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Green Kids: Planting a Sustainable Future through Youth-Led Environmental Action in Douala, Cameroon

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ABSTRACT

This study presents the *"Green Kids"* initiative - a youth-centered environmental education and tree-planting program designed to combat ecological degradation and climate change in Douala, Cameroon. It explores how early engagement of school-aged children in environmental conservation can foster long-term sustainable behavior, improve urban ecology, and strengthen community cohesion. The project will employ a six-month intervention combining interactive environmental workshops with large-scale community-based tree planting, targeting 6,000 fruit trees across schools and public spaces. Strategic partnerships with local authorities, NGOs, and educators will ensure continuity and social ownership. Progress will be tracked through pre- and post-program surveys, observation logs, and ecological monitoring of planted trees. Expected results include measurable improvement in environmental literacy, sustainable behavioral shifts among students, and strengthened collaboration between schools and communities. The initiative seeks to demonstrate that children, when empowered early, can become active agents of environmental change. The findings may guide urban sustainability and educational policy in developing nations.

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1. Introduction

Sustainable development has become one of the most critical priorities of the 21st century, as humanity faces escalating threats from global warming, biodiversity loss, and pollution. The United Nations' 2030 Agenda for Sustainable Development emphasizes education and climate action as interconnected goals necessary for long-term sustainability [1]. Yet, in many developing urban contexts, environmental awareness remains low, especially among youth.

The *"Green Kids"* initiative responds to these challenges by combining education, community engagement, and practical conservation activities. In Douala, Cameroon's economic hub rapid urbanization has intensified environmental stressors such as deforestation, flooding, and waste mismanagement [6]. The program thus serves as both a pedagogical and ecological intervention, integrating formal environmental education with experiential learning activities that cultivate eco-conscious behavior.

Research has consistently shown that early exposure to nature-based learning experiences fosters stronger pro-environmental attitudes and civic responsibility in adulthood [2,4,7]. By engaging children directly in sustainable practices such as tree planting and ecosystem monitoring, the project builds foundational environmental literacy and behavioral patterns that extend into family and community networks

1.1. Urgency for action

Climate-induced challenges are increasingly severe in African cities, where deforestation, air pollution, and unregulated urban growth threaten both ecological balance and public health [8]. In Douala, the loss of vegetation cover has exacerbated heat island effects, reduced air quality, and heightened flood risks. Studies show that urban greening and environmental education can substantially mitigate these

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impacts, fostering psychological well-being and local resilience [5,9].

Children are among the most affected by environmental degradation but also represent the most promising agents for change. Educational interventions that encourage youth participation in sustainability have been found to produce long-term positive impacts on environmental behavior and civic engagement [3,10].

The "Green Kids" project, therefore, positions itself at the intersection of education, climate adaptation, and community development, offering a model for local action with scalable global relevance.

1.2. Goals and objectives

The initiative's overarching goal is to empower children to actively participate in environmental protection and urban sustainability.

Specific objectives include:

- Enhancing Environmental Literacy: Equip students with fundamental knowledge about climate systems, biodiversity, and pollution.
- Encouraging Practical Engagement: Integrate hands-on tree planting to reinforce classroom learning through action.
- Fostering Community Participation: Strengthen collaboration between schools, parents, NGOs, and local authorities.
- Assessing Behavioral Impact: Use surveys and ecological indicators to evaluate shifts in environmental attitudes and ecosystem outcomes.

2. Methodology

2.1. Project design

A six-month pilot project will target students from kindergartens, primary, and secondary schools in Douala. Employing a mixed-methods design, the study integrates quantitative surveys with qualitative tools such as focus groups and observation logs to capture educational and ecological impacts.

- Curriculum-based environmental workshops: The first component focuses on structured workshops that introduce concepts of biodiversity, waste management, and sustainable land use. Teaching will employ interactive approaches; games, storytelling, visual aids, and role-play to accommodate different learning styles and developmental levels. The workshops will align with the Cameroonian national curriculum, ensuring pedagogical coherence [11].
- Community-based tree planting events: Simultaneously, 6,000 fruit-bearing trees will be planted across selected schoolyards, public parks, and residential zones. Each participant will adopt a tree for care and monitoring, encouraging accountability. The activity reinforces the experiential learning model proposed by Dewey [Project-Based Learning; section 2.3], linking theory with practice and environmental empathy with civic responsibility.

2.2. Data collection

- Pre/post surveys: To measure knowledge and attitudinal change before and after participation [3].
- Ecological monitoring: Tree growth, survival, and canopy coverage will serve as quantifiable impact indicators.
- Focus groups & journals: Provide insights into behavioral transformation, emotional connection to nature, and learning motivation [2,6].

2.3. Educational frameworks

The initiative draws on two foundational educational theories:

- Vygotsky's socio-cultural theory: Learning is enhanced through collaboration and guided participation [12]. Peer discussions during planting activities facilitate shared knowledge and cultural relevance.
- Dewey's project-based learning: Real-world engagement with environmental challenges fosters critical thinking and civic competence [13].

These frameworks position students not just as learners but as co-creators of sustainable change.

2.4. Community engagement

The project integrates outreach events—eco-fairs, nature walks, and school-community "green days"—to expand the initiative's visibility and ensure long-term community stewardship. Such participatory models have proven effective in building urban environmental resilience [9,14].

3. Expected outcomes

3.1. Educational outcomes

Participants will demonstrate improved understanding of environmental issues and stronger motivation to adopt sustainable habits both in and outside the classroom.

3.2. Behavioral changes

Observable behavioral changes are expected in waste sorting, water use, and active advocacy for greener school environments.

3.3. Environmental impact

The planting of 6,000 fruit trees is projected to enhance green space, contribute to local biodiversity, and sequester approximately 60 metric tons of CO_2 annually [15].

3.4. Social benefits

Through collaborative action, the project will reinforce social ties, promote civic pride, and establish a culture of collective environmental care.

4. Discussion

4.1. Strengths of the approach

The *"Green Kids"* model integrates environmental education, community participation, and ecological restoration in a mutually reinforcing cycle. Prior studies emphasize that children's active engagement in nature-based learning cultivates emotional connection and lifelong environmental responsibility [2,7].

4.2. Challenges and mitigation

Tree maintenance, funding continuity, and urban land-use conflicts pose potential challenges. To mitigate these, partnerships with local councils and NGOs will establish community "green stewards" responsible for maintenance and follow-up [8].

4.3. Policy implications

This pilot could serve as a blueprint for national educational reforms integrating environmental stewardship in curricula. Its alignment with Cameroon's Vision 2035 strategy and SDGs 4, 11, and 13 underscores its policy relevance [1,16].

5. Conclusion and future directions

The *"Green Kids"* initiative demonstrates how early education, experiential learning, and community collaboration can create long-lasting environmental and social impact.

The project's outcomes could inform similar urban greening and educational policies across Sub-Saharan Africa.

Future iterations may incorporate digital tree-tracking apps, mobile learning, and AI-based environmental dashboards to measure and visualize progress [17]. Scaling the initiative nationwide could position Cameroon as a regional leader in youth-led sustainability action.

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