



Green Infrastructure Facilities and Environmental Peace-building in Nigerian Schools

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Abstract

The paper explores the role of green infrastructure facilities in Nigerian schools. The paper is a position paper. It employed secondary data to support the points raised. The secondary data were collected from online publications and print materials. Content analysis was adopted to select the final literature used in the paper. The paper concludes that the development of green school infrastructure facilities in the schools in Nigeria will support the implementation of teaching and learning in the schools, support sound health and a conducive learning environment, serve as instructional resources and excursion sites for students and academic purposes and research purposes. Based on these findings, the paper recommends that governments at all levels, international organizations and private institutions should be directly involved in the development of green school infrastructure facilities in all Nigerian schools. Governments at all levels should create special funds for the development of green infrastructure facilities in all Nigerian schools. The government should organize training for school administrators and teachers on the effective ways of managing and maintaining green facilities in the schools.

Keywords

Development, Environmental Peacebuilding, Green School Facilities, Schools.

Introduction

The Federal Government of Nigeria has formed the National Implementation Committee for the Green School Project to support the development of green school programs and assure sustainability in peace-building within the school environment, with the objective of expanding the project's reach nationwide. Initiated in 2020, the Green School Project commenced in Akwa Ibom as a trial state. As of now, 35 schools have engaged, attaining notable achievements in sustainable practices, environmentally friendly infrastructure, campus gardens, and renewable energy installations. The Green School Project aims to enhance environmental teaching and incorporate sustainable practices into the curriculum, while also assuring efficient resource utilisation and effective fundraising. This program corresponds with the overarching objectives of promoting environmental education and sustainability, as articulated by Ekpo and Aiyedun, highlighting its significance in realising Sustainable Development Goals in 21st-century Nigeria.

The core of environmental peace-building is to confront ecological violence. The Green Initiative aims to prevent adverse effects on communities. The execution of the Green initiative in Nigerian schools differs based on the institutions' establishment. Tertiary colleges provide a variety of courses encompassing a green curriculum. Early childhood, primary education, and junior and senior education provide subjects associated with the green curriculum. The introduction of a Green curriculum and green school program in Nigerian schools aims to foster an atmosphere devoid of carbon emissions. The advancement of a carbon emission-free school environment constitutes a peace-building initiative aimed at mitigating the issue of environmental violence.

The green school programs encompass the establishment of sustainable infrastructure facilities inside educational institutions. Consequently, it is an infrastructure capable of empowering individuals. Any initiative that empowers individuals constitutes an endeavour in peace-building. The establishment of green facilities in schools is essential for achieving educational objectives and promotes environmental peace-building, as a sustainable school environment and infrastructure are vital for effective curriculum delivery. The global green school program encompasses the formulation of national policies on green school initiatives, the domestication of these policies by state governments, the allocation of specialised funds for the implementation of green schools, monitoring and evaluation processes, the establishment of school units and student clubs, and the development of school policies focussing on: green curriculum, green classrooms, green facilities, school gardens, clean energy, waste management, digitalisation of teaching and learning, recycling, reduction of paper usage, and the enhancement of green school infrastructure facilities. The establishment of sustainable infrastructures will undoubtedly contribute to environmental peace-building.

Green infrastructure is a system that delivers enduring satisfaction. Long-term satisfaction aims to improve peace-building. The significance of sustainable school facilities, including buildings, solar power installations, public art, the conversion of wasteland into parks, riparian habitats, classrooms, and climbing walls, serves as fundamental components in the execution of education and the establishment of a healthy atmosphere. The advancement of green school infrastructure in Nigerian schools appears to be hindered by numerous causes. It is essential to discuss the significance, advantages, and effects of green school facilities in achieving educational objectives, such as peace-building, among others. This research examines the significance of establishing green infrastructure amenities in Nigerian schools.

Methods

Concept of Green Infrastructure Facilities and Environmental Peace-building

Green infrastructure refers to a strategy for sustaining the environment by designing green open areas and preserving natural processes, including rainwater cycles and soil conditions. The principle of green infrastructure involves designing the environment through sustained natural processes, encompassing rainfall management, water quality control, and flood prevention. The objective of constructing green infrastructure is to enhance community development by improving environmental conditions and preserving green open areas. Green infrastructure is defined as A strategically planned network of natural and semi-natural areas, along with other environmental features, designed and managed to provide a diverse array of ecosystem services while enhancing biodiversity. These services encompass water purification, enhancement of air quality, provision of recreational spaces, and assistance with climate mitigation and adaptation. This network of green (land) and blue (water) spaces enhances environmental quality, the condition and connectedness of natural regions, and the health and quality of life of residents. Establishing green infrastructure can additionally foster a sustainable economy and generate employment possibilities.

Green infrastructure refers to a system of human-managed and natural ecosystems that collectively improve ecosystem health and resilience, promote biodiversity, and provide advantages to human populations by sustaining and enhancing ecosystem services. Green infrastructure initiatives offer a diverse range of human and ecosystem benefits, including food production, energy generation, security enhancement, climate regulation, water management, educational opportunities, and aesthetic improvement. Green infrastructure networks are interconnected systems of natural and open spaces that preserve ecosystem value, regulate air and water quality, and offer advantages to inhabitants and other organisms. Green infrastructure in education denotes the many options for place-based learning within urban environments. This text addresses options for integrating green infrastructure into classroom and after-school activities, enhancing students' connection to and affinity for their local environment. Education regarding green infrastructure encompasses the extensive learning opportunities presented by urban infrastructure projects, where ecological services intersect with human growth, imparting essential insights into systems thinking, sustainability, and resilience.

Ultimately, education for green infrastructure emphasises the necessity for enhanced public awareness about the advantages of green infrastructure, which could bolster public support, administration, and stewardship of existing and forthcoming green infrastructure initiatives. Established green infrastructure networks can serve as a foundational framework for future development, facilitating land conservation to support population increase while ensuring the preservation of natural resources and public assets. Environmentally sustainable green infrastructure in schools significantly contributes to student achievement and enhances natural conditions, thereby preserving the balance between human needs and nature. This infrastructural advancement improves human security. Human security, bolstered by

infrastructural development, serves as a metric for peace-building. The failure of political authority to supply essential needs such as infrastructure poses a threat to human security.

Green school infrastructure facilities are constructed using natural ecosystems and are designed to support the school curriculum, aiming to enhance ecosystem health, promote biodiversity, and ensure a sustainable educational environment. The concept of peace-building has various definitions. One such definition is provided by Ayeni, Uzoigwe, Sani, and Dubu, who assert that peace-building encompasses all processes utilised to foster harmonious relationships within society, free from oppression, extortion, exploitation, extreme poverty, and violations of fundamental human rights. Barash and Webel provide a related definition of peace-building as the establishment of non-exploitative social institutions and a commitment to pursue this objective even in the absence of active conflict. Peace-building, as defined above, involves the tactics implemented to prevent individuals from being exploited or adversely affected by artificial or human-created systems.

This study defines environmental peace-building as the tactics implemented to create a favourable and safe atmosphere for teaching and learning, thereby safeguarding both students and teachers from adverse conditions. This position paper examines the significance and advantages of establishing green school infrastructure in Nigerian educational institutions. The investigation utilised a documentary methodology. The study relies on published secondary data from reputable sources including a review of published articles from reputable international journals such as CEON, Elsevier, Hindawi, JSTOR, IEEE, LearnTechlib SAGE, Nebraska and Springer amongst others. This research employed Content Analysis and the elimination approach for the selection and examination of papers, journals, and abstracts utilised in the article. This article's design is to demonstrate an awareness of the intent behind developing green school infrastructure in Nigerian schools. This study utilised content analysis to pick pertinent material, facilitating the comprehensive development of the research, which primarily focused on theoretical and conceptual inquiry.

Results and Discussions

Data Analysis of the impact of Green infrastructure facilities on environmental peace-building

Green school infrastructure enhances the execution of teaching and learning by providing a conducive and supportive environment for education. A green infrastructure building serves as an instructional resource for educators to impart teachings. Cole, McPhearson, Herzog, and Russ noted that urban environmental education can engage individuals in utilising green infrastructure. Cities are implementing green infrastructure initiatives, including as bike lanes, vegetable gardens, and tourable green buildings, which serve as dynamic exemplars of sustainability and environmental peace-building integrated into the daily lives of residents. Thus, green infrastructure serves as a platform for informal environmental education, since individuals actively participate in hands-on green infrastructure initiatives to ensure that their

circumstances do not deteriorate. Numerous community-oriented education and restoration organisations in the United States provide complimentary canoeing in rehabilitated urban rivers, enabling citizens to rediscover local recreational opportunities and potentially enhancing public advocacy for urban open spaces.

Greening school facilities involves the design, construction, renovation, or retrofitting of educational environments that foster student connectivity. Green infrastructure promotes environmental peace-building by enabling students to remain engaged and attentive. The pupils acquire knowledge by their experiences. If students spend all their school days in sterile classrooms, prison-like structures, and uninspiring playgrounds, they will not develop into creative and critical thinkers, nor will they recognise that humans are integral to the exquisite web of life. The use of sustainable infrastructure in schools will facilitate the advancement of eco-friendly school programs. Consequently, infrastructural development, such as green infrastructure, creates conducive circumstances for promoting peace-building. Environmental peace-building protects against factors that may hinder students' learning.

Green school infrastructure promotes optimal health and an effective learning atmosphere. McPhearson et al. emphasised that urban green school infrastructure is crucial for delivering services that directly affect human health and security, including air purification, noise reduction, urban cooling, and stormwater runoff mitigation. Additionally, it fosters social cohesion, connection, recreation, and the development of a sense of place. Moreover, green infrastructure is widely employed as a nature-based option for climate change adaptation and mitigation in urban areas. Novotny, Ahern, and Brown determined that governments, municipalities, and educational institutions investing in green infrastructure as a management strategy that integrates engineered and ecological systems (e.g., bioswales) instead of purely engineered systems devoid of ecological attributes (e.g., concrete sewer drains) to deliver ecosystem services such as cooling, stormwater management, urban heat island mitigation, carbon sequestration, flood protection, and recreational opportunities foster a favourable environment.

Green school facilities, as defined by Dada and Ogunode, are infrastructures established within educational institutions to enhance environmental sustainability. Green infrastructure serves as an environmental peace-building approach by addressing the fundamental causes of conflict through the fulfilment of students' needs. Green infrastructure ensures that the climate is conducive for pupils to learn and focus on their academics. The construction of green school infrastructure amenities supports the formation of favourable learning and recreational areas. Cole et al. found that emphasising the diverse functions of green infrastructure facilitates urban environmental education in promoting systems thinking. For example, urban community gardens provide food, absorb excess stormwater, mitigate microclimate fluctuations, support urban biodiversity, and provide aesthetic benefits. These gardens serve as venues for pleasure, contemplation, social interaction, and unity. Likewise, green roofs and vegetated spaces enhance rainwater infiltration, mitigate peak flood discharge, and decrease related water pollution, while

also offering mental and physical health advantages, including opportunities for recreation, relaxation, and stress reduction.

A green school is a school that creates a healthy environment conducive to learning while saving energy, environmental resources, and money. Green schools minimise environmental impacts and expenses. To enhance the health and performance of inhabitants. To enhance environmental and sustainability literacy. Green school infrastructure is intended to promote environmental peace-building among students and instructors. This development further enhances the financial security of all stakeholders in schools. The establishment of eco-friendly school facilities would facilitate a sustainable and conducive environment for the execution of the school curriculum.

Discussion

The creation of green school infrastructure amenities functions as instructional resources and excursion destinations for students and academic objectives. Eco-friendly facilities established at educational institutions support educators in their instruction. Educators utilise sustainable facilities to enhance instruction. Abadtalk noted that implementing a school garden is an excellent method to educate youngsters on the advantages of cultivating their own food and encouraging a healthy lifestyle. Moreover, they contributed to the fertilisation process through their daily composting activities. Children acquire essential skills on responsibility, collaboration, and sustainability while fostering a relationship with nature. School gardens supply fresh produce to the cafeteria, fostering good eating habits and diminishing the carbon footprint associated with food transportation. Schools may foster a feeling of community and empower students to effect positive changes in their lives and the environment by involving them in gardening activities. Ayeni, Sani, Idris, and Uzoigwe affirm that it is the government's duty to furnish the infrastructure that enables empowerment. Moreover, a kitchen garden can serve as an invaluable educational resource. It offers practical experience in scientific, mathematical, and environmental disciplines.

A kitchen garden in schools is mutually advantageous, offering benefits to students, the environment, and the surrounding community. Duarte, Gargiulo, and Moreno; Sharif and Ogunode, Daniel, and Daniels observed that the establishment of green school facilities will enhance the availability of recreational and physical education activities, thereby complementing intellectual pursuits, as play significantly influences various facets of child development. Nevertheless, educational institutions are not always able to provide youngsters with this opportunity. Eco-friendly school facilities provide substantial immediate and enduring advantages for both children and educators. It is observed to possess both intentional and unexpected benefits. A practical approach to environmental studies, scientific initiatives, and addressing global challenges produces the following beneficial outcomes:

- 1) Augments critical thinking and problem-solving abilities;
- 2) Fosters a sense of awe regarding natural and constructed environments;

- 3) Informs students about significant global challenges;
- 4) Instills the belief that they can effect change;
- 5) Cultivates confidence and optimism;
- 6) Promotes environmentally conscious practices and behaviours.
- 7) Integrates classroom and extracurricular learning.
- 8) Delivers practical and enjoyable educational experiences,
- 9) Facilitates the development of leadership competencies,
- 10) Generates opportunities for community engagement and volunteerism,
- 11) Develops outreach and fundraising competencies,
- 12) Engages students in outdoor activities for fitness and fresh air,
- 13) Utilises children's inherent inclination to contribute and engage in altruistic behaviour. The creation of green infrastructure in schools enhances research initiatives and practical experiences.

The promotion of eco-friendly practices through green infrastructure is an endeavour that cultivates sustainable harmony among diverse stakeholders in educational institutions. This is due to the fact that the majority of infrastructure facilitates sustainable growth. The study demonstrated that the establishment of green infrastructure in Nigerian schools will enhance effective teaching and learning, promote health, create a favourable educational environment, and function as instructional resources and excursion sites for students and academic research.

Conclusion

The research examined the significance of establishing green infrastructure and promoting environmental peace-building inside Nigerian educational institutions. The paper demonstrated that the establishment of green school infrastructure fosters environmental peace-building in Nigerian schools, creating a safe and conducive environment for teaching and learning, promoting sound health, and serving as instructional resources and excursion sites for students, academic endeavours, and research purposes. This study recommends that: all levels of government, international organisations, and private entities should actively participate in the establishment of green school infrastructure to promote environmental peace-building in Nigerian schools; all levels of government should allocate dedicated funds for the development of green infrastructure in Nigerian schools; and all levels of government should provide training for school administrators and teachers on the effective management and maintenance of green infrastructure in Nigerian schools.

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