

Environmental Practices of Private Secondary Schools in Iriga City, Philippines

Jhonabel B. Salcedo, Jose B. Ballesteros, Marilou D. Tino

University of Saint Anthony Iriga City, Philippines

DOI: <https://dx.doi.org/10.47772/IJRISS.2024.8120071>

Received: 20 November 2024; Accepted: 30 November 2024; Published: 02 January 2024

INTRODUCTION

The earth has provided all of the physical necessities for life since the beginning of time. The existence of living things on earth is ultimately made possible by the air we breathe, the water that nourishes our cells, the sun, the lithosphere, and all the magnificent landscapes, flora, and fauna, among many other physical necessities of life.

Human beings are considered stewards of God's given resources. As such, human beings have the obligation to ensure the sustainable use of the planet's ecosystem. In addition to creating the world for people, God surely intended for man to work on and take care of it. As a result, it is humanity's responsibility to use the earth's resources wisely, without endangering this wonderful gift. The variations in mobility and quantity of change in our surroundings feel more immediate and are becoming more visible earlier than predicted in our times due to the presence of environmental issues and concerns.

The research conducted on environmental practice implemented by private secondary schools in Iriga City, aiming to assess their effectiveness and establish a foundation for an Environmental Management Manual. This study is crucial for several reasons along with the importance of Environmental Education. With increasing global awareness of environmental issues, educational institutions play a pivotal role in fostering sustainable practices among young individuals. The study addresses how secondary schools can contribute to environmental stewardship, which is essential in shaping future generations to be environmentally conscious citizens.

The research highlights the need for integrating environmental education into the academic framework of schools. By evaluating current practices, the study seeks to identify gaps and propose enhancements that align with educational goals and environmental sustainability.

Keywords: Environment, Environmental Practices, environmental education, school manual, environmental initiatives

Statement of the Problem

The study is aimed to determine the extent of environmental practices of the private secondary schools in Iriga City as the basis for the development of an Environmental Management Manual.

Specifically, it seeks answers to the following questions:

1. To what extent are the environmental practices implemented by the private secondary schools as perceived by the students, science teachers, and school administrators along:

- a. Policies on Environmental Practices
- b. Operations on Environmental Practices
- c. Academics on Environmental Practices

2. Is there a significant difference in the perception of the three groups of respondents in the extent of the implementation of environmental practices?
3. What environmental management manual can be developed based on the findings of the study?

METHODOLOGICAL FRAMEWORK

The study employs a descriptive method to gather perceptions from various stakeholders—students, science teachers, and school administrators—regarding the implementation of environmental practices. This multi-faceted approach ensures a holistic understanding of how these practices are perceived and executed within the school environment.

Utilizing tools like the weighted mean and Kruskal-Wallis H test allows for a rigorous analysis of data, enabling the researcher to draw meaningful conclusions about the differences in perceptions among different groups. This statistical grounding lends credibility to the findings and recommendations.

Statistical Tools

The researcher used different statistical tools to analyze the data gathered. The responses were classified and tabulated systematically according to the different variables included in this study. All gathered data were presented quantitatively. The statistical tools used were Weighted Mean and Kruskal-Wallis H Test.

Weighted Mean (WM) This was used to determine the extent of the environmental practices as perceived by the students, science teachers, and the school administrators.

The formula was:

$$WM = \frac{\sum fx}{N}$$

The five-point scale and interpretation of interval scale was used with the corresponding verbal interpretations:

Range	Scale	Verbal Interpretation
5	4.20 – 5.00	Very Much Implemented
4	3.40 – 4.19	Much Implemented
3	2.60 – 3.39	Moderately Implemented
2	1.80 – 2.59	Less Implemented
1	1.00 – 1.79	Least Implemented

Kruskal-Wallis H Test. This was used to determine the significant difference on the perception of the three groups of respondents in the extent of the implementation of the environmental practices.

The formula was:

$$H = \frac{12}{N(N + 1)} \left(\frac{\sum R1^2}{N1} + \frac{\sum R2^2}{N2} + \frac{\sum R3^2}{N3} \right) 3(N + 1)$$

RESULTS AND DISCUSSION

This section provides a comprehensive discussion of the study's results and findings. The data were meticulously tabulated, computed, and rigorously analyzed to address the research questions outlined in the problem statement.

The material used in the present study contains three components, the three groups of respondents' extent of environmental practices on: A.) Policy, B.) Operations C.) Academics.

Policies on Environmental Practices

This section is a discussion of the policies on environmental practices such as general, personnel and purchasing.

General Policy. To effectively promote sustainable development practices within educational institutions, policies must establish clear goals that guide the actions of all school stakeholders. The data collected from various respondents indicates a strong commitment to sustainability, particularly among science teachers, who achieved the highest average weighted mean of 4.26, interpreted as very highly implemented. Students followed closely with a mean of 4.14 (highly implemented), and school administrators scored 4.07 (highly implemented), resulting in an overall average of 4.16, also classified as highly implemented. The indicators of general policy reveal that environmental protection ranks first, with a weighted mean of 4.31, indicating it is very highly implemented and integral to the school's vision and mission. Following this, the establishment of a designated person or committee responsible for environmental projects received a mean score of 4.20 (very highly implemented). Environmental education ranked third with a weighted mean of 4.16 (highly implemented), demonstrating the school's commitment to educating students about sustainability.

Additionally, the existence of an overall environmental policy scored 4.08 (highly implemented), while environmental considerations in decision-making processes ranked last at 4.04 (highly implemented). These findings align with the principles of a whole-school approach to Education for Sustainable Development (ESD), which advocates for integrating sustainability throughout the curriculum and school operations rather than treating it as a standalone subject. This holistic approach encourages active participation from all stakeholders—students, educators, and administrators—in fostering a sustainable school environment.

Ultimately, establishing clear goals within school policies not only enhances environmental practices but also empowers students and staff to actively participate in creating a sustainable future, significantly improving the school's ecological footprint while enriching the educational experience for students and preparing them to be responsible stewards of the environment.

Table 1 Environmental Practices of Private Secondary Schools along General Policy

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Environmental protection is a part of the school's vision-mission statement.	4.28	VHI	1	4.31	VHI	2.5	4.33	VHI	1.5
2.Environmental education is a specific mission of the school.	4.16	HI	2	4.31	VHI	2.5	4.00	HI	3.5
3.The school has an overall environmental policy.	4.10	HI	4	4.46	HI	1	3.67	HI	5
4.Environmental consideration, as a matter of policy, are made part of the decision-making process.	4.06	HI	5	4.08	HI	5	4.00	HI	3.5
5.This is a person or a body/committee responsible for environmental projects and programs in the school.	4.12	HI	3	4.15	HI	4	4.33	VHI	1.5
General Weighted Mean	4.14	HI		4.26	VHI		4.07	HI	

Legend: 4.20 – 5.00 – Very Highly Implemented (VHI)

3.40 – 4.19 – Highly Implemented (HI)

2.60 – 3.39 – Moderately Implemented (MoI)

1.80 – 2.59 – Less Implemented (LI)

1.00 – 1.79 – Least Implemented (LeI)

interpreted as highly implemented. The general weighted average is 4.16, which is verbally interpreted as highly implemented.

As seen in the table, the extent of general policy, ranked as the first indicator, was environmental protection, which is a part of the schools’ vision and mission statement, with a weighted mean of 4.31, verbally interpreted as very highly implemented. Ranked second was this: a person, body, or committee responsible for environmental projects and programs in the school with a weighted mean of 4.20, verbally interpreted as very highly implemented. Ranked third was environmental education, which is a specific mission of the school with a weighted mean of 4.16, and is verbally interpreted as highly implemented. Fourth, the school has an overall environmental policy with a weighted mean of 4.08, verbally interpreted as highly implemented. Ranked last is environmental consideration, which, as a matter of policy, is made part of the decision-making process with a weighted mean of 4.04, verbally interpreted as highly implemented.

According to Nurlila & Fua¹, schools can implement programs or rules that teach students about environmental management and ensure that each student carries out and obeys the rules positively and responsibly. And indicates that school policy in maintaining the ethical values of environmental care is done through strengthening school rules to ensure that each student is involved in managing the school environment, managing school facilities and services oriented towards environmental management, and strengthening and assisting students’ extracurricular programs in environmental management.

Personnel Policy. Table 2 shows the extent to which respondents have implemented personnel policies that will provide a good working environment and a set of rules and regulations that will lead to acceptable outcomes and objectives.

Table 2 Environmental Practices of Private Secondary Schools along Personnel Policy

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Environmental considerations, as a matter of policy, are made part of the performance appraisal system for employees.	4.09	HI	5	4.15	HI	5.5	3.67	HI	7
2.Environmental accountability forms part of the evaluation of department heads and supervisors.	4.01	HI	6	4.08	HI	7	4.00	HI	4
3.Faculty and staff members are evaluated in terms of maintaining environmental quality.	4.16	HI	3	4.38	VHI	3	4.00	HI	4
4.Environmentally responsible practices	4.22	VH	1	4.54	VHI	1	4.00	HI	4

are required of school personnel.		I							
If so, environmentally responsible practices are required in the following areas:	4.11	HI	4	4.46	VHI	2	4.50	VHI	1
5.Waste reduction and management									
6.Use of nontoxic materials	3.94	HI	7	4.31	VHI	4	4.00	HI	4
7.Involvement in environmental projects	4.19	HI	2	4.15	HI	5.5	4.00	HI	4
General Weighted Mean	4.10	HI		4.30	VHI		4.02	HI	

Aroonsrimorakot & Sarapirom stated that they developed a final set of 7 criteria, 19 activities, and 88 associated indicators to measure the Green Office standards. The accepted standards include the following: organization management, operations of a green office, energy and resource utilization, office waste management, indoor and outdoor environments, eco-friendly procurement, and continuous improvement. Furthermore, Green Office encourages companies to promote the wellbeing of their personnel, for example, by promoting everyday exercise and a good working atmosphere.

Purchasing Policy. This initiative aims to reduce the environmental impacts of the procurement process while encouraging the adoption of sustainable practices.

According to the data presented in Table 3, the overall extent of implementation of the purchasing policy is classified as highly implemented, with a mean score of 3.83 reported by all three groups of respondents. Notably, respondents indicated very high implementation for several key indicators: recycled materials (4.38), biodegradable products (4.36), recyclable items (4.29), reusable/non-disposable products (4.24), and nontoxic materials (4.23).

Additionally, several indicators were rated as highly implemented in terms of policy, including the school’s requirement for minimal packaging for purchased products (4.14), support for rechargeable items (4.11), and encouragement of refillable containers (4.01). Other practices receiving high implementation ratings include buying in bulk without individual packaging (3.96), purchasing secondhand items (3.94), favoring environmentally friendly products in the purchasing policy (3.93), and requiring minimal packaging from suppliers (3.83). The school also has a policy that generally rejects products harmful to the environment, with mean scores indicating high implementation for specific items such as fire extinguishers using halons (3.55), oil-based paints (3.51), plastics (3.50), high phosphate detergents (3.46), and foam products (3.43). Conversely, respondents indicated moderate implementation regarding the use of CFC aerosols (3.37) and styrofoam (3.30).

This data reflects a strong commitment to sustainable procurement practices while highlighting areas for improvement, particularly in reducing reliance on certain harmful materials and promoting more environmentally friendly alternatives throughout the purchasing process.

Table 3 Environmental Practices of Private Secondary Schools along Purchasing Policy

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.The school has a purchasing policy which, in general, rejects products which are harmful to the environment.	3.89	HI	10	4.13	VHI	10.5	3.33	HI	14.5

<i>Products using the following materials are rejected as a matter of policy:</i>	3.49	HI	19	3.46	HI	18.5	3.33	HI	14.5
2.Foam									
3.Styrofoam	3.39	MoI	20	3.50	HI	17	3.00	MoI	19.5
4.CFC aerosols	3.52	HI	18	3.27	MoI	20	3.33	HI	14.5
5.Oil-based paints	3.57	HI	17	3.62	HI	16	3.33	HI	14.5
6.Fire extinguishers using halons	3.64	HI	15	4.00	HI	13	3.00	MoI	19.5
7.Pesticides/ Insecticides	3.61	HI	16	2.92	MoI	21	3.00	MoI	19.5
8.High phosphate detergents	3.73	HI	13	3.64	HI	15	3.00	MoI	19.5
9.Plastics	3.38	HI	21	3.46	HI	18.5	3.67	HI	11
10. The school's purchasing policy favors environment-friendly products.	3.91	HI	9	3.88	HI	14	4.00	HI	9
<i>The following specific types of products are favored as a matter of policy:</i>									
11.Recycled	4.43	VHI	1	4.38	VHI	4.5	4.33	VHI	3
12.Recyclable	4.27	VHI	3	4.27	VHI	8	4.33	VHI	3
13.Nontoxic	4.03	HI	5	4.33	VHI	6.5	4.33	VHI	3
14.Biodegradable	4.35	VHI	2	4.38	VHI	4.5	4.33	VHI	3
15.Rechargeable	3.88	HI	11	4.13	HI	10.5	4.33	VHI	3
16.Refillable	3.93	HI	8	4.11	HI	12	4.00	HI	9
17.Secondhand	3.81	HI	12	4.33	VHI	6.5	3.67	HI	11
18.Reusable/ Non disposable	4.05	HI	4	4.67	VHI	3	4.00	HI	9
19.As a matter of policy, the school requires minimal packaging of purchased products: <i>This is done through:</i>	3.94	HI	7	4.80	VHI	2	3.67	HI	11
20.Requiring minimal packaging from suppliers.	3.98	HI	6	4.17	HI	9	3.33	MoI	14.5
21.Buying in bulk, without individual packaging of products.	3.69	HI	14	4.88	VHI	1	3.33	MoI	14.5
General Weighted Mean	3.83	HI		4.02	HI		3.65	HI	

According to Armutcu, although consumers generally hold a favorable attitude towards recycled products, the

purchase of such products has not reached the desired level. Therefore, this study aims to shed light on the limited existing literature and identify the factors that influence consumers' purchasing behavior toward recyclable products.

Operations on Environmental Practices

This section presents an overview of operations related to environmental practices, focusing on buildings and grounds, lighting and electricity, water usage, office machines and equipment, paper consumption, canteen operations, general waste management, and air quality.

Buildings and grounds. Effective management of buildings and grounds is essential for preventing and reducing environmental risks while maintaining a balance between nature and human well-being. According to the data in Table 4, the overall practices in this area are highly implemented, with a mean score of 3.88 reported by all three groups of respondents.

The findings reveal that several indicators were rated as highly implemented, including the design of buildings and structures to maximize natural lighting (4.19), classroom structures (4.17), canteen structures utilizing natural lighting (4.08), and those employing natural ventilation (4.11). Other notable indicators include the chapel (4.19), campus planning to reduce motor vehicle use (3.80), incorporation of environmental considerations in future building plans (3.75), and the presence of open spaces for mini forests and gardens (4.04). Physical greening efforts received a mean score of 3.89, while composting yard waste was rated at 3.58. However, some areas require improvement; the appraisal for gym structures was rated as moderately implemented with a weighted mean of 3.36, followed by gym ventilation structures at 3.25, and the design for maximizing natural ventilation at only 2.74. These findings highlight both strengths and opportunities within the school's environmental practices, emphasizing the need for continued efforts to enhance sustainability in building operations while addressing specific areas that may benefit from further attention and development.

Table 4 Environmental Practices of Private Secondary Schools along Buildings and Grounds

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1. Buildings and structures are designed to make maximum use of natural lighting.	4.24	VHI	4	4.00	HI	10.5	4.33	VHI	4.5
<i>Which structures/ buildings?</i>	4.35	VHI	1	4.15	HI	7.5	4.00	HI	8.5
2. Classrooms									
3. Canteen	3.93	HI	13	4.31	VHI	4.5	4.00	HI	8.5
4. Gym	3.44	HI	18	4.15	HI	7.5	2.50	LI	17.5
5. Chapel	4.25	VHI	3	4.46	VHI	1	4.67	VHI	1.5
6. Structures are designed to make maximum use of natural ventilation.	3.93	HI	13	4.29	VHI	5.5	0.00	0.00	19
<i>Which structures/ buildings?</i>									
7. Classrooms	4.13	HI	5	4.31	VHI	4.5	4.67	VHI	1.5

8.Canteen	3.93	HI	13	4.08	HI	9	4.33	VHI	4.5
9.Gym	3.42	HI	19	3.82	HI	14	2.50	LI	17.5
10.Chapel	4.06	HI	6	3.85	HI	12.5	4.67	VHI	1.5
11. The campus is planned in such a way as to reduce the use of motor vehicles.	3.78	HI	17	3.64	HI	16	4.00	HI	8.5
12.Environmental considerations are incorporated in plans for future buildings.	4.05	HI	7.5	3.71	HI	15	3.50	HI	14
13.The campus features open spaces for mini forests, gardens, etc.	4.27	VHI	2	3.85	HI	12.5	4.00	HI	8.5
14.Physical “greening” is undertaken.	4.05	HI	7.5	3.63	HI	17	4.00	HI	8.5
<i>If so, it is undertaken:</i>									
15.On the entire screen	4.00	HI	9	4.31	VHI	4.5	4.00	HI	8.5
16.Outdoors only	3.98	HI	10	4.29	VHI	5.5	3.50	HI	14
17.Indoors only	3.79	HI	16	4.00	HI	10.5	3.50	HI	14
18.In areas outside the school.	3.95	HI	11	4.43	VHI	2	3.50	HI	14
19.Yard waste is made into compost.	3.81	HI	15	3.43	HI	18	3.50	HI	14
General Weighted Mean	3.97	HI		4..04	HI		3.64	HI	

According to Ermakov, "green" schools, which are increasingly spreading all over the world and combining natural design, resource-saving infrastructure, and practical training in an ecological lifestyle, are gradually forming an innovative model of environmental education in the interests of sustainable development.

Furthermore, the connection with the natural environment, its inclusion in school architecture and indirectly in the educational process, and the use of eco-friendly resource-saving technologies are relevant trends in the design of modern schools and the content of their work on environmental education in the interests of sustainable development.

Lights and Electricity. This initiative aims to develop and implement cost-effective conservation strategies to reduce energy consumption. Table 5 outlines various indicators reflecting how respondents perceive the school's energy consumption related to lights and electricity. The results indicate that students reported a mean score of 4.09, while science teachers scored 4.08, both suggesting a high level of implementation of using fluorescent bulbs instead of incandescent bulbs. School administrators rated this practice even higher, with a mean score of 4.33, leading to an overall insight of 4.17, which is interpreted as highly implemented. These findings highlight a strong commitment among school stakeholders to adopt energy-efficient lighting solutions, which are crucial for reducing overall energy costs and promoting sustainability within the school environment.

To further enhance energy conservation efforts, schools can explore additional strategies such as switching to

LED lighting, utilizing natural light, implementing occupancy sensors, and encouraging students and staff to turn off lights and equipment when not in use. By fostering a culture of energy awareness and responsibility among students and staff, schools can significantly reduce their energy consumption while also educating the next generation about sustainable practices.

Table 5 Environmental Practices of Private Secondary Schools along Lights and Electricity

Indicators	Students		Science Teachers		School Administrator		Summary	
	WM	VI	WM	VI	WM	VI	AWM	R
1. The school uses fluorescent bulbs instead of incandescent.	4.09	HI	4.08	HI	4.33	VHI	4.17	1
General Weighted Mean	4.09	HI	4.08	HI	4.33	VHI	4.17	

According to Bergesen et al, as the demand for lighting services develops over the next 40 years, particularly in developing nations, efficient light-source technologies such as light-emitting diodes (LEDs) can minimize the energy consumed and hence the environmental implications of lighting services. Over the next few decades, LED technologies in both residential and commercial/industrial applications are expected to see dramatic improvements in luminous efficacy, potentially leading to more environmentally friendly lighting.

Water. This initiative focuses on the beneficial prevention of water loss, usage, and waste, emphasizing that a reduction in water consumption can be achieved through effective water conservation and management strategies.

The data from Table 6 indicates a strong commitment to these practices, as perceived by three groups of respondents. School administrators rated the implementation highest, with an average weighted mean of 4.67, interpreted as very highly implemented. Science teachers followed with a mean of 4.31, also interpreted as highly implemented, while students reported a mean of 3.88, categorized as highly implemented as well. The indicators reveal that respondents are aware of issues such as leaking faucets in the school, which have been addressed to prevent clogs and overflows. This awareness is crucial for fostering a culture of water conservation within the school community.

To further enhance these efforts, schools can implement additional strategies such as promptly fixing leaks, installing water-saving fixtures, and promoting awareness about responsible water use. By integrating comprehensive water management practices into daily operations, schools can significantly reduce water waste while educating students about the importance of conserving this vital resource. Overall, these findings underscore the need for ongoing commitment and action toward effective water conservation in educational settings.

Table 6 Environmental Practices of Private Secondary Schools along Water

Indicators	Students		Science Teachers		School Administrator		Summary	
	WM	VI	WM	VI	WM	VI	AWM	R
1. Leaking faucets in the school are already fixed.	3.88	HI	4.31	VHI	4.67	VHI	4.29	1
General Weighted Mean	3.88	HI	4.31	VHI	4.67	VHI	4.29	

According to the Environmental Protection Agency, that the leaky faucets that drips at the rate of one drip per second can waste more than 3,000 gallons per year. That’s the amount of water needed to take more than 180 showers. In order for the leaking faucets to be fixed in the schools, we should need a little care and maintenance on a daily basis. Before you begin to fix a dripping faucet, we need to shut off the water supply, and don’t forget to turn off the water line before we start.

Office Machines and Equipment. This section addresses the importance of office machines and equipment in creating productive and efficient workspaces. The responses from three groups of respondents regarding office machines and equipment are summarized in Table 7.

The results indicate that all three groups provided moderately implemented responses, with students reporting a mean of 3.82, science teachers scoring 3.96, and school administrators at 3.83. The overall average weighted mean is 3.87, which is interpreted as highly implemented. Among the indicators, the highest-ranked item reflects that air conditioners are serviced regularly to prevent coolant (freon) leaks, achieving a weighted mean of 4.00, interpreted as highly implemented. Conversely, the use of fans instead of air conditioners whenever possible ranked last, with a weighted mean of 3.74, also interpreted as highly implemented. These findings suggest a commitment to maintaining office equipment effectively; however, there is still room for improvement in promoting energy-efficient practices within the school environment.

By prioritizing the use of fans over air conditioning when feasible, schools can further enhance their sustainability efforts while creating a more productive workspace for both students and staff.

From the study of Labay et al., one of the ways to reduce energy consumption is the use of air split-conditioner heat pumps ("air-to-air") in the heating systems of buildings, which use 1 kW of electricity from the network to transport up to 5 kW of thermal energy from outdoor air to indoor air. Energy-saving operating conditions have been set, i.e., indoor air consumption on the condenser of the operating heat pump of the air split-conditioner from the "Mitsubishi Electric" firm with a standard heat capacity of 3200 W on R32 refrigerant depending on the indoor air temperature.

Table 7 Environmental Practices of Private Secondary Schools along Office Machines and Equipment

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Air conditioners are serviced regularly to prevent coolant (freon) leaks.	3.66	HI	2	4.00	HI	1	4.33	VHI	1
2.Fans are used instead of air conditioners whenever possible.	3.98	HI	1	3.92	HI	2	3.33	MoI	2
General Weighted Mean	3.82	HI		3.96	HI		3.83	HI	

Paper. Table 8 presents the respondents' feedback regarding paper usage, assessing various indicators related to the source of paper, its qualities, and methods for recycling and reusing it.

According to the data collected, science teachers reported a higher average weighted mean of 4.21, interpreted as very highly implemented, compared to students, who scored 3.93, and school administrators, who scored 4.04, both interpreted as highly implemented. The overall mean was classified as highly implemented, with a weighted mean of 4.06.

The findings indicate that respondents are very highly implemented in several areas, including the use of scrap paper for notes and memos (4.25), office paper (4.21), photocopying (4.21), and boxes and cartons (4.20). Additionally, high implementation was noted in other areas such as newspapers and magazines (4.19),

submission of papers and reports in offices (4.13), pad paper (4.12), preference for white paper over colored paper (4.12), notebooks (4.10), submission of papers and reports in class (4.10), and the existence of a school paper recycling program (4.09). Other indicators rated as highly implemented include the practice of double-sided use of paper as a matter of policy (4.04), recycling of school-generated paper (4.04), mimeographing (4.00), greater use of electronic mail (3.99), increased reliance on bulletin boards (3.98), internal communications (3.86), reduction of paper consumption as a policy (3.81), and the use of old notebooks in class (3.71).

These results reflect a strong commitment to responsible paper usage and recycling practices within the school community, highlighting both achievements and areas for further improvement to enhance sustainability efforts related to paper consumption and waste management.

According to Khan, paper has been an important tool for everyone in the world to document history and create ways to communicate for thousands of years. The recycling of paper reduces the use of natural resources, helps to decrease the need for waste disposal and energy consumption in papermaking, and also provides significant profits for those in the business. Moreover, recycling paper leads to the unintended spreading of chemical substances contained in the paper, e.g., by introducing chemicals contained in wastepaper into the recycling loop. The manufacturing of paper from recycled paper decreases environmental pollution as.

Table 8 Environmental Practices of Private Secondary Schools along Paper

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Paper consumption is reduced as a matter of policy.	3.61	HI	19	3.82	HI	16	4.00	HI	10
<i>Reduction in paper consumption is pursued through:</i>	3.86	HI	15	3.78	HI	17.5	4.33	VHI	2.5
2.Greater use of electronic mail									
3.Greater use of bulletin boards	4.02	HI	5	3.92	HI	15	4.00	HI	10
4.Use of scrap paper for notes, memos, etc.	3.98	HI	7	3.78	HI	17.5	5.00	VHI	1
5.Use of old notebooks in class	3.81	HI	16	3.67	HI	19	3.67	HI	18
6.The school has a paper recycling program.	3.70	HI	18	4.57	VHI	2	4.00	HI	10
<i>This recycling program covers:</i>									
7.Newspapers and magazines	4.11	HI	2	4.45	VHI	6	4.00	HI	10
8.Office paper	3.94	HI	10	4.36	VHI	8	4.33	VHI	2.5
9.Notebooks	4.00	HI	6	4.31	VHI	9	4.00	HI	10
10.Pad paper	3.90	HI	14	4.46	VHI	5	4.00	HI	10
11.Boxes and cartons	3.95	HI	9	4.64	VHI	1	4.00	HI	10
12.The school recycle its own paper.	3.95	HI	9	4.11	HI	13	4.00	HI	10

13. Double sided use of paper is practiced as a matter of policy.	3.91	HI	12.5	4.22	VHI	11	4.00	HI	10
<i>Double-sided use is practiced in:</i>									
14. The submission of papers and reports in class.	4.08	HI	3.5	4.56	VHI	3.5	3.67	HI	18
15. The submission of papers and reports in offices.	3.95	HI	9	4.44	VHI	7	4.00	HI	10
16. Photocopying	4.08	HI	3.5	4.56	VHI	3.5	4.00	HI	10
17. Mimeographing	3.76	HI	17	4.25	VHI	10	4.00	HI	10
18. Internal communications	3.91	HI	12.5	4.00	HI	14	3.67	HI	18
19. White paper is preferred over colored paper.	4.18	HI	1	4.18	HI	12	4.00	HI	10
General Weighted Mean	3.93	HI		4.21	VHI		4.04	HI	

The Canteen This initiative serves the school community by providing nutritious food and promoting messages that encourage a healthy lifestyle.

The effectiveness of the canteen, as perceived by three categories of respondents, is summarized in Table 9. Students reported a mean score of 3.72, while science teachers scored 3.58, both interpreted as highly implemented. In contrast, school administrators provided a lower mean of 3.31, interpreted as moderately implemented. The overall weighted mean across all groups is 3.54, classified as highly implemented.

The findings indicate that respondents perceive several environmentally responsible practices in the canteen as highly implemented, including minimizing waste through environmentally responsible practices (3.95), sending waste to hog raisers (3.83), disposing of organic waste (3.79), converting waste into other products (3.75), making compost (3.73), recycling (3.71), practicing waste segregation (3.69), sending materials to recyclers (3.65), and disposing of non-organic waste (3.60). However, there are areas where implementation is only moderate; for example, waste management practices related to warehouses received a mean score of 3.39, and pastries and other food items produced by the canteen are not individually wrapped (3.38). The use of disposable cups (3.32), plates (3.27), plastic utensils (3.02), and paper napkins (2.97) also reflects a need for improvement in reducing single-use items.

These results highlight the canteen's commitment to sustainability and health promotion while identifying specific areas for enhancement, particularly in reducing reliance on disposable products and improving overall waste management practices within the school environment.

Table 9 Environmental Practices of Private Secondary Schools along the Canteen

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1. Waste is minimized through environmentally responsible practices.	3.94	HI	2	4.40	VHI	1	3.50	HI	9.5
<i>The following are not allowed or are</i>	3.57	HI	12.5	3.73	HI	5	2.67	MoI	12

<i>discouraged in the canteen:</i>									
2.Disposable cups									
3.Disposable plates	3.64	HI	8	4.18	HI	2	2.00	LI	14
4.Disposable plastic utensils	3.52	HI	14	3.55	HI	9	2.00	LI	14
5. Paper napkins	3.46	HI	15	3.45	HI	11	2.00	LI	14
6. Pastries and other food items produced by the canteen are not individually wrapped.	3.57	HI	12.5	3.56	HI	7	3.00	MoI	11
7.Waste segregation is practiced in the canteen.	3.78	HI	7	3.78	HI	4	3.50	HI	9.5
<i>Organic wastes from the canteen are:</i>									
8.Made into compost	3.83	HI	5	3.36	MoI	12	4.00	HI	3
9.Sent to hog raisers	3.62	HI	9	3.55	HI	9	4.33	VHI	1
10.Thrown away	3.89	HI	4	3.82	HI	3	3.67	HI	6.5
<i>Non-organic wastes from the canteen are:</i>									
11.Sent to recyclers	3.99	HI	1	3.30	MoI	13	3.67	HI	6.5
12.Recycled	3.93	HI	3	3.55	HI	9	3.67	HI	6.5
13.Warehoused	3.61	HI	10.5	2.89	MoI	15	3.67	HI	6.5
14.Thrown away	3.80	HI	6	3.00	MoI	14	4.00	HI	3
15.Converted into other products	3.61	HI	10.5	3.63	HI	6	4.00	HI	3
General Weighted Mean	3.72	HI		3.58	HI		3.31	MoI	

According to Herrero, food waste at schools represented 20–29% of the prepared meal, depending on students’ age and seasonal menu. The global warming potential (GWP) of the average meal was 1.11–1.50 kg CO₂-eq, mostly due to the food production impact. The meal preparation had the largest impact on costs. When considering embedded impacts, food waste was responsible for 14–18% of the GWP and 6–11% of the costs.

General Waste Management. Table 10 presents data related to general waste management aimed at reducing common waste and safeguarding the environment through proper waste segregation, reuse, recycling, and composting.

The results indicate that respondents rated several indicators as very highly implemented, including the use of separate containers for biodegradable and non-biodegradable wastes in selected areas (mean of 4.29), throughout the entire campus (mean of 4.20), and ensuring waste is disposed of separately (mean of 4.01).

Additionally, various general waste management practices received high implementation ratings, such as responsible disposal of waste (mean of 4.10), preferring rechargeable batteries over disposable ones (mean of 3.98), sealing items properly before disposal (mean of 3.98), refilling toner and ribbon cartridges instead of purchasing new ones (mean of 3.88), and recycling (mean of 3.85). Other highly implemented practices include waste segregation in the school (mean of 3.85), converting waste into other products (mean of 3.85),

preferring refillable pens over plastic ones (mean of 3.83), appropriate warehousing of waste (mean of 3.79), sparing use of hazardous materials (mean of 3.77), sending materials to recyclers (mean of 3.71), responsible disposal (mean of 3.68), sending organic waste to hog raisers (mean of 3.65), and composting organic materials (mean of 3.61).

These findings reflect a strong commitment to effective waste management practices within the school community, highlighting both successful initiatives and areas for further improvement in reducing waste and promoting sustainability through responsible management practices.

Table 10 Environmental Practices of Private Secondary Schools along General Waste Management

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Waste segregation is practiced in the school.	4.16	HI	2	3.89	HI	8	3.50	HI	15.5
<i>Separate containers for biodegradable and nonbiodegradable wastes are provided in:</i>	4.20	VHI	1	4.73	VHI	1	3.67	HI	12
2.The entire campus									
3.In selected areas	4.02	HI	5	4.50	VHI	2	4.33	VHI	2.5
<i>Biodegradable materials are:</i>									
4.Made into compost	3.96	HI	8	3.55	HI	15	3.33	MoI	17
5.Sent to hog raisers	3.66	HI	15	3.63	HI	12.5	3.67	HI	12
6.Thrown away	3.97	HI	7	4.00	HI	5.5	4.33	VHI	2.5
<i>Nonbiodegradable materials are:</i>									
7.Sent to recyclers	4.02	HI	5	3.11	MoI	17	4.00	HI	7
8.Recycled	4.12	HI	3	3.78	HI	10	3.67	HI	12
9.Warehoused	3.76	HI	14	3.63	HI	12.5	4.00	HI	7
10.Thrown away	3.87	HI	10	3.50	HI	16	3.67	HI	12
11.Converted to other products	3.77	HI	13	3.78	HI	10	4.00	HI	7
12.Hazardous materials are used sparingly.	3.81	HI	12	4.00	HI	5.5	3.50	HI	15.5
<i>Such materials are:</i>									
13.Disposed of separately	4.02	HI	5	4.00	HI	5.5	4.00	HI	7
14.Sealed properly before disposal	3.99	HI	6	4.27	VHI	3	3.67	HI	12
15.Refillable pens (fountain pens and technical pens) are preferred over plastic	3.61	HI	17	3.56	HI	14	4.33	VHI	2.5

16.Rechargeable batteries are preferred over disposable.	3.84	HI	11	3.78	HI	10	4.33	VHI	2.5
17.Toner and ribbon cartridges are refilled or re-inked instead of new ones being	3.65	HI	16	4.00	HI	5.5	4.00	HI	7
General Weighted Mean	3.91	HI		3.86	HI		3.88	HI	

Sutisno cited that it aims to present educational transmission efforts and strategies for handling waste distribution in the post-pandemic era, which is an innovative educational approach towards sustainable human and natural resource development based on an economic-socio-cultural basis. In the field, it was found that through the realization of the school waste bank regarding the regulation of implementing waste sorting from home and then proceeding to deposit waste in the school waste bank, this strategy initiates scientific practice towards the scientific behavior of students.

Air Quality. This initiative addresses the contamination of air caused by harmful substances that pose risks to human health and damage the environment.

According to the data presented in Table 11, the overall extent of implementation regarding air quality measures is classified as very highly implemented, with a mean score of 4.54 reported by the three groups of respondents. The findings reveal that smoking is banned across the entire campus, receiving the highest rating with a weighted mean of 4.82, interpreted as very highly implemented. This is followed by a ban on smoking in all enclosed areas (mean of 4.54) and allowing smoking only in designated areas (mean of 4.47), both also categorized as very highly implemented. Additionally, smoke-belching vehicles are not permitted on campus, with a weighted mean of 4.34, further reinforcing the commitment to maintaining air quality.

These results underscore the effectiveness of policies aimed at improving air quality within the school environment, highlighting significant measures taken to protect students and staff from exposure to harmful pollutants. By implementing strict regulations on smoking and vehicle emissions, schools can create a healthier atmosphere conducive to learning and well-being, ultimately enhancing overall academic performance and health outcomes for the school community.

Table 11 Environmental Practices of Private Secondary Schools along Air Quality

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Smoking is banned on the entire campus.	4.47	VHI	1	5.00	VHI	1	5.00	VHI	1
<i>If not, smoking is banned in the following places:</i>	4.33	VHI	2	4.64	VHI	4	4.67	VHI	2.5
2.In all enclosed areas									
3.In designated areas only	4.01	HI	3	4.71	VHI	3	4.67	VHI	2.5
4.Smoke-belching vehicles are not allowed inside the campus.	3.91	HI	4	4.78	VHI	2	4.33	VHI	4
General Weighted Mean	4.18	HI		4.78	VHI		4.67	VHI	

According to Elsharkawy, a proper and adequate school environment is important for an effective learning process and maintaining the health of the students, as they spend most of their time in schools. Levels of the six air pollutants were higher inside schools adjacent to roads with moderate traffic activity than inside schools

with low and very low traffic activity. However, the mean level of CO₂ inside the selected schools was higher than its outdoor level, suggesting the predominance of an indoor source of CO₂. Levels of all measured air pollutants inside governmentally constructed school buildings were higher than those inside rental types.

Academics on Environmental Practices

This section is a discussion of academics on environmental practices such as in the classroom and learning process.

In the Classroom This initiative aims to sustain an environment that fosters student academic achievement while promoting varied approaches that create a positive teaching atmosphere. The responses of three groups of respondents regarding classroom practices are summarized in Table 12, revealing an average weighted mean of 4.27, which is interpreted as very highly implemented.

The data indicates that respondents rated several indicators as very highly implemented, including subjects in the sciences (4.66), environmentally friendly teaching methods (4.48), values and Christian living (4.40), home economics (4.33), and music, health, and physical education (4.31). Additionally, environmental themes are integrated into the curriculum (4.23), and practices such as minimizing the use of paper for instructional aids (4.22) and allowing the use of old notebooks from previous years instead of requiring new ones (4.22) were also rated highly. Conversely, several subjects received high implementation ratings, including English (4.18), mathematics (4.14), Filipino (4.12), and encouraging the use of refillable pens (4.10), with social studies receiving a mean score of 4.08.

These findings highlight the school’s commitment to creating an environmentally conscious educational framework that not only enhances academic performance but also promotes sustainable practices among students and staff.

Table 12 Environmental Practices of Private Secondary Schools along In the Classroom

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1.Environmental themes are integrated in the curriculum.	4.33	VHI	3	4.86	VHI	2.5	3.50	HI	13
<i>Integration takes place in the following subjects:</i>									
2.English	4.21	VHI	8	4.00	HI	10.5	4.33	VHI	8
3.Filipino	4.10	HI	9	3.92	HI	13	4.33	VHI	8
4.Social Studies	4.07	HI	10	4.17	HI	6	4.00	HI	12
5.Music, Health, and P.E.	4.27	VHI	4.5	4.00	HI	10.5	4.67	VHI	2.5
6.Home Economics	4.27	VHI	4.5	4.40	VHI	4	4.33	VHI	8
7.Mathematics	3.91	HI	13	4.17	HI	6	4.33	VHI	8
8.The Sciences	4.38	VHI	1	4.92	VHI	1	4.67	VHI	2.5
9.Values/ Christian Living	4.36	VHI	2	4.17	HI	6	4.67	VHI	2.5
10.Classes are conducted in environment-friendly ways.	4.25	VHI	6	4.86	VHI	2.5	4.33	VHI	8

<i>Such practices in the classroom include:</i>									
11. Allowing the use of old notebooks from previous years instead of requiring new ones.	4.24	VHI	7	4.08	HI	8	4.33	VHI	8
12. Requiring or encouraging the use of refillable pens.	3.97	HI	12	4.00	HI	10.5	4.33	VHI	8
13. Minimizing the use of paper for instructional aids.	4.01	HI	11	4.00	HI	10.5	4.67	VHI	2.5
General Weighted Mean	4.18	HI		4.27	VHI		4.35	VHI	

Begum said that global environmental issues are increasing due to the rapid developments in science and technology. That must explore the beliefs of a secondary science teacher about environmental education and how his stated beliefs match with his classroom practices. He also believed that students should be given the choice to be involved in environmental participatory activities, such as environmental management projects in the real world.

Learning Process Table 13 presents the extent of implementation in the learning process that supports the acquisition, development, and application of knowledge within a conducive learning environment.

The data indicates that school administrators reported a higher average weighted mean of 4.50, compared to students, who had a mean of 4.20, and science teachers, who scored 4.13; both students and science teachers' scores were interpreted as highly implemented. The overall mean was classified as very highly implemented, with a weighted mean of 4.28.

The findings reveal that respondents rated all indicators as very highly implemented. Specifically, there are adequate reading materials on environmental issues in the library, with a weighted mean of 4.33. Additionally, students are encouraged to utilize these resources (mean of 4.32), and there is sufficient availability of reading materials on environmental issues (mean of 4.24). Furthermore, both students and teachers have easy access to these resources, which received a mean score of 4.22. These results underscore the school's commitment to providing a rich learning environment that fosters environmental education and encourages students to engage with important ecological topics through accessible resources.

By cultivating an environment conducive to learning about environmental issues, the school not only enhances academic achievement but also promotes awareness and responsibility regarding sustainability among its students.

Table 13 Environmental Practices of Private Secondary Schools along Learning Process

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
1. There are adequate reading materials on environmental issue in the library.	4.17	HI	3.5	4.23	HI	1	4.33	VHI	3.5
2. There are adequate audio visual (AV) materials on the environment.	4.18	HI	2	4.15	HI	2.5	4.67	VHI	1.5
3. Students and teachers have easy access to these resources.	4.17	HI	3.5	4.15	HI	2.5	4.33	VHI	3.5
4. Students are encouraged to make use	4.30	VHI	1	4.00	HI	3	4.67	VHI	1.5

of these resources.									
General Weighted Mean	4.20	VHI		4.13	HI		4.50	VHI	

Huda explains that the strategic practice of achieving environmental awareness is stabilized through enhancing the learning culture in both schools and the community. As an attempt to empower the growth and development of learners, the strategic role of expanding the committed awareness of enhancing the skills to be developed and trained further should enforce a harmony between academic and environmental accountability.

Additionally, the strategic enhancement of promoting a healthy community is related to using the initiative to enhance responsible management and awareness of creating a stabilized balance between human beings and natural resources.

Republic Act No. 951232 provides for the promotion of the environmental awareness through environmental education which shall encompass environmental concepts and principles, environmental laws, the state of international and local environment, local environmental best practices, the threats of environmental degradation and its impact on human well-being, the responsibility of the citizenry to the environment and the value of conservation, protection and rehabilitation of natural resources and the environment. The Department of Education, the Commission on Higher Education, the Technical Education and Skills Development Authority, the Department of Social Welfare and Development, in coordination with the Department of Environment and Natural Resources, the Department of Science and Technology and other relevant agencies shall be responsible for implementing public education and awareness programs on environmental protection and conservation.

Hagos et.al. also pointed out that curriculum is a broad set of experiences that students go through during the entire time they are in school. The curriculum is generally considered as the complete course path that will enable students to attain the goals and general objectives of education. It is the learner’s engagement with various aspects of learning.

Table 14 summarizes the environmental practices as perceived by three groups of respondents. The data indicates that several indicators were rated as very highly implemented, including water management (4.29), air quality (4.54), classroom practices (4.27), and the learning process (4.28). In contrast, various environmental policies received ratings classified as highly implemented, such as the general policy (4.16), personnel policy (4.14), purchasing policy (3.83), buildings and grounds (3.88), lights and electricity (4.17), office machines and equipment (3.87), paper usage (4.06), the canteen (3.54), and general waste management (3.88). All these practices were interpreted as highly implemented.

These findings highlight the school's commitment to fostering an environmentally responsible culture through a range of policies and practices. To further enhance these efforts, it is strongly recommended that private secondary schools develop an environmental management manual. Such a manual would serve as a vital resource to guide school communities in promoting sustainability, encouraging students to engage in environmental preservation, and identifying best practices that need to be addressed and implemented. By establishing clear guidelines and resources, schools can empower both students and staff to contribute meaningfully to environmental stewardship, ultimately leading to a more sustainable future for all.

Table 14 Summary Table on Environmental Practices of Private Secondary Schools as Appraised by the Three Group of Respondents

Indicators	Students			Science Teachers			School Administrator		
	WM	VI	R	WM	VI	R	WM	VI	R
A.POLICY									
General	4.14	HI	4	4.26	VHI	5	4.07	HI	6

Personnel	4.10	HI	5	4.30	VHI	3	4.02	HI	8
Purchasing	3.83	HI	10.5	4.02	HI	10	3.65	HI	11
B. OPERATIONS									
Buildings and Grounds	3.97	HI	7	4.04	HI	9	3.64	HI	12
Lights and Electricity	4.09	HI	6	4.08	HI	8	4.33	VHI	5
Water	3.88	HI	10.5	4.31	VHI	2	4.67	VHI	1.5
Office Machines and Equipment	3.82	HI	12	3.96	HI	11	3.83	HI	10
Paper	3.93	HI	8	4.21	VHI	6	4.04	HI	7
The Canteen	3.72	HI	13	3.58	HI	13	3.31	MoI	13
General Waste Management	3.91	HI	9	3.86	HI	12	3.88	HI	9
Air Quality	4.18	HI	2.5	4.78	VHI	1	4.67	VHI	1.5
C. ACADEMICS									
In the Classroom	4.18	HI	2.5	4.27	VHI	4	4.35	VHI	4
Learning Process	4.20	HI	1	4.13	HI	7	4.50	VHI	3
General Weighted Mean	3.99	HI		4.13	HI		4.07	HI	

Test of Significant Difference of the Extent on the Environmental Practices as Appraised by the Three Groups of Respondents

This section deals with the answer to the second specific problem of this study. It is to test the significance difference in the perception of the three groups of respondents in the extent of the implementation of the environmental practices.

Table 15 presents that the Kruskal Wallis H Test was used to determine the significant difference on the perception of the environmental practices.

Table 15 Test of Significant Difference of the Extent on the Environmental Practices as Appraised by the Three Groups of Respondents

df	Level of significance	Tabular value	Computed value	Decision	Conclusion
3	.05	5.991	879.78	Reject	Significant

As shown in the table, the computed H value is 879.78 which is greater than the tabular X^2 value of 5.991 at .05 percent level of significance. Hence the null hypothesis is rejected, implying that there is a significant difference of the extent on the environmental practices as appraised by the three groups of respondents.

FINDINGS AND IMPLICATIONS

The research findings indicate that while certain environmental practices are highly implemented (e.g., water management, air quality), others require improvement (e.g., purchasing policies, waste management). Recognizing these strengths and weaknesses can guide schools in prioritizing areas for development. These findings support the studies from South Africa highlighting the challenges faced by public schools, such as limited knowledge of sustainable practices and insufficient funding for resources, necessitating a comprehensive policy framework for effective implementation.

By establishing a framework for assessing and improving environmental practices, this research supports broader goals of sustainable development within educational institutions. It emphasizes that schools can be catalysts for change by adopting environmentally friendly policies and practices.

The study encourages active participation from all school stakeholders—students, teachers, and administrators—in environmental initiatives. This collaborative approach is vital for fostering a culture of sustainability within the school community.

In contrast, private schools typically enjoy greater flexibility in decision-making and resource allocation, allowing them to implement innovative practices more readily. Additionally, while public schools may engage stakeholders through formal channels mandated by educational policies, private schools often foster stronger community ties, effectively involving parents and local organizations in sustainability projects. These differences extend to resource allocation; public schools rely on government budgets that can lead to disparities in available resources, whereas private schools often have more control over their finances, enabling targeted investments in sustainable infrastructure. Ultimately, incorporating diverse regional perspectives and comparing public versus private school approaches provides a richer understanding of environmental management in education, highlighting the unique challenges and opportunities faced by different institutions and fostering a more comprehensive approach to sustainability across all educational settings.

The creation of a tailored manual titled “Climb Towards a Greener Earth” aims to provide practical guidelines for schools to enhance their environmental initiatives. This resource can serve as a reference point for ongoing improvement and sustainability efforts.

In summary, the research addresses critical issues surrounding sustainability in education. By evaluating current practices and proposing an actionable management manual, the study not only contributes to academic discourse but also provides practical solutions for enhancing environmental stewardship in schools. This research is timely and relevant, given the pressing need for educational institutions to lead by example in promoting sustainable development principles.

REFERENCES

1. https://gk1world.com/Media/PDFs/Ecotourism_Housing_and_Community_Full_Paper.pdf
2. Cruz, J.P. & Tantengco, N.S. (2017). **“Students’ Environmental Awareness and Practices: Basis for Development of Advocacy Program in MIMBAR”** PENDIDIKAN: Journal Indonesia untuk Kajian Pendidikan 2(1), 43-64 Retrieved from: <https://ejournal.upi.edu/index.php/mimbardik/article/view/6022>
3. Danilo V. Rogayan Jr., and Eveyen Elyonna D. Nebrida **“Environmental Awareness and Practices of Science Students: Input for Ecological Management Plan”** International Electronic Journal of Environmental Education 9(2), 106-119 (2019) Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1219420.pdf>
4. Damoah, B. & Adu, E. O. (2022). **Environmental Education in South African Schools: The Role of Civil Society Organizations.** Research in Social Sciences and Technology, 7(3), 1-17. <https://doi.org/10.46303/ressat.2022.14>
5. Eliseo P. Marpa, **“Navigating Environmental Education Practices to Promote Environmental Awareness and Education”** International Journal on Studies in Education 2(1) (2020) ISSN: 2690-7909 Retrieved from: <https://files.eric.ed.gov/fulltext/ED607231.pdf>
6. Erhabor, N. I. and Don J. U., **“Impact of Environmental Education on the Knowledge and Attitude of Students Towards the Environment”** International Journal of Environmental & Science Education, Vol. 11, No.12, (2016) 5367-5375 Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1115646.pdf>
7. Garcia, E. C. & Luansing, B. (2016). **“Environmental Awareness Among Select Graduating College Students in Rinconada IVA”** LPU-Laguna Journal of Multidisciplinary Research Vol. 5 No.1 Retrieved from: <https://lpulaguna.edu.ph/wp-content/uploads/2017/03/Environmental-Awareness-among-Select-Graduating-College-Students-in-Region-IVA.pdf>
8. Genalyn P. Lualhati (2019) **“Environmental awareness and participation of Filipino pre-service teachers”** JPBI (Jurnal Pendidikan Biologi Indonesia), 5(2),345-352, Retrieved from: <https://doi.org/10.22219/jpbi.v5i2.8524>

9. Gonzaga, M. L. (2016). **“Awareness and Practices in Green Technology of College Students”**. Applied Mechanics and Materials, 848, 223–227. <https://doi.org/10.4028/www.scientific.net/amm.848.223>
10. Hartmann, L. C. et al., (2022), **“Water pollution and environmental policy in artisanal gold mining frontiers: The case of La Toma, Colombia”** Science of the Total Environment, Volume 852, 158417, ISSN: 0048-9697, <https://doi.org/10.1016/j.scitotenv.2022.158417>
11. Ibarrientos, J.A. R. (2015), **“Camarines Sur Polytechnic Colleges, Philippines: An Eco-Friendly School Model”** International Journal of Scientific & Technology Research Volume 4, Issue 03, March 2015 ISSN 2277-8616 Retrieved from: <http://www.ijstr.org/final-print/mar2015/Camarines-Sur-Polytechnic-Colleges-Philippines-An-Eco-friendly-School-Model.pdf>
12. Kerenina Dansholm Kezaride (2015). **“Environmental Education, Values and Attitudes of Youth in Lebanese Secondary Schools: A Comparative Analysis”**, University of Agder
13. Khan, S. A. R., Yu, Z., Umar, M., and Tanveer, M. (2022). **“Green capabilities and green purchasing practices: A strategy striving towards sustainable operations”**. Business Strategy and the Environment, 31(4), 1719– 1729. <https://doi.org/10.1002/bse.2979>
14. Luisito C. Hagos and Erlinda G. Dejarme. 2008. **“Enhancing Curriculum in Philippine Schools in Response to Global Community Challenge”**. [ro.ecu.edu.au/cgi/viewcontent.cgi? article=1020& context=ceducum](http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1020&context=ceducum)
15. Marpa, E. P., and Juele, Ma. H. R. (2016). **“Environmental Awareness and Practices among High School Students: Basis for Disaster Preparedness Program”**. Applied Mechanics and Materials, 848, 240-243 <https://doi.org/10.4028/www.scientific.net/AMM.848.240>
16. Ndungane B, Crafford G and Moyo T (2024) Defying decay: a strategy to enforce infrastructure standards in rural schools within the Eastern Cape, South Africa. Front. Built Environ. 10:1319902. doi: 10.3389/fbuil.2024.1319902
17. Omran, A., Bah, M., & Baharuddin, A. (2017). **“Investigating the Level of Environmental Awareness and Practices on Recycling of Solid Wastes at University’s Campus in Malaysia”** Journal of Environmental Management and Tourism, 8(3), 554-566. doi:10.14505/jemt.v8.3(19).06
18. Paghasian, M.C. (2017), **“Awareness and Practices on Solid Waste Management among College Students in Mindanao State University Maigo School of Arts and Trades”**. Proceedings of the 3rd International Conference on Education and Training (ICET 2017), 128, 5-12. <https://www.atlantis-press.com/proceedings/icet-17/25883492>
19. Punzalan, C. H. (2020). **“Evaluating the Environmental Awareness and Practices of Senior High School Students: Basis for Environmental Education Program”** Aquademia, 4(1), ep20012. Retrieved from: <https://doi.org/10.29333/aquademia/8219>
20. Raza, S.A. & Khan, K.A. (2022), **“Impact of green human resource practices on hotel environmental performance: the moderating effect of environmental knowledge and individual green values”**, International Journal of Contemporary Hospitality Management, 34(6), 2154-2175 <https://doi.org/10.1108/IJCHM-05-2021-0553>
21. Reckwitz, Andreas. **“Towards a Theory of Social Practices”**. European Journal of Social Theory. 5(2) 243-263. May 2002. Retrieved from: est.sagepub.com/content/5/2/243.short?rss=1&ssource=mfc.
22. Roberts Erin Mared (2016), **“Reducing Energy Consumption in Everyday Life: A Study of Landscape of Energy Consumption in Rural Households and Communities in North Wales”**
23. Sultana, Md. Islam, S. Jahan, F. Khatun, F. (2021), **“Awareness and Practice on Household Solid Waste Management among the Community People Open Journal of Nursing”**, Vol.11 No.5, Retrieved from: <https://scirp.org/reference/referencespapers.aspx?referenceid=2993008>
24. Urie Bronfenbrenner’s Ecological System Theory <https://www.psychologynoteshq.com/bronfenbrenner-ecological-theory/>
25. Zyalie L. Bedural, **“Association between Educational Attainment and Filipinos’ Values, Attitudes and Actions towards the Environment”** Journal of Sustainable Development Education and Research, 2(1), 59-67. (2018) <https://ejournal.upi.edu/index.php/JSDER/article/view/12359>