



Technical Consultation on Proposed Bauxite Mining in the Atewa Forest Reserve: 25-29 March 2019

United States Forest Service
Summary Report
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Context

The Government of Ghana (GoG) has outlined its intent to develop an Integrated Aluminum Industry, to accelerate development of the Ghanaian economy. Recently created, the Ghana Integrated Aluminum Development Corporation (GIADEC) is mandated to promote and develop this new aluminum industry by expanding the value chain to include the mining of bauxite, as well as the refining, smelting, and marketing of finished products. The proposed development would necessitate major associated investments, including new roads, rail, access to affordable power, shipping and water infrastructure. According to GIADEC, the bauxite reserve currently being considered for mining, is estimated at 900 million metric tons (MT), across three sites: Nyinahin with 750,000,000 MT; Kibi (Atewa Forest Reserve) with 150,000,000 MT; and Awaso with 20,000,000 MT.

This mission and report focus on the proposed mining within the Atewa Forest Reserve, given its importance as the municipal watershed of Accra that supplies drinking water to over 5 million Ghanaians and a globally significant biodiversity reserve in Western Africa. The GoG requested technical consultation from the United States Government on the proposed mining within the Atewa Forest Reserve. The United States Forest Service (USFS) is a natural resource agency of the US Government, with significant experience in best management practices for mining across diverse landscapes in the United States, as well as internationally.

Objectives

Responding to the technical consultation request from the GoG, a team of experts from the USFS carried out a five day technical assistance mission to Ghana. The main objectives of this mission were to develop initial recommendations to integrate industry best practices within any future mining development concerning Atewa, as well as to identify further technical collaboration opportunities between the USFS and Ghana.

Mission Overview

The USFS technical consultation team was composed of a geologist, a hydrologist and two international programs experts. Together with representation from the US Embassy in Ghana, the technical consultation team met with diverse stakeholders and decision-makers concerned with the proposed bauxite mining in the Atewa Forest from March 25-29, 2019. The team had two days of site visits in and around the Atewa Forest, as well as meetings with national and regional representatives from the Forestry, Minerals, and Water Commissions, the Ghana Environmental Protection Agency (EPA), the Ministry of Lands and Natural Resources, GIADEC, A Rocha Ghana, local community members, District authorities, and the Paramount Chief's representative near Atewa. The team also conducted an initial literature search of available data, reports and plans, as well as collected and reviewed information provided by stakeholders throughout the mission.



Findings/Observations

The USFS technical consultation team focused on the proposed mining in the Atewa Forest Reserve during this mission, referred to as the Kibi site. Unless noted specifically, the findings below pertain uniquely to this site.

- The Kibi bauxite reserve is approximately 150,000,000 MT, seemingly based on geologic mapping and exploratory analyses done between 10-50 years ago. There are very limited accessible reports related to Ghana's bauxite mining reserves, thus the team was not able to provide an independent analysis to date of the estimated reserves.
- The Minerals Commission has contracted the international mining firm, SRK Consulting (with local partner Terrex), to design a focused drilling plan, provide standard operating procedures, and eventually develop a mine plan. The initial report/plan is set to be delivered by SRK in June 2019. It is unclear who will be doing exploratory drilling and when this will happen. The team observed no prospecting related activity on the ground in Atewa as of 27 March, 2019 - this was confirmed by local community members and authorities.
- GIADEC is marketing all three sites, Awaso (currently mined by a Chinese company), Nyinahin, Kibi, as options for investment opportunities for international partners to mine the sites. GIADEC is also seeking one or more partners to assist with refinery and smelting. Solicitation of bidding process has been initiated. GIADEC states that they will select the winning bid in September 2019, while concurrently conducting an Environmental Impact Assessment through EPA, and all permits will be ready for work to begin in January 2020.
- There is a clear need for comprehensive assessment of environmental and social impacts of the proposed bauxite development with public involvement. Ghana's EPA is open to carrying out a Strategic Environmental Assessment (SEA) to cover all associated infrastructure activities, under which each specific project would require its own Environmental Impact Assessment (EIA). GIADEC reported to have already started its own stakeholder consultation process.
- The Water Resources Commission has been conducting surface water and groundwater monitoring since 2006, but did not assess heavy metals, which is essential for establishing baseline water quality parameters vulnerable to changes from mining activities. To date, no water quality reports or data have been made available. Thus, the team was not able to provide an independent analysis of water resources.
- Water treatment plants and distribution networks are available for large municipalities, but are still vulnerable to mining impacts and other significant land-use disturbances (e.g. infrastructure development).
- Rural villages utilize raw surface water and shallow boreholes for all domestic and agricultural water needs. Public health and safety near proposed mining are highly vulnerable to land use changes.
- A hydrogeologic characterization of the Atewa municipal watershed does not currently exist and is critical to assess potential mining impacts to surface water, groundwater aquifers, and water supply.



- The United Nations University has resources to assist in an environmental impact study, sector data gap analysis, and to facilitate collaboration amongst research bodies within the country.
- Compliance was a major concern for all parties, based on poor monitoring of current mining activities, illegal hunting, logging and farming within the Atewa Forest Reserve.
- Stakeholders noted a general lack of transparency to what is being planned and how impacts will be addressed. There is a need to establish a collaborative communication plan for sharing of clear information.

General Recommendations

Given the scale, duration, and potential significant and permanent impact of Ghana's Integrated Bauxite Plan, on the Atewa Forest Reserve and water supply of over 5 million people, it is critical to evaluate a range of development and management options (including conservation, restoration, and other alternatives to mining) to protect drinking water and other ecosystem services. There should also be a comprehensive study of the costs and benefits of the plan, and development of a robust list of proven mitigation measures before any development takes place in Kibi, should that be decided. A Strategic Environmental Assessment is highly recommended. This should include analysis of cumulative impacts, like mining, farming, logging, tourism/recreational activities, impacts on religious rights, sacred activities, etc. Another recommendation would be to establish a comprehensive baseline monitoring plan for surface and groundwater quality/quantity, including analysis of heavy metals. Thus, it is critical to characterize the aquifer, possibly through the exploratory drilling program, if mandated.

Development of the mining sites and associated downstream and side stream infrastructure will have substantial impacts on local communities, as well as those living in the Greater Accra region. It is critical that a robust stakeholder consultation process be conducted. It is recommended that the GoG preemptively provide public access to all information that is not proprietary. Transparency is key to ensure that relevant stakeholder groups are sufficiently apprised of the decision-making process, whatever is ultimately decided, and will also better ensure stakeholder buy-in to any future development.

Opportunities for technical collaboration with USFS and GoG

The Team identified the following potential opportunities for further technical consultation and review of the proposed mining activity in the Atewa Forest Reserve (agency specified, where relevant). Such activities would require sharing of relevant data and depend on the availability of additional funding, and other resources, as appropriate.

- Provide examples of best management practices and source water protection measures (*Water Resources Commission/ Minerals Commission/EPA*)
- Provide examples of public outreach processes and release of mining related information (*Minerals Commission/GIADEC*)
- Encourage select GoG staff and NGO partners to apply to the 2019 USFS International Mining Seminar
- Expand GIADEC study tour of bauxite mining best practices, to include sites in the United States
- Provide independent reviews of feasibility studies and other informational resources (*Minerals Commission/GIADEC*)
- Review environmental analysis reports, including Statements of Work (SOW) for upcoming exploration (*EPA/Minerals Commission*)



- Comprehensive reclamation bond review and standardization for current and future projects (*EPA/Minerals Commission*)
- Hydrogeologic characterization (surface and groundwater), modeling of aquifers, and impact analysis (*EPA/Water Resources Commission*)
- Baseline water quality sampling and monitoring plan development (*Water Resources Commission*)
- Atewa Forest Reserve boundary or farm delineation – through digitization/mapping assistance (*Forestry Commission*)
- Support to development of a Monitoring and Enforcement Plan (*EPA/Minerals Commission*)
- Support the development and implementation of a Watershed Management Plan for affected river basins
- Overall - USFS experts remain available to provide input remotely, where appropriate