

# Promoting Sustainable Environmental Practices: An Integrated Approach of Selected Public Secondary and Tertiary Schools in Negros Oriental

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## ABSTRACT

This study explores the sustainable environmental practices, specifically focusing on biodegradable waste management, of selected public secondary and tertiary schools in Negros Oriental. The aim is to promote a more cohesive and integrated approach to sustainability across these institutions. Recognizing the pivotal role of schools in fostering environmental stewardship, this research assesses existing environmental initiatives, identifies gaps and challenges, and proposes actionable strategies for improvement. It highlights specific challenges in biodegradable waste management within classrooms and the broader institution, including inconsistent waste segregation practices and limited reinforcement mechanisms. The study offers strategic recommendations for enhancing environmental stewardship, aligning with the schools' mission of academic excellence, social responsibility, and community impact. These findings are expected to contribute to the development of more effective, inclusive, and context-sensitive sustainability strategies within higher education institutions.

**Keywords:** Sustainable Environmental Practices, Educational Stewardship, Biodegradable Waste Management

## INTRODUCTION

In recent years, the global call for sustainability has become more urgent than ever, as climate change and resource depletion continue to threaten ecosystems and communities around the world [1][2]. Educational institutions play a pivotal role in shaping environmentally responsible citizens and serving as models of sustainable development. As centers for learning, research and innovation, universities are uniquely positioned to promote environmental stewardship within their communities [3][4].

The selected public secondary and tertiary schools in Negros Oriental carry both the responsibility and opportunity to embed sustainability into their core operations, curriculum, and culture. Isolated initiatives, lack of stakeholder coordination and limited awareness often hinder the effectiveness and long-term impact of these practices [5].

This study uses a mixed-methods research design within the pragmatic paradigm to collect both qualitative and quantitative data including stakeholder views, underlying motivations, and institutional challenges aiming to provide a comprehensive picture of sustainability efforts in schools.

Ultimately, this research aspires to contribute to the schools' mission of academic excellence and social responsibility by fostering a culture of environmental consciousness and sustainable action that extends beyond the campus and into the broader community. The study seeks to empower educational institutions as active agents of local environmental change, aligned with both national sustainability goals and global climate action frameworks.

## Rationale of the Study

This study specifically focuses on biodegradable waste management as a critical component of sustainable environmental practices within these educational settings. Given the increasing volume of school-generated waste and the limited capacity of local waste management systems, focusing on biodegradable waste management provides a tangible entry point for schools to model sustainable practices. The study seeks to explore and assess the existing environmental practices, particularly regarding biodegradable waste management, at selected public secondary and tertiary schools in Negros Oriental. It aims to identify gaps and propose integrated strategies that holistically engage all sectors of the academic community. Employing a qualitative approach, the research aims to capture in-depth insights into the perceptions, experiences and challenges faced by stakeholders in implementing and sustaining these practices [6]. By generating rich, context-sensitive data, the study intends to inform the development of more inclusive, strategic and practical approaches to environmental stewardship within the schools, reinforcing the schools' mission of academic excellence and social responsibility and their potential to influence broader community-based sustainability efforts. In doing so, it seeks to bridge the gap between policy and practice, equipping schools to become catalysts for sustainable behavior change both within their institutions and in the surrounding communities. Overall, the findings are expected to contribute to the development of more effective, inclusive and context-sensitive strategies for promoting environmental stewardship in higher education institutions [7].

## Statement of the Problem

This study aims to explore the common practices of selected public secondary and tertiary schools in Negros Oriental in managing biodegradable waste.

Specifically, the study seeks to answer the following questions:

1. What concrete activities are observed in the classroom to strictly integrate or implement proper segregation of biodegradable waste in school?
2. How does the school reinforce the proper segregation of biodegradable waste to be observed in the whole institution?
3. What are the difficulties observed in the implementation of biodegradable waste management practices?

## Philosophical Underpinnings

This study is grounded in philosophical assumptions under the pragmatic paradigm, drawing from ontological [8], epistemological [9], axiological [10] and methodological perspectives [11]. It recognizes reality as both objective (observable practices) and subjective (personal experiences of waste management). Knowledge is acquired through both empirical data and human interpretation, combining quantitative findings with qualitative insights from interviews and focus groups. The study also acknowledges the researcher's advocacy for sustainability, highlighting the ethical role of values in shaping the research. It ensures depth and validity while emphasizing practical outcomes, stakeholder engagement, and actionable recommendations to promote environmental responsibility in selected schools [12].

## Scope and Limitation of the Study

This study aims to examine the common practices of selected public secondary and tertiary schools in Negros Oriental in managing biodegradable waste, focusing on three key areas: classroom activities that integrate proper waste segregation, institutional efforts supporting biodegradable waste management, and challenges faced during implementation. Participants include teachers, administrators, and key personnel directly involved in school waste management. Data will be gathered through interviews, focus group discussions, and observations.

The scope is limited to biodegradable waste, specifically excluding non-biodegradable, recyclable, or hazardous waste practices. As a qualitative study, the findings are descriptive and specific to the selected

schools, limiting direct generalizability to all educational institutions. The research also depends on participant availability and willingness, which may influence the depth of insights, while time and access constraints could further affect data collection.

### Significance of the Study

This study aims to generate meaningful insights into the prevailing common practices of biodegradable waste management in selected public secondary and tertiary schools in Negros Oriental. By examining how waste segregation is implemented and reinforced, it aims to deepen the understanding of sustainability efforts within the educational sector. The insights gleaned from this research are anticipated to benefit various stakeholders:

**Students:** As primary members of the academic community, students will benefit from improved environmental practices that promote awareness, responsibility, and active participation in sustainability efforts. It may also inform curricular and extracurricular programs that encourage student involvement in environmental initiatives.

**Faculty and Staff:** This study will provide teachers with practical insights and context-based strategies to effectively integrate environmental responsibility into their teaching practices, classroom activities, and overall contribution to a sustainable campus culture.

**University Administrators:** This study helps administrators evaluate and improve policies and programs that promote sustainable environmental practices, offering context-specific insights on what works and what needs enhancement.

**Policy Makers and University Planners:** This study will support them develop or enhance context-sensitive environmental policies by grounding decisions in the real experiences of those involved in school-based sustainability efforts.

**Environmental Organizations and Advocates:** This study will guide external groups design programs and community projects that align with the needs of local schools, while fostering opportunities for partnerships and collaborative sustainability efforts.

## REVIEW OF RELATED LITERATURE

The global imperative for sustainable environmental practices has significantly influenced the educational sector, prompting a reevaluation of institutional responsibilities and pedagogical approaches [1][2]. This review synthesizes existing literature relevant to sustainable environmental practices, with a particular focus on biodegradable waste management within educational institutions, drawing connections to the Philippine context. In the Philippine context, Republic Act No. 9003, or the Ecological Solid Waste Management Act of 2000, mandates all institutions, including schools, to adopt waste segregation and reduction at source. This emphasizes the need to explore localized, institution-specific approaches to sustainability that reflect the realities and capacities of individual schools or universities [13][14]. Further, Republic Act No. 9512, known as the National Environmental Awareness and Education Act of 2008, mandates the integration of environmental education into school curricula at all levels [23].

**Biodegradable Waste Management in Schools:** Biodegradable waste, which includes organic matter such as food waste, paper, and garden debris, presents both a challenge and an opportunity for educational institutions. When properly managed, such waste can be composted and reused, reducing landfill dependency and supporting agricultural initiatives. School-led composting programs contribute not only to waste reduction but also to environmental education, helping students understand the impact of their consumption behaviors [15]. These issues mirror the challenges highlighted in selected public secondary and tertiary schools in Negros Oriental's existing sustainability initiatives—fragmentation, lack of coordination, and insufficient awareness [16][17][14].

**Environmental Practices and Education in Higher Education Institutions:** Research from various Southeast Asian universities has demonstrated the potential of higher education institutions to model sustainability practices. These include classroom integration of environmental topics, campus-wide green programs and collaborations with local communities [18]. A study by Duran and Mariñas [19] utilized the Theory of Planned Behavior to assess educators' intentions to incorporate sustainability into their teaching, revealing that educators' attitudes and concerns about sustainability significantly influence their intention to incorporate sustainability topics into their teaching. Schools have demonstrated the potential of higher education institutions to model sustainability practices, and these include classroom integration of environmental topics, campus-wide green programs, and collaborations with local communities.

**Stakeholder Engagement and Qualitative Research in Sustainability:** Emphasized that sustainability efforts are more effective when they are inclusive and involve all sectors of the academic community—faculty, staff, students and administrators [20]. This aligns with the objectives of the present study, which seeks to develop context-sensitive strategies that reflect the unique culture and structure of selected public secondary and tertiary schools in Negros Oriental. Qualitative research plays a vital role in understanding the underlying perceptions, motivations and experiences of stakeholders involved in environmental practices. Recent qualitative studies in educational settings have explored themes such as leadership in sustainability, student environmental literacy and the role of experiential learning in environmental education. These works highlight the importance of creating participatory spaces where diverse voices can contribute to designing and sustaining environmentally sound practices [21]. Engaging the youth in environmental sustainability efforts is pivotal, as emphasized by [24], who highlighted the importance of youth contributions to coastal sustainability.

**Strategies for Enhancing Sustainability:** To foster a culture of sustainability, universities must adopt integrated approaches that involve all stakeholders. This includes incorporating sustainability into curricula, promoting student-led initiatives and developing comprehensive waste management policies that are very effective strategies for optimizing waste management in higher education institutions [22]. This comprehensive approach to sustainability aligns with the goals of this study, emphasizing the integration of various efforts to promote sustainable environmental practices.

### Operational Definition of Terms

To ensure clarity and consistency within this study, the following terms are operationally defined:

- **Biodegradable waste-** Refers to organic materials such as food scraps, plant matter, and paper that can be broken down naturally by microorganisms into non-toxic byproducts. These materials contribute to composting and other sustainable waste practices within the school environment [25].
- **Ecological Solid Waste Management Act of 2000 (RA 9003)-** A Philippine law that mandates the segregation, recycling, and composting of solid waste in all sectors, including educational institutions. In the context of this study, it refers to the specific implementation and enforcement of its provisions within the selected schools [27].
- **Environmental Education-** The process of learning about environmental issues and sustainability practices, often embedded within academic curricula and extracurricular activities. It aims to develop awareness, knowledge, and responsible behavior among students regarding environmental care [28].
- **Environmental responsibility-** The ethical and practical commitment of individuals or institutions to act in ways that protect, preserve, and restore the natural environment. In this study, it pertains to the observed actions and policies demonstrating this commitment within the schools [29].
- **Environmental stewardship-** A philosophy and practice involving the responsible use and protection of the natural environment through conservation and sustainable practices [30].

- **Experiential Learning-** A philosophy and practice involving the responsible use and protection of the natural environment through conservation and sustainable practices. Here, it specifically refers to the proactive management and care of the school's environment [30].
- **Integrated Approach:** In the context of this study, this refers to a holistic and coordinated strategy for promoting sustainable environmental practices that involves the active participation of all stakeholders (administration, faculty, students, and staff) and integrates environmental considerations into curriculum, policies, and daily operations.
- **Sustainable Environmental Practices:** Actions and behaviors within the school setting that promote environmental protection, resource conservation, and ecological balance. This study specifically examines practices related to biodegradable waste management.

## METHODOLOGY

This study, “Promoting Sustainable Environmental Practices: An Integrated Approach of Selected Public Secondary and Tertiary Schools in Negros Oriental” uses a pragmatic paradigm with a qualitative case study approach to explore biodegradable waste management. Data were gathered from interviews, focus groups, observations and document reviews involving faculty, students, and administrators. Thematic analysis and data triangulation ensured a thorough and credible understanding of current practices, challenges, and opportunities. Ethical protocols, including informed consent and confidentiality, were strictly followed.

### Research Paradigm

This study is anchored in the pragmatic research paradigm, which emphasizes practical solutions and methodological flexibility to address real-world problems in selected secondary and tertiary schools in Negros Oriental. Recognizing the complexity of reality, it uses a mixed-methods approach to capture both measurable behaviors and deeper insights into perceptions, motivations and institutional practices. As Morgan [31] highlights, pragmatism emphasizes the alignment of methods with research problems and practical consequences, allowing for methodological flexibility and relevance. By combining quantitative and qualitative data, the study aims to provide a comprehensive understanding of current environmental practices while identifying gaps, challenges, and opportunities to enhance sustainability efforts and stakeholder engagement.

### Research Approach

This study will use a qualitative descriptive approach to explore common biodegradable waste management practices in schools in Negros Oriental, focusing on experiences, activities, strategies, and challenges. According to Bradshaw, Atkinson, and Doody [32], qualitative descriptive research is especially useful in educational and environmental contexts where the goal is to provide a straightforward, rich summary of participants’ perspectives and experiences. Data will be collected through interviews, focus groups, observations, and document reviews. Thematic analysis will be used to identify patterns and provide a clear understanding of how these schools manage biodegradable waste.

### Research Design

A case study design was used to deeply explore sustainable environmental practices at public secondary and tertiary schools in Negros Oriental. This approach allows a comprehensive analysis of complex social phenomena within their real context by using multiple data sources such as observations, interviews, and documents. As Yin [34] explains, the case study approach is especially valuable for investigating complex social phenomena in their natural contexts, using multiple sources of evidence to gain comprehensive insights. It helps capture the detailed experiences and perspectives of stakeholders, enhancing the validity and richness of the findings, especially given the cultural and administrative complexities of sustainability efforts in an educational setting.



## Research Locale

This study was conducted in selected public secondary and tertiary schools in Negros Oriental. These campuses serve as hubs for academic, administrative, and research activities within the educational system, making them ideal settings for examining the promotion of sustainable environmental practices. Their accessibility, diverse academic populations, and existing institutional initiatives related to environmental sustainability provide a rich context for exploring effective strategies and stakeholder engagement.

## Participants of the Study

This study's participants from the selected public secondary and tertiary schools in Negros Oriental included faculty, students, and administrators selected for their involvement in environmental sustainability, especially biodegradable waste management. Faculty were chosen for their role in integrating sustainability into academics, students for their participation in initiatives, and administrators for their policymaking and oversight. This diverse group provided a well-rounded view of the university's environmental efforts, revealing strengths, challenges, and opportunities for improving sustainability on campus.

## Research Methods

This study used a qualitative case study approach with key informant interviews, focus group discussions, and direct observations to explore sustainable environmental practices at selected schools in Negros Oriental. These methods captured diverse stakeholder perspectives, institutional policies, and actual behaviors in managing biodegradable waste. Combining these data sources through triangulation improved the credibility and validity of the findings, providing a comprehensive and balanced understanding of the university's sustainability efforts and challenges.

## Research Instruments

This study will use several qualitative tools to gather data: a semi-structured interview guide for in-depth interviews with administrators, teachers, staff, and student leaders; a focus group discussion guide to facilitate shared reflections among students and teachers; an observation checklist to record visible waste management practices during school visits; and a document review matrix to examine relevant policies and materials. Together, these instruments ensure comprehensive data collection aligned with the research objectives.

## Ethical Consideration

This study strictly follows ethical standards to protect participants' rights and dignity. Informed consent will be obtained, ensuring participants understand the study and can withdraw anytime without penalty. Data will be kept confidential, with identities anonymized to ensure privacy. The research will avoid coercion and harm, and ethical clearance will be secured from the university's ethics committee. Cultural sensitivity and respect for institutional norms will be observed to promote trust and integrity throughout the study.

## RESULTS AND DISCUSSIONS

**1: What are the concrete activities you have observed in the classroom to strictly integrate or implement proper segregation of waste in school?**

### Emergent Themes:

- Labeled and Color-Coded Trash Bins
- Waste Segregation Awareness Campaign
- Comprehensive Waste Management and Sanitary Compliance

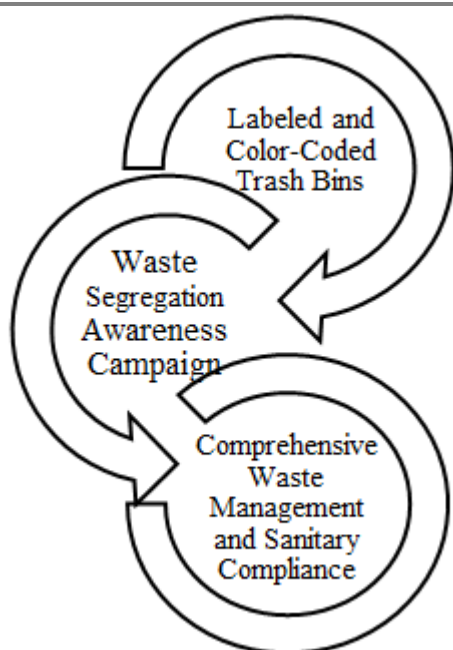


Figure 1: Emergent Framework in Implementing Waste Segregation

The concrete activities observed in the classroom to strictly integrate or implement proper segregation of waste; schools are actively working to integrate proper waste segregation through a combination of awareness campaigns and comprehensive management programs and effectiveness of Labeled and Color-Coded Trash Bins. These efforts aim to instill environmental responsibility and discipline among students, transforming waste segregation into a daily habit. In addition, comprehensive waste management programs, including no-plastic policies, strategically placed labeled bins, and disciplinary measures, are being utilized to ensure proper waste disposal and maintain a hygienic environment [36]. Participant statements corroborate the observed findings:

*P10: "In the classroom, I've observed several effective activities that encourage proper waste segregation. The usage of waste sorting stations with clear labels is one of the essential procedures. By providing distinct bins for recyclables, paper, plastic, and organic garbage, these stations assist students in understanding the proper disposal of each type of waste. Students of all ages can easily follow the labeling. Additionally, there is visible signage in the classroom, including posters that provide detailed directions for waste segregation. These serve as constant visual reminders for the students."*

*P9: "The concrete activities I have observed in the classroom and in the school entirely is we have Waste Segregation Awareness Campaign. This was led by our SSG Officers and the teachers as well. Regularly, we conduct short programs, announcements, reminders and aside from that we integrate it in our discussions and activities, such as quizzes or role-playing, to reinforce the importance of waste segregation. The school also participates and conducts Clean-up Drives that encourage students to join and be involved in order for them to be responsible in waste management and will serves as a collaborative activity as well. These activities help instill discipline and environmental responsibility among students, making waste segregation a daily habit."*

The observed initiatives within classrooms and schools demonstrate a deliberate and multifaceted approach to instilling proper waste segregation practices. This extends beyond the mere provision of bins, encompassing a strategic blend of educational campaigns and structured management systems. This educational component is further reinforced by the strategic placement of clearly labeled waste sorting stations and visible signage, providing constant visual reminders and practical guidance. The implementation of educational initiatives, such as student-led campaigns and curriculum integration, aligns with findings in service-learning and environmental education, which demonstrate that active student involvement fosters environmental responsibility and positive outcomes [37]. Research by Leeabai, Sirisomboonchai and Chaiyatid [36] showed that while color preferences play a role, the noticeability and strategic placement of bins are equally crucial in

promoting efficient waste segregation. To incorporate the specific observations from participant P6, which states:

*P6: "The concrete activities I have observed that were implemented in the classroom are solid waste management and no plastic policy. We also have garbage bins inside and outside our classroom, and those have markers so it is easily recognized and understood. Our classroom also implements disciplinary measures such as incident reports and fines for students who fail to follow proper waste segregation. Additionally, labeled waste bins are strategically placed to ensure that biodegradable and non-biodegradable waste is disposed of correctly. It is really important to have it in our classroom and we need to practice how to be hygienic and make sure we won't have diseases in the long run."*

The statement of Participant 6 provides a valuable real-world perspective on the implementation of waste segregation within an educational setting. The implementation of a "no plastic policy" and strategically placed, clearly marked bins reflects a proactive approach to solid waste management, mirroring institutional efforts to mitigate environmental impact. This aligns with research highlighting the role of regulatory frameworks in promoting sustainable waste practices [39]. Notably, P6's emphasis on hygiene and disease prevention connects waste management directly to public health, a link supported by studies demonstrating the impact of proper waste disposal in preventing disease transmission and ensuring the safe management of healthcare waste [40]. Finally, P6's acknowledgment of the gradual adoption of these practices reinforces the understanding that behavior change requires time and consistent effort, a concept supported by studies on habit formation and environmental education [41].

## 2: How does the school reinforce the proper segregation of waste to be observed in the whole institution?

### Emergent Themes:

- Holistic Institutional Support and Adaptive Learning Integration
- Structured Waste Management System and Environment Awareness Program
- Eco Club SSG Monitors and Student Involvement

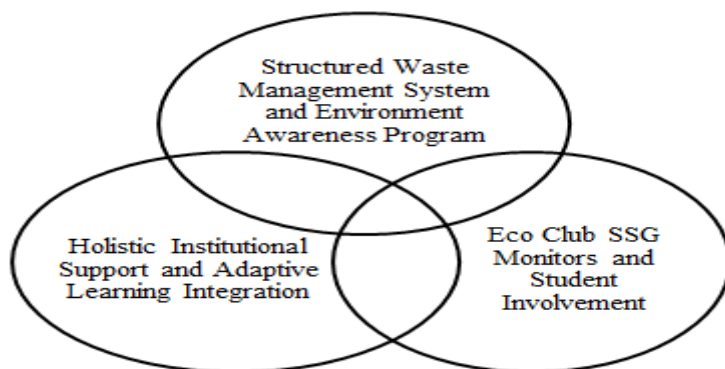


Figure 2: Emergent Framework on Ways to Reinforce Proper Segregation

The school reinforces proper waste segregation through clear education and community involvement. Color-coded labelled bins, posters and reminders are placed campus-wide while doing regular learning integration and announcements to keep the message constant. A supportive monitoring system offers guidance with positive reinforcement encouraging adherence. Waste segregation is also integrated into school policies ensuring that students, teachers and parents actively participate. Through these efforts, the school encourage a culture of responsibility across the institution. These findings align with the statements shared by the participants:

*P2: "You know, reinforcing waste segregation here is a constant process, it's not something we just set and forget. We've really focused on making it visible and consistent. Everywhere you turn, you'll see those clearly*



*marked bins, and we've put up posters and reminders all over the school. We don't just rely on the visuals, though. We make sure to have regular educational sessions, whether it's in class, during assemblies, or even through announcements. We also have a system where we monitor the waste areas, not to police people, but to offer guidance and support. We've even incorporated it into our school policies, so everyone understands the importance because we really believe that if we all work together, we can make a real difference."*

The participant indicated that the school indeed implements a systematic and ongoing approach to intensify proper waste segregation, combining learning and active participation among students, teachers and parents. These findings correspond to a relevant study titled "Institutional Arrangements for Solid Waste Management in Cebu City, Philippines", which discusses the importance of integrating waste management policies into institutional guidelines to ensure sustainability [42].

Students receive cleanliness orientation annually, with waste segregation bins placed campus-wide. Student leaders organize waste collection for weekly municipal pickup and enforce waste rules, assigning cleaning duties for violations. This program blends education, leadership, supervision, and discipline to foster environmental awareness and responsible citizenship, as supported by participants P2 and P11.

*P11: "Students are oriented on cleanliness on the first day of class, with designated bins provided for waste segregation. Class officers collect trash for Tuesday's municipal pickup, while the Student Leadership Group monitors behavior and assigns cleaning duties for violations. The school keeps a clean environment through bins, supervision, and student leadership."*

In the study titled "Implementation of Waste Management in Baliwasan Senior High School: Basis for Action Plan" [43], it found that student orientation, color-coded bins, and active involvement of student leaders, particularly the Supreme Student Government (SSG), significantly improved waste disposal and environmental knowledge in schools. This study relates closely to the participant's response, as it highlights how structured waste management programs in schools are collaborative efforts, combining student orientation, leadership involvement, provision of waste bins, and corrective measures such as cleaning duties to promote realization. The above findings are relevant with the statement made by P8 saying that:

*P8: "Proper segregation of waste is reinforced throughout the entire institution through Eco Club and SSG Student Monitors. The school organizes an Eco Club or assigns the SSG to scrutinize and oversee waste segregation practices, reminding and guiding their peers on proper disposal methods. Strategically placement of color-coded and labelled trash bins in classrooms, hallways, canteens and other common areas to ensure that everyone properly disposes of their waste. The school also has a clear policy on proper waste segregation, which is communicated to students, teachers, and staff through orientations, posters, and bulletin boards."*

The school promotes proper waste segregation through structured policies, student involvement, and effective waste management strategies. The Eco Club and SSG Student Monitors actively oversee waste disposal, ensuring adherence to guidelines. A study by Ajani, Okoro and Bamidelde [42] on waste management in educational institutions found that student-led initiatives significantly improve conformance with waste segregation policies. Furthermore, Martinez, Gomez, and Cruz [44] explore the influence of social norms and peer-led advocacy on environmental behavior in school settings. Their research suggests that when students see their peers actively participating in waste segregation, they are more likely to follow suit.

### **3: What are the difficulties you have observed in the implementations?**

#### **Emergent Themes:**

- Lack of Awareness of the Rules for Waste Segregation
- Inconsistence in Adherence Among Students and Staff
- Time Constraints in Integrating Sustainability Due to Academic Priorities

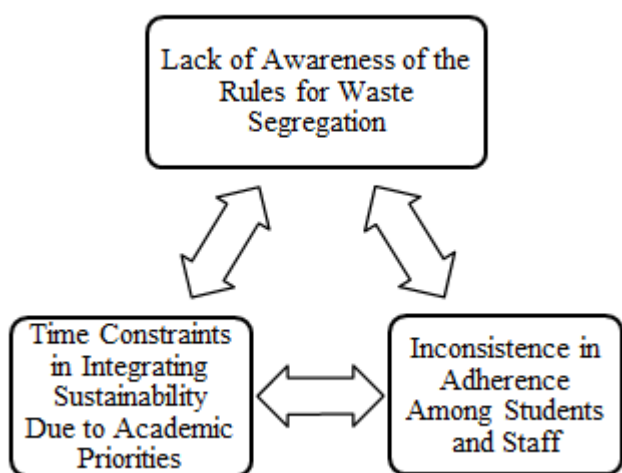


Figure 3: Emergent Framework of the Challenges Observed in Waste Segregation

Proper waste segregation is a crucial practice in maintaining a clean and sustainable environment. However, a significant challenge faced by many educational institutions is the lack of awareness of the rules for waste segregation among students, teachers, and school staff. This issue often leads to improper disposal of waste, contamination of recyclable materials, and increased environmental pollution within school premises. These findings are relevant to the following statements shared by participants:

P5: *“One of the main difficulties is ensuring consistent student compliance with waste segregation rules. Some students may not be aware of the proper procedures, while others may not take them seriously. Furthermore, inadequate waste disposal resources in some areas of the campus can hinder segregation efforts.”*

A relevant statement was also observed from P8, who stated:

P8: *“The implementation of proper waste segregation in our school have also encountered several difficulties including lack of awareness and discipline. Many students do not practice waste segregation at home, making it harder to instill the habit consistently in school. Some students, especially younger ones, struggle to understand, follow or remember the proper way to segregate waste, leading to incorrect disposal. And even when students segregate waste correctly, some garbage collectors mix the waste during collection, which discourages proper segregation efforts.”*

These include insufficient integration of waste management education into school curricula, leaving students with limited knowledge of proper segregation practices, inconsistent waste disposal guidelines within schools leading to confusion and a lack of signage's and enforcement mechanisms. Without proper awareness and structured waste management systems, schools struggle to implement effective waste segregation practices, leading to increased waste mismanagement and ecological harm. The inconsistencies in adherence among students, such as improper waste sorting and lack of participation in garbage collection, initially hindered the program's effectiveness. As a result, continued efforts in awareness and reinforcement are likely to lead to improved waste disposal habits, increased student engagement, and a more successful and sustainable waste management program over time. This statement is relevant when the participant shared her experience, stated that:

P11: *“As our school's waste management program was being implemented, I noticed a number of challenges. Changing certain students' attitudes and behaviors who weren't accustomed to correctly sorting their waste was one of the biggest obstacles. Still, some students would put their trash in the incorrect bins, contaminating the recyclables and decreasing the program's effectiveness. We also had to deal with certain students lack of interest and involvement, particularly during the weekly garbage pickup. Only a handful of committed students would be left to complete the job because some students would not take their obligations seriously. Our school community, however, has proven incredibly resilient and determined to make the program succeed in spite of these challenges.”*

This challenge aligns with the findings of the UNESCO Global Education Monitoring Report [47] highlights the necessity of integrating sustainability education into curricula and emphasizes the importance of continuous monitoring and reinforcement to ensure effective implementation. Additionally, time constraints due to academic priorities have been a major barrier to sustainability efforts in schools. The lack of monitoring and reinforcement, along with the inconvenient placement of segregation bins, further contributes to inconsistent adherence among students and staff. If these issues are addressed, the school can achieve more consistent waste segregation, leading to a cleaner environment and a stronger commitment to sustainability. This statement is supported by P9 who said:

*P9: "There are difficulties I have observed in the implementation of waste segregation, first is that we teachers and the students often focus on academic activities, leaving little time for waste segregation monitoring and reinforcement. Second, some areas of the school have limited or misplaced segregation bins, making it inconvenient for students to properly dispose of their waste. Lastly, while some students and teachers follow segregation rules, others tend to overlook them, especially in areas without direct supervision."*

This is supported by Ahmed and Santos [48] in their study "Contemporary Waste Management Practices in Academic Institutions," which found that educational institutions often face challenges in balancing academic priorities with environmental responsibilities. The respondents' statements (P5, P8, P11, and P9) are strongly supported by these studies, providing clear evidence that a lack of awareness, inconsistent adherence and academic constraints are significant barriers to proper waste segregation in schools.

## Summary of Results

The study reveals that schools promote proper waste segregation through labeled bins, awareness campaigns, and integration into the curriculum, supported by student involvement and school policies. These efforts help build environmental responsibility among students. However, challenges such as lack of awareness, inconsistent adherence, and academic time constraints hinder full implementation. Strengthening education, monitoring, and integration into daily routines can enhance long-term success.

## CONCLUSION

In conclusion, schools demonstrate a structured and effective approach to promoting proper waste segregation through curriculum integration, awareness campaigns, color-coded bins, and student-led initiatives. These efforts, supported by research and strategic policies, foster environmental responsibility and long-term behavioral change. Despite challenges such as limited awareness, inconsistent adherence, and academic constraints, continuous education, strong leadership, and integration into daily routines can enhance sustainability and build a lasting culture of environmental stewardship.

## RECOMMENDATION

To address school waste management challenges effectively, a multi-faceted approach is needed. This includes integrating environmental education into the curriculum, improving infrastructure with color-coded bins, strengthening monitoring through student committees, and involving the wider community. Schools should enforce sustainable policies like "No-Plastic" rules, offer incentives for proper disposal, and raise awareness through posters and training. Lastly, partnering with local waste collectors and setting up recycling stations can ensure proper waste disposal and ongoing improvement.

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