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Fostering Local Stakeholders' Engagement and Collaboration in Environment and Health Management in Nigeria

Adeyewa, Z. Debo
Department of Meteorology and Climate Science, Federal University of Technology, Akure.

Abstract
This paper is a clarion call for collective action to confront our nation's pressing challenges and secure a sustainable future (Amadi & Okonkwo, 2020). As this historic juncture, we stand at a crossroads where bold, inclusive, and collaborative efforts can transform Nigeria's environmental and health landscape for generations to come. The Paper was presented as the Keynote at the 10th National Conference on Environment and Health.

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1. The Nexus of Environment and Health

The environment and human health are inextricably linked, forming a delicate web where disruptions in one ripple across the other (United Nations Environment Programme [UNEP], 2019). The air we breathe, the water we drink, the soil that nourishes our crops, and the ecosystems that sustain biodiversity are foundational to human well-being. In Nigeria, environmental challenges such as air pollution, water contamination, deforestation, and climate change pose severe threats to public health, manifesting in rising rates of respiratory diseases, waterborne illnesses, and malnutrition (Pona *et al.*, 2021). For instance, air pollution was responsible for 200,000 deaths in 2019, contributing to 24% of neonatal mortality and 50% of lower respiratory infections, which surged from the fourth to the leading cause of death between 2007 and 2017 (World Health Organization [WHO], 2023). Similarly, water, sanitation, and hygiene (WaSH) issues lead to 800,000 deaths annually from diarrheal diseases, with Nigeria ranking third globally for newborn mortality (WHO, 2023).

These challenges are not insurmountable, but they demand a paradigm shift from fragmented, top-down approaches to inclusive, locally driven solutions. The "One Health" framework, which recognizes the interdependence of human, animal, and ecosystem health, provides a guiding principle for our efforts (WHO, 2018, Sangong *et al.*, 2025). By harnessing the expertise, resources, and commitment of local stakeholders [government agencies, academic institutions, private sector players, civil society, and communities], we can forge sustainable solutions that address Nigeria's unique context (Federal Ministry of Environment, Nigeria, 2021).

2. Setting the Context: Nigeria's Interlinked Crises

Nigeria's rapid urbanization, population growth (projected to reach 400 million by 2050), and industrial expansion have brought economic progress but also exacerbated environmental degradation and health crises (AfDB, 2023).

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*Corresponding author *Email address:* deboadeyewa@gmail.com, zdadeyewa@futa.edu.ng (Adeyewa, Z. Debo)

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The following 12 issues, drawn from recent evidence, illustrate the depth and interconnectedness of these challenges:

1. **Poor Sanitation and Open Defecation**: Nigeria leads globally with 48 million people practicing open defecation in 2023, contaminating water, soil, and food chains (Vanguard Nigeria, 2024). This fuels cholera, typhoid, and diarrheal diseases, costing about 1.3% of GDP annually (BusinessDay NG, 2025). Weak sanitary infrastructure and underfunded community initiatives hinder progress.
2. **Desertification and Land Degradation**: The Sudano-Sahelian belt loses 350,000 ha of fertile land yearly, displacing communities and costing $5.1 billion in agricultural losses (Wikipedia contributors, 2025a). Overgrazing and illegal logging exacerbate food insecurity and conflict.
3. **Deforestation and Fuelwood Use**: Nigeria lost 12% of its tree cover from 2001–2022, driven by agriculture and urban growth (Wikipedia contributors, 2025b). Over 80% of rural households rely on firewood, causing indoor air pollution linked to asthma and lung cancer (Sani *et al.*, 2025).
4. **Oil Pollution and Gas Flaring**: In the Niger Delta, oil spills and gas flaring contaminate water and air with carcinogens like benzene, increasing risks of cancer and respiratory illnesses (Nriagu *et al.*, 2016; Financial Times, 2024). Weak accountability persists, as seen in ongoing litigation (Reuters, 2025).
5. **Rapid Urbanization and Waste Management**: Cities like Lagos, growing at 5.8% annually, generate uncollected waste (~90%), causing flooding and vector-borne diseases like malaria (Vanguard Nigeria, 2024). Poor urban planning amplifies slum health crises.
6. **Vector- and Water-Borne Diseases**: Malaria accounts for more than 27% of under-five deaths, while diphtheria (24,000 cases, 1,264 deaths in 2025) and meningitis (56 deaths in Kebbi, 2025) strain health systems (Premium Times NG, 2025; Vanguard Nigeria, 2025).
7. **Climate-Change Vulnerability**: The 2022 floods displaced 2.1 million people, while rising sea levels and 90 additional "very hot days" annually increase waterborne diseases and heatstroke risks (World Bank, 2022; Population Matters, 2023).
8. **Air Pollution and Respiratory Health**: Household and ambient air pollution caused 200,000 deaths in 2019, with lower respiratory infections now the top killer (WHO, 2023; Peres *et al.*, 2025). Limited monitoring stations hinder interventions.
9. **Water Pollution and Waterborne Diseases**: Only 10% of urban Nigerians access piped water, with untreated sewage and oil spills driving 800,000 deaths annually (WHO, 2023). Children under five face heightened risks.
10. **Infectious and Zoonotic Diseases**: Environmental degradation fuels Lassa fever and cholera, exacerbated by poor sanitation and flooding (Pona *et al.*, 2021). Weak surveillance limits response.
11. **Urbanization and Slum Proliferation**: Slums lack clean water and sanitation, driving communicable and non-communicable diseases (AfDB, 2023). Poor transport systems increase pollution exposure.
12. **Weak Health and Environmental Governance**: A 5% health budget (vs. 15% Abuja Declaration target) and weak environmental laws delay responses, with corruption and high out-of-pocket costs limiting access (WHO, 2023).

These crises form vicious feedback loops: open defecation seeds waterborne outbreaks, deforestation fuels respiratory diseases, and oil pollution undermines livelihoods and health (Amadi & Okonkwo, 2020). Integrated, locally led interventions are critical to breaking these cycles.

3. Breast Clean Water Access: A Cornerstone for Public Health

While immunization could be a valuable tool for public health, overemphasis on them, particularly in Sub-Saharan Africa, overshadows the importance of the provision of fundamental infrastructure like clean water access. Easy access to clean water, sanitation, and hygiene (WASH) practices is vital for health in Sub-Saharan Africa, reducing waterborne diseases like cholera and typhoid, improving hygiene, and lowering healthcare costs. Clean water addresses root causes of many diseases, reduces the overall disease burden, and creates healthier communities (Okesanya *et al*., 2024).

4. The Imperative for Local Stakeholders' Engagement

Local stakeholders – farmers, market women, traditional rulers, and youth groups – possess intimate knowledge of their ecosystems and health challenges (Okunlola & Oyeyemi, 2022). A farmer in Ekiti understands rainfall shifts

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better than distant data, while a trader in Benin City detects water quality issues intuitively. Engagement goes beyond participation; it fosters empowerment, accountability, and sustainability (Adeola, 2011). Successful local initiatives, such as community waste management in Lagos, demonstrate impact but are often limited by resource constraints and weak coordination (Okunlola & Oyeyemi, 2022). This conference provides a platform to amplify these efforts through dialogue and partnerships

5. Why Local Engagement Matters

1. **Contextual Insight**: Local knowledge ensures culturally relevant, practical solutions.
2. **Ownership and Sustainability**: Community-led projects endure beyond external funding, as seen in Abia State's clean-up initiatives (Okunlola & Oyeyemi, 2022).
3. **Diverse Resources**: Aligning local government, traditional institutions, and private sector maximizes impact (AfDB, 2023).

6. The Role of Collaboration

No single entity can address aforementioned complex challenges alone. Collaboration breaks silos, aligns objectives, and pools resources (UNEP, 2019). For air pollution, scientists monitor quality, health professionals assess impacts, policymakers enact regulations, industries adopt cleaner technologies, and communities advocate for clean air (Peres *et al.*, 2025; Jelili *et al.*, 2025). Trust, open communication, and a shared vision are the bedrock of transformative change.

7. Principles for Effective Collaboration

The principles for effective collaboration include the following components:

1. **Inclusivity and Equity**: Marginalized groups (women, rural farmers, and informal workers) must have decision-making roles (Okunlola & Oyeyemi, 2022).
2. **Transparency**: Open data, budgets, and community scorecards build trust (AfDB, 2023).
3. **Capacity Building**: Training in environmental and health practices empowers stakeholders (Adeola, 2011).
4. **Adaptive Approaches**: Iterative planning with real-time feedback ensures effective interventions (WHO, 2018).

8. Illustrative Case Studies

The following case studies, grounded in Nigeria's diverse regions, illustrate the power of local engagement and collaboration:

A. Lagos State Initiatives

(1) **Association of Scraps and Waste Pickers of Lagos (ASWOL)**: Launched in 2021 with support from the Heinrich Böll Stiftung, ASWOL empowered 3,700 waste pickers with digital tools, financial literacy, and health training (Okunlola & Oyeyemi, 2022). By 2024, it secured formal recognition from the Lagos State Waste Management Authority (LAWMA), increasing pickers' incomes by 25%, providing protective gear, and integrating them into municipal waste systems. This model reduced landfill waste by 15% in pilot LGAs and improved worker health through screenings (Okunlola & Oyeyemi, 2022).

(2) **Ifako-Ijaiye Recyclable Project**: Initiated in 2023, this partnership between the Lagos State Ministry of Environment, Ifako-Ijaiye LCDA, and community groups placed eight steel-mesh receptacles for plastics at markets and schools (Okunlola & Oyeyemi, 2022). Fifty Environmental Sanitation Officers educated households on source-separation, while tricycles collected recyclables. By June 2025, the project recovered 2 tonnes of plastics monthly, reduced flood-related blockages by 30%, and created 100 micro-enterprises, empowering youth.

B. Aba River Clean-Up (Abia State)

Between 2018 and 2019, a coalition of traditional rulers, youth, women's cooperatives, and the Abia State Ministry of Environment rehabilitated the Aba River. Artisans were trained in ripple-filter water purification, and women produced biodegradable soaps, generating income for 200 households. River-

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monitoring clubs in schools engaged 1,500 students. By September 2019, waterborne diseases dropped by 40%, and local markets saw a 20% rise in soap sales, demonstrating economic and health benefits (Okunlola & Oyeyemi, 2022).

C. Oyo State Malaria Network

Since 2017, the Oyo State Ministry of Health and community health workers implemented a mobile-based fever-surveillance system, logging 25,000 alerts by 2020 (Okunlola & Oyeyemi, 2022). Traditional councils enforced larval-source management, reducing malaria prevalence by 30% across participating LGAs. The program's success lies in its integration of community trust and technology, enabling rapid response to outbreaks.

D. Northern Nigeria: PRRINN-MNCH

The Partnership for Reviving Routine Immunization in Northern Nigeria, Maternal, Newborn, and Child Health (PRRINN-MNCH), launched in 2006, expanded in 2008 to cover Katsina, Yobe, and Zamfara (Okunlola & Oyeyemi, 2022). It trained 1,200 community health workers in epidemiology and obstetric care, establishing health hubs serving 500,000 people per cluster. By 2014, maternal mortality fell by 25%, and neonatal deaths dropped by 20% in pilot areas, showcasing the impact of community-state partnerships.

E. Cross River State Reforestation Initiative

In Cross River, home to 50% of Nigeria's remaining rainforests, a 2020–2024 initiative partnered local communities, the state forestry commission, and NGOs like the Rainforest Resource and Development Centre (Eghomwanre *et al.*, 2022). Over 10,000 hectares were reforested, and 500 farmers were trained in agroforestry, reducing reliance on firewood by 15%. Respiratory illness rates in participating communities fell by 10%, and biodiversity metrics improved, highlighting the health-environment synergy (Eghomwanre *et al.*, 2022).

F. Kano State Diphtheria Response

In 2025, Kano's diphtheria outbreak (24,000 cases, 1,264 deaths) prompted a community-led vaccination drive, with traditional leaders and religious groups mobilizing 80% coverage in affected LGAs (Premium Times NG, 2025). Local health workers used mobile apps to track cases, reducing mortality by 35% within six months. This response underscores the power of community trust in health interventions.

These case studies demonstrate that empowering local actors with tools, training, and partnerships yields measurable environmental and health outcomes. However, scaling up such models requires national coordination and investment.

9. Recommendations

To address Nigeria's environmental and health challenges through stakeholder collaboration, I propose the following actionable recommendations:

1. Establish Local Environment-and-Health Councils: Create Environment-and-Health Councils in each of Nigeria's 774 LGAs, co-chaired by LGA chairpersons and community-elected representatives, to coordinate waste management, sanitation, and disease surveillance (Federal Ministry of Environment, Nigeria, 2021). These councils should include women, youth, and traditional leaders to ensure inclusivity.
2. Develop a National Data Platform: Integrate environmental (air, water quality) and health data into a publicly accessible platform, enabling real-time monitoring and evidence-based decisions (AfDB, 2023). Partner with telecom providers to leverage mobile technology for citizen reporting.
3. Launch a Green-Health Fund: Establish a public-private fund to finance community-led projects in waste recycling, water purification, reforestation, and zoonotic disease surveillance, with a target of supporting 1,000 projects by 2030 (Okunlola & Oyeyemi, 2022).
4. Prioritize Access to Clean Water Infrastructure: Provide easy access to clean water to address root causes of waterborne diseases, enhance hygiene, and ensure sustainable health improvements.
5. Institutionalize Capacity-Building Hubs: Leverage universities like Redeemer's University and the University of Ilesa to train 10,000 community health workers and environmental officers annually in epidemiology, waste management, and climate adaptation (Adeola, 2011). Partner with international donors for funding.

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6. Promote Policy Co-Creation: Convene annual workshops uniting legislators, community leaders, and experts to draft regulations on air quality, chemical safety, and vector control, ensuring local relevance (WHO, 2018).
7. Scale Community-Led Initiatives: Replicate models like ASWOL, Aba River Clean-Up, and PRRINN-MNCH in 50% of LGAs by 2030, with federal support for training and infrastructure.
8. Enhance Public Awareness: Launch campaigns in local languages via radio, social media, and community theatre to promote environmental stewardship and health practices, targeting 70% awareness by 2028 (WHO, 2018).
9. Strengthen Public-Private Partnerships: Engage private sector players like telecoms and clean-tech firms to deploy solar cookstoves and water filters, reducing firewood use and waterborne diseases (Project Gaia, 2024).
10. Integrate One Health Approaches: Establish interdisciplinary task forces linking health, agriculture, and environmental ministries to address zoonotic diseases, with pilot programs in 10 states by 2027 (WHO, 2018).
11. Invest in Climate Resilience: Fund community-based adaptation projects, such as flood barriers to protect 5 million vulnerable Nigerians from flood-related diseases by 2030 (World Bank, 2022).
12. Implement a National Environmental Health Curriculum: Integrate environmental health into school curricula, training 50,000 teachers to reach 10 million students by 2030, reducing open defecation by 20% (UNICEF Nigeria, 2016).
13. Create Community Environmental Health Ambassadors: Train 5,000 women and youth as ambassadors by 2028, providing microgrants to lead sanitation and air quality campaigns (Okunlola & Oyeyemi, 2022).
14. Deploy AI-Driven Surveillance Systems: Pilot AI systems in Lagos, Kano, and Port Harcourt by 2027 for air quality and disease monitoring, training 1,000 technicians (AfDB, 2023).
15. Establish Waste-to-Wealth Hubs: Set up 10 regional hubs by 2029 to recycle plastics and e-waste, training 2,000 entrepreneurs per hub to create 20,000 jobs (Vanguard Nigeria, 2024).
16. Promote Green Financing: Develop a $500 million framework by 2027 to fund climate-resilient infrastructure in 100 LGAs, prioritizing community-led designs (World Bank, 2022)..

10. The Path Forward

Over the next two days, let us commit to actionable outcomes: new projects, partnerships, and roadmaps. The LivingScience Foundation's decade-long legacy inspires us to leverage the diverse expertise available (Amadi & Okonkwo, 2020). Nigeria's challenges are part of a global context – climate change and pandemics know no borders. By strengthening local collaboration, we can address immediate needs and contribute to global sustainability and health equity (UNEP, 2019).

11. Opportunities for Collaboration

(i) **Government**: Federal and state ministries should streamline regulations and allocate 10% of budgets to environmental health by 2027 (Federal Ministry of Environment, Nigeria, 2021).
(ii) **Academia**: Universities should lead research on low-cost pollution monitoring and disease surveillance, publishing 500 studies annually (Adeola, 2011).
(iii) **Private Sector**: Firms should invest in clean technologies, targeting 1 million solar cookstoves distributed by 2030 (Project Gaia, 2024).
(iv) **Communities**: Local groups should form 2,000 environmental health committees by 2028, supported by microfinance (Okunlola & Oyeyemi, 2022).
(v) **Civil Society**: NGOs should train 50,000 community advocates in environmental justice by 2030 (AfDB, 2023).

12. A Call to Collective Action

The challenges before us are immense, but our collective capacity is greater. The African proverb, *"If you want to go far, go together,"* reminds us that collaboration is our strength. It emphasizes the value of collaboration and teamwork for achieving long-term goals. Let us ignite a movement of locally driven, sustainably financed initiatives. I therefore urge all stakeholders – farmers, market women, students, youth groups, community leaders, traditional rulers, researchers and policymakers – to co-create a Nigeria where clean air, safe water, and good health are rights, not privileges (WHO, 2018).

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