RESTORING THE EARTH WE INHERITED

A Ghanaian Call to Action Against Ecosystem Degradation

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ABSTRACT

Ghana is fast losing its rich biodiversity, lush forests, and vibrant wetlands as a result of deforestation, illegal mining, unregulated agricultural expansion, and urban sprawl. This poses existential threats to national food security, climate resilience, water safety, and the health of rural and urban populations alike.

Restoring degraded ecosystems is no longer optional. The country must therefore respond decisively with a comprehensive and inclusive approach to sustainably manage its ecosystem

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Introduction: A Nation at Ecological Crossroads

Ghana, like many developing nations, stands at a critical environmental crossroads where the survival of its ecosystems is increasingly uncertain (Asante et al., 2022). Once celebrated for its rich biodiversity, lush forests, and vibrant wetlands, the country is now witnessing rapid ecological decline driven by deforestation, illegal mining (galamsey), unregulated agricultural expansion, and urban sprawl (Acheampong & Campion, 2021). These degraded ecosystems are not merely environmental challenges; they pose existential threats to national food security, climate resilience, water safety, and the health of rural and urban populations alike (EPA Ghana, 2023). Recent studies show that the continued loss of ecosystem services in Ghana has contributed significantly to declining crop yields, rising incidences of waterborne diseases, and the intensification of climate-related disasters such as floods and droughts (Owusu & Yankson, 2020). This article examines the current state and trajectory of ecological degradation in Ghana, proposes a homegrown model for ecosystem restoration based on scientific and indigenous knowledge, and issues a call for bold policy reforms, increased funding, and grassroots mobilization to reverse these dangerous trends before they become irreversible (Mensah et al., 2024).

Current Problems of Degraded Ecosystems in Ghana

Ghana's ecosystems have been deteriorating at an alarming rate, threatening not only the country's ecological balance but also the socio-economic well-being of millions of citizens (Forestry Commission Ghana, 2024). According to data from Global Forest Watch and the Forestry Commission of Ghana, an estimated 1.6 million hectares of forest cover have been lost between 2017 and 2025. This rapid deforestation is primarily driven by illegal logging, artisanal mining (galamsey), unsustainable agricultural expansion, and uncontrolled urban development (Global Forest Watch, 2025).

The country's wetlands, especially coastal zones and major inland water bodies such as the Volta and Oti basins, are under severe ecological stress. These vital habitats are being polluted by plastic waste, oil spills, and agricultural runoff, leading to the loss of fish stocks and declining water quality for local communities (EPA Ghana, 2023). Wetlands that once supported rich biodiversity and served as natural flood buffers are now shrinking or degraded beyond natural recovery thresholds (Amoako et al., 2022).

Soil degradation has also intensified. Over 35 percent of Ghana's arable land is currently experiencing reduced productivity due to erosion, overgrazing, poor land-use practices, and the destructive impact of surface mining (FAO Ghana, 2024). In the Northern, Upper East, and Upper West Regions, farmers report increasing difficulty in maintaining crop yields, which exacerbates rural poverty and food insecurity.

Biodiversity loss is another critical consequence of ecosystem degradation. Iconic species such as the forest elephant, red colobus monkey, and pangolin are now critically endangered, largely due to habitat destruction and poaching (Wildlife Division, 2024). These species are indicators of ecological health, and their decline signals deep-rooted dysfunction in the natural systems that sustain Ghana's forests.

Perhaps most visibly, water pollution has reached crisis levels. Illegal small-scale gold mining operations continue to release mercury, cyanide, and heavy silt into major rivers such as the Pra, Ankobra, Offin, and Birim, making water unsafe for drinking, irrigation, and aquatic life (Water Resources Commission, 2024). Satellite imagery and environmental assessments confirm a steady increase in turbidity and toxin levels in these rivers from 2017 to 2025.

These issues are not isolated. Rather, they represent interconnected elements of a broader ecological breakdown. The cumulative effects are evident in increased flooding, declining agricultural productivity, rising food insecurity, and reduced resilience to climate change (UNDP Ghana, 2023). Ghana's ecosystems are approaching tipping points, and urgent, coordinated interventions are required.

Table 1: Key Environmental Degradation Trends in Ghana (2017–2025) and Responsible Monitoring Institutions

Indicator	Reported Trend (2017–2025)	Key Monitoring Institution
Forest Loss	From 120 sq km to 310 sq km	**Forestry Commission of Ghana**
Water Pollution Incidents	Increasing from 300 to 550 cases	**EPA Ghana / Water Resources Commission**
Soil Degradation Index	Rising from 45 to 77	**CSIR–Soil Research Institute**

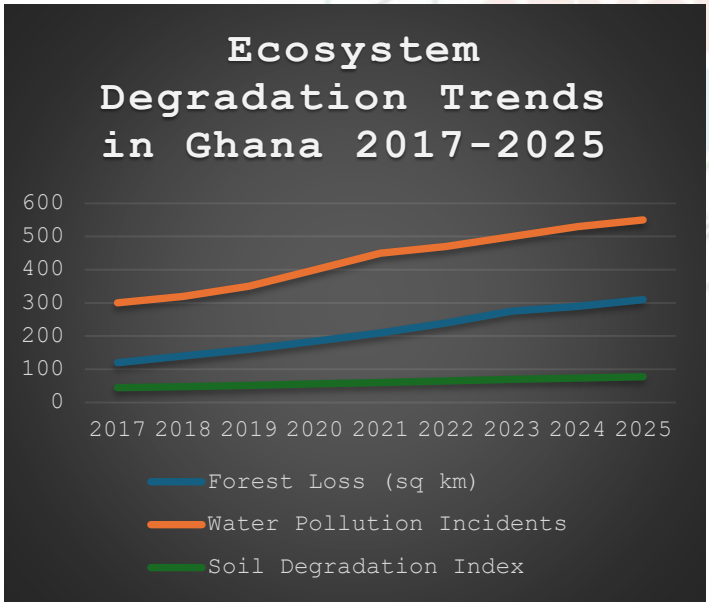
Source: Compiled from national environmental data sources including EPA Ghana, Forestry Commission, and CSIR (2017–2025)

Table 2: Annual Trends in Forest Loss, Water Pollution, and Soil Degradation in Ghana (2017–2025)

Year	Forest Loss (sq km)	Water Pollution Incidents	Soil Degradation Index
2017	120	300	45
2018	140	320	48
2019	160	350	51
2020	185	400	56
2021	210	450	60
2022	240	470	65
2023	275	500	70
2024	290	530	74
2025	310	550	77

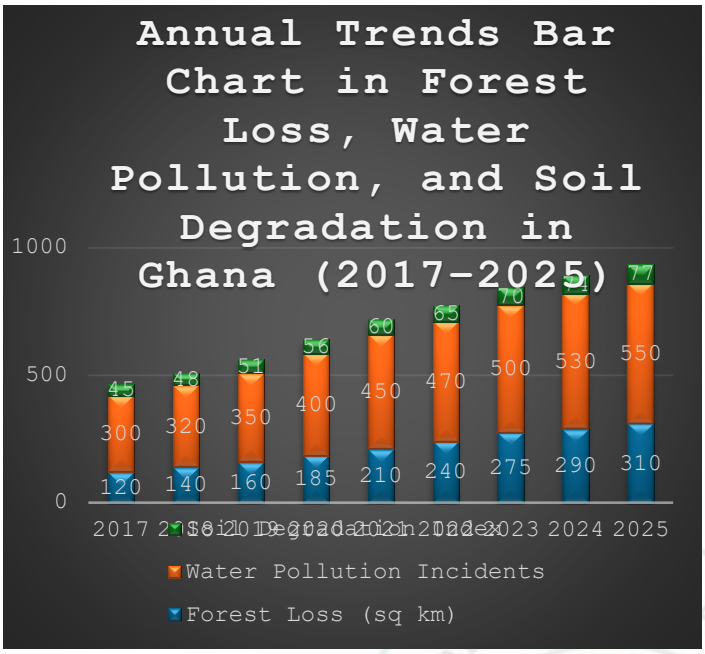
Source: Compiled from national environmental data sources including EPA Ghana, Forestry Commission, and CSIR (2017–2025

Fiqure 1: Annual Trends in Forest Loss, Water Pollution, and Soil Degradation in Ghana (2017–2025)



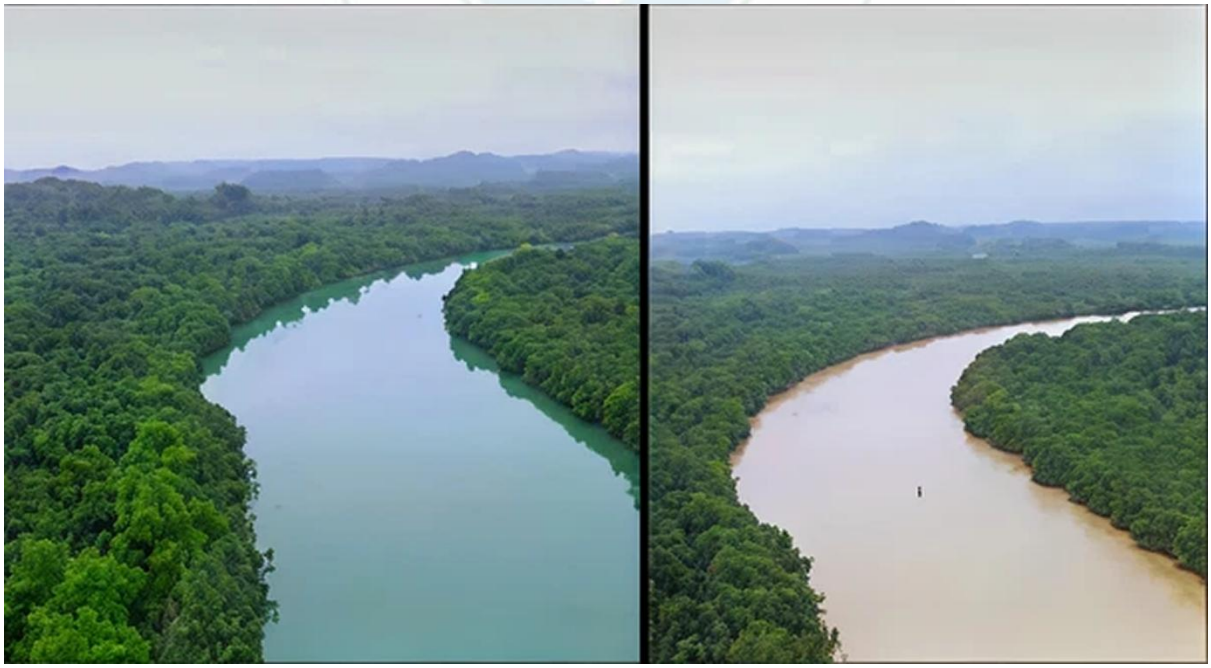
Source: Compiled from national environmental data sources including EPA Ghana, Forestry Commission, and CSIR (2017–2025)

Fiqure 2: Annual Trends Bar Chart in Forest Loss, Water Pollution, and Soil Degradation in Ghana (2017–2025)



Source: Compiled from national environmental data sources including EPA Ghana, Forestry Commission, and CSIR (2017–2025)

Figure 3: An image of River Ankobra in Ghana before and after illegal mining (Galamsey).



Source: ResearchGate

Figure 4: Results of Sand Winning and Land Degradation in Wa, Ghana

Source: CORE

Ghana is experiencing a sharp rise in environmental degradation from 2017 to 2025, marked by increasing forest loss, water pollution, and soil degradation. Forest loss grew from 120 to 310 sq km, pollution incidents rose from 300 to 550, and the soil degradation index increased from 45 to 77. These trends signal weakening environmental protection and pose threats to ecosystems, health, and food security. Urgent action is needed to reverse the damage through stronger policies, reforestation, and sustainable land and water management.

Propose Model: The Community–Government–Ecosystem (CGE) Restoration Framework

To address the multifaceted and interconnected environmental challenges facing Ghana, this article proposes the Community–Government–Ecosystem (CGE) Restoration Model. This integrative framework is designed to foster synergy among the most critical actors in ecological restoration; local communities, government institutions, and the natural systems themselves (Ayivor & Gordon, 2021). It is structured around three interconnected pillars that ensure both top-down and bottom-up engagement in restoring Ghana's degraded ecosystems (UNEP, 2022). These pillars are: Community Empowerment, Government Regulation and Investment, and Ecosystem-Specific Interventions (FAO, 2021).

1. Community Empowerment

The first pillar emphasizes local ownership and participatory stewardship of natural resources (Agbenyega et al., 2020). Empowering communities is essential to sustaining restoration efforts at the grassroots level (Asare, 2018). Key strategies include:

- ✓ Establishing Eco-Guardianship Committees at the community level to oversee and manage ecosystem rehabilitation activities (Owusu et al., 2022). These committees will collaborate with traditional authorities and local assemblies to enforce environmental norms and mobilize grassroots support (Mensah & Acheampong, 2019).
- ✓ Providing technical training in agroforestry, sustainable farming practices, and integrated waste management to equip rural dwellers with the knowledge and tools for environmentally sound livelihoods (FAO, 2020).
- ✓ Incentivizing community-driven tree planting initiatives through mechanisms such as carbon credit schemes, community forestry licenses, and land tenure security (World Bank, 2023). These strategies aim to promote long-term community participation and deliver economic co-benefits (Acheampong & Osei-Tutu, 2019).

2. Government Regulation and Investment

The second pillar focuses on strengthening institutional governance and financial commitment to environmental protection (EPA Ghana, 2023). Effective environmental restoration requires strong regulatory oversight and targeted public investment (Owusu & Sarkodie, 2021). The following actions are recommended:

- Enhancing the enforcement of existing environmental legislation, including the Forestry Commission Act and the EPA Act, with a focus on prosecuting illegal mining, logging, and land encroachment (Ghana Forestry Commission, 2020).
- Deploying modern surveillance technologies, such as drones and satellite imagery, for real-time monitoring of forest cover, illegal mining operations, and wetland encroachments (UNDP, 2022). These tools can support responsive and evidence-based enforcement actions (Mantey et al., 2021).
- Allocating a fixed percentage of the District Assemblies Common Fund (DACF) to support community-led ecosystem restoration projects, waste management

infrastructure, and environmental capacity-building programs (Local Government Service Secretariat, 2021).

3. Ecosystem-Specific Interventions

This third pillar addresses the unique restoration needs of Ghana's diverse ecological zones (Bene et al., 2020). Restoration strategies must be tailored to the local context to maximize ecological, social, and economic benefits (UNEP, 2021). Targeted interventions include:

- Reforesting degraded landscapes using native and climate-resilient tree species, particularly in forest reserves and buffer zones surrounding rivers and watersheds (FAO & MoFA, 2022).
- Restoring coastal wetlands, lagoons, and mangrove ecosystems to enhance biodiversity, reduce saline intrusion, and combat coastal erosion, especially in vulnerable areas such as Keta, Ada, and the Western Region's shoreline (WRI, 2020).
- Rehabilitating mined lands through phytoremediation techniques and controlled ecological succession, supported by soil stabilization efforts and the reintroduction of native plant species to reverse degradation caused by artisanal mining (Amoako et al., 2019).

Justification for the CGE Restoration Model

The proposed Community–Government–Ecosystem (CGE) Restoration Model is grounded in both empirical evidence and global best practices, making it a highly relevant and feasible solution for Ghana's escalating environmental degradation challenges. Firstly, community engagement has been widely recognized as a cornerstone of successful ecosystem restoration. Research shows that when local communities are involved in the planning and implementation of environmental projects, restoration outcomes are more sustainable and socially inclusive (Chazdon et al., 2017). In Ghana, community-based reforestation projects in the Brong-Ahafo and Eastern Regions have demonstrated measurable improvements in forest cover and biodiversity when local people are trained and empowered (Forestry Commission Ghana, 2023).

Moreover, the establishment of Eco-Guardianship Committees is supported by evidence from similar community-led conservation initiatives across Africa, which have proven effective in

monitoring forest use, reporting illegal activities, and mobilizing indigenous knowledge systems (Leisher et al., 2010). Providing incentives through carbon credit schemes and agroforestry-based income generation further aligns with findings that economic incentives increase long-term community participation and environmental stewardship (Shackleton et al., 2015).

Secondly, government regulation and investment are essential for creating an enabling environment for restoration. In Ghana, enforcement gaps in environmental laws have contributed significantly to illegal logging and galamsey activities (Agyeman et al., 2022). Strengthening the legal and institutional frameworks; such as the Forestry Commission Act (Act 571) and EPA Act (Act 490), can reduce impunity and enhance environmental accountability (EPA Ghana, 2024). Additionally, technological investments such as satellite monitoring and drone surveillance have been successfully used in countries like Brazil and Indonesia to curb illegal deforestation and land degradation (de Azevedo-Ramos et al., 2020). Such tools can offer Ghana timely data for responsive enforcement.

Dedicating a portion of the District Assemblies Common Fund (DACF) to ecosystem restoration is both strategic and financially justified. Decentralized funding for environmental management enhances local ownership and allows district-level planning authorities to respond to context-specific challenges more effectively (NDPC, 2021). This approach has been piloted under Ghana's Greening Ghana Initiative, showing that modest public investment in local green infrastructure can yield broad ecological and socio-economic benefits.

Lastly, ecosystem-specific interventions; such as restoring mangroves and reforesting mined lands, are supported by ecological science as critical components of landscape-level restoration. For instance, mangrove replanting along Ghana's coastal zones has been shown to mitigate coastal erosion and enhance fishery productivity, contributing to both ecological balance and community livelihoods (Armah et al., 2019). Similarly, phytoremediation has emerged as a cost-effective and environmentally friendly method of rehabilitating contaminated mining areas by using native plants to absorb heavy metals and stabilize degraded soils (Mensah & Antwi, 2023).

Therefore, the CGE Restoration Model is not only justified by the urgency of Ghana's environmental crisis but is also rooted in globally endorsed principles of integrated restoration, participatory governance, and ecosystem resilience. Its implementation aligns with Ghana's national commitments under the UN Decade on Ecosystem Restoration (2021–2030) and the

Nationally Determined Contributions (NDCs) to climate adaptation and biodiversity conservation (UNEP, 2022).

Challenges to Ecosystem Restoration in Ghana

Despite existing policies and donor support, several bottlenecks continue to hinder effective ecosystem restoration efforts in Ghana. One major challenge is weak law enforcement, where illegal mining and logging persist due to corruption and poor institutional monitoring mechanisms. These illicit activities are often overlooked or inadequately punished, undermining regulatory efforts designed to protect natural resources (Hilson, 2017).

Another critical issue is the lack of public awareness. Many citizens, particularly in rural areas, are unaware of the long-term consequences of ecosystem degradation. This gap in environmental education limits grassroots participation in restoration programs, reducing the effectiveness and sustainability of such efforts (Acheampong et al., 2018).

Limited funding also constrains the scale and impact of restoration initiatives. Environmental interventions often depend heavily on external donor support, with few sustainable domestic financing mechanisms in place. As a result, projects tend to stall or collapse once external funding ends, threatening continuity and long-term impact (Asante & Boakye, 2020).

Furthermore, land tenure issues complicate reforestation and conservation activities. Unclear ownership rights, communal land systems, and overlapping claims contribute to land conflicts, discouraging long-term investment in land restoration and delaying implementation of critical projects (Kasanga & Kotey, 2001).

Finally, climate change presents an overarching threat. Increasing occurrences of droughts, floods, and erratic weather patterns have significantly impacted restoration outcomes. These changing climatic conditions stress recovering ecosystems, making it difficult for reforested areas and restored habitats to thrive (Owusu & Waylen, 2013).

Recommendations: Pathways to Regeneration

A **multi-pronged approach** is required to address the ongoing challenges to ecosystem restoration in Ghana. Revising and effectively implementing the National Land Policy and the Forest and Wildlife Policy will help reposition ecosystem restoration as a national development

priority. These reforms should aim to address current gaps, streamline land tenure issues, and strengthen enforcement mechanisms to reduce illegal land use.

Equally important is **environmental education**. Incorporating ecosystem and sustainability topics into the national school curricula will instill environmental consciousness from an early age. Moreover, nationwide public awareness campaigns using radio, television, and social media platforms can help sensitize citizens on the value of ecosystem services and the consequences of environmental degradation.

An **incentive-based restoration model** should be adopted to encourage participation from local stakeholders. Providing financial or material incentives to farmers and landowners who commit to preserving forest buffers, wetlands, and degraded lands will foster ownership and sustainability in restoration efforts.

In addition, **research and innovation must be prioritized**. Government and development partners should invest in universities and local think tanks to develop appropriate, low-cost restoration technologies. These institutions should also conduct rigorous environmental impact assessments to guide evidence-based policymaking.

Finally, fostering **public-private partnerships (PPPs)** will be key in mobilizing resources for large-scale restoration. Engaging the private sector through their Corporate Social Responsibility (CSR) programs can enhance funding, technical support, and innovation in ecosystem restoration interventions.

Conclusion: Reclaiming Our Natural Heritage

Restoring degraded ecosystems in Ghana is no longer optional; it is an urgent necessity for national survival. As environmental degradation accelerates, the implications for food security, water quality, biodiversity loss, and climate resilience become more severe. The country must respond decisively with a comprehensive and inclusive approach that combines strong environmental policies, empowered local communities, sustainable financing mechanisms, and the active participation of the private sector and civil society. By strengthening institutions, enforcing environmental laws, and investing in ecosystem education, Ghana can lay the foundation for a resilient ecological future.

Moreover, coordinated efforts across all levels of government, supported by research institutions and development partners, are essential to drive sustainable restoration. If well-

executed, these measures can lead to the reclamation of degraded lands, purification of rivers, and restoration of forest reserves and wetlands, ultimately enhancing the country's natural capital and adaptive capacity. This is not merely a call to action; it is a call to moral and ecological responsibility. As the popular wisdom goes, we do not inherit the earth from our ancestors; we borrow it from our children. Therefore, it is our solemn obligation to return it to them restored, healthier, and more vibrant than we found it.

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