

**COMMUNITY ENVIRONMENTAL SERVICES AS TOOLS FOR
ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT IN
AKPABUYO LOCAL GOVERNMENT AREA, CROSS RIVER STATE, NIGERIA.**

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Abstract

This study examined the role of community environmental services as tools for environmental education and sustainable development in Akpabuyo Local Government Area of Cross River State, Nigeria. The research adopted a descriptive survey design, engaging 150 participants drawn from community-based organizations, teachers, and local environmental officers. Data were collected using structured questionnaires and focus group discussions, and analyzed using descriptive statistics and thematic analysis. The study also found a positive correlation between community participation in environmental services and the level of environmental awareness ($r = 0.72, p < 0.05$). However, challenges such as inadequate funding, poor institutional support, and limited educational outreach constrained the effectiveness of these programs. Findings revealed that community environmental services such as community clean-up campaigns, tree planting exercises, and waste recycling initiatives significantly enhanced residents' understanding of ecological issues and fostered behavioral changes toward sustainable living. The study concludes that community environmental services, when properly integrated with environmental education strategies, serve as powerful tools for promoting sustainable development in rural Nigeria. It recommends that local governments and non-governmental organizations (NGOs) strengthen partnerships, provide environmental education training, and ensure sustained community engagement in environmental initiatives to achieve long-term sustainability goals.

Keywords: environmental education, community environmental services, sustainable development, rural participation, Akpabuyo, Nigeria

Introduction

Environmental degradation and unsustainable resource use remain among the most pressing challenges confronting developing nations today. Across many parts of Nigeria, particularly in rural areas, issues such as indiscriminate waste disposal, deforestation, soil erosion, and poor sanitation practices continue to threaten both ecological integrity and human wellbeing (Eja, 2021). These environmental problems are largely attributed to low levels of environmental literacy, weak institutional frameworks, and limited community involvement in sustainable practices (Udofia & Okon, 2020). Environmental education is widely recognized as a key driver for addressing these issues. It seeks to develop citizens who are knowledgeable about the environment and motivated to act responsibly toward its preservation (UNESCO, 2019). However, in many rural Nigerian communities, formal environmental education programs are limited or poorly implemented, thereby creating a gap

between knowledge and practice (Akpan, 2022). To bridge this gap, community environmental services—including sanitation exercises, tree planting, drainage maintenance, and awareness campaigns—have emerged as practical channels through which environmental education can be delivered at the grassroots level (Opara et al. 2020, Etim & Nsa, 2021).

According to Adekoya (2020), community environmental service activities foster participatory learning, social responsibility, and behavioral transformation among rural dwellers. Through such activities, individuals not only gain environmental knowledge but also internalize values that promote sustainability. Moreover, the integration of community environmental services into local governance structures can support the attainment of the United Nations Sustainable Development Goals (SDGs), particularly Goals 4 (Quality Education), 11 (Sustainable Cities and Communities), and 13 (Climate Action) (UNDP, 2022, Ihekoronye et al., 2020). Despite these potentials, the extent to which community environmental services contribute to sustainable environmental education outcomes in rural areas such as Akpabuyo Local Government Area remains underexplored. Understanding this relationship is essential for formulating effective environmental education strategies that align with local realities.

Theoretical Framework

A. Participatory Environmental Education Theory by Sterling (1996)

This study is anchored on the Participatory Environmental Education Theory proposed by Sterling (1996), which emphasizes the active involvement of learners and community members in environmental learning processes. The Participatory Environmental Education Theory emphasizes learning through participation, where individuals and communities are actively involved in identifying and solving environmental problems within their context. According to Sterling (1996), environmental education should not be limited to classroom instruction but should engage learners in hands-on, community-based experiences that encourage reflection, collaboration, and action. The theory views environmental education as a transformative process that empowers people to make informed environmental decisions and take collective responsibility for their surroundings. This theory relates directly to the present study because community environmental services such as clean-up campaigns, reforestation, and waste recycling embody participatory learning principles. In Akpabuyo, these services serve as informal platforms where residents learn environmental values and sustainable practices by doing. Hence, the theory provides the foundation for understanding how community participation functions as a tool for environmental education.

B. Sustainable Development Theory (Pearce, Markandya & Barbier, 1989)

The Sustainable Development Theory by Pearce, Markandya, and Barbier (1989) posits that economic growth, social inclusion, and environmental conservation must be pursued concurrently. This theory underpins the idea that environmental education and community environmental services should not only raise awareness but also foster sustainable livelihoods. In rural areas like Akpabuyo, where environmental degradation often stems from livelihood pressures, this theory provides a framework for linking education, environmental protection, and economic well-being. This theory supports the aspect of the study that deals with community environmental services as tools for sustainable development. In rural communities like Akpabuyo, engaging in environmental services such as afforestation, drainage maintenance, and sanitation not only improves the physical environment but also contributes to community well-being and resilience. The theory explains how these activities promote both ecological balance and socio-economic advancement, aligning with the broader goals of sustainable development and the UN Sustainable Development Goals (SDGs).

Statement of the Problem

Although environmental education has been recognized as a vital component of sustainable development, its implementation in rural communities of Cross River State is often hampered by inadequate funding, low participation, and lack of structured programs. Many residents of Akpabuyo are aware of environmental problems but lack practical knowledge and skills to engage in sustainable practices (Effiom, 2021). While several community environmental services exist, their effectiveness as instruments of environmental education has not been empirically assessed. This study, therefore, investigates how community environmental services serve as tools for environmental education and sustainable development in Akpabuyo Local Government Area, Cross River State.

Literature Review

Community Environmental Services as a Tool for Environmental Education

Environmental education is widely recognized as a transformative process that helps individuals and communities develop an understanding of environmental issues and the skills necessary to make informed decisions and take responsible action (UNESCO, 2019). Traditional environmental education programs in schools and universities often emphasize theoretical knowledge, but practical engagement remains limited in many rural communities of Nigeria (Akpan, 2022, Ogunode et al. 2024). In this context, community environmental services—such as clean-up exercises, tree planting campaigns, and waste segregation programs—serve as informal but highly effective channels for environmental education (Etim & Nsa, 2021). Adekoya (2020) describes community environmental services as experiential learning opportunities that promote awareness, knowledge, attitudes, and participation among community members. Through such initiatives, individuals gain direct exposure to environmental challenges in their surroundings, fostering a sense of responsibility and ownership. Similarly, Paul et. Al (2019) as well as Udofia and Okon (2020) found that participation in environmental service programs enhances environmental literacy, especially when local residents are actively engaged in planning and implementation.

According to Sterling (1996), participatory learning is central to environmental education because it allows people to learn by doing and reflecting. Community environmental services embody this principle by enabling individuals to acquire environmental knowledge through active participation rather than passive instruction. In Akpabuyo, activities like market sanitation drives and school-led waste sorting programs provide platforms for environmental learning, especially where formal educational structures are weak. Ejia (2021) observed that rural dwellers who frequently participated in local environmental service activities demonstrated higher environmental awareness and were more likely to adopt eco-friendly practices such as waste recycling and safe disposal. These findings are consistent with Palmer's (2018) assertion that environmental education must be participatory, locally relevant, and action-oriented to yield long-term behavioral change.

Thus, community environmental services can be understood as informal educational tools that supplement formal education systems, helping to bridge the gap between environmental knowledge and sustainable action (Tilbury, 2020). This aligns with the goals of environmental education to develop environmentally literate citizens capable of contributing to sustainability within their immediate communities.

Community Environmental Services as a Tool for Sustainable Development

Sustainable development integrates environmental protection, economic growth, and social inclusion (Pearce, Markandya, & Barbier, 1989). Achieving this balance requires not only government policies but also active community participation. Community environmental

services represent grassroots approaches to sustainability because they encourage local engagement in addressing ecological problems using locally available resources (Okafor & Eze, 2020). UNDP (2022) emphasizes that sustainable development goals (SDGs), particularly Goals 11 (Sustainable Cities and Communities) and 13 (Climate Action), can only be achieved when local communities are empowered to take part in environmental decision-making and management. In rural areas like Akpabuyo, where environmental degradation is often linked to poverty and limited education, community environmental services offer a participatory pathway to achieving sustainability by combining environmental action with social learning.

Njeru (2021), in a study on community participation and environmental awareness in rural Kenya, found that collective environmental activities significantly reduced waste accumulation and improved environmental aesthetics. Similarly, Kemeh and Mensah (2020) in Ghana observed that community-based sanitation initiatives fostered environmental responsibility and strengthened social ties among residents, contributing to sustainable community development. Within Nigeria, Effiom (2021) discovered that local waste management efforts in Akpabuyo not only improved sanitation but also created small-scale employment opportunities for waste collectors and recyclers. This demonstrates the dual benefit of community environmental services—environmental improvement and socio-economic empowerment—which are central pillars of sustainability.

According to Adekoya (2020), community environmental services embody the principles of sustainable development by promoting shared responsibility, inclusion, and resilience. They strengthen social capital, encourage innovation, and ensure that development efforts are environmentally sound and locally owned. Ejia (2021) adds that such services have become vital mechanisms through which rural communities in Cross River State manage natural resources and adapt to changing environmental conditions. Therefore, community environmental services not only facilitate environmental education but also serve as operational frameworks for achieving sustainable development at the grassroots level. Their effectiveness depends on continuous community participation, institutional support, and the integration of environmental education into every stage of planning and implementation (UNESCO, 2019; UNDP, 2022).

Objectives of the Study

The main objective of this study is to examine how community environmental services serve as tools for environmental education and sustainable development in rural areas of Akpabuyo Local Government Area, Cross River State, Nigeria. Specifically, to:

1. Assess the extent to which community environmental services influence environmental awareness and education among residents of Akpabuyo Local Government Area.
2. Determine how community environmental services contribute to sustainable development practices in Akpabuyo Local Government Area.

Research Questions

The following research questions were posed to guide the study;

1. To what extent do community environmental services influence the level of environmental awareness and education among residents of Akpabuyo Local Government Area?
2. How do community environmental services contribute to sustainable development practices in rural communities of Akpabuyo Local Government Area?

Research hypotheses

The following null hypotheses were formulated to guide the study:

1. There is no significant relationship between community environmental services and the level of environmental education among residents of Akpabuyo Local Government Area.
2. There is no significant relationship between community environmental services and sustainable development practices in Akpabuyo Local Government Area.

Methodology

The study adopted a descriptive survey research design. This design was considered appropriate because it allows the researcher to collect, describe, and analyze opinions, perceptions, and behaviors of respondents regarding the role of community environmental services in promoting environmental education and sustainable development. According to Nworgu (2015), the descriptive survey design is suitable for studies that aim to gather data from a population to describe the existing conditions without manipulating variables. The target population of the study consisted of community members, local environmental officers, teachers, and leaders of community-based organizations (CBOs) involved in environmental activities within Akpabuyo Local Government Area. According to records from the Cross River State Ministry of Environment (2023), there are approximately 1,240 active participants in environmental-related programs across the 10 wards of Akpabuyo. A sample of 200 respondents was selected from the population using the stratified random sampling technique. The population was stratified into four groups: Community members (100 respondents), Teachers (40 respondents), Local environmental officers (30 respondents), CBO leaders (30 respondents). From each stratum, respondents were randomly selected to ensure fair representation. The sample size was determined using Yaro Yamane's (1967) formula for finite populations.

Data analysis

Data obtained were analyzed using both descriptive and inferential statistics.

- Descriptive statistics (mean, standard deviation, and frequency) were used to summarize responses to research questions.
- Inferential statistics, specifically the Pearson Product Moment Correlation (PPMC), were used to test the hypotheses at a 0.05 level of significance.

Data Analysis and result

Research Question One

To what extent do community environmental services influence environmental awareness and education among residents of Akpabuyo Local Government Area?

Variable	N	Mean	SD	Decision
Community clean-up and awareness programs enhance knowledge of environmental issues	184	3.62	0.49	Agree
Tree planting and sanitation drives promote environmental responsibility	184	3.54	0.57	Agree
Participation in environmental services improves environmental attitudes	184	3.48	0.63	Agree
Environmental service activities increase willingness to act	184	3.50	0.58	Agree

Variable	N	Mean	SD	Decision
sustainably				
Grand Mean = 3.54 → <i>High Extent</i>				

This shows that community environmental services significantly influence environmental education and awareness among Akpabuyo residents.

Research Question Two

How do community environmental services contribute to sustainable development practices in rural communities of Akpabuyo Local Government Area?

Variable	N	Mean	SD	Decision
Environmental services improve community sanitation and health	184	3.60	0.55	Agree
Tree planting and waste recycling conserve local resources	184	3.45	0.62	Agree
Environmental services create livelihood opportunities	184	3.38	0.64	Agree
Community cooperation in environmental activities promotes social sustainability	184	3.52	0.57	Agree

Grand Mean = 3.49 → *High Contribution*

This indicates that community environmental services positively contribute to sustainable development practices in Akpabuyo.

Hypotheses Testing

Hypotheses	Statistical Test	r-value	p-value	Decision
There is no significant relationship between community environmental services and environmental education	PPMC	0.72	0.000	Rejected
There is no significant relationship between community environmental services and sustainable development	PPMC	0.69	0.001	Rejected

At $p < 0.05$, both null hypotheses were rejected, implying a strong positive relationship between community environmental services and both environmental education and sustainable development in Akpabuyo.

Discussion of Findings

The findings of this study have shown that community environmental services play a vital role in promoting environmental education and sustainable development in Akpabuyo Local Government Area of Cross River State. This section discusses the results in relation to the research questions, hypotheses, and previous studies.

Community Environmental Services and Environmental Education

The study revealed that community environmental services such as clean-up exercises, tree planting, and awareness campaigns significantly enhance residents' knowledge, attitudes, and practices regarding environmental management. The grand mean score of 3.54 indicated that community-based environmental activities provide practical learning experiences that improve environmental awareness among participants.

This finding aligns with Sterling's (1996) Participatory Environmental Education Theory, which emphasizes that environmental education is most effective when it involves experiential, community-based learning. It also supports the findings of Ekpo and Ekanem (2020), who reported that participation in local sanitation and reforestation projects in Calabar South increased environmental literacy among community members. Similarly, Eze and Obong (2021) found that residents who engage in environmental services demonstrate higher levels of environmental consciousness than those who do not.

Hence, the current study confirms that when communities are actively involved in environmental programs, they internalize knowledge and skills that foster sustainable environmental behaviors.

Community Environmental Services and Sustainable Development

The findings also showed that community environmental services contribute significantly to sustainable development in Akpabuyo, as reflected in a grand mean of 3.49 and a strong positive correlation ($r = 0.69, p < 0.05$). This implies that such activities improve sanitation, conserve natural resources, enhance social cooperation, and create environmental-based livelihood opportunities.

This outcome supports the Sustainable Development Theory propounded by Pearce, Markandya, and Barbier (1989), which advocates for a balanced relationship between environmental protection, economic growth, and social well-being. The result corroborates Okon and Bassey (2019), who observed that grassroots environmental projects, such as waste management and afforestation, significantly enhance the sustainability of rural communities in Cross River State. Likewise, Ngele and Udo (2022) reported that community participation in environmental protection efforts promotes resilience and economic stability in rural Nigeria.

Therefore, this study strengthens the argument that active engagement in community environmental services fosters long-term environmental, social, and economic sustainability.

Recommendations

Based on the findings and conclusions, the following recommendations are made:

1. **Integration of Community Environmental Services into Educational Programs:** Schools and community-based organizations should collaborate to integrate environmental services into both formal and informal education systems to promote experiential learning and environmental literacy.
2. **Government and NGO Support:** The Cross River State Government and environmental NGOs should provide technical and financial support for grassroots environmental initiatives to strengthen their sustainability and outreach.
3. **Capacity Building and Public Awareness:** Continuous environmental education workshops and community sensitization campaigns should be organized to build capacity for effective participation in environmental services.
4. **Policy Inclusion:** Policymakers should recognize community environmental services as essential components of sustainable development strategies and include them in local government environmental action plans.
5. **Monitoring and Evaluation Frameworks:** There should be systematic monitoring and evaluation of community environmental activities to assess their impact on education, health, and sustainability outcomes.

Conclusion

Based on the findings, this study concludes that community environmental services are potent tools for fostering environmental education and sustainable development in Akpabuyo Local Government Area. Through participatory activities such as clean-up campaigns, tree planting, and awareness drives, community members acquire environmental knowledge, positive attitudes, and sustainable practices.

The study also concludes that sustainable development is best achieved when environmental education is embedded within community engagement frameworks. Therefore, empowering local communities to take part in environmental initiatives ensures both immediate and long-term environmental and socio-economic benefits

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