

The level of participation in the recycling programs among youth at barangay Tambo, Pamplona, Camarines Sur

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ISSN: 2243-7703
Online ISSN: 2243-7711

OPEN ACCESS

Received: 29 April 2026
Available Online: 11 May 2026

Revised: 9 May 2026
DOI: 10.5861/ijrse.2026.26180

Accepted: 10 May 2026

Abstract

This study focuses on recycling programs and youth participation in Barangay Tambo, Pamplona, Camarines Sur. Its objectives include determining program effectiveness, identifying implemented programs, assessing youth involvement, and development instructional materials. Conducted on April 8, 2026, with 140 youth respondents (aged 15-30), the researchers employ a quantitative approach and descriptive research design, utilizing surveys, observation, and case studies to measure awareness, participation, and perceptions. Barangay Tambo's recycling programs, governed by Barangay Ordinance No. 05-2024 and aligned with Republic Act 9003, aim for a clean and green environment. Key findings show recycled garden pots ranked first for visibility and participation due to their practical and beneficial nature. Flower vase decorations followed second, while Christmas parol decorations and glass bottle light decorations received lower engagement, attributed to seasonality and perceived complexity. The study emphasizes that functional and practical recycling initiatives are more likely to achieve acceptance and participation, thereby contributing to environmental protection, community development, and sustainable waste management.

Keywords: level of participation, recycling programs, youth participation, Pamplona, Camarines Sur

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1. Introduction

A recycling program is an organized initiative designed to collect, sort, process, and repurpose waste materials that would otherwise be discarded, turning them into new or reusable materials and products. Such programs are typically established by governments, communities, schools, or businesses to promote recycling and reduce environmental impact. The more people learn about the damaging effects of our behavior on the environment, the more environmentalists seek to hold to society accountable. Even individuals with a limited understanding of how our daily activities impact the world we live in are beginning to take a more proactive role in making the changes necessary to sustain our planet (Shroff, 2017). With this, recycling is also involved—it being one of the movements people do after becoming environmentally aware. Recycling is a practice where people collect used things to turn it into another useful thing instead of discarding it. This practice becomes beneficial in the environment because it enables reducing the amounts of waste that is sent to the environment (EPA, 2021).

Natural resources are being depleted and landfills are being filled at an increasing rate. Our current system of production, consumption and disposal has become unsustainable. It is imperative for everyone - from individuals to large organizations - to rethink our ideas and our relationship to trash disposal. By reducing the amount of trash produced and reusing existing materials, we can all make a difference by protecting the environment, conserving natural resources, and sustaining the planet for future generations. Local community participation enhances environmental sustainability and promotes behavioral change. It empowers individuals to contribute to environmental protection by minimizing waste and conserving resources (Singh et al., 2020). Moreover, active citizen involvement leads to higher recycling rates and improved waste segregation efficiency. According to the United Nations Environment Programme community-based recycling initiatives not only reduce landfill waste but also foster social inclusion and economic development through the creation of green jobs.

Local Government Unit enforce to strong local recycling programs to help protect the environment, support local economies, and engage communities in sustainable habits. They are a linchpin in effective waste management and in the transition toward a circular economy. While challenges remain (costs, infrastructure, market for recyclables), the value delivered by these programs especially when well-designed and well-supported—is significant (Ogwueleka, 2009). According to Lascity and Cairns (2020). *Complicated Green Advertising: Understanding the Promotion of Clothing Recycling Efforts*. Investigates how fashion brands promote clothing recycling campaigns, including conflicts between environmental messaging and consumer incentives like discounts. Useful for examining campaign framing and green advertising in recycling contexts.

Objectives of the study - Specifically, this study aims to:

- Assess the recycling programs that are presents and implemented in Barangay Tambo, Pamplona, Camarines sur.
- Determine the current level of participation among the youth residents of Barangay Tambo regarding specifically local recycling programs.
- Develop Instructional and Educational Campaign materials to improve and strengthen the overall recycling program implementation at Barangay Tambo, Pamplona, Camarines Sur.

Significance of the Study - This study is significant to the residents of Barangay Tambo because it can provide them with valuable insights regarding the current environmental situation of the barangay, particularly in relation to recycling programs and waste management practices. Through the findings, residents may become more aware

The level of participation in the recycling programs among youth at barangay Tambo, Pamplona, Camarines Sur of the importance of environmental responsibility and active participation in community-based recycling activities. The study is also beneficial to the barangay officials of Barangay Tambo. Coordination and cooperation among barangay officials in conducting and supporting the study can help ensure that the gathered information is reliable, accurate, and useful for the community. The results may also guide local leaders in strengthening existing environmental programs and policies within the barangay.

The study is important to Barangay Tambo as a growing community because it may help identify possible implementations, projects, or environmental campaigns that can promote sustainability. The findings can serve as a basis for monitoring existing ordinances and for proposing Instructional and Educational Campaign (IEC) materials that may encourage proper waste management, recycling participation, and sustainable development within the barangay. The study is likewise significant to the youth, particularly those aged 15 to 30 years old, as it highlights their potential role in community development and nation-building. It assesses their participation in local environmental programs and governance through organizations such as the Sangguniang Kabataan (SK). The findings may also contribute to the improvement of programs that enhance youth empowerment, leadership skills, and community involvement.

2. Methodology

Area of the study - The figure 1 refers to the area of the study the Barangay Tambo, Municipality of Pamplona, Province of Camarines Sur, Philippines. The target respondents are 140 youth residents of Barangay Tambo, Pamplona, Camarines Sur from Zones 1 to 7.

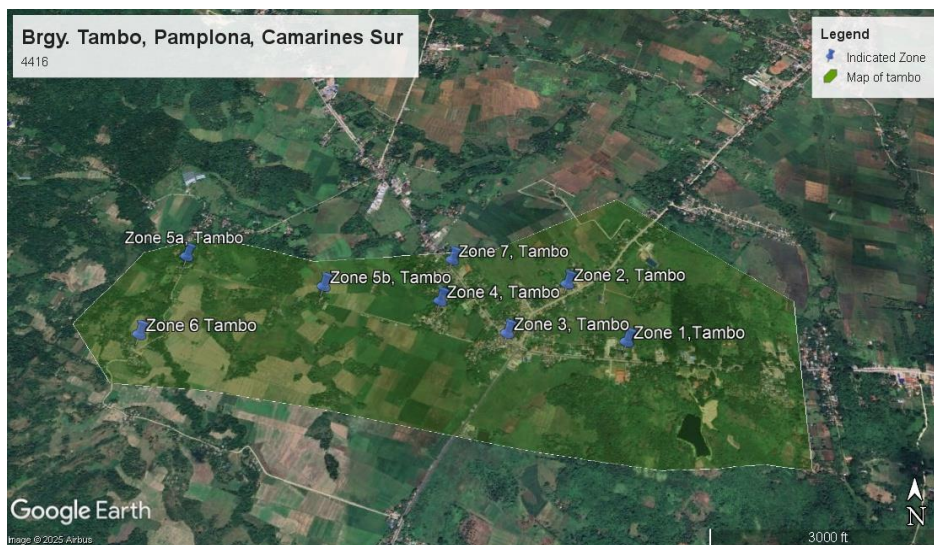


Figure 1

Note: Drawn by Agagad, E, The Map of Tambo (Google Earth, 2026)

Research Design - This study will utilize a quantitative approach uses numerical data and statistical methods to measure variables, test hypotheses, and identify patterns objectively. It focuses on measurable outcomes and aims for results that can be analyzed, compared, and generalized in the Level of participation in the Recycling Programs among Youth among Barangay Tambo, Pamplona, Camarines Sur. A descriptive research design will also be employed in the study. This type of research design uses data collection techniques such as surveys, natural observation, and case studies to derive results. The descriptive research design is appropriate for this study as it effectively describes the factors and perspectives of the respondents. The primary objective of this study is to determine the level of participation in the recycling programs among youth at Barangay Tambo, Pamplona, Camarines Sur.

Research Method - To obtain the necessary information for this study, a structured questionnaire on the Level

of participation in the Recycling Programs among Youth in Barangay Tambo, Pamplona, Camarines Sur was used to gather data. The structured questionnaire was validated to the Thesis adviser, and the Three panelist of the thesis to ensure the questionnaire consisted of Ten (10) survey items designed to determine the respondents' level of participation in the recycling activities and whether they utilized recycling programs in creative ways. The interpretation of the computed weighted mean for the level of participation in the recycling programs and participants' involvement was based on a Likert-scale by Likert (1932). The weighted mean ranges and their corresponding interpretations were used as follows: The study presents a 5-point scale used to interpret survey responses based on frequency. Scores from **1.00 to 1.80** indicate "Never," while **1.81 to 2.60** mean "Rarely." A range of **2.61 to 3.40** is interpreted as "Sometimes," followed by **3.41 to 4.20** as "Often," and **4.21 to 5.00** as "Always." The higher mean scores reflect more frequent participation or occurrence, while lower scores indicate less frequent behavior.

Respondents of the Study - The researchers sought to conduct a study on the participation in the recycling programs in Barangay Tambo, Pamplona, Camarines Sur. The total youth population in the barangay is one thousand three hundred sixty-two (1,362), with a margin of error of 8%. Using Slovin's formula, the computed sample size is one hundred forty (140) respondents. The respondents of this study will therefore consist of 140 youth, distributed across seven (7) zones, with twenty (20) youth respondents selected from each zone. All necessary research procedures will be conducted in Barangay Tambo, Pamplona, Camarines Sur. The barangay is a growing economic community within the Municipality of Pamplona, emphasizing the need to further improve recycling activities and waste management awareness among the youth.

Data Gathering Procedure - The study would be conducted in line with academic and ethical standards, starting with the submission of the research proposal for review and approval by the academic instructor to confirm alignment with requirements, clarify objectives, and address potential risks. Following this, ethical clearance will be obtained from the relevant institutional body, and permission to conduct the study will be secured from Barangay Tambo officials. Instead of researchers serving as participants, the study will recruit youth residents of Barangay Tambo as respondents and barangay representatives as key informants, ensuring the sample aligns with the focus on assessing local recycling programs, measuring youth participation, and to develop the Instructional and Educational Campaign materials that implemented. Analysis will be tailored to the study's objectives: descriptive statistics and thematic coding will assess recycling programs, frequency counts and percentages will measure youth participation (supplemented by qualitative insights), and to develop an Instructional and Educational Campaign materials will be analyzed thematically to identify improvements. Data will be stored securely in encrypted systems or locked cabinets, retained per institutional and regulatory requirements, then disposed of safely by shredding physical records and permanently deleting digital files. Analyzed findings will be presented in the thesis and shared with Barangay Tambo officials in a summarized, non-identifiable format to support program enhancements.

3. Result and Discussion

In this section, would discuss the study of "The Level of Participation in the Recycling Programs among Youth in Barangay Tambo, Pamplona, Camarines Sur" seeks to determine the effectiveness of the recycling programs implemented in Barangay Tambo, located in Pamplona, Camarines Sur. Specifically, it aims to identify the recycling programs that have been developed and are currently being implemented in the barangay; assess the level of youth participation in these initiatives based on the gathered data; and determine appropriate Instructional and Educational Campaign materials that can be developed to further encourage and enhance youth involvement in the barangay's recycling programs. Through this inquiry, the study intends to evaluate existing efforts and propose strategies to strengthen community engagement, particularly among the youth, in promoting sustainable waste management practices.

The study was conducted on April, 8, 2026. The respondents of this study are limited to youth residents of Barangay Tambo, Pamplona, Camarines Sur aged 15 to 30 years old, with a total of 140 participants. The research

The level of participation in the recycling programs among youth at barangay Tambo, Pamplona, Camarines Sur evaluates their awareness, participation, and perceptions regarding the recycling programs conducted in the barangay. This study utilizes a quantitative approach to objectively measure variables, test hypotheses, and identify patterns through numerical data and statistical analysis in assessing the effectiveness of recycling programs among the youth in Barangay Tambo, Pamplona, Camarines Sur. It aims to produce measurable outcomes that can be analyzed, compared, and generalized. Furthermore, the study employs a descriptive research design, using data collection methods such as surveys, natural observation, and case studies to systematically describe and interpret the current condition of the recycling programs and the level of youth participation.

Table 1

Recycling activities/programs implemented at Barangay Tambo, Pamplona, Camarines Sur

BARANGAY ORDINANCE NO. 05-2024 "AN ORDINANCE REQUIRING ALL PERSONS WHILE IN THE BARANGAY TAMBO, PAMPLONA, CAMARINES SUR TO KEEP MAINTAIN CLEAN AND GREEN ENVIRONMENT"			
Recycling Activities/Programs	Yes	No	Rank
Flower vase decoration from recyclable materials	98	42	2nd
Christmas parol decorations from recyclable materials	67	73	4th
Garden pots made from recycled materials	105	35	1st
Garbage containers made from recyclable materials	89	51	3rd
Glass bottles transformed into light bulb decorations	56	84	5th

The table 1 presents the Barangay Tambo in Pamplona, Camarines Sur has actively developed and implemented various recycling programs as part of its environmental management efforts, anchored on Ordinance No. 05-2024, which mandates all residents to maintain a clean and green environment. This ordinance serves as the legal framework that enforces community participation in environmental cleanliness and sustainability, reflecting the barangay's strong commitment to proper waste management and environmental awareness. It encourages residents to take responsibility for their waste through recycling and reuse practices, highlighting the important role of local governance in shaping environmentally responsible behavior. This initiative aligns with the provisions of Republic Act 9003, which emphasizes community participation and localized implementation of solid waste management programs (RA 9003, 2000). The findings revealed that residents in the community prefer recycling activities that are practical, functional, and beneficial to their daily lives. Garden pots made from recycled materials ranked first, indicating strong community acceptance of recycling initiatives that promote both waste reduction and sustainable gardening practices. Flower vase decorations and garbage containers also received high participation because they provide aesthetic and practical household benefits. Studies support that recycling programs with direct everyday usefulness are more likely to encourage community participation and environmental awareness (Nambuthiri & Thomas, 2019).

Moreover, the study highlights that the success of recycling and waste management programs depends greatly on community participation, awareness, and continuous environmental education. Previous research emphasized that policies such as RA 9003 are only effective when supported by active public involvement and educational campaigns (Camarillo & Bellotindos, 2021; Edullantes et al., 2024; Springer Nature, 2025). In contrast, seasonal and more complex recycling activities, such as Christmas parol decorations and glass bottle light bulb decorations, received lower participation because they are less practical and require greater effort and skills. Research confirms that inconvenience and perceived difficulty reduce community engagement in recycling practices (Jesson, 2009; Tonglet et al., 2004).

The table 2 presents the data of respondents' level of participation in various recycling activities, with an overall weighted mean of 3.76, interpreted as "Often Participate." This indicates that respondents generally show a positive level of engagement in recycling practices; however, the variation in scores suggests that participation is influenced by the nature, practicality, and perceived usefulness of each activity. This implies that while recycling is commonly practiced, individuals tend to engage more in activities that are convenient and beneficial to their daily lives, supporting the idea that participation in environmental practices is shaped by perceived relevance and ease of application (Stern, 2011).

Table 2

Level of youth participation at Barangay Tambo, Pamplona, Camarines Sur

Statements	Weighted Mean	Descriptions	Rank
I participate in recycling activities such as making flower vase decorations.	4.49	Always participate	2nd
I participate in recycling activities such as making Christmas parol decorations.	3.15	Sometimes participate	4th
I participate in recycling activities such as making garden pots.	4.54	Always participate	1st
I participate in recycling activities such as making garbage containers.	3.99	Often participate	3rd
I participate in recycling activities such as transforming glass bottles into light bulb decorations.	2.64	Rarely participate	5th
Overall mean:	3.76	Often Participate	

The findings revealed that respondents actively participate in recycling activities that are practical, useful, and easy to apply in daily life. Making garden pots from recycled materials ranked first and flower vase decorations ranked second, both interpreted as “Always Participate,” indicating strong engagement in recycling activities that combine functionality, creativity, and environmental benefits. These results support studies showing that practical and beneficial recycling initiatives encourage sustainable behavior and community participation (Steg & Steg, 2021)

Making garbage containers from recyclable materials ranked third and was interpreted as “Often Participate,” suggesting that respondents recognize its importance in promoting cleanliness and proper waste management. This finding supports the Theory of Planned Behavior, which states that individuals are more likely to engage in activities they perceive as useful and socially important. In contrast, Christmas parol decorations and glass bottle light bulb decorations received lower participation because of their seasonal nature, complexity, and limited practicality. Studies further explain that environmental practices are more successful when integrated into everyday routines, while activities perceived as difficult tend to discourage participation.

The Instructional and Educational Campaign (IEC) Materials - The study presents the proposed Instructional and Educational Campaign (IEC) materials designed to encourage greater youth participation in recycling programs at Barangay Tambo, Pamplona, Camarines Sur. The development of these materials is grounded in the findings of the study, which revealed that youth engagement in recycling activities varies depending on the practicality, simplicity, and frequency of the activity. Based on the findings, certain recycling practices such as making Christmas parol decorations from recyclable materials only garnered moderate participation due to their seasonal nature. Similarly, transforming glass bottles into light bulb decorations showed the lowest level of participation, as these activities are perceived to be complex, less practical, and not commonly integrated into daily routines. These results indicate that activities requiring more effort, time, or technical skills tend to discourage consistent involvement among the youth.

In line with these observations, the proposed IEC materials are designed to promote recycling programs that are simple, practical, and applicable throughout the year. The materials will include visually engaging posters, brochures, and step-by-step guides that demonstrate easy recycling practices such as creating reusable containers, simple home decorations, and functional household items from recyclable materials. The IEC materials will be complemented by workshops, demonstrations, and regular community campaigns led by barangay officials and educators. These activities will reinforce the information presented in the materials and help establish recycling as a consistent and habitual practice among the youth.

The image shows an environmental poster printed on tarpaulin, designed to be displayed at the Barangay Hall of Barangay Tambo in Pamplona, Camarines Sur. It was created in response to the low level of participation in glass bottle recycling, as shown in the survey results where the activity “turning glass bottles into light bulb decorations and jars” received a mean score of 2.64, interpreted as “Rarely participate.” To help address this, the

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poster highlights the importance and benefits of recycling glass. It explains in a simple way that glass is 100% recyclable and can be reused many times without losing its quality. The message focuses on how reusing glass bottles can save money, reduce waste, protect the environment, and turn something often seen as trash into something useful and valuable. The poster also shares easy and practical ideas that people in the community can try. These include turning glass bottles into planters, light decorations, storage jars, decorative walls, and even garden fences. Because the ideas are presented in a clear and visually appealing way, they make recycling feel simple, doable, and even enjoyable for people of all ages.



Figure 2

Note: Drawn by Agagad, E. The Instructional and Educational Campaign Materials (Creative Ways in Recycling Glass Bottles)

This initiative is supported by existing environmental laws in the Philippines, particularly Republic Act No. 9003, which encourages proper waste management practices, and Republic Act No. 9512, which promotes environmental education and awareness within communities. The development of this Instructional and Educational Campaign (IEC) material is also guided by the Diffusion of Innovations Theory by Everett Rogers (2003), which emphasizes how new ideas and practices can be adopted by individuals and communities over time. In line with this theory, the poster was designed not only to provide information but also to encourage community members to adopt recycling habits by highlighting the benefits of recycling, presenting simple and practical activities, and showcasing attractive products made from recyclable materials, with the goal of inspiring people to integrate eco-friendly practices into their daily lives.

A parol is a well-loved Filipino Christmas lantern that represents the Star of Bethlehem. For many Filipinos, it is more than just a decoration—it symbolizes hope, faith, guidance, and light in times of darkness. Over the years, the parol has become an important part of Filipino culture, showing not only the joy of the Christmas season but also the people's unity, creativity, and resilience. Making a recycled parol is a meaningful and creative activity. Instead of buying new materials, people use items like plastic bottles, cardboard, and scrap paper to build a five-point star lantern. It can then be decorated in different ways, with colorful designs, tails, and even lights. The image shows an environmental poster printed on tarpaulin, designed to be displayed at the Barangay Hall of Barangay Tambo in Pamplona, Camarines Sur. It was created in response as shown in the survey results where the activity making Christmas parol decorations from recyclable materials ranked fourth with a weighted mean of 3.15, interpreted as "Sometimes Participate," indicating moderate involvement. This is likely due to the seasonal nature of the activity, limiting consistent engagement. Though, this poster can be helpful in environmental awareness and

This simple practice not only keeps the tradition alive but also encourages people to care for the environment by reusing materials in a fun and purposeful way.



Figure 3

Note: Drawn by Agagad, E. The Instructional and Educational Campaign Materials (Christmas parol decorations ideas)

This initiative is supported by existing environmental laws in the Philippines, particularly Republic Act No. 9003, also known as the Ecological Solid Waste Management Act of 2000, which encourages proper waste management practices. It is also aligned with Republic Act No. 9512, or the Environmental Awareness and Education Act of 2008, which promotes the importance of educating communities about environmental protection.

4. Summary of findings, conclusion and recommendation

This section presents the summary of findings, conclusions and recommendations the study “The Level of Participation in the Recycling Programs among Youth in Barangay Tambo, Pamplona, Camarines Sur.”

Barangay Tambo has implemented various recycling programs under Barangay Ordinance No. 05-2024, aiming for a clean and green environment, aligning with Republic Act 9003. Among these, garden pots made from recycled materials ranked first in visibility/participation (105 respondents), indicating a preference for practical and beneficial activities. Flower vase decorations ranked second, while Christmas parol decorations and glass bottle light decorations ranked lower due to seasonality or perceived complexity. The study highlights that functional and practical recycling initiatives (like turning plastic bottles into flower vase decorations) are more likely to gain acceptance and participation, contributing to environmental protection, community development, and sustainable waste management.

Problem 1. The recycling programs that are crafted and implemented at Barangay Tambo, Pamplona, Camarines Sur. Based on the findings of the study, it can be concluded that residents of Barangay Tambo are more inclined to be aware in recycling activities that offer direct functional benefits and practical applications in daily life. Activities such as garden pots, flower vase decorations, and garbage containers are more preferred because they combine environmental protection with usability and creativity. On the other hand, seasonal or more complex recycling activities, such as Christmas parol decorations and glass bottle lighting fixtures, receive lower awareness due to their limited applicability and perceived difficulty. These results further suggest that the effectiveness of

recycling programs is significantly influenced by simplicity, convenience, and relevance to everyday needs. Moreover, existing literature supports that active community participation, environmental awareness, and perceived ease of execution are key factors in improving engagement in recycling initiatives. Therefore, enhancing accessibility and promoting practical recycling activities are essential in strengthening environmental participation within the community.

Problem 2. The level of participation of the youth in the recycling programs present depending on the results at Barangay Tambo, Pamplona, Camarines Sur. Based on the findings, it can be concluded that the youth in Barangay Tambo actively participate in recycling programs, particularly in activities that are practical, functional, and applicable to their daily lives. Recycling practices such as making garden pots, flower vases, and garbage containers are highly preferred because they provide immediate and tangible benefits, making them easier to adopt and sustain. On the other hand, activities that are seasonal or perceived as complex, such as making Christmas parol decorations and transforming glass bottles into light fixtures, receive lower levels of participation. These findings suggest that the level of youth engagement in recycling programs is strongly influenced by perceived usefulness, convenience, and ease of execution. Furthermore, consistent with existing theories and studies, participation increases when activities are simple, relevant, and integrated into everyday routines. Therefore, the success of recycling programs largely depends on how well they align with the needs, interests, and capabilities of the participants.

Problem 3. The Instructional and Educational Campaign (IEC) materials that made to encourage the participation of Youth to recycling programs at Barangay, Tambo, Pamplona, Camarines Sur. Youth participation in recycling programs is strongly influenced by the practicality, simplicity, and consistency of activities. Seasonal and complex recycling initiatives, such as parol-making and glass bottle decorations, result in lower engagement compared to more routine and accessible practices. The findings suggest that for recycling programs to be effective, they must align with the daily lives and capabilities of the youth, emphasizing ease of participation and relevance.

Significant of the findings for teachers, students and school. The findings of this study are significant for practitioners, teachers, students, and schools because they provide valuable insights into how recycling participation among the youth can be improved through effective environmental education and community involvement. For practitioners and teachers, the study serves as a guide in designing meaningful Instructional and Educational Campaign (IEC) materials and environmental programs that encourage active participation in recycling activities. The findings emphasize the importance of using simple, practical, and engaging approaches, such as step-by-step guides, visual demonstrations, and relatable examples, to make recycling easier for young individuals to understand and practice in their daily lives. For students, the study promotes environmental awareness and strengthens their sense of responsibility toward waste management and community development. It encourages them to actively participate in recycling initiatives by showing that recycling can be practical, beneficial, and achievable through small but consistent actions. The findings may also help students develop positive environmental attitudes, leadership skills, cooperation, and social responsibility. For schools, the study highlights the importance of integrating environmental education and sustainability practices into school activities and programs. Schools may use the findings as a basis for organizing regular workshops, recycling drives, interactive campaigns, and environmental projects that reinforce consistent participation among students.

Recommendations - Here's some recommendation that will help the study entitled "The Level of participation in the recycling programs among youth at Barangay Tambo, Pamplona, Camarines sur".

- Creative and visually engaging Instructional and Educational Campaign materials (e.g., infographics, short videos, and posters) be developed to simplify and promote recycling practices.
- Social media platforms (e.g., Facebook, TikTok, and Instagram) be utilized to disseminate information and launch environmental campaigns targeting the youth.
- Schools serve as primary venues for integrated environmental education, incorporating recycling

awareness into school activities and curricula.

- Youth themselves be involved in the design and dissemination of Instructional and Educational Campaign materials, ensuring relatability and effectiveness.
- Regular and consistent Instructional and Educational Campaign towards community orientations be conducted to reinforce awareness and encourage behavioral change.
- Schools and youth organizations be actively involved as key partners in planning and implementing recycling initiatives.
- Incentive systems, such as recognition programs, awards, or eco-leadership opportunities, be introduced to motivate sustained youth involvement.

CRedit (Contributors Roles Taxonomy): Alexa Joy Dacian contributed to the conceptualization of the study, preparation of the original draft, formal analysis, and review and editing of the manuscript with equal contribution. April Joy Ramos served as the lead for software development and contributed equally to the review and editing of the manuscript. Jeffrey Calleja led the methodology and also contributed equally to the review and editing process. Jonnel Cuevas provided supporting contributions to the conceptualization and original draft preparation and participated equally in the review and editing of the manuscript. Edrick Edwin Agagad contributed to the review and editing of the manuscript.

AI declaration: I/We used ChatGPT (OpenAI, GPT-4-class and GPT-5.3 models) for grammar checking, fact-checking, APA 7th edition formatting, and general reference validation. All outputs generated by the AI tool were carefully reviewed, cross-checked, and edited by the author. This includes verification of citation accuracy, DOI validation, formatting corrections, and refinement of language in accordance with APA 7th edition guidelines. No confidential or personally identifiable information was entered into the AI system. The author assumes full responsibility for the accuracy, integrity, and final content of the thesis.

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