

Assessing Environmental Behaviour Among Residents in Chosen Barangays of Concepcion, Tarlac: Towards an Integrated Ecological Management Plan

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ABSTRACT

The study aimed to develop an integrated ecological management action plan by analyzing the environmental behavior of residents in selected barangays of Concepcion, Tarlac. Using a quantitative survey approach, it examined attitudes, practices, and perceptions related to waste management, energy use, water conservation, and other green practices. The study involved 150 respondents from five purposively selected barangays in Concepcion, Tarlac—Alfonso, Café, San Francisco, Sta. Rosa, and Santiago—to capture diverse community contexts. Each barangay contributed 30 participants, comprising 20 residents and 10 barangay officials, to represent both public and leadership perspectives on environmental management. Convenience sampling was used, selecting participants based on their availability and willingness to participate. Results

revealed a generally high level of environmental awareness, particularly in solid waste management, influenced by local campaigns and environmental experiences. However, enforcement of environmental laws and program implementation varied across communities due to resource limitations and leadership differences. The study emphasized the need for stronger policy enforcement, continuous capacity building, and active community participation to enhance sustainable environmental management.

Keywords: *Environment, awareness, behavior, practices, ecological management plan*

INTRODUCTION

Concepcion, Tarlac stands at a critical crossroads where rapid development intersects with environmental sustainability. As one of the fast-growing municipalities in the Philippines, it is endowed with rich natural resources and biodiversity that support both local livelihoods and ecological balance. However, the accelerating pace of urbanization, population growth, and industrial expansion has placed unprecedented pressure on its environment. Pollution, deforestation, and improper waste management are no longer isolated problems but growing threats that compromise public health, food security, and the long-term viability of the community. These challenges raise an urgent and compelling question: are the residents of Concepcion sufficiently aware of these environmental issues, and are they actively practicing behaviors that support ecological protection? Understanding this human dimension of environmental sustainability is essential because environmental policies and programs can only succeed when the people who live within the ecosystem recognize their role in protecting it.

Studies in environmental management consistently emphasize that community awareness and participation are among the strongest predictors of successful environmental protection. While local governments may enact ordinances and implement conservation programs, these initiatives often fail to achieve their intended impact without the active involvement of the community. In Concepcion, despite the existence of environmental

policies and local initiatives, environmental problems continue to persist, indicating a possible gap between policy implementation and public environmental behavior. Furthermore, although environmental issues in rapidly developing municipalities are widely discussed, there remains a lack of localized and systematic research that examines residents' environmental awareness and eco-friendly practices. This gap in empirical evidence limits the ability of decision-makers and environmental planners to design effective, responsive, and community-based environmental programs.

This study is therefore conducted to address this critical gap by assessing the level of environmental awareness and the extent of eco-friendly practices among residents of Concepcion, Tarlac. The findings of this research will contribute to existing knowledge by providing data-driven insights into the relationship between community awareness, behavior, and environmental sustainability in a developing local context. Moreover, the results will serve as a basis for strengthening local environmental policies, enhancing community participation, and formulating an integrated ecological management action plan. Ultimately, this study seeks to support the long-term environmental protection and sustainable development of Concepcion, while also offering a model that may be applied to other municipalities facing similar environmental challenges.

Literature Review

Over the past two decades, environmental concerns have intensified alongside economic growth, particularly in developing countries where increased energy use, consumption, and industrial activity have led to worsening environmental conditions. Despite having environmental laws aligned with international standards, many developing nations continue to experience pollution, energy waste, and poor solid waste management, which negatively affect both local communities and global ecosystems. Improper waste disposal—especially plastics, chemicals, and other non-biodegradable materials—contributes to climate change, ocean pollution, and ecosystem degradation. Studies show that waste segregation is often hindered by high costs, lack of facilities, and limited public awareness (Kihila, 2021).

The Philippines is among the most climate-vulnerable countries, facing risks such as extreme heat, droughts, floods, and water contamination. While residents generally value environmental protection, awareness alone has proven insufficient to drive sustained pro-environmental behavior. Research highlights the need for stronger government commitment, empowered local communities, and continuous, experience-based environmental education to promote long-term ecological responsibility (Corpus et al., 2023; Bollettino et al., 2020). Economic growth, while essential for development, often conflicts with environmental sustainability due to increased resource use and emissions, contributing to global warming (Kandel, 2020; Ginez & Tabag, 2023). Local information and education campaigns have shown only moderate success in improving climate awareness (Vargas et al., 2016). Effective environmental governance depends on meaningful community engagement, cross-sector collaboration, and well-trained enforcement personnel. However, limited manpower, insufficient training, and weak implementation of environmental laws remain persistent challenges (Barreda, 2022). Environmental education—both formal and informal—is critical for transforming awareness into informed action, yet some communities lack sustained IEC programs and rely only on basic reminders for waste management (Almazan & Vargas, 2016). Combining traditional and digital engagement strategies has been shown to improve public participation (Ramos, 2025).

The United Nations Sustainable Development Goals provide a framework for addressing environmental behavior, particularly goals related to responsible consumption, climate action, and clean water and sanitation. Household waste management, resource conservation, and participation in environmental activities directly contribute to these goals and are especially relevant at the community level (United Nations, 2015). National and local studies reveal ongoing issues in solid waste management, air pollution, land degradation, and water contamination. Poor waste segregation, increasing waste generation, air pollution-related health risks, soil erosion, deforestation, flooding, and inadequate wastewater treatment continue to threaten environmental and public health. These findings underscore the urgent need for strengthened environmental education, improved

infrastructure, consistent law enforcement, and sustained community-based programs to support environmental protection and sustainable development.

Theoretical and Conceptual Framework

Applying the Values-Belief Norm Theory to environmental awareness and practices requires taking into account people's fundamental values, understanding their environmental views, and identifying the social norms that influence their behavior. For example, if someone has strong biosphere beliefs and respects nature for what it is, they'll be more likely to engage in behaviors such as restricting energy use or participating in neighborhood environmental activities.

According to the VBN theory, a person's values are deeply imprinted and established from a young age. Egoistic (self-interested), altruistic, and reciprocal are the three types of value orientation. (Concerning the welfare of others) and biospheric (concerning aspects of the environment that are not related to humans). Environmental aspects (de Groot & Steg, 2001) that influence ecological perspectives.

Ecological convictions then result in an understanding of the effects of human behavior. A system's ecological impact. Consequently, when individuals are conscious of the possible drawbacks the effects of environmental factors they value and possible reduction measures. They have a sense of blame for the unfavorable effects. Contributes to the development of a feeling of moral obligation to protect the environment. It eventually has an impact on behavior (deStern, 2000; Groot & Steg, 2007).

Statement of the Problem

This study aimed to identify the level of awareness and the practices of residents of Selected Barangay in Concepcion, Tarlac. It seeks to answer the following questions:

1. What is the level of awareness to environmental concepts and the state of environment in terms of?
 - 1.1 Climate Change
 - 2.1 Global Warming
 - 3.1 Deforestation
 - 4.1 Sustainable Resource Management
2. Is there a significant difference on the awareness to environmental concepts and the state of environment when the respondents are grouped according to barangay?
3. What is the level of awareness to environmental issues and problems?
 - 1.1 Air pollution
 - 2.1 Water pollution
 - 3.1 Land pollution
 - 4.1 Noise Pollution
4. Is there a significant difference on the level of awareness to environmental issues and problems as to barangay?
5. What is the level of Environmental practices of the residents in selected Barangay to solve environmental problems?
 - 1.1 Waste Segregation
 - 2.1 Waste Minimization
 - 3.1 Waste Disposal
 - 4.1 Promotion of Green Initiatives
6. Is there a significant difference on the level of environmental practices to solve environmental problems as to barangay?
7. What is the level of implementation of the environmental laws by the local authorities in selected barangays in Concepcion, Tarlac?
 - 1.1 Training
 - 2.1 Knowledge

3.1 Coordination

8. Is there a significant difference on the level of implementation of the environmental laws by the local authorities as to barangay?
9. Based from the findings of the study, what ecological management plan may be proposed?

An integrated Ecological Management Plan will be created based on the study's findings.

METHODS

Research Design

The researcher used a Descriptive comparative research design. According to Siedlecki (2020). It is a type of quantitative research method in which two or more groups are described and compared using specific variables without changing any of them. It seeks to identify similarities and differences between pre-existing groups to better understand the characteristics or behaviors under consideration. A quantitative research strategy would involve collecting and evaluating numerical data methodically. According to Bhandari (2020) quantitative research is the procedure of gathering and performing a numerical analysis. It may be used to identify trends and averages, formulate hypotheses, examine cause and effect, and apply findings to larger groups.

Research Locale and Sampling Procedures

The study involved 150 respondents from five selected barangays in Concepcion, Tarlac: Barangay Alfonso, Café, San Francisco, Sta. Rosa, and Santiago. These barangays were purposively chosen to represent diverse community contexts and because they have existing ecological management plans. Each barangay contributed 30 respondents, composed of 20 residents and 10 barangay officials, to capture both community practices and leadership perspectives on environmental management. Convenience sampling was used based on participant availability and willingness. Eligible respondents included residents aged 18 and above and active barangay officials involved in governance, while minors, temporary residents, and non-participating individuals were excluded.

Research Instrument

To collect the data for this study, the researcher used a survey questionnaire created after reading several relevant studies. The first ten (10)-item statements on the questionnaire assessed respondents' knowledge of environmental concepts and states, while the following ten (10)-item statements addressed ecological issues and problems. The third section, which has ten (10) items, assesses their use of environmental practices to solve environmental issues. The final section, which also consists of ten items, discussed the level of knowledge, training, and cooperation of the local authorities with other agencies.

Data Gathering Procedures

The researcher secured permission from the barangay offices of Alfonso, Café, Sta. Rosa, Santiago, and San Francisco to collect data. The questionnaire was tested for reliability with a statistician and validated by three experts. Informed consent was obtained from all respondents, and coordination with barangay secretaries was conducted to schedule the questionnaire administration.

Data Analysis

The study used descriptive statistics to summarize the data. Median scores were interpreted as follows: 4 – Very Much Aware/Always/Fully Implemented; 3 – Much Aware/Often/Implemented; 2 – Slightly Aware/Sometimes/Partially Implemented; and 1 – Not Aware/Seldom/Not Implemented.

Ethical Considerations

Before participating, respondents were provided informed consent after being fully briefed on the study's purpose, methodology, risks, and benefits. Participation was voluntary, and respondents could withdraw at any time without consequence. Their identities and responses were kept confidential, and only information relevant to the study was collected.

RESULTS AND DISCUSSION

Table 1. Level of Awareness to Environmental Concepts and the State of Environment in terms of Climate Change

Table 1 shows that residents of Concepcion, Tarlac are generally aware of climate change, with an overall median score of 3. The highest awareness was on proper solid waste management (median = 4), while other indicators scored 3, indicating broad understanding of climate issues. Despite this knowledge, participation in environmental programs and adoption of renewable energy remain limited due to financial and institutional constraints. The findings highlight the need for stronger local support, better policy enforcement, and coordinated community initiatives to translate awareness into sustained environmental action, in line with the Climate Change Act of 2009 (RA 9729).

Table 2. Level of Awareness to Environmental Concepts and the State of Environment in terms of Global Warming

Table 2 shows that residents of Concepcion, Tarlac are generally aware of global warming and barangay-led initiatives such as tree planting, recycling, and clean-up drives, with an overall score of 3 (Much Aware). While residents recognize these efforts, weak enforcement and limited sustainability hinder their effectiveness. The findings indicate support for barangay programs, but inconsistent implementation and lack of long-term planning limit impact. Strengthening education, monitoring, and program continuity is needed to translate awareness into sustained environmental action.

Table 3. Level of Awareness to Environmental Concepts and the State of Environment in terms of Deforestation

Table 3 shows that residents of Concepcion, Tarlac are generally aware of deforestation and related environmental issues, with an overall score of 3. While they recognize the importance of tree planting, greening projects, and eco-friendly practices, industrial and development priorities often overshadow environmental protection. Awareness of deforestation's impacts, such as flooding and rising temperatures, does not always lead to consistent action. The findings highlight the need for stronger institutional support and integration of environmental programs into local planning to ensure long-term ecological sustainability.

Table 4. Level of Awareness to Environmental Concepts and the State of Environment in terms of Sustainable Resource Management

Residents of the barangay demonstrate awareness of sustainable resource management, recognizing key practices such as waste segregation and recycling under Republic Act 9003. They also monitor electricity and fuel use, reflecting household-level energy conservation. The barangay actively promotes environmental sustainability through programs and awareness campaigns, supporting green growth and a green economy. Continued efforts to reduce toxic emissions and reliance on nonrenewable resources remain essential for long-term environmental protection (Ginez & Tabag, 2023).

Table 5. Presents the Significant Difference on the Level of Awareness to Environmental Concepts and the State of Environment as to Barangay in terms of Climate Change.

Statistical analysis shows no significant difference in climate change awareness among the five barangays in Concepcion, Tarlac, likely due to uniform campaigns by the Municipal Environment and Natural Resources Office (MENRO). Unlike Vargas et al. (2016), which found limited impact of barangay-level initiatives, these results suggest that consistent, municipality-wide efforts are more effective. Coordinated environmental education enhances residents' understanding and supports effective climate policy and community preparedness (Bollettino et al., 2020).

Table 6. Presents the Significant Difference on the Level of Awareness to Environmental Concepts and the State of Environment as to Barangay in terms of Global Warming.

The analysis regarding global warming awareness among the 5 barangays in Concepcion, Tarlac concludes that there is no significant difference in awareness levels across these barangays. In summary, it appears that all of the barangays that participated in the study had a similar degree of awareness and comprehension of global warming and associated environmental concepts. This consistency could be explained by comparable exposure levels to environmental information, shared access to public awareness campaigns, or localized experiences with climate-related issues.

Table 7. Presents the Significant Difference on the Level of Awareness to Environmental Concepts and the State of Environment as to Barangay in terms of Deforestation.

There is no statistically significant difference in deforestation awareness among residents of various barangays in Concepcion, Tarlac. This suggests that respondents, regardless of barangay, have comparable levels of awareness about deforestation. According to Bodo & Seomoni (2021), environmental education is the key to reverse continuous and purposeful human activity via the conservation of every natural forest and afforestation, where necessary. Awareness alone is often insufficient to address potential consequences; it is a deeper understanding of environmental events that plays a crucial role in effectively overcoming related challenges.

Table 8. Presents the Significant Difference on the Level of Awareness to Environmental Concepts and the State of Environment as to Barangay in terms of Sustainable Resource Management.

There is no statistically significant difference in climate change awareness among residents of the five barangays in Concepcion, Tarlac. The municipality, through MENRO, supports sustainability efforts such as solid waste management by providing IEC materials, while barangays monitor and implement recycling as reflected in their Environmental Compliance Audits. In contrast, Almazan and Vargas (2016) noted that some barangays, like Bayog in Los Baños, Laguna, have minimal IEC activities, limited to public announcements encouraging waste segregation.

Table 9. Presents the Level of Awareness to Environmental Issues and Problems in terms of Air pollution

Table 9 indicates that residents have a moderate level of awareness of air pollution and its control measures. Barangay officials are recognized for implementing Republic Act No. 8749 and imposing sanctions on violators, as well as addressing common pollution sources such as cigarette smoke and vehicle emissions. Despite these efforts, awareness and enforcement remain inconsistent, suggesting limited understanding of the Clean Air Act among some residents. Overall, air quality management at the barangay level is developing but requires stronger education, monitoring, and enforcement to improve effectiveness, consistent with findings by Sanlad (2020).

Table 10. Presents the Level of Awareness to Environmental Issues and Problems in terms of Water pollution

Barangay residents are aware of water pollution caused by population growth, urbanization, and industrialization. They recognize the importance of proper waste disposal and actively manage their solid waste. Barangay officials support these efforts through clean-up drives and enforcement of regulations. This aligns with Mitiku (2020), who noted that water contamination occurs when human, industrial, or agricultural wastes enter water bodies, making it unfit for consumption. Locally, Concepcion, Tarlac enforces Municipal Ordinance No. 014-19, which implements the Clean Water Act of 2004.

Table 11. Presents the Level of Awareness to Environmental Issues and Problems in terms of Land pollution

Barangay residents demonstrate a moderate awareness of land pollution and the importance of keeping their surroundings clean, often disposing of solid waste properly. Barangay officials play a key role in promoting cleanliness, managing solid and animal waste, and maintaining central dumpsites for recycling and waste disposal. Their active enforcement of solid waste procedures reflects the support of local infrastructure. This contrasts with the claim of Sampulna (DENR) that poor waste segregation remains a major issue in the Philippines. Locally, Concepcion, Tarlac enforces Municipal Ordinance No. 03-06, which focuses on solid waste management.

Table 12. Presents the Level of Awareness to Environmental Issues and Problems in terms of Noise pollution

Residents across the five barangays of Concepcion, Tarlac demonstrate a high awareness of noise pollution, reflected in a median rating of Much Aware. Barangay officials are praised for quickly addressing sources of noise, including loud parties and videoke sessions, and for responding to complaints from community members. Noise monitoring during sensitive periods, such as afternoons and evenings, helps maintain peace and order. These findings align with Hemmat, Hesam, and Atifnigar (2023), who emphasized that regulating noise-sensitive hours and promoting consideration among neighbors can effectively reduce disturbances.

Table 13. Presents Significant Difference on the Level of Awareness Environmental Issues and Problems as to Barangay in terms of Air pollution

This section shows a significant difference in awareness of air pollution among the five barangays in Concepcion, Tarlac, indicating that residents' knowledge and involvement in environmental activities vary across communities. These differences may result from variations in local programs, educational campaigns, pollutant exposure, or the effectiveness of barangay leadership in sharing air quality information. The findings suggest that uniform awareness strategies may be ineffective, and interventions should be tailored to address the specific needs and knowledge gaps of each barangay. According to Clean Air Asia (2024), barangays with larger populations contribute more to air pollution and carbon emissions.

Table 14. Presents Significant Difference on the Level of Awareness Environmental Issues and Problems as to Barangay in terms of Water pollution

There is a significant difference in water pollution awareness among the five barangays in Concepcion, Tarlac, with residents in some areas being more aware than others. These differences may result from variations in local awareness campaigns, education, socioeconomic status, and exposure to environmental programs. For example, in Barangays Alfonso and Santiago, volunteers and LGU employees actively clean the Lucong River. The findings suggest targeted initiatives are needed to improve understanding and participation in areas with lower awareness.

Table 15. Presents Significant Difference on the Level of Awareness Environmental Issues and Problems as to Barangay in terms of Land pollution

The analysis finds that the (5) five barangays in Concepcion, Tarlac, have significantly different levels of awareness regarding land pollution. The differences in awareness levels may reflect disparities in the implementation or effectiveness of local environmental programs. There were factors that contributes in Land pollution such as the vast kilos and sacks that were collected per barangay according to their respective Barangay Environmental Compliance Audit. As well as the No-Littering Ordinance that should be implemented within the barangay, only the barangay Alfonso and San Francisco has it. Climate change and ocean pollution are global consequences of inadequate solid waste management.

Table 16. Presents Significant Difference on the Level of Awareness Environmental Issues and Problems as to Barangay in terms of Noise pollution

Analysis of noise pollution awareness shows variation among the five barangays in Concepcion, Tarlac, with some residents more aware due to higher exposure to noise sources. Environmental noise can affect cognition and brain function (Hume et al., 2012; Stansfeld & Clark, 2015). Among the barangays, only Barangay Café has an ordinance addressing loud exhaust noise, which can disrupt community peace.

Table 17. Presents the Level of Practices of Residents in Selected Barangay to solve Environmental Problems as to Waste Segregation

Table 18 shows that respondents in the selected barangays of Concepcion always separate biodegradable, non-biodegradable, and hazardous wastes, reflecting a high level of awareness and commitment to proper waste segregation. This behavior is likely influenced by public campaigns and environmental education. However, segregation at the barangay level occurs only often, and some residents still mix their garbage or reuse recyclables inconsistently. These gaps suggest that limited resources, inconsistent enforcement, and variable community participation affect overall compliance. This aligns with Kihila (2021) in Tanzania, who noted that high costs, inadequate facilities, low recyclable volumes, and lack of awareness can hinder effective waste segregation.

Table 18. Presents the Level of Practices of Residents in Selected Barangay to solve Environmental Problems as to Waste Minimization

The findings indicate that residents of Concepcion, Tarlac show moderate to high engagement in waste reduction, though consistency varies. Practices like using tumblers, reusable utensils, and buying only what is necessary are frequent, while using eco bags, avoiding plastics, and rejecting single-use items occur less consistently due to convenience, vendor options, and the absence of local ordinances. These results suggest that combining individual awareness with policy support and public education can strengthen sustainable practices (Transchel & Honhon, 2021).

Table 19. Presents the Level of Practices of Residents in Selected Barangay to solve Environmental Problems as to Waste Disposal

Table 19 shows that residents consistently avoid waste dumping in flood-prone areas, with indicators 1, 3, and 5 rated always (median 4) and indicator 4 at 3.5 (always). This reflects an understanding of how improper waste disposal contributes to flooding, water contamination, and health risks such as dengue and leptospirosis, likely influenced by personal experiences and local environmental education campaigns. However, using public trash bins is practiced only often, suggesting gaps in consistent behavior. Overall, residents demonstrate awareness of environmental consequences and civic responsibility, supported by Information, Education, and Communication (IEC) efforts such as brochures and seminars in each barangay. These findings align with Alvarez et al. (2017), who identified insufficient funding, lack of garbage trucks, low awareness, and limited discipline as key factors contributing to improper waste disposal.

Table 20. Presents the Level of Practices of Residents in Selected Barangay to solve Environmental Problems as to Promotion of Green Initiatives

This section shows that the use of reusable water bottles has a median of 3 (often), indicating positive but inconsistent adoption, often due to convenience or lack of refill stations. Wet and dry waste segregation is also practiced often, limited by the absence of proper bins or collection systems at home and in the barangay. Participation in tree planting and home gardening occurs often, depending on activity availability and space constraints. The most consistent green habit is turning off unused lights, a simple and cost-saving behavior that provides immediate benefits such as lower electricity bills.

Table 21. Presents Significant Difference on the level of environmental practices to solve environmental problems as to Waste Segregation

There was no statistically significant difference in environmental practices among respondents from different barangays in Concepcion, Tarlac, indicating similar levels of participation in activities such as waste segregation. This consistency is likely supported by the Municipal Ordinance on Solid Waste Management, which requires all barangays to comply and submit quarterly environmental compliance audits. These findings align with Bose (2020), who reported a significant correlation between residents' environmental awareness and their solid waste management practices, noting that waste segregation was commonly practiced—similar to the results observed in this study.

Table 22. Presents Significant Difference on the level of environmental practices to solve environmental problems as to Waste Minimization

There is no statistically significant difference in waste disposal practices across barangays, indicating that residents generally engage in similar environmental behaviors. The Municipal Environmental and Natural Resource Office, in coordination with barangay officials, ensures compliance with the Municipal Ordinance on solid waste management. Knowledge, attitudes, and routines regarding proper waste disposal are essential for effective waste management and environmental sustainability (Castilla, Abucay, Aguilar, et al., 2024). To further support proper disposal, it is recommended to increase the number of trash bins in the community, providing residents with practical options for managing their waste.

Table 23. Presents Significant Difference on the level of environmental practices to solve environmental problems as to Waste Disposal

There is no statistically significant difference in waste disposal across barangays, recommending that residents from all barangays engage in similar environmental practices like waste disposal. The Municipal Environmental and Natural Resource Office of Concepcion Tarlac in coordination with the Barangay Officials complies with the Municipal Ordinance regarding solid waste management, particularly the waste disposal. Knowledge, attitudes, and routines related to proper waste disposal are essential for promoting efficient waste management and maintaining the sustainability of the environment (Castilla, Abucay, Aguilar, et.al 2024). In addition to this, they also recommended this to guarantee that residents have plenty of practical choices for disposing of their garbage, it is advised that the number of trash cans in the locality be increased.

Table 24. Presents Significant Difference on the level of environmental practices to solve environmental problems as to Promotion of Green Initiatives

Residents across barangays practice similar approaches to addressing environmental problems through the practice of green initiatives. There is no significant difference. The Municipal Environmental and Natural Resources Office are giving away brochures in order for the residents to be more aware regarding the environmental municipal ordinances that the Concepcion, Tarlac has, this was the reason why there was no significant difference in this section. To further, strengthen the promotion of green initiatives, Ramos (2025)

concluded in her study that the promotional engaging tactics that successfully cultivated an ecosystem using both conventional and digital methods to increase awareness and involvement is a must.

Table 25. Presents the Level of Implementation of the Environmental Laws by the Local Authorities as to Trainings

Table 26 shows that RA 9003 (Solid Waste Management Act) received the highest median score of 3.5 (Fully Implemented), reflecting the visibility and effectiveness of segregation programs and barangay collection systems. RA 8749 (Clean Air Act) also scored 3 (Fully Implemented), likely due to the ease of observing and regulating local air pollution issues. RA 9275 (Clean Water Act) and RA 9512 (Environmental Education Act) had moderate scores (3.5 and 3, respectively), indicating partial implementation. PD 1586 showed the lowest awareness and implementation, suggesting gaps in training or communication about environmental regulations.

These findings align with Udanga (2023), who emphasized that the success and sustainability of environmental initiatives depend on active community participation. Understanding residents' perspectives is crucial, as community engagement significantly influences the effectiveness of waste management and other local environmental programs.

Table 26. Presents the Level of Implementation of the Environmental Laws by the Local Authorities as to Knowledge

Table 26 shows that the Philippine Clean Air Act, Clean Water Act, National Environmental Awareness and Education Act, and Philippine Environmental Impact Statement System each had a median score of 3 (Implemented). Enforcement is mainly at the national or city level, with limited barangay involvement. In contrast, the Ecological Solid Waste Management Act scored 4 (Fully Implemented), reflecting active barangay programs like waste collection and public reminders, consistent with findings in Palawan where local participation ensured high implementation (Gonzales, Dalumpines, et al., 2021).

Table 27. Presents the Level of Implementation of the Environmental Laws by the Local Authorities as to Coordination

The table on LGU coordination with other agencies shows a consistent median of 3 (Implemented) across all five indicators, indicating moderate collaboration. While national agencies such as the National Ecology Center, DepEd, EMB, DENR, and DOST work with LGUs on environmental projects, their impact at the barangay level is limited. DepEd promotes R.A. 9512 through schools, EMB provides environmental advocacy, and DENR offers compliance support, but these efforts are not widely felt or consistently maintained in the community. This suggests that programs and partnerships exist but lack proactive communication and broad participation. Effective environmental planning and implementation of municipal plans remain essential for sustainable development and good governance (Gonzales, Dalumpines, et al., 2021).

Table 28. Presents Significant Difference on the Implementation of the Environmental Laws by the Local Authorities as to Trainings

There is a significant difference as to the trainings of the barangay officials in the (5) five barangays in Concepcion. The analysis reveals significant differences in environmental law training for barangay officials in Concepcion, Tarlac, despite similar outcomes. Regular monitoring and evaluations are crucial for identifying gaps and implementing timely interventions. This affirms the claim of Barreda (2022) he stated that limited personnel enforcing environmental laws, requiring continuous skills enhancement training for effective implementation, investigations, and prosecution. Challenges include lack of training of various environmental laws. According to the Barangay Environmental Compliance Audit among the (5) five barangays, barangay officials in San Francisco and Cafe, did not yet participate in any workshops or seminar conducted by MENRO and other government offices.

Table 29. Presents Significant Difference on the Implementation of the Environmental Laws by the Local Authorities as to Knowledge

The level of knowledge regarding the implementation of environmental laws significantly varies among local authorities such diversity in the five (5) barangays in Concepcion Tarlac indicates that certain barangays may be more aggressive or competent to enforce environmental rules than others.

This diversity might be explained by variances in leadership goals, available resources, degrees of community participation, and the degree of assistance or training provided by higher government agencies. It suggests that the execution of environmental legislation is not consistent across all barangays, and specific interventions may be required to assist barangays that are falling behind. In a study conducted by Rosales, F.G., Custudio, G.B., Duldulao, R.A., et.al (2004) indicates that the officials are aware of environmental problems. However, they lack knowledge about it. Their degree of awareness may influence how people see the given the risks that millions of people confront, what is the current state of the global environment?

Table 30. Presents Significant Difference on the Implementation of the Environmental Laws by the Local Authorities as to Coordination

The result reveals noticeable differences in the level of coordination among barangay officials and governmental agencies across the five barangays. According to Masagca, J. T., Masagca, M. T. & Chunxiang, M. (2009), at the barangay level, excellence in governance will be apparent if community participation in identifying the various needs of the local people, such as projects on Environmental protection. Collaboration with local governance organizations is crucial for capacity building activities like trainings, workshops, courses, and degree programs, as well as recognition and merit promotions.

CONCLUSION

Residents of Concepcion, Tarlac demonstrate strong environmental awareness, particularly in solid waste management, influenced by personal experience and MENRO's IEC campaigns. Daily practices like waste segregation and energy conservation reflect individual responsibility, though barangay-level enforcement and program consistency vary. Awareness of climate change, global warming, and deforestation is generally uniform across barangays, yet knowledge alone does not ensure action. Environmental understanding of air, water, land, and noise pollution differs by barangay, shaped by exposure, leadership, and local initiatives such as clean-up drives and noise regulation enforcement. While household waste management is common, public compliance and broader sustainable practices like tree planting are uneven, affected by infrastructure, population, and policy support. Implementation of environmental laws, including RA 9003 (Solid Waste Management) and RA 8749 (Clean Air Act), is strongest, whereas RA 9275, RA 9512, and PD 1586 show moderate execution due to limited local engagement. Training disparities among barangay officials and gaps in resources and coordination further influence governance effectiveness. Overall, consistent policy enforcement, targeted education, inter-agency coordination, and community involvement are essential to translate awareness into sustained environmental action.

Recommendations

1. Conduct awareness campaigns on local and national environmental issues through flyers, brochures, and symposiums led by barangay officials.
2. Allocate budgets for trainings, seminars, quarterly tree planting and clean-up drives, and distribution of eco-friendly materials such as reusable bags and bottles.
3. Distribute IEC materials detailing environmental ordinances, sanctions, fines, and penalties to inform residents.

4. Foster active community participation through partnerships with schools, organizations, and the private sector; implement programs like tree planting, river restoration, recycling competitions, and “Barangay Gulayan” initiatives.
5. Promote key environmental practices, including waste segregation, minimization, proper disposal, sustainability, and the reduction of single-use plastics.
6. Enforce environmental ordinances strictly, imposing penalties on violators to ensure compliance.

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