

About this Study

Artisanal diamond mining, carried out by an estimated 1.3 million diggers in Africa, ruins arable farm land, pollutes streams and rivers, and damages the natural habitat of flora, fish and fauna. This Policy Brief discusses the problem in Sierra Leone and the efforts of two organizations to find sustainable solutions. It highlights the lessons that they have learned so far, and it offers policy advice to the government of Sierra Leone as it revises its mining and minerals policies.

The study was conducted in early 2009 by Joan Baxter, with the collaboration of the Foundation for Environmental Security and Sustainability, One Sky and the Conservation Society of Sierra Leone.

FILLING IN THE HOLES

Policy Implications in Land Rehabilitation: Sierra Leone's Artisanal Diamond Mining Challenge

Background

Sierra Leone's established diamond fields cover an area of about 20,000 square kilometres, almost a quarter of the country. Much of that is formerly rich agricultural land in the Eastern Region, once considered the "bread basket" of the country. However, the exploitation of diamonds since their discovery in the 1930s has taken its toll on the land and water resources.

Despite six decades of diamond mining, Sierra Leone has yet to see the benefits of its rich mineral resources. Almost a decade after the war ended, the mining sector—primarily diamonds—contributes just 2 percent to the country's GDP, while minerals account for 90% of export revenues. With diamond prices slumping, proposed government mining reform may not help to increase mining revenues. This adds urgency to the need to reclaim land laid waste by mining and restore it to productive agricultural land.

In addition to missed economic opportunities, poorly designed and inadequately enforced environmental standards for mining operations have resulted in wide-scale damage:

- Alluvial diamond mining has left vast tracts of formerly arable land as virtual wasteland;
- Waterways, crucial for potable water supplies, irrigation of rice swamps and climatic stability, have been diverted and in some cases, destroyed;
- Stagnant pools of water in mining pits are breeding grounds for malaria-carrying mosquitoes and water-borne diseases;
- There are drownings in water-filled pits;
- Alluvial mining techniques are not geared for land rehabilitation; topsoil is generally removed and mixed with gravel tailings, leaving an undulating moonscape of infertile hills and holes unfit for agriculture. Yet agriculture is a priority for the government in its efforts to

attain food security and improve dismal youth employment statistics.

Since 2001, the government of Sierra Leone (GoSL) has collected a reclamation fee of Le 200,000 (roughly US \$67) per plot (200 x 200 feet) for all artisanal and small-scale leases. This is problematic for two reasons. First, it places the onus for rehabilitation on the government that collects the fee, but does not yield sufficient funds for serious land rehabilitation.

Secondly, while the fund is reportedly kept in a separate GoSL account, there are no records on how it has been used. The total collected is reportedly over Le 100 million (US \$32,205) and some has been spent on small aesthetic reclamation projects. Officials estimate that the cost of rehabilitating a *single plot* could exceed all the funds collected.

Since 2006, two separate pilot projects have been undertaken in land rehabilitation; both have recently become partners of the Diamond Development Initiative (DDI). One is led by the Washington-based Foundation for Environmental Security and Sustainability (FESS), managed through FESS's Freetown-based NGO office, and funded by USAID and the Tiffany & Co. Foundation. The second is led by One Sky, a Canadian NGO working with the Conservation Society of Sierra Leone (CSSL), with support from the Canadian International Development Agency (CIDA), DDI and others.

The FESS Experience

In Sierra Leone the FESS objective is "to guide the implementation of land use strategies to maximize the benefits of diamond mining while generating other livelihood activities and minimizing negative impacts on the environment and the natural resource base."

FESS has conducted research in selected mining areas to assess the economic, social, political and environmental challenges involved in developing a cycle of alluvial mining practices that will be productive and sustainable. It has held consultations and workshops to engage local community members in decision-making with regard to designating mined-out tracts of land for remediation and productive non-mining use. And it has created pilot demonstration sites in three different chiefdoms (47 acres or approx 19 ha total) where workers manually transformed mined-out pits into productive fields of rice, cassava, vegetables, and oil palms.

The FESS model

Following the consultation process, the next step was to create demonstration sites, based on three criteria:

- Land identified for reclamation would be declared by local government and traditional chiefdom authorities to be “mined out”, and by the mines engineer from the Ministry of Mineral Resources to be ineligible for future mining licenses;
- Land would be used for agriculture to provide food support;
- Any economic benefits would go to the community as a whole rather than an individual or family. This was particularly relevant in Kenema District, where land is held by landowning families, whereas in Kono District, land is held in common by chiefs to allocate for community purposes.

Each demonstration plot is governed by a Management Committee as well as a Community Oversight Committee composed of individuals representing the full range of community stakeholder groups.

It was estimated that 150 workers would be required do the land reclamation for all three sites. Many had prior experience as artisanal diamond diggers. Workers used the same tools and techniques to reclaim the land and waterways as are used to dig for diamonds.

Once the reclamation was done, 30 workers (men and women) cultivated each site of 15-17 acres each. Crops included rice, cassava, vegetables, and oil palm seedlings.

Contributions from FESS:

- Daily wages of Le 8,000 (US \$2.61) plus food (value Le 2,500 Leones or US \$0.82), to those doing the land reclamation and cultivation;
- Farming inputs such as tools, seeds, organic fertilizer (e.g., chicken manure and urea) and inorganic fertilizers (less than 20% of non-salary inputs; a total of less than US \$1,000 for all three sites);
- Agricultural expertise (Ministry of Agriculture extension agents and Farmer Field School graduates; then in 2009 a full-time Sierra Leonean agricultural advisor hired by FESS.

Contributions from communities and land-owners:

- Oversight, management of labour and harvests;
- Storage facilities and materials;
- Processing equipment and materials for garri and other crops;
- Labor for cooking lunches and delivering water to workers.

Harvests are distributed under the supervision of a chiefdom authority (paramount, town, or section chief) in each of the three communities. The Community Oversight Committees manage seed banks that are available to all community members, and have an arrangement to “borrow” rice seed and pay a small “interest” (1 cup of rice per bushel of 25 kg) back to the seed bank after the next harvest.

Land is to be handed back to the landowning family in Kenema after reclamation and cultivation (3–5 years).

Community benefits include:

- Reduced unemployment;
- New agricultural land in and around towns, increasing local food production;
- Profits from the activity for community development projects;
- Quality seeds can be borrowed by local farmers to solve seed shortage problems;
- A pool of community residents with knowledge of improved crop production, storage and marketing skills, which can be shared;
- Improved health and safety conditions and improved natural resources management and environmental practices.

Challenges

- **Identifying land that is “mined out”.** In Kono District, Paramount Chiefs receive payment from the government’s Diamond Area Community Development Fund (DACDF), based on the number of mining licenses issued on their land, so some chiefs may be reluctant to relinquish land for rehabilitation;
- **Obtaining and ensuring community commitment.** Consultative workshops and follow-up discussions in the Kono and Kenema Districts facilitated a community self-selection process, resulting in sustained commitments that are ongoing after more than two years; Community Oversight Committees were formed by individuals willing to contribute their own time, energy and materials to the project without payment. The key was identifying the right people; this was facilitated through the consultative workshops;
- **Agricultural expertise** was initially supplied through the Ministry of Agriculture. As the staff have many full-time responsibilities and limited extra time, FESS hired its own agricultural advisor in 2009;
- **Micro credit** was not a component of the first phase, but future phases will involve financial management and business training for workers.

Lessons

1. **Overall sustainability:** The sustainability of land reclamation hinges not just on the actual costs of rehabilitating the land and putting it under cultivation (quite high in the case of the FESS project), but also on the amount of community buy-in for each demonstration site.
2. **Sustainability of wage payments.** Current wages being paid by FESS are a strong incentive for diamond diggers to reclaim and cultivate land rather than dig for diamonds, but the work is capital-intensive and will not be sustainable once external support is gone. Alternatives must be factored into long-term planning.

3. **Profitability and accountability on Chiefdom land.** If sufficient land is reclaimed and put into agricultural production, a chiefdom fund may be created to support further reclamation. Two risks are associated with this: accountability around the use of this fund and, the profitability of rehabilitation. A system of accountability with appropriate checks and balances is essential and profitability is key. Crop diversification is an effective strategy for increasing productivity and profitability.
4. **Land user rights.** Workers who reclaim and cultivate the land need longer-term rights.
5. **Transparency and a standardized model.** The different land tenure system in Kenema District presents a challenge to land reclamation. Adaptability to community realities is critical for ensuring sustainability. Transparency is key to gaining community participation.
6. **Training** is essential for sustainability. The agricultural skills the workers learn on reclamation sites can be used in their own home gardens and elsewhere. Skills in land restoration can also be applied more widely, as mining pits encroach on residential areas.
7. **The use of inorganic fertilizers** helps restore soil fertility. Quick, tangible crop productivity results encourage community participation and deepen commitments toward reclamation until a minimum of soil fertility is restored.
8. **Local planting materials** should be used as much as possible; avoid costly imported or patented seeds. Purchasing all project seeds from the Ministry of Agriculture and the Seed Multiplication Project in Sierra Leone proved to be cost effective.

The One Sky/ CSSL Experience: Life after Diamonds

In 2006, with support from the Canadian International Development Agency (CIDA) and donations from Canadian institutions and individuals, the Canadian NGO, One Sky, linked up with the Conservation

Society of Sierra Leone (CSSL) to launch the “Greening at the Grassroots” project in Kono District. Building on One Sky’s earlier co-operative development in partnership with Friends of the Earth, four local co-operatives were identified and strengthened. Each had 30–40 registered members, of which 15–20 were active, both male and female. Co-operatives that showed commitment and interest were then engaged in seeking mined-out plots of land for reclamation and cultivation. To date, reclamation involves two co-operatives, Bandafayie and Kainsey.

In 2008, a Memorandum of Understanding (MOU) between the Paramount Chief and the Bandafayie Co-operative was signed, giving its 30 members the right to reclaim and cultivate an area of 11.5 acres (4.6 ha) of mined-out land and cultivate it for ten years. They negotiated with a nearby mining company, Swanfield, for the free use of their bulldozer, covering the costs of the driver, fuel and lubricants for four days, for a total of Le 3,620,000 (US \$1,167).

To complete the reclamation and preparation for rice cultivation of about half of the plot (5.5 acres or 2.2 ha), 42 people (co-operative members plus diamond diggers and others from the community) were hired for 10 days, at a rate of Le 8000 (US \$2.61) plus food worth Le 3000 (US\$ 0.98), for a total cost of Le 4,620,000 (US \$1,488).

The project involves organic farming, in this case cultivation of rice, using seed that the co-operative members and community had saved. Five bushels (125 kg) of rice seed were planted on the 2.2 ha for a yield of 52 bushels (1.3 tonnes) at the end of the rainy season in late 2008.

Distribution of the harvest is done democratically by the co-operative. They keep roughly 10% for seeds, offer about 10% to the Nimikoro Paramount Chief, and divide the rest for their own consumption and sale. The co-operative then began to prepare the reclaimed area for dry season vegetable production and to reclaim the second half of the plot. In March 2009, the Swanfield bulldozer was used again to reclaim the remainder of the site.

Wages were not paid for the longer-term reclamation and cultivation efforts. Rather, One Sky and CSSL relied on the

Bandafayie Co-operative to make members’ time available (generally one day a week). This meant that the area reclaimed and cultivated was limited, but it also revealed the extent of the community’s commitment to the rehabilitation efforts.

Roughly the same approach was used to launch a land reclamation and organic farming effort with another co-operative in March 2009. A consultative workshop was held with a range of stakeholders from government, civil society, communities and local authorities from the two Chiefdoms involved. An MOU was signed demarcating 7 acres (2.8 ha) as “mined out” land for reclamation by the Moubema Farming Co-operative in Manapio, with user rights for ten years. Reclamation was launched the same day, with 70 workers, including co-operative members and others who came with tools and who were given small portions of food and a daily wage of Le 8,000 each. The plan was to complete the reclamation work in two weeks, and then to plant vegetables immediately, to be followed by lowland rice in the rainy season.

Challenges

1. **Balancing youth employment and sustainable land reclamation.** One Sky/CSSL’s focus is less on youth employment than it is on sustainable reclamation of land, and it was able to negotiate the loan of a bulldozer for some of the heaviest labour. However, this is not a guaranteed or sustainable option. Pre-war projects in the area promoted the use of oxen and ploughs, with associated benefits (a ready supply of manure), and this may be worthwhile exploring.
2. **Money does not guarantee community buy-in.** The small budget and staff (currently a single One Sky intern and two CSSL staff) limits the number of reclamation projects. The small budget (e.g. US \$8,000 for reclamation in Manapio) limits the amount of land that can be reclaimed (only 5.5 acres or 2.2 hectares in 2009). However, this reclamation work is built on deep community engagement and buy-in over years of co-operative development and training, which may be key to the sustainability of the work.

3. **Illicit diamond mining and encroachment.** The Bandafayie plot borders active and reportedly illicit artisanal diamond mining. The active presence of the acting Town Chief in the co-operative's reclamation and cultivation ensures a direct link with the Paramount Chief and local authorities to help prevent miners' encroachment in this site, but encroachment remains a concern.

Lessons

1. **Strong leaders are needed** in the co-operatives, both male and female, and the more involvement of local chiefs the better, as they are the custodians of the land; the sustainability of any land reclamation depends on them.
2. **Avoid dependency and ensure sustainability** by giving responsibility for the reclamation and cultivation work to the co-operative; One Sky/CSSL intervene only for training and occasional mediation.
3. **Community ownership** of the harvest by the co-operative and the ten year lease are strong incentives for further reclamation and cultivation, but ten years is not long enough to encourage tree crops.
4. **Tackling child mining**, still common in Kono District, is done by engaging community leaders who are concerned about the issue.
5. **Agricultural expertise and training are key** in promoting organic and sustainable farming, but One Sky/CSSL has not benefited from specialized

agricultural expertise. Training on sustainable organic farming and improved rice cultivation techniques will be important. A Canadian ethnobotanist will be identifying medicinal / economic trees / plants that could be incorporated into reclaimed agricultural systems.

Policy Implications & Recommendations to the Government of Sierra Leone

- Make environmental remediation of land and waterways a policy priority through legislation *and* enforcement;
- Conduct a comprehensive survey to quantify the damage to land and waterways, leading to remediation proposals and legislation on buffer zones and mining techniques;
- Address environmental degradation with prevention and remediation efforts. Ensure that on-going and future mining operations involve immediate environmental rehabilitation on closure, and that miners remove topsoil and keep it separate for later reclamation efforts;
- Work with industrial mining companies to encourage more local training and employment as well as contractual agreements to hire local people to reclaim mined-out lands and remediation after industrial or semi-industrial mining;
- Include land reclamation projects in the Diamond Area Community Development Fund mandate. As it exists, the DACDF can be a deterrent to land reclamation, as

Chiefs may be reluctant to declare an area mined-out if their DACDF depends only on the number of mining leases in their Chiefdom;

- Rethink the land reclamation fees paid for small-scale and artisanal mining leases. Charge all beneficiaries of mining (leaseholders, agents, registered buyers, exporters) a fee that will cover the real costs of land rehabilitation, or scrap the fee and ensure that contracts (leases) include reclamation work, monitored by a competent government authority;
- Build on the experiences of One Sky/CSLL and FESS to develop a useful hybrid model for scaling up. (The FESS policy of paying salaries for 1-2 years could be combined with the One Sky/CSLL strategy of supporting co-operatives and ensuring longer-term land user rights and ownership of harvests to increase community buy-in and sustainability);
- Negotiate longer-term land-use rights (25 years) for those who reclaim land, to encourage tree crop establishment, discourage renewed mining and promote biodiversity;
- Mobilize funding and partners for rehabilitating mined-out lands. Scale up reclamation efforts to convert degraded land to agriculture, providing alternative livelihoods for youths trapped in unproductive artisanal diamond mines.

About DDI International

DDII is an international, nonprofit, charitable organization that aims to gather all interested parties into a process that will address, in a comprehensive way, the political, social and economic challenges facing the artisanal diamond mining sector, in order to optimize the beneficial development impact of artisanal mining to miners and their communities within the countries in which the diamonds are mined.

A major objective is to draw development organizations and more developmentally sound investment into artisanal diamond mining areas, to find ways to make development programming more effective, and to help bring the informational diamond mining sector into the formal economy.

More information on DDI International can be found at www.ddiglobal.org, and we can be reached at enquiries@ddiglobal.org

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