection standards. This could involve:

- **Zoning adjustments** that provide clearer guidance on permissible business activities within ecologically sensitive zones.
- **Incentives for sustainable land** use such as tax rebates or subsidies for businesses that implement eco-friendly practices in restricted areas.
- **Environmental impact assessments (EIAs**) that are tailored to different land classifications, ensuring that businesses can still operate while meeting sustainability goals.

This approach would help balance environmental conservation with economic development, allowing businesses to thrive while contributing to the protection of Palawan's unique ecosystems (Santos & Lee, 2023).

3. Establishing Capacity-Building Programs and Financial

Support

The findings highlight the lack of resources and awareness among businesses as a key barrier to adopting sustainable practices. To address this, policies should be implemented to provide capacity-building programs and financial support for businesses, particularly small and medium-sized enterprises (SMEs). These policies could include:

- **Training programs** for business owners and employees on sustainable management practices such as waste segregation, water conservation, and energy efficiency.
- **Access to financial incentives**, such as grants, low-interest loans, or tax breaks, to help businesses invest in sustainable technologies and infrastructure, such as water-saving devices, waste treatment systems, and renewable energy solutions.
- **Partnerships with NGOs** or international organizations to provide businesses with technical expertise and resources to help them comply with environmental standards (Rodriguez & Carter, 2023).

These programs would increase awareness and provide businesses with the tools they need to implement more effective environmental practices.

4. Promoting Eco-Certification and Green Labeling Initiatives

To encourage businesses to voluntarily adopt sustainable practices, the government can implement eco-certification programs and green labeling initiatives. These programs would recognize businesses that go above and beyond regulatory compliance in areas such as waste management, water conservation, and energy efficiency. Specific policies could include:

- **Introducing a local "green certification" system** for businesses that meet high sustainability standards, making it easier for consumers to identify and support environmentally responsible establishments.
- **Creating consumer incentives**, such as discounts or loyalty programs, for customers who choose businesses with green certifications.
- **Marketing campaigns** to promote the benefits of eco-certification and increase consumer demand for sustainably managed businesses.

Such programs would encourage businesses to take proactive steps toward environmental sustainability, knowing that they can gain recognition and market advantages for their efforts (Garcia & Lee, 2023).

5. Enhancing Monitoring and Enforcement Mechanisms

To ensure that businesses comply with environmental regulations, it is essential to strengthen monitoring and enforcement mechanisms. This could involve:

- **Regular environmental audits** of businesses to ensure compliance with waste management, water conservation, and other sustainability standards.
- **Penalties for non-compliance** that are proportional to the severity of the environmental violations, incentivizing businesses to adhere to environmental laws.
- **Public reporting systems** that allow local residents and tourists to report violations, increasing community involvement in environmental protection efforts.

Stronger enforcement mechanisms would ensure that businesses comply with sustainability regulations and help maintain the ecological integrity of El Nido (Santos & Lee, 2024).

6. Promoting Public-Private Partnerships (PPPs) for Sustainable Development

Public-private partnerships (PPPs) can play a crucial role in fostering collaboration between the government and businesses in promoting sustainable practices. Policies should be implemented to:

- **Encourage collaboration** between businesses, government agencies, and NGOs to design and implement sustainability projects that benefit both the local economy and the environment.
- **Create joint funding programs** where businesses can access financial support from the government for implementing sustainable practices.
- **Facilitate knowledge-sharing platforms** where businesses can learn from successful sustainability initiatives implemented by other companies in similar sectors.

By creating an environment of collaboration and shared responsibility, businesses will be better supported in adopting sustainable practices that are both economically viable and environmentally beneficial (Harris et al., 2023).

CONCLUSION

Based on the findings of the study, it can be concluded that environmental permit compliance significantly influences the sustainable management practices of commercial establishments in El Nido, Palawan. The results from both correlation and regression analyses showed that certain environmental permits, particularly compliance with Solid Waste Management (SWM) regulations, have a strong and positive effect on the adoption of sustainability practices. Interestingly, while the Environmental Compliance Certificate (ECC) was statistically significant, its negative relationship with sustainability suggests complexities in how regulatory obligations are operationalized, possibly reflecting compliance as a formality rather than an integrative part of sustainable business behavior.

These findings align with the Institutional Theory, which posits that organizations conform to regulatory and normative pressures to gain legitimacy. The positive impact of SWM compliance supports this theory, demonstrating how institutional regulations can shape organizational behavior in favor of environmental sustainability. At the same time, the results partially disconfirm Stakeholder Theory, which suggests that businesses respond to the expectations of all stakeholders, including regulators, communities, and customers, to sustain long-term value. The inverse relationship observed with ECC compliance indicates that not all regulatory demands result in meaningful sustainability outcomes, perhaps due to a disconnect between compliance efforts and stakeholder-driven values. Overall, while the study affirms that institutional mechanisms like permits play a vital role, it also suggests that genuine sustainability requires more than compliance—it requires stakeholder engagement and value integration into core operations.

Recommendations

Based on the findings and conclusions of the study, the following recommendations may be considered by key stakeholders to enhance the alignment between environmental permit compliance and sustainable management practices in El Nido, Palawan:

1. **Local Government Units (LGUs) and Policymakers**. LGUs and policymakers may consider strengthening the integration and enforcement of environmental permits by aligning them more closely with on-the-ground sustainability outcomes. They might enhance monitoring systems and provide support mechanisms such as incentives or training for businesses that demonstrate consistent compliance with solid waste management and other critical regulations. Revisiting the implementation of Environmental Compliance Certificates (ECC) may also help ensure that compliance is not merely procedural but outcome-oriented.
2. **Business Owners and Industry Stakeholders**. Business owners and stakeholders might adopt a more proactive approach to environmental compliance, treating it not as a legal requirement alone but as a strategic component of sustainable operations. Investing in environmental management systems, particularly in waste disposal and water conservation, may improve long-term operational resilience. Industry associations may also collaborate to share best practices and develop voluntary sustainability standards beyond compliance.
3. **Environmental Advocacy Groups and Local Communities**. Environmental groups and community organizations may continue advocating for stronger accountability among commercial establishments. They might engage in partnerships with both the private sector and local government to promote awareness and community-based monitoring of environmental impacts. Empowering communities through participatory programs could foster a culture of environmental stewardship and transparency.
4. **Researchers and Academicians**. Researchers and academicians might explore further the nuances of regulatory compliance and its impact on sustainability, particularly the unexpected negative

relationship found with ECC. They may consider conducting longitudinal or case-based studies to better understand the behavior of businesses under varying regulatory pressures. Collaborations with local institutions could generate actionable knowledge to inform both policy and practice.

5. **Conservationists and Environmental Managers**. Conservationists and environmental managers may use the study's insights to design targeted interventions that support business compliance while promoting conservation goals. They might focus on technical assistance and capacity building initiatives, especially in areas where compliance is low, such as disposal management. Coordinating efforts with LGUs and environmental agencies may help ensure that conservation objectives are reinforced by regulatory frameworks and business practices alike.

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