International Journal of Sustainability and Advanced Integrated Research
Volume 2, Issue 2 (April-June 2026) | ISSN: 3107-7854
DOI: https://doi.org/10.65339/ijsair.V2.I2.230

Environmental Awareness and Practices in YES-O Programs, Projects and Activities of Grade 10 Students

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Publication history: Received: March 12, 2026; Revised: March 30, 2026; Accepted: April 5, 2026
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Abstract

This study examined the environmental awareness and environmental practices of Grade 10 students in relation to the programs, projects, and activities of the Youth for Environment in Schools Organization (YES-O). Specifically, it described the profile of the respondents in terms of sex, school size, and school location, and determined their level of environmental awareness and environmental practices in the areas of School Inside a Garden, Awareness and Outreach Programs, Solid Waste Management, Entrepreneurship and Energy Conservation, Gulayan sa Paaralan, and Partnerships and Linkages. The study employed a quantitative descriptive design and involved 200 Grade 10 students from selected public secondary schools in Quirino Province during School Year 2024–2025. Data were gathered using the validated Environmental Awareness and Practices Questionnaire (EAPQ) and were analyzed using frequency, percentage, mean, and standard deviation. Findings revealed that the respondents were equally distributed by sex, were represented across small, medium, large, and mega schools, and were slightly more drawn from urban schools. The students were generally aware of the five YES-O domains, with the highest awareness observed in Gulayan sa Paaralan, followed by Awareness and Outreach Programs and Solid Waste Management, Entrepreneurship, and Energy Conservation, while School Inside a Garden and Partnerships and Linkages obtained relatively lower awareness ratings. In terms of environmental practices, the students generally seldom practiced environmental activities across the YES-O domains, although they more often engaged in Solid Waste Management, Entrepreneurship, and Energy Conservation, Gulayan sa Paaralan, and Awareness and Outreach Programs, while School Inside a Garden and Partnerships and Linkages showed lower levels of actual practice. The findings indicate that students demonstrate stronger awareness and participation in visible, routine, and school-based environmental activities than in technical, monitoring, and externally linked environmental initiatives.

Keywords: Environmental Awareness, Environmental Practices, Youth for Environment in Schools Organization, YES-O, School-Based Environmental Programs, Grade 10 Students, Gulayan sa Paaralan, Environmental Education, Sustainability, Quirino Province

1. Introduction

Environmental sustainability remains a pressing concern as climate change, biodiversity loss, pollution, and ecosystem degradation continue to threaten both human well-being and natural systems. In response, education has been recognized as a vital means of developing environmentally responsible citizens through ecological literacy, environmental awareness, and sustainability-oriented behavior. Within the Philippine school system, environmental education has been strengthened through legal mandates and school-based initiatives, particularly through the Youth for Environment in Schools Organization (YES-O) and related programs that promote awareness and environmental practices among learners. This study focuses on the environmental awareness and practices of Grade 10 students in relation to YES-O programs, projects, and activities, particularly in the areas of School Inside a Garden, Awareness and Outreach Programs, Solid Waste Management, Entrepreneurship and Energy Conservation, Gulayan sa Paaralan, and Partnerships and Linkages.

1.1 Background of the Study

Environmental sustainability has become one of the most pressing global concerns of the 21st century. Issues such as climate change, biodiversity loss, pollution, and ecosystem degradation threaten both natural systems and human well-being. Addressing these challenges requires collective action, and education plays a crucial role in developing environmentally responsible citizens who are capable of understanding environmental problems and contributing to sustainable solutions. Globally, education systems have increasingly integrated environmental education as part of their commitment to sustainable development. The United Nations Sustainable Development Goals (SDGs), particularly SDG 4, SDG 13, and SDG 15, emphasize the importance of equipping learners with knowledge, skills, and values that promote environmental protection and sustainable living (United Nations, 2015). Through education, students can develop ecological literacy and become more aware of the complex interactions between human activities and natural ecosystems.

In the Philippines, the need for stronger environmental education is reinforced by both national educational and environmental challenges. The country's climate vulnerability highlights the importance of cultivating environmental stewardship among the youth (World Bank, 2021). At the same time, poor learner performance in science reflects a continuing gap in scientific competency that may limit students' ability to engage with complex environmental issues (OECD, 2019). This concern is further supported by regional and international assessments that revealed persistent underperformance in scientific reasoning and problem-solving among Filipino learners (Mullis et al., 2020; UNESCO, 2020). To address these concerns, the Philippine government has enacted policies that strengthen science and environmental education. Republic Act No. 10533 emphasizes 21st-century skills, including scientific inquiry, environmental awareness, and critical thinking. Republic Act No. 9512 mandates the integration of environmental education across learning areas, while Republic Act No. 9003 institutionalizes environmental responsibility in schools through waste reduction and resource conservation practices. These mandates have been operationalized through school-based initiatives such as YES-O activities and programs like School Inside a Garden, Gulayan sa Paaralan, Solid Waste Management and Energy Conservation initiatives, and Outreach and Partnership programs.

1.2 Themes and Insights from Related Literature

Environmental awareness is widely regarded as a critical component of environmental education because it shapes individuals' knowledge, attitudes, and sense of responsibility toward environmental protection. Environmental education has been identified as a key strategy in developing ecological awareness among students, particularly when learning is supported by structured school-based experiences (Baierl et al., 2022). It also becomes more effective when it combines scientific instruction with experiential and contextualized activities that connect learning to real-life environmental practice (Rodina et al., 2024). In this regard, environmental education helps students understand ecological concepts while promoting environmentally responsible behavior (Yarkandi et al., 2012). The literature also shows that environmental practices are shaped by school-based opportunities for participation. Programs such as YES-O, school gardening, clean-up drives, and solid waste management activities provide learners with opportunities to apply environmental knowledge in practical contexts. In the Philippine setting, these initiatives have been recognized as important mechanisms for strengthening environmental responsibility among students (Cadiz & Cortez, 2024). Related studies also highlight the value of local environmental governance and school-community support in sustaining such practices (Buenaflor, 2024). The same is evident in Gulayan sa Paaralan, where student participation supports both sustainability awareness and practical engagement (Lacuarin et al., 2022). Similar findings have been reported regarding the long-term value of Gulayan sa Paaralan in shaping learner outcomes (Dumigsi & Dionaldo, 2025). At the same time, related studies indicate that awareness does not always translate into consistent practice. Saro and Taray (2025) observed that while students may demonstrate considerable environmental awareness, their actual environmental practices may remain inconsistent. This concern suggests that awareness alone is not sufficient without supportive institutional conditions and practical engagement. In the same way, studies have emphasized that environmental behavior becomes more sustainable when learners are supported by training, participation, and stronger curricular integration (Petkou et al., 2021). Environmental awareness and pro-environmental behavior are therefore best examined together rather than treated as separate outcomes (Handayani et al., 2020).

1.3 Local, National, and Global Context

Globally, environmental education is increasingly viewed as part of the broader commitment to sustainable development and environmental citizenship. The United Nations Sustainable Development Goals, especially SDG 4, SDG 13, and SDG 15, frame environmental education as an important means of equipping learners with the competencies needed for sustainable living (United Nations, 2015). UNESCO (2020) likewise emphasized that schools must equip learners with cognitive, behavioral, and socio-emotional competencies for sustainable development. Nationally, the Philippine education system has embedded environmental education in various DepEd-mandated and legislated initiatives, including YES-O, School Inside a Garden, Gulayan sa Paaralan, Solid Waste Management and Energy Conservation initiatives, and Outreach and Partnership programs. These initiatives reflect Republic Act No. 9512, Republic Act No. 9003, and Republic Act No. 10533, which institutionalize the integration of environmental content and practices into basic education. Such initiatives allow schools to translate environmental education into actual programs, projects, and activities that can influence student awareness and environmental behavior. Locally, the present study is situated in the context of Grade 10 students in public secondary schools, where environmental education is experienced through concrete school-based YES-O activities. The study specifically focuses on five programmatic areas reflected in the Environmental Awareness and Practices Questionnaire: School Inside a Garden, Awareness and Outreach Programs, Solid Waste Management, Entrepreneurship and Energy Conservation, Gulayan sa Paaralan, and Partnerships and Linkages. These areas represent the direct school-level contexts through which students encounter environmental advocacies and develop environmental awareness and practices.

1.4 Theoretical or Conceptual Basis

This study was anchored on the principle that the meaningful integration of environmental education into structured, school-based programs could significantly influence environmental awareness among students and foster sustainability-

driven behaviors. Grounded in the broader vision of the Sustainable Development Goals, environmental education is viewed not only as a means of transferring knowledge but also as a platform for cultivating environmental citizenship (United Nations, 2015). UNESCO (2020) further emphasized that when environmental topics are contextualized and embedded within real-life school programs, they foster both engagement and retention. This position is also supported by studies showing that sustainability-oriented and project-based environmental learning can strengthen environmental literacy among learners (Setiawan et al., 2023). Policy-driven environmental education has likewise been associated with positive behavior change in school settings (Pullu, 2021). Conceptually, the study recognizes environmental awareness as the cognitive and affective understanding of students regarding ecological issues and sustainability principles, including their familiarity with school-initiated environmental programs. Environmental practices, in turn, refer to the actual behaviors, participation, and habits demonstrated by students in relation to environmental stewardship. In the context of this study, these concepts are examined through the five YES-O program areas, which function as structured domains through which environmental education is experienced in school settings.

1.5 Research Gaps and Rationale

Despite the implementation of environmental education policies and school-based programs in the Philippines, the translation of school-based environmental initiatives into actual student engagement remains an important concern. Much of the literature has focused on environmental awareness, environmental knowledge, attitudes, or academic outcomes, but fewer studies have described environmental awareness and environmental practices together within the specific domains of YES-O implementation. Many studies have focused primarily on cognitive or affective outcomes without clearly establishing connections to behavioral practices. This indicates the need to examine how school-based environmental advocacies are reflected in the actual awareness and practices of learners. The rationale for the present study rests on the need to generate a clearer school-based description of students' environmental awareness and practices in relation to YES-O programs, projects, and activities. By focusing on Grade 10 students and examining their profile according to sex, size of school, and location of school, the study provides a focused basis for understanding how environmental education is experienced across different school contexts. The findings may help schools and school heads refine YES-O-related environmental programs within the School Improvement Plan and Annual Implementation Plan, support teacher development, and strengthen environmentally responsive school practices.

1.6 Alignment with Relevant Sustainable Development Goals (SDGs)

This study naturally aligns with SDG 4 – Quality Education, SDG 13 – Climate Action, SDG 15 – Life on Land, and SDG 17 – Partnerships for the Goals. It aligns with SDG 4 because it focuses on environmental education as a school-based means of developing ecological literacy, awareness, and responsible behavior among learners. It aligns with SDG 13 because it addresses environmental awareness and practices that support climate-responsive and sustainability-oriented action in schools. It aligns with SDG 15 because the YES-O domains include activities related to biodiversity, greening, gardening, and environmental stewardship. It also aligns with SDG 17 because one of the domains examined in the study is Partnerships and Linkages, which reflects collaboration between schools and external stakeholders in implementing environmental programs (United Nations, 2015).

1.7 Importance of the Study to Multidisciplinary Sustainability

The study contributes primarily to educational sustainability, environmental sustainability, ecological sustainability, community sustainability, and institutional sustainability. It contributes to educational sustainability by examining how school-based environmental programs support the development of environmental awareness and practices among learners. It contributes to environmental and ecological sustainability by focusing on domains such as School Inside a Garden, Solid Waste Management, Gulayan sa Paaralan, and environmental outreach activities that encourage stewardship and sustainable behavior. It contributes to community sustainability through the domain of Partnerships and Linkages, which reflects the involvement of communities, organizations, and other stakeholders in environmental initiatives. Finally, it contributes to institutional sustainability because the findings may guide schools and school heads in refining environmental programs, resource allocation, faculty development, and school planning mechanisms such as the School Improvement Plan and Annual Implementation Plan.

2. Material and methods

This study employed a quantitative approach to describe the environmental awareness and environmental practices of Grade 10 students in relation to the environmental advocacies implemented through the Youth for Environment in Schools Organization (YES-O). It also examined the profile of the respondents in terms of sex, school size, and school location. The study was conducted in selected public secondary schools in Quirino Province during School Year 2024–2025 and used a validated questionnaire to gather the needed data.

2.1 Research Design

This study used a quantitative descriptive research design. It was intended to determine the profile of the student-respondents and to describe their levels of environmental awareness and environmental practices in relation to YES-O programs, projects, and activities. The descriptions were based on the students' responses to a structured survey questionnaire.

2.2 Locale of the Study

The study was conducted in Quirino Province, a landlocked province in the Cagayan Valley region of Luzon, Philippines. It covered public secondary schools within the Schools Division of Quirino that offer Grade 10 and actively implement environmental education initiatives through the Youth for Environment in Schools-Organization (YES-O). The province includes the municipalities of Cabarroguis, Diffun, Saguday, Aglipay, Maddela, and Nagtipunan. The participating schools were drawn from different school-size categories, namely small, medium, large, and mega schools, consistent with the school typology prescribed by DepEd Order No. 19, s. 2016.

2.3 Respondents of the Study

The respondents of the study were Grade 10 students enrolled in public secondary schools under the Department of Education–Division of Quirino during School Year 2024–2025. These learners served as the source of data for determining the profile of the respondents and their levels of environmental awareness and environmental practices in relation to YES-O implementation.

2.4 Sample and Sampling Procedure

A multistage sampling procedure was employed to ensure representation of schools with different enrollment sizes within the division. In the first stage, all public secondary schools in the Schools Division of Quirino were identified and classified according to school size as small, medium, large, and mega schools. In the second stage, selected schools from each category were chosen through random sampling. Specifically, six small schools, five medium schools, four large schools, and two mega schools were included. In the third stage, the student respondents were selected using stratified random sampling. Within each selected school, the Grade 10 population was grouped by section, and student respondents were proportionally selected to represent the Grade 10 population of each school. The total population across the participating schools was 1,933, and the study adopted a sample size of 200 respondents. Stratified sampling based on school size, sex, and school location was used to proportionally distribute the respondents across the selected schools.

2.5 Research Instrument

The study used the Environmental Awareness and Practices Questionnaire (EAPQ) to assess the levels of environmental awareness and corresponding environmental practices of the students. The instrument was grounded in OUA Memorandum 00-0321-0042, titled "Gawad Siklab: Search for Outstanding Program Implementers, Student Leaders, Supreme Student/Pupil Government (SSG/SPG) Teacher-Advisers, School Heads, and Regional and Division Youth Formation Coordinators," which outlines the key components and focus areas of YES-O implementation. The questionnaire consisted of two major sections: environmental awareness and environmental practices. Each section was organized according to five programmatic areas of the YES-O framework: School Inside a Garden (SIGA), Awareness and Outreach Programs, Solid Waste Management, Entrepreneurship, and Energy Conservation, Gulayan sa Paaralan, and Partnership and Linkages. The questionnaire underwent validation by a panel of experts in science education, youth formation, and environmental advocacy to ensure alignment with the objectives and constructs of the study. After pilot testing, the instrument obtained a Cronbach's alpha coefficient of 0.80, indicating high internal consistency and strong reliability for use in the main study.

2.6 Data Gathering Procedure

Prior to data collection, the researcher secured the necessary research clearance and approval from the Schools Division Superintendent of Quirino. The selected public secondary schools were then identified, and the researcher sought expert validation of the Environmental Awareness and Practices Questionnaire (EAPQ). Suggestions from experts were incorporated to strengthen content validity. Before administration of the instrument, informed consent was obtained from the students, and they were informed of the purpose of the study, the voluntary nature of their participation, their right to withdraw at any point without penalty, and the confidentiality of their responses. The researcher coordinated with school administrators and teachers to schedule the administration of the questionnaire. During data gathering, standardized procedures were observed to promote consistency and minimize bias. The questionnaire was administered in quiet and comfortable rooms, and clear instructions were given to the respondents. The researcher remained present throughout the activity to facilitate the process, respond to clarifications, and ensure that the respondents completed the questionnaire independently.

2.7 Data Analysis Techniques

After data collection, the responses were handled with care to ensure anonymity and confidentiality. A coded system was applied to remove identifying information, and the data were cleaned by checking for inconsistencies, missing values, and encoding errors before compilation for analysis. Descriptive statistics were used in analyzing the data. Frequency and percentage distributions were employed to describe the profile of the respondents in terms of sex, school size, and school location. Mean and standard deviation were used to determine the levels of environmental awareness and environmental practices of the students across the five YES-O program components: School Inside a Garden, Awareness and Outreach Programs, Solid Waste Management, Entrepreneurship, and Energy Conservation, Gulayan sa Paaralan, and Partnership and Linkages. The interpretation of the results followed the 4-point Likert scale used in the Environmental Awareness and Practices Questionnaire.

2.8 Ethical Considerations

Ethical standards were observed throughout the conduct of the study. The researcher adhered to the protection of participant rights, confidentiality, and data integrity. Informed consent was secured prior to the administration of the instrument, and the students were assured that their participation was voluntary and that their responses would be used solely for research purposes. During data handling and reporting, anonymity and confidentiality were maintained, and the results were presented in a manner that upheld academic integrity and protected the identity of all participants.

3. Results and Discussion

3.1 Profile of the Student-Respondents

3.1.1 Sex

In terms of sex, the 200 student-respondents were equally distributed between male and female learners. Specifically, 100 respondents or 50.00% were male, while another 100 respondents or 50.00% were female. This equal distribution indicates that both sexes were proportionately represented in the study, thereby providing a balanced descriptive basis for examining the environmental awareness and environmental practices of Grade 10 students. The equal number of male and female participants also suggests that the profile of the respondents was not skewed toward one sex, allowing the study to reflect the perspectives of both groups in an equally represented manner.

3.1.2 Size of School

In terms of school size, the respondents were distributed across the four categories of schools, reflecting representation from different educational settings. Among the 200 student-respondents, 56 or 28.00% came from medium-sized schools, which comprised the largest proportion of the sample. This was followed closely by 54 respondents or 27.00% from large schools. Meanwhile, 46 respondents or 23.00% were from mega schools, while 44 respondents or 22.00% came from small schools, which represented the smallest proportion of the sample. Although the distribution was not perfectly equal across all categories, the differences were relatively minimal, showing that the study was able to include learners from varied school sizes and contexts. This distribution suggests that the data were drawn from a diverse range of school environments, from smaller institutions to those with larger student populations.

3.1.3 Location of School

In terms of school location, the results showed that a greater proportion of the respondents were enrolled in urban schools. Out of the 200 student-respondents, 110 or 55.00% came from urban schools, while 90 or 45.00% were from rural schools. This indicates that the majority of the respondents were drawn from schools located in urban areas, although rural schools also comprised a substantial portion of the sample. The 10.00% difference between urban and rural representation shows that both school locations were adequately reflected in the study, with a slightly stronger representation from urban-based public secondary schools. This distribution provides a broader descriptive picture of the respondents across location-based school contexts.

3.2 Level of Environmental Awareness of the Students

3.2.1 School Inside a Garden

The student-respondents were generally aware of School Inside a Garden, as reflected in the overall mean of 2.80 with a standard deviation of 0.78. Among its subcomponents, Tree Planting, Growing and Caring obtained the highest mean of 3.08 and standard deviation of 0.79, followed by Seed Bank and Nursery Establishment with a mean of 2.86 and standard deviation of 0.77, Native, Endemic, and Indigenous Trees Planted with a mean of 2.73 and standard deviation of 0.77, and A Nation Trees (ANT) Accounting and Reporting with a mean of 2.52 and standard deviation of 0.80, all interpreted as aware. In Seed Bank and Nursery Establishment, the students were most aware of the importance of caring for different types of crops, herbs, vegetables, fruit trees, and ornamentals in the school nursery, which obtained the highest mean of 3.20 and standard deviation of 0.69, followed by awareness of the benefits of organic fertilizer for seedlings at 3.01 and

0.80, the importance of maintaining the seed bank and nursery at 2.78 and 0.83, the presence of native seeds and seedlings in the school nursery at 2.66 and 0.81, and monitoring the health indicators of seedlings at 2.64 and 0.74, all described as aware. In Tree Planting, Growing and Caring, the highest awareness was noted in watering, applying mulch, and weeding planted trees with a mean of 3.40 and standard deviation of 0.69, followed by attending educational seminars about tree planting and caring at 3.20 and 0.81, planting native endemic and indigenous trees at 3.19 and 0.86, checking the health of plants and trees at 3.10 and 0.81, and sharing information or reporting tree or plant health issues to the person in charge at 2.53 and 0.76, all interpreted as aware. For Native, Endemic, and Indigenous Trees Planted, students were most aware that planting native trees brings many benefits to the environment, with a mean of 3.36 and standard deviation of 0.70, followed by awareness that planting native and indigenous trees helps improve soil quality at 3.06 and 0.76, knowledge of native endemic, indigenous, and invasive trees planted on campus at 2.52 and 0.83, awareness that invasive plants or trees on campus need to be removed at 2.49 and 0.82, which was described as not aware, and awareness that the tibbeg tree is a native tree at 2.20 and 0.75, also interpreted as not aware. In A Nation Tress (ANT) Accounting and Reporting, students were aware of the need to report damaged or unhealthy trees or plants to the YES-O coordinator or officers, with a mean of 2.76 and standard deviation of 0.82, but were not aware of the obligation to help monitor and report the number of trees being cut down within the campus, with a mean of 2.48 and standard deviation of 0.81, and of maintaining a tree inventory of native and invasive plants on campus, with a mean of 2.34 and standard deviation of 0.78. Overall, the results indicate that the students possessed basic awareness of school garden and greening activities, with stronger awareness in practical tree care and nursery tasks than in species identification and environmental reporting.

3.2.2 Awareness and Outreach Programs

The student-respondents were generally aware of Awareness and Outreach Programs, as indicated by the overall mean of 3.10 and standard deviation of 0.77. Among the six subcomponents, Clean-Up Drives obtained the highest mean of 3.44 and standard deviation of 0.70, followed by Film Showing about Environmental Related Issues with a mean of 3.11 and standard deviation of 0.74, Watershed Protection and Conservation with a mean of 3.10 and standard deviation of 0.80, Awareness Campaigns and Symposia on Environmental Issues and Actions with a mean of 3.08 and standard deviation of 0.79, Adopt a River/Community/Forest with a mean of 3.03 and standard deviation of 0.75, and Environmental Camps with a mean of 2.86 and standard deviation of 0.81, all interpreted as aware. In Awareness Campaigns and Symposia, the students were most aware that teaching younger students to clean up and plant trees is important for a cleaner environment, with a mean of 3.25 and standard deviation of 0.76, followed by encouraging classmates to join environmental training at 3.20 and 0.76, discussing issues such as global warming, water conservation, and pollution with peers at 3.16 and 0.75, attending environmental symposiums and workshops at 3.05 and 0.81, and using the school's YES-O Facebook page as a source of environmental news at 2.74 and 0.89, all described as aware. In Environmental Camps, the highest mean was recorded in sharing lessons learned at camps with classmates and YES-O members at 3.03 and 0.78, followed by hands-on activities in environmental camps at 2.90 and 0.79, leadership and group learning experiences at 2.79 and 0.84, and active participation in environmental camps at all levels at 2.74 and 0.83, all interpreted as aware. In Film Showing about Environmental Related Issues, discussions with peers about environmental films obtained the highest mean of 3.15 and standard deviation of 0.66, while films related to environmental issues in subjects such as Science, English, Values Education, and Araling Panlipunan and self-reflections in environmental documentaries both obtained a mean of 3.09, with standard deviations of 0.83 and 0.72, respectively, all described as aware. In Watershed Protection and Conservation, picking up trash around watershed areas had the highest mean of 3.30 and standard deviation of 0.74, followed by the importance of protecting watersheds at 3.29 and 0.75, and planting native trees and water-friendly species such as water lily at 2.73 and 0.90, all interpreted as aware. In Clean-Up Drives, the highest awareness was observed in maintaining class zones and classrooms clean, which obtained a mean of 3.51 and standard deviation of 0.66, described as fully aware, followed by cleaning areas prone to mosquito infestation at 3.48 and 0.67, maintaining environmental cleanliness at 3.46 and 0.73, and keeping the school's Materials Recovery Facility clean and organized at 3.31 and 0.73, all described as aware. In Adopt a River/Community/Forest, maintaining cleanliness in adopted areas obtained the highest mean of 3.21 and standard deviation of 0.68, followed by teaching the community to protect the environment and use sustainable practices at 3.05 and 0.77, acknowledging that adopting local natural resources positively impacts the environment and community at 3.03 and 0.67, joining tree planting events in nearby forests at 2.93 and 0.84, and helping clean local rivers and streams at 2.92 and 0.82, all interpreted as aware. Overall, the results show that the students were particularly more aware of outreach activities closely connected to routine school practices, especially clean-up drives and peer-oriented environmental efforts.

3.2.3 Solid Waste Management, Entrepreneurship, and Energy Conservation

The student-respondents were generally aware of Solid Waste Management, Entrepreneurship, and Energy Conservation, obtaining an overall mean of 3.09 and standard deviation of 0.79. Among its five subcomponents, the highest mean was obtained by Advocated the Practice of Plastic-Free Environment at 3.38 and standard deviation of 0.71, followed by Practicing the 5R's with a mean of 3.23 and standard deviation of 0.78, Establishment of Materials Recovery Facility with a mean of 3.00 and standard deviation of 0.82, Energy, Water, and Power Supply Conservation with a mean of 2.98 and standard deviation of 0.82, and Environmental Entrepreneurship with a mean of 2.84 and standard deviation of 0.83, all

interpreted as aware. In Practicing the 5R's, using tumblers and lunch boxes to reduce waste on campus obtained the highest mean of 3.49 and standard deviation of 0.66, followed by awareness that the 5R's stand for Refuse, Reduce, Reuse, Recycle, and Repurpose at 3.44 and 0.75, the use of wasted papers for notes and assignments at 3.23 and 0.79, creating emergency kits from plastic bottles to promote recycling at 3.18 and 0.81, and awareness that single-use plastics pose harm and should not be used at 2.81 and 0.85, all interpreted as aware. In the Establishment of Materials Recovery Facility, sorting waste before bringing it to the MRF had the highest mean of 3.08 and standard deviation of 0.82, followed by putting reusable or recyclable waste in the MRF at 3.06 and 0.82, helping keep the school MRF clean and organized at 3.06 and 0.73, participating in discussions about proper MRF management at 2.99 and 0.70, helping sell recycled materials and repair usable items from the MRF at 2.97 and 0.85, and awareness of the location of the school MRF at 2.88 and 0.96, all described as aware. In Environmental Entrepreneurship, working with local businesses to promote eco-friendly products obtained the highest mean of 2.93 and standard deviation of 0.80, followed by awareness that reusing waste benefits the environment and creates extra income at 2.92 and 0.81, the importance of nutrition in food and seeking advice from experts at 2.92 and 0.87, clear product labeling and packaging at 2.84 and 0.81, students creating and selling sustainable products by reusing resources at 2.75 and 0.83, and participation in workshops on sustainable business and environmental entrepreneurship at 2.71 and 0.84, all interpreted as aware. In Advocated the Practice of Plastic-Free Environment, reusable tumblers and lunch boxes reducing plastic waste obtained the highest mean of 3.42 and standard deviation of 0.68, followed by awareness of the environmental harm caused by plastic waste at 3.40 and 0.69, the need for sustainability and less plastic at 3.39 and 0.70, the use of eco-bags to protect the environment at 3.37 and 0.78, and the need to refuse and reduce plastic at 3.31 and 0.73, all described as aware. In Energy, Water, and Power Supply Conservation, the importance of saving energy by turning off lights and fans when not needed obtained the highest mean of 3.46 and standard deviation of 0.74, followed by maintaining water catchment systems at 3.01 and 0.77, showing classmates how to conserve water at 3.00 and 0.79, reporting water leaks on campus at 2.97 and 0.81, the importance of renewable energy and participating in related programs at 2.86 and 0.87, and both the use of LED lights and support for solar streetlights at 2.80, with standard deviations of 0.88 and 0.91, respectively, all interpreted as aware. Overall, these results indicate that the students had stronger awareness in visible and routine waste reduction and anti-plastic practices than in more technical and entrepreneurial sustainability initiatives.

3.2.4 Gulayan sa Paaralan

The student-respondents were generally **aware** of Gulayan sa Paaralan, as shown by the overall mean of **3.11** and standard deviation of **0.78**. Among the indicators, planting different crops such as fruits, vegetables, and local plants or trees in the school garden to help the environment and provide food obtained the highest mean of **3.32** and standard deviation of **0.72**, followed by maintaining the compost pit to improve the soil at **3.24** and **0.73**, using organic methods to help school garden plants grow healthy at **3.22** and **0.70**, supporting the Gulayan sa Paaralan program by weeding, watering, and caring for the plants at **3.21** and **0.80**, learning and practicing sustainable gardening in the school garden at **3.15** and **0.74**, promoting healthy eating and understanding of sustainable food through helping in the school garden program at **3.03** and **0.87**, utilizing all available school spaces for planting to maximize garden yield at **2.94** and **0.80**, and monitoring plant health and reporting any issues to teachers at **2.79** and **0.88**, all interpreted as **aware**. Overall, the results indicate that the students recognized the environmental, nutritional, and sustainability value of the school garden program, with relatively stronger awareness of planting, composting, and routine garden care than of technical tasks such as plant monitoring and the maximization of available planting spaces.

3.2.5 Partnerships and Linkages

The student-respondents were generally aware of Partnerships and Linkages, with an overall mean of 2.55 and standard deviation of 0.90, although some indicators fell below the threshold for awareness. For the subcomponent on Involvement of the Community and Local Government Unit/s, the overall mean was 2.67 with a standard deviation of 0.89, interpreted as aware. Within this area, the highest awareness was observed in the belief that school and community partnerships can greatly improve environmental education, with a mean of 3.06 and standard deviation of 0.81, followed by the importance of working with the barangay's SK Federation for collaboration on school environmental projects at 2.80 and 0.81, awareness of environmental activities conducted by the LGU at 2.55 and 0.93, signing the community's environmental MOA at 2.49 and 0.95, interpreted as not aware, and participation in tree planting with agencies such as the DENR, PENRO, or MENRO at 2.47 and 0.94, also interpreted as not aware. For the subcomponent on Established Partnership with Non-Government Organization/s and/or Civic Society Organization/s, the overall mean was 2.43 with a standard deviation of 0.91, interpreted as not aware. Within this area, awareness that working with NGOs helps educate students about environmental problems and sustainable living through workshops obtained a mean of 2.57 and standard deviation of 0.91, interpreted as aware, while awareness of the Haribon Foundation's conservation and community work and student participation in its activities obtained a mean of 2.30 and standard deviation of 0.91, interpreted as not aware. Overall, the results indicate that the students had relatively lower awareness in external collaborations and formal partnerships than in school-based environmental efforts, with stronger recognition of community-level linkages than of institutional or NGO-based engagements.

3.3 Level of Environmental Practices of the Students

3.3.1 School Inside a Garden

The student-respondents generally seldom practiced environmental activities related to School Inside a Garden, as indicated by the overall mean of 2.38 and standard deviation of 0.93. Among its four subcomponents, Tree Planting, Growing and Caring obtained the highest mean of 2.58 and standard deviation of 0.94, described as often, while Seed Bank and Nursery Establishment had a mean of 2.39 and standard deviation of 0.93, Native, Endemic, and Indigenous Trees Planted had a mean of 2.38 and standard deviation of 0.90, and A Nation Trees (ANT) Accounting and Reporting had the lowest mean of 2.17 and standard deviation of 0.93, all interpreted as seldom. Under Seed Bank and Nursery Establishment, the highest-practiced indicator was caring for different types of crops, herbs, vegetables, fruit trees, and ornamentals in the school nursery, with a mean of 2.62 and standard deviation of 0.98, described as often, while the remaining indicators were all seldom, namely maintaining the seed bank and nursery at 2.40 and 0.87, monitoring the health of seedlings at 2.34 and 0.93, recognizing native seeds and seedlings in the school nursery at 2.25 and 0.88, and using organic fertilizer for seedlings at 2.36 and 1.01. In Tree Planting, Growing and Caring, watering, applying mulch, and weeding planted trees obtained the highest mean of 2.89 and standard deviation of 0.91, described as often, while sharing information or reporting tree or plant health issues and attending educational seminars both had means of 2.51, with standard deviations of 0.89 and 1.02, respectively, also described as often; however, planting native endemic and indigenous trees and checking the health of plants and trees both had means of 2.49, with standard deviations of 0.96 and 0.95, respectively, interpreted as seldom. In Native, Endemic, and Indigenous Trees Planted, the students often practiced planting native trees because of their environmental benefits, with a mean of 2.62 and standard deviation of 0.85, and planting native and indigenous trees to improve soil quality, with a mean of 2.57 and standard deviation of 0.96, but they seldom practiced identifying tree types at 2.30 and 0.87, removing invasive species at 2.31 and 0.88, and identifying the tibbeg tree as native at 2.10 and 0.95. In ANT Accounting and Reporting, all indicators were seldom practiced, including conducting tree inventory at 2.22 and 0.86, reporting damaged or unhealthy trees at 2.17 and 0.98, and monitoring or reporting the number of trees being cut down within the campus at 2.14 and 0.97. Overall, these findings show that students participated more in visible and routine plant care activities than in technical, monitoring, and reporting tasks related to greening initiatives.

3.3.2 Awareness and Outreach Programs

The student-respondents generally often practiced activities related to Awareness and Outreach Programs, with an overall mean of 2.60 and standard deviation of 0.94. Among the six subcomponents, Clean-Up Drives obtained the highest mean of 2.88 and standard deviation of 0.91, followed by Watershed Protection and Conservation with a mean of 2.68 and standard deviation of 0.93, Awareness Campaigns and Symposia on Environmental Issues and Actions with a mean of 2.51 and standard deviation of 0.97, Film Showing about Environmental Related Issues with a mean of 2.51 and standard deviation of 0.95, Adopt a River/Community/Forest with a mean of 2.41 and standard deviation of 0.95, and Environmental Camps with a mean of 2.33 and standard deviation of 0.95. In Awareness Campaigns and Symposia, teaching younger students to clean up and plant trees had the highest mean of 2.71 and standard deviation of 0.91, followed by encouraging classmates to join environmental training at 2.56 and 0.91, discussing issues such as global warming, water conservation, and pollution with peers at 2.52 and 0.99, and attending environmental symposiums and workshops at 2.50 and 0.99, all interpreted as often, while using the YES-O Facebook page as a source of environmental information had the lowest mean of 2.26 and standard deviation of 1.06, described as seldom. In Environmental Camps, all indicators were seldom practiced, including group learning and leadership experiences at 2.43 and 0.95, sharing lessons learned at camps with classmates and YES-O members at 2.37 and 0.94, hands-on camp activities at 2.36 and 0.91, and active participation in camps at all levels at 2.18 and 0.98. In Film Showing about Environmental Related Issues, providing self-reflections in environmental documentaries had the highest mean of 2.53 and standard deviation of 0.90, followed by the use of environmental films across subjects at 2.52 and 0.99, both described as often, while discussions with peers about environmental films had a mean of 2.49 and standard deviation of 0.97, interpreted as seldom. In Watershed Protection and Conservation, picking up trash around watershed areas had the highest mean of 2.97 and standard deviation of 0.91, followed by protecting watersheds at 2.70 and 0.94, both described as often, while planting native trees and water-friendly species had a mean of 2.37 and standard deviation of 0.94, interpreted as seldom. In Clean-Up Drives, maintaining class zones and classrooms clean had the highest mean of 3.19 and standard deviation of 0.89, followed by cleaning areas prone to mosquito infestation at 2.88 and 0.90, maintaining environmental cleanliness at 2.79 and 0.91, and keeping the school MRF clean and organized at 2.67 and 0.93, all interpreted as often. In Adopt a River/Community/Forest, all indicators were seldom practiced, with teaching the community to protect the environment and use sustainable practices obtaining 2.47 and 0.94, joining tree planting events in nearby forests 2.46 and 0.94, helping maintain adopted areas 2.44 and 0.98, recognizing the positive impact of adopting local natural resources 2.41 and 0.98, and helping clean local rivers and streams 2.29 and 0.91. Overall, the findings indicate that students more frequently participated in outreach activities that were school-based and logistically accessible, particularly clean-up drives and watershed-related practices, while camps and community adoption programs were practiced less often.

3.3.3 Solid Waste Management, Entrepreneurship, and Energy Conservation

The student-respondents generally often practiced activities related to Solid Waste Management, Entrepreneurship, and Energy Conservation, as shown by the overall mean of 2.72 and standard deviation of 0.95, making it the highest-rated environmental practice domain. Among the five subcomponents, Practicing the 5R's obtained the highest mean of 3.02 and standard deviation of 0.97, followed by Advocated the Practice of Plastic-Free Environment with a mean of 2.82 and standard deviation of 0.94, Energy, Water, and Power Supply Conservation with a mean of 2.68 and standard deviation of 0.94, Establishment of Materials Recovery Facility with a mean of 2.65 and standard deviation of 0.95, and Environmental Entrepreneurship with a mean of 2.41 and standard deviation of 0.94, described as seldom. In Practicing the 5R's, the most practiced indicator was using tumblers and lunch boxes to reduce waste on campus, with a mean of 3.22 and standard deviation of 0.89, followed by using wasted papers for notes and assignments at 3.18 and 0.94, practicing the 5R's at 3.08 and 0.99, creating emergency kits from plastic bottles at 2.83 and 1.00, and refraining from using single-use plastics at 2.82 and 1.03, all interpreted as often. In the Establishment of Materials Recovery Facility, sorting waste before taking it to the MRF had the highest mean of 2.90 and standard deviation of 0.89, followed by putting reusable or recyclable waste in the MRF at 2.71 and 0.95, volunteering to keep the school MRF clean and organized at 2.64 and 0.96, participating in MRF management discussions at 2.63 and 0.91, and awareness of the MRF location at 2.60 and 0.95, all interpreted as often, while helping sell recycled materials and repair usable items from the MRF had the lowest mean of 2.44 and standard deviation of 1.02, described as seldom. In Environmental Entrepreneurship, reusing waste to benefit the environment and create extra income had the highest mean of 2.57 and standard deviation of 0.88, and the importance of nutrition in food and asking advice from experts obtained 2.63 and 0.98, both interpreted as often, while creating and selling sustainable products by reusing resources had a mean of 2.38 and standard deviation of 0.92, participation in workshops on sustainable business and environmental entrepreneurship had 2.35 and 0.95, clear product labeling and packaging had 2.31 and 0.98, and working with local businesses to promote eco-friendly products had the lowest mean of 2.24 and standard deviation of 0.94, all interpreted as seldom. In Advocated the Practice of Plastic-Free Environment, the highest mean was recorded for awareness of the environmental harm caused by plastic waste at 3.05 and standard deviation of 0.94, followed by reusable tumblers and lunch boxes reducing plastic waste at 2.97 and 0.86, using eco-bags at 2.85 and 0.92, refusing and reducing plastic at 2.68 and 0.93, and the need for sustainability and less plastic at 2.53 and 1.04, all described as often. In Energy, Water, and Power Supply Conservation, turning off lights and fans when not needed had the highest mean of 3.25 and standard deviation of 0.86, followed by showing classmates how to conserve water at 2.66 and 0.91, maintaining water catchment systems at 2.64 and 0.95, reporting water leaks on campus at 2.62 and 0.92, participating in programs that promote renewable energy at 2.61 and 0.97, and supporting solar streetlights at 2.55 and 1.00, all described as often, while encouraging teachers to use LED lights had a mean of 2.46 and standard deviation of 0.95, interpreted as seldom. Overall, these results show that students most frequently practiced visible, low-cost, and routine sustainability behaviors such as waste reduction, reusable container use, cleanliness, and basic energy-saving actions, while entrepreneurship and some technology-oriented practices were less consistently performed.

3.3.4 Gulayan sa Paaralan

The student-respondents generally often practiced activities related to Gulayan sa Paaralan, with an overall mean of 2.64 and standard deviation of 0.93. Among the eight indicators, maintaining the compost pit to improve the soil had the highest mean of 2.78 and standard deviation of 0.87, followed by planting different crops such as fruits, vegetables, and local plants or trees in the school garden at 2.72 and 0.91, supporting the program through weeding, watering, and caring for the plants at 2.68 and 0.93, promoting healthy eating and understanding sustainable food through participation in the school garden at 2.66 and 0.96, using organic methods to help garden plants grow healthy at 2.65 and 0.96, learning and practicing sustainable gardening at 2.60 and 0.94, utilizing all available school spaces for planting to maximize yield at 2.57 and 0.89, and monitoring plant growth and reporting issues to teachers at 2.50 and 0.96, all interpreted as often. These findings indicate that garden-related environmental practices were already integrated into the students' routine school experience, with stronger participation in composting, planting, and general garden care than in monitoring and technical plant management.

3.3.5 Partnerships and Linkages

The student-respondents generally seldom practiced activities related to Partnerships and Linkages, as reflected in the overall mean of 2.04 and standard deviation of 0.88, making it the lowest-rated domain among the five environmental practice components. For the subcomponent on Involvement of the Community and Local Government Unit/s, the overall mean was 2.19 with a standard deviation of 0.97, interpreted as seldom. Within this area, the highest means were recorded for working with the barangay's SK Federation for collaboration on school environmental projects and recognizing that school and community partnerships can improve environmental education, both at 2.30, with standard deviations of 0.98 and 0.99, respectively, followed by participating in tree planting with DENR, PENRO, or MENRO at 2.23 and 0.94, involvement in environmental activities by the LGU at 2.17 and 0.97, and signing the community's environmental MOA at 1.98 and 0.95, all described as seldom. For the subcomponent on Established Partnership with Non-Government Organization/s and/or Civic Society Organization/s, the overall mean was 1.89 with a standard deviation of 0.80, also interpreted as seldom. Within this area, working with NGOs to educate students about environmental problems and sustainable living through workshops obtained a mean of 1.99 and standard deviation of 0.87, while participation in the

Haribon Foundation's conservation and community work obtained the lowest mean of 1.79 and standard deviation of 0.73, both described as seldom. Overall, these findings indicate that students had minimal engagement in collaborative environmental practices involving LGUs, NGOs, and civic organizations, with relatively stronger but still infrequent participation in hyperlocal partnerships such as those involving the barangay SK Federation and school-community initiatives.

4. Conclusion & Recommendations

The study concluded that the student-respondents were equally distributed in terms of sex, were represented across small, medium, large, and mega schools, and were slightly more drawn from urban than rural schools. In terms of environmental awareness, the students were generally aware of the five YES-O domains, with the highest awareness observed in Gulayan sa Paaralan, followed closely by Awareness and Outreach Programs and Solid Waste Management, Entrepreneurship, and Energy Conservation, while School Inside a Garden and especially Partnerships and Linkages obtained relatively lower awareness ratings. In terms of environmental practices, the students generally seldom practiced the environmental activities across the YES-O domains, although they more often engaged in Solid Waste Management, Entrepreneurship, and Energy Conservation, Gulayan sa Paaralan, and Awareness and Outreach Programs, while School Inside a Garden and Partnerships and Linkages showed lower levels of actual practice. Overall, the findings show that students demonstrated stronger awareness and participation in visible, routine, and school-based environmental activities than in technical, monitoring, and externally linked environmental initiatives.

Based on the findings, schools may continue strengthening the implementation of YES-O programs, projects, and activities by sustaining the environmental domains where students already show stronger awareness and practice, particularly Gulayan sa Paaralan, Solid Waste Management, Entrepreneurship, and Energy Conservation, and Awareness and Outreach Programs. Greater attention may also be given to the areas of School Inside a Garden and Partnerships and Linkages, where awareness and actual practice were relatively lower, so that students may be more consistently exposed to activities involving biodiversity, monitoring, reporting, and collaboration with external stakeholders.

The study was limited to selected Grade 10 learners from public secondary schools in the Province of Quirino and focused only on environmental awareness and environmental practices related to the five identified YES-O domains, namely School Inside a Garden, Awareness and Outreach Programs, Solid Waste Management, Entrepreneurship, and Energy Conservation, Gulayan sa Paaralan, and Partnerships and Linkages. The measurement of awareness and practices relied on self-reported responses in the questionnaire, and the descriptive design of the study limited the findings to the description of the respondents' profile, awareness, and practices within the covered school contexts

Compliance with ethical standards

The study observed institutional ethical standards throughout the research process. Prior approval was secured from the proper school authorities before data gathering, and participation of the student-respondents was voluntary. Informed consent was obtained, and the respondents were properly informed of the purpose of the study, their right to withdraw at any time, and the confidential handling of their responses. Anonymity, privacy, and data integrity were maintained during data collection, analysis, and reporting. The researcher declares no conflict of interest in the conduct of the study.

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