

## Green Campus initiatives among public secondary schools in Ilocos Sur: A basis for policy recommendation

Ferdinand R. Espejo  
Ilocos Sur National High School  
Corresponding Author e-mail: [ferdinand.espejo@deped.gov.ph](mailto:ferdinand.espejo@deped.gov.ph)

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### Abstract

**Aim:** This study examined the implementation of Green Campus initiatives among public secondary schools in Ilocos Sur during the 2025–2026 academic year, focusing on the Youth for Environment in Schools Organization (YES-O), Gulayan sa Paaralan Program (GPP), and Ecological Solid Waste Management (SWM). It aimed to determine whether these initiatives are institutionally embedded or primarily compliance-driven, with implications for teaching, learning, and school-based sustainability practices.

**Methodology:** A qualitative multiple-case study design, grounded in Neo-Institutional Theory and the Whole-School Approach, was employed. Data were collected through structured interviews with 117 participants, including school principals, club advisers, and student leaders from the Vigan City, Candon City, and Ilocos Sur divisions.

**Results:** Findings revealed that schools adapt Green Campus programs to local contexts through practices such as waste segregation, functional Materials Recovery Facilities (MRFs), vertical gardening, and source reduction initiatives like "Bring Your Own Container" (BYOC) and "Cash-from-Trash." These practices enhanced students' environmental awareness, reduced eco-anxiety, and improved problem-solving skills, transforming schools into experiential learning environments. However, implementation challenges included curriculum overload, limited funding, inadequate infrastructure, and inconsistent policy enforcement.

**Conclusion:** The study highlights the need to institutionalize Green Campus initiatives through a Whole-School Approach by integrating sustainability into curriculum design, teaching practices, school operations, and community engagement. This approach can strengthen environmental education, improve student learning outcomes, and support sustainable school leadership and policy development.

**Keywords:** *Green Campus Initiatives, Public Secondary Schools, Ilocos Sur, Policy Recommendations, Whole-School Approach (WSA)*

### INTRODUCTION

International frameworks, such as the United Nations Sustainable Development Goals (SDGs), emphasize the necessity of equipping learners with the critical thinking and problem-solving skills required for sustainable development (United Nations, 2015). In the education sector, this is operationalized through Green Campus Initiatives (GCIs)—a comprehensive strategy that minimizes environmental impacts on physical school grounds while simultaneously embedding sustainability education and ecological consciousness into fundamental academic instruction and institutional operations (Shange et al., 2025). In the Philippines, environmental education is a legislative mandate under Republic Act No. 9512, the National Environmental Awareness and Education Act of 2008 (2008). In alignment with this decree, the Department of Education (DepEd) champions public schools as drivers of socio-environmental change by requiring dedicated, school-based environmental stewardship programs designed to enhance student learning outcomes.

Three primary initiatives form the operational and instructional backbone of DepEd's Green Campus efforts: the Youth for Environment in Schools Organization (YES-O), the Gulayan sa Paaralan Program (GPP), and Ecological Solid Waste Management (SWM). As the main avenue for student-led environmental action, YES-O in the coastal areas of Ilocos Sur—including Vigan City and Candon City—focuses heavily on experiential learning through coastal clean-



ups, marine conservation, and disaster preparedness. Complementing this is the GPP, institutionalized via DepEd Memorandum No. 293, s. 2007 (DepEd, 2007) and reinforced by DepEd Order No. 5, s. 2014 (DepEd, 2014), which mandates bio-intensive gardens. Beyond supporting School-Based Feeding Programs, the GPP serves as an outdoor classroom. In the agrarian, drought-prone landscapes of the Ilocos region, students engage in climate-smart agriculture by cultivating drought-tolerant native crops; this practice not only builds technical horticultural skills and nutritional literacy but also fosters ecological resilience and a heightened sense of learner autonomy through direct participation in local food security solutions (Valdez & Corpuz, 2025). Furthermore, rooted in Republic Act No. 9003, the Ecological Solid Waste Management Act of 2000 (2001), the SWM program mandates school-based Material Recovery Facilities (MRFs). Locally, this translates into zero-waste campaigns and upcycling, directly linking scientific concepts of the carbon cycle and resource management to tangible student action.

Despite the comprehensive nature of these mandates, existing literature suggests a critical disconnect between policy and pedagogical practice. Implementers frequently face systemic challenges, including inadequate funding, limited instructional time, poor administrative support, and low community stakeholder engagement (Saldaña, 2025). While the high volume of DepEd issuances indicates strong administrative compliance, authentic environmental education requires a Whole-School Approach (WSA). The Whole School Approach (WSA) asserts that sustainability must be deeply integrated into the curriculum, campus operations, organizational culture, and community partnerships to effectively foster student agency and catalyze long-term behavioral shifts toward environmental stewardship (Karaarslan-Semiz & Sund, 2025). Consequently, the mere physical presence of a YES-O charter, a GPP garden, or an SWM facility does not equate to educational achievement.

A significant research gap exists regarding the implementation fidelity of these policies within the instructional core. Currently, there is a lack of empirical data examining whether these programs have been successfully integrated into the daily teaching and learning matrix of public secondary schools in Vigan City, Candon City, and Ilocos Sur, or if they remain superficial administrative exercises. Addressing this gap is particularly important because understanding the operational and pedagogical realities of Green Campus implementation may help shift the discourse from mere administrative compliance toward educational effectiveness and sustainable institutional transformation. The findings of this study may provide teachers with evidence-based strategies for integrating environmental education into classroom instruction and experiential learning activities. For school leaders and administrators, the study may offer practical insights into strengthening institutional support systems, resource allocation, and policy implementation to foster a culture of sustainability within schools. Furthermore, the study may assist curriculum developers in designing interdisciplinary and context-responsive environmental learning modules that integrate sustainability concepts across subject areas while addressing issues of curriculum overload. Through these contributions, the study sought to support the advancement of environmentally responsive teaching practices, sustainable school leadership, and policy development in public secondary education.

## Review of Related Literature and Studies

### Introduction to Green Campus and Education for Sustainable Development

Green campus initiatives reflect a fundamental shift in educational paradigms toward Education for Sustainable Development (ESD). Global frameworks, notably the SDGs, emphasize that schools must go beyond theoretical instruction and embed sustainability into their core operations. The WSA is increasingly recognized globally as the standard for successful environmental education. The transition to sustainable schools allows educational institutions to reduce their environmental footprint while simultaneously functioning as "living laboratories" for students. Aregarot, Kubaha, and Chiarakorn (2024) assert that actively integrating these sustainability concepts into academic institutions is vital for developing future-ready learners capable of systemic thinking.

### Pedagogy, Curriculum, and Environmental Integration

Translating environmental policies into pedagogical structures involves navigating substantial academic challenges, particularly concerning curricular integration. Recent literature (2021–2026) emphasizes a necessary pivot away from traditional lecture-based formats toward active, constructivist pedagogies. Biney (2025) highlights that problem-based learning (PBL) significantly enhances environmental education by engaging students in practical problem-solving. Approaching the same goal from a different methodological lens, Alkair et al. (2023) emphasize that using a STEM-based (Science, Technology, Engineering, and Mathematics) approach for sustainability programs actively cultivates high-level analytical thinking. Critically comparing these approaches, while Biney focuses on the immediate, localized application of environmental solutions, Alkair et al. prioritize the technical, quantitative skills

required for ecological auditing. Both studies, however, converge on the consensus that passive memorization is an obsolete pedagogy for ESD.

Despite these pedagogical advancements, the interdisciplinary nature of environmental education often conflicts with strict standard learning benchmarks. Shabalala (2025) argues that schools must adopt collaborative, distributed leadership strategies to mitigate "syllabus overload"—a systemic barrier where environmental education is frequently marginalized by competing academic priorities and limited instructional time, rather than being treated as a core requirement.

#### School-Based Greening Initiatives and Agricultural Learning

Physical campus greening, particularly school gardening, serves as a vital tool for experiential education. In the Philippines, the GPP addresses child malnutrition while providing hands-on agricultural learning. Students actively involved in school-based gardening report enhanced practical understanding, improved cooperation skills, and heightened food security consciousness.

However, a critical review of recent literature reveals a tension between the pedagogical ideals of greening programs and their logistical realities. Kelemen et al. (2024) expand on the critique of school gardens as fragile educational tools, observing that they frequently remain "pedagogical islands" isolated from the broader curriculum; without formal integration into teacher workload models, dedicated maintenance funding, and climate-resilient design, these spaces often degenerate into neglected areas rather than serving as enduring sites of instruction.

#### Solid Waste Management (SWM) and Student Leadership Advocacy

Effective Ecological SWM forms another operational and educational pillar of the Green Campus model. Recent longitudinal data from Reyes and Villanueva (2026) reveal that "Cash-from-Trash" programs have evolved into sophisticated circular micro-economies within schools; these initiatives not only maintain high levels of ecological engagement but also serve as practical frameworks for teaching advanced financial modeling and transparent participatory budgeting among Filipino learners. Furthermore, data-driven ecological stewardship—particularly student-led waste auditing—bridges the gap between operational waste reduction and mathematical/analytical skill-building in the classroom.

At the forefront of this behavioral shift are student advocates. Grassroots environmental action relies heavily on youth organizations like YES-O. However, keeping these eco-clubs functional requires consistent administrative backing. Without sufficient funding, regularized policy enforcement, and dedicated supervision, student-led programs risk fading due to competing academic schedules.

#### Synthesis and Research Gap

The reviewed literature firmly establishes that Green Campus programs—encompassing agricultural learning (GPP), waste reduction (SWM), and youth advocacy (YES-O)—are theoretically robust and securely aligned with global educational targets like SDG 4 (Quality Education). Recent pedagogical studies validate that when utilized correctly, these programs yield verifiable improvements in students' ecological knowledge, analytical abilities, and cooperative skills.

However, a prominent gap remains concerning the "fidelity of implementation" within localized, resource-constrained environments. Drawing upon Neo-Institutional Theory, schools frequently fall victim to "decoupling," adopting environmental directives as token gestures to appease bureaucratic authorities rather than triggering enduring instructional transformation. While contemporary literature heavily analyzes tertiary education or isolates specific theoretical components like curricular overload, there is a distinct lack of empirical investigation regarding how faithfully DepEd mandates are operationalized into the teaching practices and daily administration of high schools in the agricultural and coastal contexts of Ilocos Sur. This study bridges the gap between written policy and classroom practice, exploring the systemic barriers preventing genuine pedagogical integration.

### Theoretical Framework

#### Neo-Institutional Theory

New developments in Neo-Institutional Theory, derived from Meyer and Rowan (1977) and DiMaggio and Powell (1983), posit that the goal of formal structures is primarily to obtain legitimacy, resources, and institutional survival, often at the expense of functional efficiency. At the heart of this view are two mechanisms: coercive isomorphism, whereby organizations obey rules due to external regulatory pressures, and decoupling, where formally

mandated policies are adopted symbolically while being segregated from the day-to-day operations and core instructional practices of the entity.

This framework is highly applicable for analyzing the systemic constraints faced by Philippine public schools reacting to DepEd's rigorous environmental directives. State-induced mandates for YES-O, GPP, and SWM drive coercive isomorphism in Ilocos Sur schools. Smeplass (2025) underscores that educational institutions are highly vulnerable to decoupling, utilizing symbolic compliance to circumvent complex top-down legislation. Similarly, Kehinde (2024) found that top-down environmental policies frequently result in token implementation rather than enduring cultural and pedagogical transformation. Neo-Institutional theory provides the diagnostic lens to assess whether DepEd mandates are merely bureaucracy-induced "myth and ceremony" or truly embedded educational practices.

#### Whole-School Approach

To comprehend successful Green Campus implementation, this study utilizes the Whole-School Approach (WSA). This theory emphasizes that sustainability cannot be an isolated extracurricular issue; it must permeate all school dimensions:

Operations: Waste management, energy, and water conservation.

Pedagogy: Actively embedding climate change and sustainability themes directly into the academic curriculum.

Culture: Active participation in environmental clubs (YES-O) and youth organizations.

Community: Collaborative green spaces and community-wide environmental action.

The integration of Neo-Institutional Theory with the WSA provides a dual, holistic scaffold: diagnostic and normative. While Neo-Institutional Theory explains why policies fail or decouple at the operational level, the WSA defines the rigorous criteria for what successful, institutionally embedded environmental education should look like.

#### The United Nations Sustainable Development Goals (SDGs)

The SDGs constitute the global blueprint for sustainable prosperity (United Nations, 2025). SDG 4 (Quality Education) specifically highlights the necessity of making sustainability a core part of the educational fabric rather than an afterthought (UNESCO, 2026). Locally, the Philippines has embedded these goals: the GPP promotes SDG 2 (Zero Hunger) through school-based agricultural learning; SWM aligns with SDG 12 (Responsible Consumption and Production) by instilling circular-economy literacy; and YES-O localizes SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land) through targeted, context-specific advocacy like coastal clean-ups in Ilocos Sur.

Linkage to Research Questions and Findings By bridging Neo-Institutional Theory, the WSA, and the SDGs, this theoretical foundation directly informs the study's trajectory. The research questions probing the extent of policy implementation are rooted in identifying "decoupling" (Neo-Institutional Theory), while inquiries into curriculum integration and pedagogical practice are guided by the WSA. Consequently, the anticipated findings will not merely list barriers, but will theoretically map how and why schools can transition from symbolic administrative compliance to authentic, instructionally integrated environmental education.

#### Conceptual Framework

The paradigm below is used to determine the Implementation of Green Campus Initiatives among public secondary schools in Ilocos Sur.



Figure 1. Green Campus Initiatives

This fluid conceptual skeleton illustrates that "Green Campus Initiatives" are an ongoing cycle rather than a static checklist.

**Campus Vision:** Represents the core goals of Ilocos Sur public schools, driven by DepEd requirements, national legislation, and global SDGs.

**Action Mapping:** Translates the vision into tangible operational plans, dictating how infrastructure like MRFs and GPP gardens will be established.

**Teaching Integration:** The critical core of the framework. This step ensures that physical initiatives are not decoupled, but are actively incorporated into curricular subjects (pedagogy) and extracurricular activities (YES-O), transforming physical spaces into active learning environments.

**System Limits:** Represents the barriers to implementation (e.g., instructional time constraints, budgetary limitations, spatial challenges, or lack of teacher training), exposing the realities of policy decoupling.

**Adaptive Solutions:** Highlights the localized pedagogical practices, coping mechanisms, and community coordination schools utilize to overcome systemic limits.

By investigating how these five phases interrelate, this study moves beyond surface-level audits. It links overarching theory to specific research findings, allowing the researcher to formulate strong, evidence-based recommendations tailored for teachers, administrators, and curriculum developers to achieve true environmental stewardship.

### Statement of the Problem

International frameworks such as the United Nations Sustainable Development Goals and national legislation like Republic Act No. 9512 mandate the integration of environmental awareness and sustainability skills into the Philippine educational system. To operationalize these mandates, the Department of Education requires public schools to implement Green Campus initiatives through programs such as the Youth for Environment in Schools Organization (YES-O), the Gulayan sa Paaralan Program (GPP), and Ecological Solid Waste Management (SWM).

Despite these policy directives, a significant educational concern persists regarding the extent to which these initiatives are effectively integrated into teaching-learning processes and school practices. There is limited empirical evidence on how these programs influence student learning, ecological behaviors, and school culture, particularly in localized contexts. This situation creates a gap between policy expectations and actual educational outcomes.

In the context of public secondary schools in the Vigan City, Candon City, and Ilocos Sur divisions, it remains unclear whether Green Campus initiatives are fully institutionalized as part of instructional practices and organizational culture or are implemented primarily for compliance purposes. Additionally, schools encounter various operational and pedagogical challenges that may affect the sustainability and effectiveness of these initiatives.

Given the agricultural context and climate vulnerability of the Ilocos region, examining the implementation of Green Campus initiatives is both timely and significant. This study seeks to provide a comprehensive understanding of how these programs are implemented, the factors influencing their adoption, and their implications for teaching, learning, and school-based environmental education. Ultimately, the study aims to contribute to the improvement of educational practices and policy development by promoting a more integrated and sustainable approach to environmental education.

### Research Objectives

#### General Objective

To determine the extent of implementation of Green Campus initiatives among public secondary schools in Ilocos Sur for the Academic Year 2025–2026.

#### Specific Objectives

The study aims to:

1. Identify the green campus initiatives being implemented among public secondary schools;
2. Explore the underlying reasons and drivers for implementing these initiatives;
3. Examine the processes and methods used in implementing green campus initiatives;
4. Determine the challenges encountered during the implementation of these initiatives;
5. Propose policy recommendations to improve the implementation and sustainability of green campus initiatives.



## Research Questions

1. What green campus initiatives are being implemented among public secondary schools in Ilocos Sur?
2. What are the underlying reasons and drivers for implementing these green campus initiatives?
3. How are these green campus initiatives implemented in public secondary schools?
4. What challenges are encountered during the implementation of green campus initiatives?
5. What policy recommendations can be proposed to improve the implementation and sustainability of green campus initiatives?

## METHODOLOGY

### Research Design

This study employed a qualitative multiple-case study research design. Yin (2018) describes a case study as an empirical investigation of a real-life phenomenon, particularly when the boundaries between the phenomenon and its context are not clearly evident. A multiple-case study design focuses on examining several cases to investigate their similarities and differences (Stake, 2006).

This method is highly suitable for this research, as it enables an in-depth investigation into the deployment, perception, and continuation of Green Campus initiatives across several distinct public secondary schools in Ilocos Sur. By treating each selected school as an individual case, cross-case analysis can be conducted to identify common themes, shared systemic challenges, and localized successful practices. Drawing on multiple sources of evidence from these schools facilitates a comprehensive understanding of the phenomenon, establishing robust, evidence-based support for policy recommendations.

### Population and Sampling

In this study, purposive sampling was employed. The target population comprises 117 participants from the 9 Public Secondary Schools in Ilocos Sur, specifically 39 from Vigan City Division, 39 from Candon City Division, and 39 from Ilocos Sur Division. The schools in Vigan City Division include Vigan National High School West (VNHSW), Vigan National High School East (VNHSE), and Ilocos Sur National High School (ISNHS). The schools in the Candon City Division include Candon City Information Technology National High School (CCITNHS), Dr. Ricardo Gacula Memorial National High School (DRGMNHS), and Candon National High School (CNHS). Moreover, in Ilocos Sur Division, the schools are Banayoyo National High School (BNHS), Sta. Maria National High School (SMNHS) and Sinit National High School (SNHS).

**Table 1**

*Distribution of Participants*

Respondents	Vigan City Division			Candon City Division			Ilocos Sur Division		
	S	M	L	S	M	L	S	M	L
Principal	1	1	1	1	1	1	1	1	1
Club Advisers	2	2	2	2	2	2	2	2	2
Club Officers	10	10	10	10	10	10	10	10	10
<b>Total</b>	<b>39</b>			<b>39</b>			<b>39</b>		

### Research Instruments

The researcher developed a structured interview guide to collect data on the implementation of green campus initiatives in public secondary schools. The following experts validated the interview guide, and the evaluators' suggestions were incorporated into the final version.

### Content Validation

The instrument underwent content validation by five subject-matter experts, consisting of:

- a Subject Group Head (HUMSS),
- a Master Teacher (Research)
- a Master Teacher (English)
- a Master Teacher (Science)
- a Head Teacher (Araling Panlipunan).



Each validator possessed at least a master's degree and extensive experience in Science, Social Science, English, research instruction and curriculum evaluation. A 5-point Likert-type scale was used for validation, where 5 indicated *very highly valid* and 1 indicated *poorly valid*. The instrument obtained a mean validity rating of 4.62, interpreted as Very Highly Valid, indicating excellent content adequacy and relevance.

### Data Collection Procedure

This study aimed to determine the implementation of Green Campus Initiatives among Public Secondary Schools in Ilocos Sur for the Academic Year, 2025-2026. Prior to data collection, formal written permission was secured from the Schools Division Superintendents of Vigan City, Candon City, and Ilocos Sur. Upon receiving division-level authorization, the researcher coordinated with the respective School Principals to schedule the interviews. Data collection was administered from January-March 2026.

Strict ethical guidelines were observed throughout the data collection phase. All participants were provided with informed consent forms detailing the study's purpose, the voluntary nature of their participation, and guarantees of confidentiality and anonymity. With the participants' explicit consent, the researcher conducted face-to-face semi-structured interviews with the School Principals and Club Advisers. Furthermore, Focus Group Discussions were facilitated among the student Club Officers to gather collective insights and shared operational experiences. All sessions were audio-recorded to ensure accuracy, and the researcher subsequently transcribed the recordings verbatim for comprehensive data analysis.

### Treatment of Data

To systematically derive meaning from the qualitative data, the researcher employed Reflexive Thematic Analysis (RTA). Adhering to the refined framework by Braun and Clarke (2024), the study utilized a recursive six-phase process that prioritizes researcher subjectivity and deep engagement with the data to ensure the theoretical "quality" and interpretive depth of the findings.

**Familiarization with the Data:** The researcher engaged in repeated readings of the interview and FGD transcripts to achieve immersion, simultaneously taking preliminary notes on recurring concepts and reflections.

**Generating Initial Codes:** The dataset was systematically coded. Specific portions of the text conveying significant information related to Green Campus implementation were labeled, ensuring all relevant data extracts were collated under their respective codes.

**Searching for Themes:** The researcher aggregated the initial codes into broader, potential themes, summarizing key structural and pedagogical insights for each category.

**Reviewing Themes:** The preliminary themes were rigorously reviewed against the coded extracts and the entire dataset. This ensured the themes accurately reflected the participants' narratives, leading to the development of a comprehensive thematic map.

**Defining and Naming Themes:** The researcher refined the specifics of each theme, establishing distinct definitions, clarifying nuances, and identifying the overarching narrative each theme contributed to the study.

**Producing the Report:** In the final phase, the analytical narrative was synthesized with compelling data extracts to present a coherent, evidence-based account of the implementation realities of Green Campus initiatives in Ilocos Sur.

This structured approach ensured that the final analysis remained deeply grounded in the participants' lived experiences while directly addressing the study's core research objectives.

### Ethical Considerations

Ethical standards were strictly observed throughout the conduct of the study. Approval to conduct the research was obtained from the Schools Division Office and the school administration. Since the participants were minors, written informed consent was secured from both the students and their parents or legal guardians prior to data collection.

Participation in the study was voluntary, and participants were informed of their right to withdraw at any time without penalty. Confidentiality of respondents' identities and data was maintained, and all information collected was used solely for academic and research purposes.

## RESULTS and DISCUSSION

This section presents and discusses the results of the study based on the research questions. Findings are interpreted in relation to learning theory and relevant empirical studies to explain observed outcomes.

### Green Campus initiatives being implemented among public secondary schools

Public secondary schools in Ilocos Sur systematically implement three primary programs: the Youth for Environment in Schools Organization (YES-O), the Gulayan sa Paaralan Program (GPP), and Ecological Solid Waste Management (SWM). Specific localized activities include strict waste segregation, the establishment of functional Materials Recovery Facilities (MRFs), vertical gardens, "Bring Your Own Container" (BYOC) source reduction initiatives, and "Cash-from-Trash" programs.

These initiatives illustrate that schools are evolving beyond surface-level compliance to actively operationalize environmental stewardship through a synergy of physical infrastructure and socio-behavioral frameworks. By bridging material greening—such as smart vertical gardens—with circular economy models (e.g., waste-to-resource programs), schools transform their premises into what Valls-Val and Harrington (2025) define as "Living Laboratories"—dynamic environments where the campus serves as a real-time testing ground for sustainable innovation and behavioral shifts. Furthermore, adapting the Green Philippines Program (GPP) to local agrarian realities aligns with the findings of Llamas and Tolentino (2025), who emphasize the multi-dimensional benefits of "bio-functional" school landscapes; these spaces serve a dual purpose by providing nutritional security through indigenous crops while simultaneously acting as restorative aesthetic environments that reduce climate-related anxiety among students.

For educational practice, this means that environmental education is no longer confined to theoretical textbook concepts. Educators may utilize these physical campus changes—like the MRF and vertical gardens—as practical instructional tools for science, agriculture, and mathematics, making abstract sustainability concepts highly tangible and experiential for students.

### Reasons for implementing Green Campus initiatives

The schools implemented these initiatives to comply with national legislation (e.g., Republic Act No. 9512 and 9003) and align with the UN Sustainable Development Goals (SDGs), while practically addressing localized issues such as coastal conservation, student malnutrition via School-Based Feeding Programs, and rising student eco-anxiety. Students actively reported feeling less eco-anxious and developed better problem-solving skills by engaging in these projects.

Initially, the drive to implement these programs is rooted in coercive isomorphism—adhering to strict DepEd mandates to maintain institutional legitimacy, as explained by Neo-Institutional Theory (Meyer & Rowan, 1977). However, the reduction in student eco-anxiety and the mitigation of local malnutrition point to a deeper pedagogical motivation. Schools recognize that engaging students in actionable solutions empowers them. This is corroborated by Gündüz and Öztürk (2025), who demonstrate that the synergy between tangible green infrastructure and hands-on participatory learning significantly bolsters student ecological agency; as students interact directly with their campus environment, their practical environmental literacy transitions from passive understanding to proactive, self-directed stewardship.

School leaders and teachers may frame green initiatives not merely as bureaucratic rules or chores, but as vital mental well-being and citizenship programs. Recognizing that hands-on participation lowers eco-anxiety suggests that active learning through environmental clubs may be heavily promoted as a tool for student empowerment and resilience.

### Green Campus initiatives implementation

Implementation relies heavily on localized adaptations and systematic routines tailored to the region. Schools utilize structured quarterly waste audits where MRF committees randomly inspect bags for contamination to track reduction targets. Furthermore, composting duties are integrated directly into class timetables, and science teachers use these activities as practical lessons on decomposition, nutrient cycles, and chemical degradation.

The operationalization of these programs turns routine waste management into an active, hands-on learning module. By assigning composting to class schedules, schools successfully bridge the gap between policy and practice. As underscored by Kusumawanto and Setyowati (2025), school-based composting has evolved into a cornerstone of circular pedagogy; these programs function as sophisticated "outdoor laboratories" that go beyond mere waste diversion to provide students with tangible data on carbon sequestration and nutrient cycling, thereby deepening the practical application of modern biological and environmental science curricula.



Teachers may adopt a schedule of environmental duties as part of academic grading or laboratory work. By directly linking the maintenance of the MRF or the school garden to specific, measurable learning competencies in science, educators ensure that sustainability becomes a habitual, assessed component of student development rather than an extracurricular afterthought.

### Challenges encountered by the public secondary schools before the implementation of green campus initiatives

The primary barriers to implementation include an overloaded academic syllabus, chronic funding shortages for eco-projects, inadequate infrastructure (such as limited space and water supply for gardens), and inconsistent enforcement of policies. The lack of coordination in staffing distribution and the tendency for new employees to relax stringent controls often lead to poor sorting quality and increased waste contamination, making the programs appear unsuccessful.

These barriers reflect the phenomenon of policy-practice decoupling, where top-down national directives fail to account for local logistical and financial constraints (Kehinde, 2024). The congested K-12 curriculum prevents teachers from deeply integrating environmental themes without feeling overwhelmed, often reducing programs to short-term, symbolic compliance. This aligns with recent evidence from Delos Santos and Bautista (2025), who emphasize that the absence of dedicated budgetary allocations and robust administrative mandates leads to "programmatically fragility"; without these pillars, eco-club initiatives often succumb to resource depletion and a gradual loss of learner engagement, preventing the transition from a transient activity to a permanent institutional fixture.

To overcome these hurdles, educational planners may consider streamlining the curriculum to allow for cross-disciplinary integration. Administrators may secure dedicated, predictable funding for green infrastructure and prioritize continuous professional development, ensuring that teachers feel equipped—rather than burdened—by the task of environmental integration.

### Policy recommendations to improve the implementation of a Green Campus

The study strongly recommends that the integrated Green Campus model become a fundamental educational requirement through the adoption of a Whole-School Approach (WSA). This entails embedding sustainability formally into the curriculum, daily campus operations, school culture, and community relationships to ensure long-lasting impact.

Shifting from mere bureaucratic compliance to a genuine WSA ensures that environmental practices become part of the institution's core "DNA". Rather than operating as isolated, ad-hoc activities, policy must support systemic integration. Hofman and Chisnall (2025) argue that for sustainability to catalyze profound behavioral shifts, it must achieve total institutional alignment, where ecological principles are seamlessly woven into the "hidden curriculum" of campus operations, administrative decision-making, and formal academic instruction. By formalizing the WSA, schools can systematically tackle existing barriers through collaborative, community-wide strategies.

Policymakers and school heads may consider rewriting institutional guidelines to embed environmental metrics into standard school evaluations and teacher performance appraisals. For educators, this means transitioning toward collaborative, project-based teaching models where community stakeholders (like local LGUs) are actively involved in the classroom, transforming the campus into an inclusive, resilient, and sustainable ecosystem.

### Conclusions

1. The implementation of Green Campus initiatives among public secondary schools in Ilocos Sur demonstrates a transition from policy-driven compliance to more institutionalized environmental practices, contributing to experiential and student-centered learning.
2. The integration of programs such as YES-O, GPP, and SWM supports the development of environmental literacy, problem-solving skills, and student engagement, thereby enhancing teaching and learning processes.
3. Effective implementation is facilitated by collaborative leadership, teacher involvement, and the integration of sustainability into classroom instruction and school operations.
4. Persistent challenges, including curriculum overload, limited resources, and inconsistent policy enforcement, affect the depth of integration of environmental education into instructional practices.
5. The adoption of a Whole-School Approach provides a viable framework for strengthening curriculum integration, improving school management practices, and fostering a culture of sustainability, thereby contributing to educational innovation and policy development.

## Recommendations

1. Educational administrators may consider scaling successful local initiatives, such as Project GEMMA, across divisions to support standardized and context-responsive implementation of Green Campus programs.
2. School leaders and local government units may strengthen partnerships and allocate sustainable resources to support infrastructure development and the integration of environmental education into teaching and learning processes.
3. Teachers and school administrators may adopt student-centered and incentive-based approaches to promote active participation in environmental programs and reinforce positive ecological behaviors.
4. Curriculum developers and educators may integrate sustainability concepts across subject areas through interdisciplinary and project-based learning approaches to enhance long-term educational outcomes.
5. Policymakers and school leaders may adopt a Whole-School Approach by embedding environmental practices into curriculum design, school policies, and daily operations, while clearly defining roles and responsibilities to ensure sustainability and accountability.

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