

W H I T E   P A P E R

# STAY GOLDEN

*Reclaiming Ghana's Galamsey-Degraded Lands for Food,  
Livelihoods and Climate Resilience through  
Public–Private Cooperation*

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S.E. Brannon  
Chief Executive Officer / Managing Director,  
Our Mother Earth Foundation (OMEF)  
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## Executive Summary

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Gold has built much of Ghana’s economic story, from the colonial-era “Gold Coast” to its present standing as one of Africa’s largest producers. Yet the unregulated, largely illegal artisanal and small-scale gold mining known locally as **galamsey** has turned that asset into one of the country’s most serious environmental emergencies. Rivers that once supplied drinking water now carry sediment loads many times above the level treatment plants can handle; forest reserves have been overrun; cocoa farms and food fields have been stripped of topsoil and left as open, water-filled pits; and mercury used to amalgamate gold has entered water, soil and the food chain (Appiah-Sefah et al., 2013; Kervankiran et al., 2016).

Two decades of research point to the same conclusion: galamsey is not simply a law-and-order problem. It grows out of rural poverty, lost access to land, structural unemployment and a licensing system that is harder to use than a chief’s informal permission (Hilson & Potter, 2005, as cited in Kervankiran et al., 2016). Policies that treated miners only as “villains” and relied on top-down relocation, such as the 2005–2007 Prestea Action Plan, failed because they excluded the people they were meant to change (Badwi, 2015). Enforcement is necessary, but enforcement alone leaves behind scarred land and people with no alternative income, and the cycle resumes.

This paper argues for a third path: **reclaiming the degraded land and putting it back to productive work**. Mined-out sites can be remediated, isolated from residual contamination, and converted to managed-water rice cultivation and fish farming, with buffer re-vegetation at their edges. Done well, the same hectare that was a liability becomes a source of formal jobs, food, clean-water protection, and verifiable climate benefits. Our Mother Earth Foundation’s *Along the Tano River Degraded Land Reclamation Pilot Project*, a 125-hectare, four-parcel pilot in Ghana’s Western Region now before the UNFCCC Article 6.4 mechanism, is offered here as a working template for that approach (OMEF, 2026a).

The model only scales through cooperation. Government holds the mineral rights, the regulatory authority and the enforcement capacity; traditional authorities hold the land and the community’s trust; the private sector brings capital, engineering, agronomy and market access; former miners and farming households bring labor and local knowledge; and international climate finance, including Paris Agreement Article 6 carbon markets, can close the funding gap. The paper closes with specific recommendations for each of these actors.

**Key figures at-a-glance**

**~10% of Ghana's land surface (about 23,853 km<sup>2</sup>)** is reported as degraded, with an estimated **US\$21 billion** needed for restoration (Frimpong-Boateng, as reported by MyJoyOnline, 2026).

**44 of Ghana's 288 forest reserves** are under serious attack by illegal miners; more than nine had been fully taken over by early 2025 (Parliament of Ghana, 2025).

**Raw-water turbidity of 5,000–12,000 NTU** has been recorded in major rivers, against a treatment threshold of 500 NTU (Starr FM, 2025).

**More than 60%** of water bodies in mining-affected areas are reported polluted beyond acceptable standards (NCCE, n.d.).

**Over 1 million people** are estimated to work directly in small-scale gold mining, supporting about **4.4 million dependents** (Kervankiran et al., 2016).

## 1. Introduction: Gold's Double Edge

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Ghana was once the source of more than a third of the world's gold output and remains the second-largest producer in Africa (Tsikata, 1997; Aryee, 2012, both as cited in Kervankiran et al., 2016). Mining contributes heavily to corporate tax, government revenue and export earnings, and artisanal and small-scale mining (ASM) alone exported 40.7 tons of gold worth roughly US\$1.7 billion in 2013 (Minerals Commission, 2014, as cited in Kervankiran et al., 2016). By employment, ASM dwarfs the formal sector: large-scale mines employ tens of thousands, while small-scale gold mining directly occupies over a million people (Kervankiran et al., 2016).

About one-sixth of Ghana's land area contains extractable gold or diamonds, concentrated in the south-western belt around Tarkwa, Obuasi, Dunkwa, Prestea and Dumas (Amankwah & Anim-Sackey, 2003, as cited in Appiah-Sefah et al., 2013). The same belt holds the country's cocoa farms, its forest reserves, and the catchments of the Ankobra, Pra, Offin, Birim and Tano rivers. When extraction is unregulated, these assets are destroyed together.

The Small-Scale Gold Mining Law of 1989 (PNDCL 218) was intended to bring this activity inside a legal framework, offering technical support while channeling gold through official buyers (Appiah-Sefah et al., 2013). Yet most operators still work without licenses, and the damage has accelerated. In 2025 security agencies arrested 1,486 illegal miners and seized 443 excavators (Catholic Standard, 2026), a measure both of enforcement effort and of how mechanized and capitalized "artisanal" mining has become.

This paper has three aims: to set out clearly the environmental damage galamsey causes; to explain, using the political-ecology literature, why it has persisted; and to propose a practical, cooperative model for turning degraded land into productive farmland that creates jobs, strengthens food security and improves life for the communities most affected.

## 2. The Scale of the Damage

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### 2.1 Water: rivers beyond treatment

Galamsey is above all a water crisis. Most operations wash ore with river water, dredge alluvial deposits from riverbeds and banks, and discharge tailings directly into streams. Major rivers including the Ankobra, Tano, Offin and Oti have been heavily polluted, and mercury used in sluicing and amalgamation ends up in these water bodies; in affected districts even hand-dug wells can no longer be used for domestic supply (Aryee et al., 2003; Paruchuri et al., 2010, both as cited in Appiah-Sefah et al., 2013). Stripping riverbank vegetation accelerates erosion, sending sand and clay into rivers, raising turbidity, and killing fish and other aquatic life (Appiah-Sefah et al., 2013).

The impact on public water supply is now severe. Ghana Water Company's normal maximum turbidity for treatment is 500 NTU (Parliament of Ghana, 2025); the Minister for Lands and Natural Resources reported river turbidity between 5,000 and 12,000 NTU in 2025, causing intermittent plant shutdowns nationwide (Starr FM, 2025). The utility has reported treated-water process losses of around 50% in mining areas because of turbidity (B&FT, n.d.), has had to switch from alum to more costly polymers, and has sought about GH¢300 million to dredge and desilt key intakes (AllAfrica, 2025). Every cedi spent cleaning water that was polluted for gold is a cedi not spent extending supply to communities without it.

Mercury is the most persistent part of the problem. Field measurements cited by Badwi (2015) found markedly higher total mercury in water around Prestea at sites with intensive galamsey than at sites dominated by large-scale mining (Serfor-Armah et al., 2006, as cited in Badwi, 2015). Donkor et al. (2006, as cited in Badwi, 2015) describes heavy and careless discharge of metallic mercury in the gold belt and the loss of biological species from its main river systems.

## **2.2 Land: pits, spoil, and lost topsoil**

Where mining is neither monitored nor controlled, operators leave pits open and unfilled and dump spoil and waste without care. The pits fill with water, become breeding grounds for mosquitoes, and pose a drowning risk, especially to children (Hilson, 2010, as cited in Appiah-Sefah et al., 2013). The excavated landscape is chaotic: overburden heaped on former fields, topsoil buried or washed away, and drainage patterns disrupted. Even in the drier north, small-scale mining has been linked to land degradation severe enough that already arid areas risk desertification (Gyasi et al., 2006, as cited in Appiah-Sefah et al., 2013).

Former Environment Minister Prof. Kwabena Frimpong-Boateng has estimated that about a tenth of Ghana's surface is now degraded and that restoration would cost around US\$21 billion, with the Ankobra River alone requiring an estimated US\$400 million (MyJoyOnline, 2026). Government data reported in 2026 put the bill for restoring just over 5,500 hectares of galamsey-devastated land at US\$264 million (Catholic Standard, 2026), roughly US\$48,000 per hectare. These figures make a simple point: restoration at scale will not be financed by the public purse alone.

## **2.3 Forests and biodiversity**

Because most operators lack licenses, many have moved into forest reserves to avoid detection (Hilson, 2002, as cited in Appiah-Sefah et al., 2013). By February 2025, 44 of Ghana's 288 forest reserves were under serious attack and more than nine had been completely taken over to the point that the Forestry Commission could no longer access them (Parliament of Ghana, 2025). In northern Ghana, Tom-Dery

et al. (2012, as cited in Appiah-Sefah et al., 2013) measured tree density on mined sites at less than half that of comparable unmined land (2.4 versus 5.6 trees per 100 m<sup>2</sup>), and found indigenous species being replaced by others not previously present. Forest loss also undermines Ghana's climate commitments, since standing forest is one of the country's main carbon sinks (NCCE, n.d.).

## 2.4 Agriculture and food security

Farmland is frequently cleared for mining without adequate compensation, cutting crop output; because mined areas are rarely rehabilitated, the land is left bare and loses its agricultural value (Akabzaa et al., 2005; Anane, 2003, both as cited in Appiah-Sefah et al., 2013). Crops, vegetables, and fish produced near mining sites have been found to carry mercury (Babut et al., 2003, as cited in Appiah-Sefah et al., 2013), a particular risk for children and pregnant women. COCOBOD has reported more than 19,000 hectares of cocoa farms destroyed or severely damaged in the Eastern, Western and Ashanti regions (Graphic Online, n.d.). Every hectare of farmland lost to galamsey is a direct subtraction from local food supply and rural income.

## 2.5 Air, noise, and human health

Blasting in hard-rock operations releases dust linked to lung disease, and continuous machinery noise can impair hearing (Appiah-Sefah et al., 2013). Beyond the physical, the social costs include child labor, the erosion of traditional livelihoods and customs, bribery and corruption, and the displacement of farming households (Kervankiran et al., 2016).

| Dimension              | Principal impacts of illegal artisanal mining                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water                  | Sediment and turbidity far above treatability; mercury and heavy-metal contamination; loss of aquatic life; plant shutdowns and higher treatment costs |
| Land                   | Open, water-filled pits; buried or eroded topsoil; disrupted drainage; desertification risk in drier zones                                             |
| Forests & biodiversity | Encroachment into reserves; tree density cut by more than half on mined sites; invasive species replacing native ones                                  |
| Agriculture & food     | Farmland and cocoa lost; mercury in crops and fish; bare, unrehabilitated land                                                                         |
| Health & society       | Mercury exposure; dust and noise; child labor; corruption; displacement; conflict over land                                                            |
| Economy                | Smuggling and lost revenue; restoration liabilities in billions of dollars                                                                             |

*Table 1. Environmental, social, and economic impacts of galamsey. Sources: Appiah-Sefah et al. (2013); Kervankiran et al. (2016); Badwi (2015); Parliament of Ghana (2025).*

## 3. Why Galamsey Persists: Questioning the Narratives

Effective policy depends on an accurate diagnosis. Political ecology, which studies how power, markets and access to resources shape environmental change, is particularly useful here because it asks not only *what* damage is done but *why* rational people do it (Blaikie & Brookfield, 1987, as cited in Kervankiran et al., 2016).

### 3.1 The dominant narrative: poverty and the “villain” miner

The most common account is that galamsey is driven by poverty: poor, uneducated people mine illegally because they have no alternative, and are ignorant of the harm they cause (Hilson & Garforth, 2012; Banchirigah, 2008, both as cited in Kervankiran et al., 2016). In official and media language miners have often been cast as a “menace” and a “threat,” with farmers and concession holders as victims and security forces as heroes (Tschakert & Singha, 2007, as cited in Badwi, 2015). Development narratives of this kind are powerful precisely because they simplify complex situations into a story with a clear problem and a clear solution (Roe, 1991, as cited in Badwi, 2015).

### 3.2 The counter-narratives

The evidence complicates that story in at least four ways.

- **Galamsey is also a traditional livelihood.** Small-scale gold working in Ghana dates back more than 2,000 years and historically complemented farming, offering dry-season income. Many miners regard it as a customary right that predates foreign concessions (Hilson, 2001; Tschakert & Singha, 2007, both as cited in Kervankiran et al., 2016). A Prestea miner interviewed by Kervankiran et al. (2016) described his father’s generation mining the same land before it was granted to a company, leaving the family to slip onto unused corners of the concession to earn a living.
- **Structural adjustment created the labor pool.** Austerity, privatization and liberalization from the 1980s onward retrenched public workers and mine employees and lowered farm incomes, while generous incentives drew large-scale foreign mining that took up land but created comparatively few jobs (Hilson & Potter, 2005; Hilson, 2007, both as cited in Kervankiran et al., 2016). Large-scale concessions around Tarkwa alone displaced 14 farming communities with over 30,000 people in the 1990s (Banchirigah, 2008, as cited in Kervankiran et al., 2016).
- **Legality is harder to reach than illegality.** Formal small-scale licenses involve cost, delay, and bureaucracy, while access through traditional authorities is quick and flexible. Ghana’s dual land system, in which the state owns minerals, but chiefs hold the land, makes informal arrangements the path of least resistance (Nyame & Blocher, 2010, as cited in Kervankiran et al., 2016). A Minerals Commission official in Tarkwa told researchers that operators typically go to the chiefs rather than the Commission and that the office lacks the capacity to monitor them (Kervankiran et al., 2016).
- **Not all miners are poor.** A “get-rich” motive, migrants from elsewhere in Ghana and abroad, and well-financed sponsors and gold buyers, including foreign participants, now drive much of the activity (Hilson et al., 2014; Nyame & Grant, 2014, both as cited in Kervankiran et al., 2016). The heavy machinery seized in recent enforcement operations reflects this capital-intensive end of the sector (Catholic Standard, 2026).

The practical implication is that the sector is diverse by legality, origin, seasonality, and demography (Buxton, 2013, as cited in Kervankiran et al., 2016), and no single instrument will work for all of it. Well-financed, mechanized operations call for firm enforcement. The much larger population of local people mining for survival calls for something they can do instead, on land they recognize as theirs.

### 3.3 Lessons from the Prestea Action Plan

The Prestea Action Plan, launched in the mid-2000s with donor support, was intended to relocate galamsey operators from the Golden Star Resources concession at Prestea to designated alternative mining areas, and was presented as a sign that government accepted miners as a vulnerable group to be supported within a legal framework (Hilson et al., 2007, as cited in Badwi, 2015). It failed. After implementation, an estimated 85% of the labor force was still operating without a license (Carson et al., 2005, as cited in Badwi, 2015).

Badwi (2015) groups the reasons under design and implementation. In design, miners were never given a place at the table: the plan was announced in newspapers that the targeted miners rarely saw, and many of those who answered were job-seekers from the cities rather than Prestea's own operators. In implementation, removal was conducted forcibly by police and security forces; the relocation sites held too little gold to sustain a living; and the plan ignored miners' deep attachment to Prestea as a place. The result was widespread rejection, and a perception among miners and researchers that the real aim was to clear land for foreign concessions (Hilson & Potter, 2005, as cited in Badwi, 2015).

#### **Five design principles are drawn from the evidence.**

- 1. Participation from day one.** Miners, farmers, and chiefs help design the program; they are not informed after the fact (Badwi, 2015).
- 2. A real alternative, on recognized land.** Replacement livelihoods must pay at least as reliably as mining and be located where people already live (Badwi, 2015; Kervankiran et al., 2016).
- 3. Work through customary authority, not around it.** Traditional land custodians are the gateway to legitimacy and tenure security (Kervankiran et al., 2016).
- 4. Address the drivers, not only the symptoms.** Unemployment, marginalization, poverty, and resource entitlement must be tackled together (Kervankiran et al., 2016).
- 5. Coordinate government.** Ministries and agencies must function as one, with enforcement, monitoring, and rehabilitation obligations in law (Appiah-Sefah et al., 2013).

## **4. Why Enforcement Alone Is Not Enough**

Ghana's renewed anti-galamsey campaign has produced tangible results: forest reserves cleared, camps dismantled and, in some places, land returned to cover. At Nyankumase, 800 acres of former galamsey land have been reclaimed and are now growing trees, with local farmers again planning to farm (AllAfrica, 2026). These successes show that recovery is possible.

But the same commentary warns that reclamation means little if degraded land keeps outpacing restored land (AllAfrica, 2026). Enforcement removes operators; it does not remediate mercury, refill pits, rebuild topsoil or replace lost income. Reports from earlier campaigns show miners returning to rivers once task forces left (Peace FM, 2018). And restoration costing tens of thousands of dollars per hectare cannot be repeated across hundreds of thousands of hectares from public funds alone.

What is missing is a way to make reclaimed land *pay for its own upkeep* and to give the people who once mined it a stake in protecting it. That requires a productive end-use, a financing model that brings in private capital, and a governance model that keeps communities in charge of their own land.

## 5. A Different Model: Reclaim, Remediate, Re-employ

### 5.1 From liability to assets

The approach proposed here treats each degraded site as a future farm rather than a crime scene. It has four stages:

1. **Characterize.** Map the site's boundaries, pits, spoil, drainage and contamination, including hidden subsurface voids and water-filled cavities (see Section 6).
2. **Remediate and isolate.** Recontour the land, restore topsoil, treat or remove mercury and heavy-metal hot-spots, and install an engineered subsurface barrier that separates the clean surface layer from residual contamination below.
3. **Convert to productive use.** Use the existing pit-and-pond topography as an advantage: managed-water rice paddies and fishponds fit land that already holds water, while native vegetation is re-established on the margins.
4. **Formalize and sustain.** Employ local people, including former miners, on formal terms; establish grievance and benefit-sharing mechanisms with traditional authorities; and monitor soil, water, crops, and carbon over the long term.

### 5.2 Why rice and fish

Galamsey pits already collect water, and the Tano and its tributaries provide irrigation. Rather than fighting that hydrology, the model collaborates with it. Rice and tilapia are staples with established domestic demand, so production replaces imports and supplies local markets. Using **alternate wetting and drying (AWD)** water management for rice, rather than continuous flooding, cuts methane emissions and water use while maintaining yields, which allows the activity to generate emission reductions as well as food. Re-vegetated edge buffers provide shade, slope stability, biodiversity habitat, and carbon removals.

### 5.3 The Tano River pilot

Our Mother Earth Foundation, with activity participants XMTS Global and International Earthworks, has designed the *Along the Tano River Degraded Land Reclamation Pilot Project* to demonstrate this model on 125 hectares of galamsey-degraded land across four parcels in Ghana's Western Region (OMEF, 2026a). In its baseline condition, each parcel is exposed to mining land: open pits and excavated soil, no standing vegetation, likely mercury contamination from amalgamation, no remediation by any responsible party, and a continuing risk of renewed illegal mining (OMEF, 2026b).

| Design element | Tano River pilot specification                                                                                                                |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Location       | Along the Tano River, Western Region, Ghana; four parcels (A 50 ha anchor site; B 40 ha; C 30 ha; D 5 ha)                                     |
| Total area     | 125 ha                                                                                                                                        |
| Remediation    | Recontouring, top-soil restoration, treatment or removal of mercury and heavy metals; engineered subsurface barrier with integrity monitoring |

| Design element         | Tano River pilot specification                                                                                                                         |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Productive use         | About 90% (112.5 ha) converted to managed-water (AWD) rice and tilapia aquaculture; rice planned at three cropping cycles per year on irrigated land   |
| Buffer re-vegetation   | About 10% (12.5 ha) at parcel edges, re-vegetated in stages toward young secondary forest                                                              |
| Mitigation type        | Combined emission reductions (AWD methane avoided vs. continuous flooding) and removals (buffer biomass)                                               |
| Estimated net outcomes | About 14,629 tCO <sub>2</sub> e over 25 years; about 5,467 tCO <sub>2</sub> e in the first 10-year crediting period (estimates, subject to validation) |
| Crediting period       | 10 years, renewable to a 25-year horizon                                                                                                               |
| Labor                  | Local labor employed throughout; formal jobs replacing informal and illegal mining work                                                                |

Table 2. Tano River pilot design. Source: OMEF (2026a, 2026b).

The carbon figures are deliberately modest, and that is the point. The project's primary value lies in food, jobs, clean water, and recovered land; climate finance is a supporting revenue stream that helps cover the monitoring and long-term stewardship a reclaimed site needs, not the reason the project exists.

#### 5.4 Status under the UNFCCC Article 6.4 mechanism

To give reclaimed galamsey land a recognized pathway to international climate finance, OMEF has proposed a new **Degraded Land Reclamation Methodology** to the Paris Agreement Crediting Mechanism established under Article 6.4. The proposal was lodged on the secretariat's official forms in October 2026 and passed the completeness check; it now proceeds to initial assessment by the Methodological Expert Panel (OMEF, 2026a; UNFCCC, n.d.). Host-Party confirmations, including the Designated National Authority's view on activity-type eligibility, alignment with Ghana's Nationally Determined Contribution, and Minerals Commission confirmation of each parcel's concession status, are being sought from the responsible Ghanaian offices and have not yet been given (OMEF, 2026b).

The methodology contains an important safeguard: land still under an active licensed concession with a subsisting reclamation obligation is not eligible. The mechanism is designed to fund reclamation that would otherwise not happen, not to relieve mining companies of obligations they already carry.

## 6. Seeing Below the Surface: Low-Cost Site Characterization

Galamsey land hides hazards. Backfilled pits, collapsed tunnels, abandoned shafts and water-filled cavities may lie a few meters beneath what looks like level ground. Building paddies, pond walls, and a subsurface barrier over such features without knowing they exist risks subsidence, leakage, and injury. Conventional site investigation by drilling is slow and costly across many hectares. Two geophysical studies point to cheaper approaches that deserve testing on reclamation sites.

**Resonant seismic emission.** Korneev (2009) showed that contrasting subsurface objects such as tunnels, cavities, pipes, filled pits, and fluid-filled fractures trap seismic energy and re-emit it slowly

as resonant shear waves after the main arrivals have passed. In a field test, a water-filled barrel buried 5–6 m deep in compacted sand was invisible in the raw records of a simple sledgehammer-and-geophone survey, yet after gain control and narrow band-pass filtering its resonance at 78 Hz produced a clear hyperbolic signature that located it precisely. Because the method uses late-arriving energy at a single frequency, it does not require accurate source timing or laborious separation of wave types and could be used for low-cost screening. Korneev’s description of loosened, filled excavation pits as natural wave-trapping objects is directly relevant to galamsey terrain.

**Sparse-sensor inversion.** Villanova Silverio and Genda (2026) developed *AresWave*, an open-source Python package that estimates the depth and mechanism of marsquakes recorded by a single seismometer, combining Bayesian inference to bound the plausible depth range with particle swarm optimization to fit observed waveforms. Although built for Mars, its core lesson transfers when instrumentation is sparse, combining probabilistic prior constraints with stochastic optimization can extract reliable subsurface information at modest computational cost. Similar workflows could, in principle, support passive seismic monitoring of barrier integrity or ground stability on reclaimed land with few sensors.

Neither method has yet been validated on galamsey sites, and both would need field calibration against local soils. We include them because rigorous, affordable site characterization is a genuine gap in reclamation practice, and because collaboration with Ghanaian universities such as KNUST and the University of Mines and Technology in Tarkwa could evaluate them quickly.

## 7. A Public–Private Partnership Framework

No single actor can carry this model. The analysis in Section 3 shows that galamsey arises where the interests of the state, foreign capital, traditional authorities, and local people diverge (Kervankiran et al., 2016). Reclamation works where those interests are deliberately aligned. Table 3 sets out a division of roles.

| Actor                                                                                           | Role in the reclamation partnership                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National government (MLNR, Minerals Commission, EPA, Forestry Commission, Carbon Market Office) | Confirm tenure and concession status; streamline permits for reclamation-to-agriculture projects; enforce against new illegal mining; authorize Article 6 activities; set and monitor environmental standards; dedicate a share of mineral royalties to restoration |
| District assemblies & extension services                                                        | Local monitoring; agricultural extension for rice and aquaculture; health surveillance for mercury exposure                                                                                                                                                         |
| Traditional authorities                                                                         | Allocate land with community consent; host grievance and benefit-sharing mechanisms; lend legitimacy and protect reclaimed sites from re-mining                                                                                                                     |
| Private sector (developers, engineers, agribusiness, water remediation specialists)             | Finance and execute remediation; design and operate farms and ponds; provide inputs, processing, and offtake; bring water-remediation technology                                                                                                                    |
| Communities & former miners                                                                     | Formal employment; cooperative or out-grower ownership of production; participation in design and monitoring                                                                                                                                                        |

| Actor                                  | Role in the reclamation partnership                                                                               |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Development partners & climate finance | Blended and concessional finance; Article 6 carbon revenues; technical assistance and independent verification    |
| Universities & research institutes     | Baseline and monitoring science; soil and water testing; testing of low-cost geophysical and remote-sensing tools |

Table 3. Roles in a cooperative reclamation model.

## 7.1 Aligning incentives

- **For government:** reclaimed land produces food, tax revenue and formal jobs, reduces water-treatment costs and helps meet Ghana's NDC, without the full restoration bill landing on the budget.
- **For traditional authorities:** their land is returned to productive use under their custodianship, with transparent benefit-sharing in place of informal, often exploitative galamsey arrangements.
- **For investors:** a pipeline of bankable, verifiable land-restoration projects with food revenues, carbon revenues and government backing.
- **For communities:** steady income on familiar land, safer water, food on local markets and a reason to defend the site against renewed mining.

## 7.2 Financing the transition

Restoration costs reported in Ghana range from roughly US\$40,000 to US\$48,000 per hectare (Graphic Online, n.d.; Catholic Standard, 2026). A blended structure can bring this within reach: concessional or grant capital for the high-cost remediation phase; commercial and agribusiness finance for farm and pond development, repaid from rice and fish sales; carbon revenues under Article 6 to fund long-term monitoring and stewardship; and a dedicated public **Environmental Restoration Fund** financed from a defined share of mineral royalties, as Prof. Frimpong-Boateng has proposed (MyJoyOnline, 2026). Ghana Water Limited has already appealed to Corporate Ghana and development partners to co-fund catchment recovery (AllAfrica, 2025), demonstrating appetite for exactly this kind of shared investment.

# 8. Measuring What Matters

Credibility depends on transparent, independent measurement. The Tano River pilot's monitoring framework tracks outcomes against the Sustainable Development Goals as well as carbon (OMEF, 2026b). The same indicators can serve any reclamation project:

| SDG             | Indicator                                                                      |
|-----------------|--------------------------------------------------------------------------------|
| 1 – No poverty  | Households with recurring income from the reclaimed land                       |
| 2 – Zero hunger | Tons of rice and tilapia produced per year                                     |
| 3 – Good health | Soil and water mercury and heavy-metal concentrations against WHO thresholds   |
| 8 – Decent work | Full-time-equivalent jobs, by sex, and share paid at or above a benchmark wage |

| SDG                 | Indicator                                                                              |
|---------------------|----------------------------------------------------------------------------------------|
| 13 – Climate action | tCO <sub>2</sub> e removed or avoided per year                                         |
| 14/6 – Water        | Mercury and heavy metals in river-adjacent water, upstream and downstream of each site |
| 15 – Life on land   | Hectares of buffer re-vegetated and surviving                                          |
| 16 – Institutions   | Functioning grievance mechanism and share of grievances resolved                       |

Table 4. Sustainable development indicators. Source: adapted from OMEF (2026b).

Monitoring should report results publicly, disaggregated by site and by gender, so that communities, government, and investors can see whether the promise of reclamation is being kept.

## 9. Recommendations

### For the Government of Ghana

1. Establish an independently governed Environmental Restoration Fund financed by a defined share of mineral royalties, with reclamation-to-agriculture projects as an eligible use.
2. Amend the small-scale mining framework to make rehabilitation of mined land a binding license obligation (Appiah-Sefah et al., 2013) and create a fast-track permit for certified reclamation projects.
3. Coordinate the Ministries of Lands, Environment, Food and Agriculture and Water through a single reclamation desk, so that enforcement, remediation, and resettlement into productive work happen in sequence.
4. Provide timely Article 6 host-Party confirmations for reclamation activities that meet national criteria, giving investors a clear pathway.

### For the private sector

1. Treat degraded land as an investable asset: partner with traditional authorities and communities from the design stage, not after it.
2. Commit to local hiring, fair wages, transparent benefit-sharing and published monitoring data.
3. Bring proven remediation, agronomy and water-treatment technology, and offtake agreements that guarantee markets for reclaimed-land produce.

### For traditional authorities and communities

1. Designate degraded land for reclamation partnerships and use customary authority to protect reclaimed sites from re-mining.
2. Organize miners and farmers into cooperatives or groups that can hold contracts, receive training, and share in production (Appiah-Sefah et al., 2013).

### For development partners and climate finance

1. Provide first-loss and concessional capital for the remediation phase, where risk is highest.

2. Support methodologies under Article 6.4 that recognize remediation of mining-degraded land, with strong safeguards against crediting obligations companies already hold.
3. Fund research partnerships that assess low-cost site-characterization and monitoring methods, including the geophysical approaches described in Section 6.

## 10. Conclusion: Stay Golden

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Ghana's gold should be a source of national pride and shared prosperity, not poisoned rivers, and abandoned pits. The research is clear that galamsey persists because, for many people, the formal economy has offered them less than the land beneath their feet. Enforcement can stop the digging, but only a productive alternative can stop the return.

Reclaiming degraded land for rice, fish and forest turns that logic around. It makes the land worth more farmed than mined, gives former miners and displaced farmers dignified work on the land they know, protects the rivers on which millions depend, and earns climate finance that keeps the work going. The Tano River pilot shows what that looks like hectare by hectare. With government, traditional authorities, the private sector, and communities working together, the same approach can be carried across the gold belt.

**To *stay golden*, Ghana does not have to choose between its gold and its land. It must be viewed that every hectare scarred for gold will be healed for food.**

\*\*\*\* END WHITE PAPER \*\*\*\*

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