

Environmental and Social Assessment and Management System

For the Expansion Project, CBG is developing a management system that meets the IFC Performance Standards objectives. However, for its existing operations the Company already has an established Hygiene (Health), Safety, Environment and Communities Management System (HSEC MS) with associated plans, procedures and resources. The existing HSEC MS will be upgraded and integrated with the new system being developed for the Expansion Project. In this way, the whole CBG operation will eventually be brought to the same standard.

The existing HSEC MS is guided by the Mining Code of Guinea and Good International Industry Practice (GIIP) and its structure and content is detailed in CBG's HSEC Management Plan based on the Plan Do Check Act approach to continuous improvement. The Plan includes the following system elements:

Quality, Safety and Environment Policy (QSE) Policy including community related issues

Risk Management (including hazard identification process/tools and identification of risk within change management process)

Legal Requirements and Other Commitments

Goals and Targets and Programs

Resources, Roles, Responsibilities and Authority

Training, Competency & Awareness

Behaviour and Observation

Communication, Consultation and Participation

System Documentation & Records Management

Contractor Selection and Management, including a contractor pre-qualification and approval process that includes consideration of CBG's HSEC requirements)

Accident/Incident Reporting and Investigation

Operation controls (a suite of safety, Health and Hygiene, environmental and community related procedures)

Emergency Preparedness and Response

Monitoring and Measurement

Nonconformity, Corrective and Preventive Action

Internal and External Audits

Management review

The HSEC MS has been developed in accordance with the requirements of OHSAS 18001:2007 Occupational Health and Safety Management Systems and ISO 14001:2004 Environmental Management Systems, although the system has not received formal certification. While the existing HSEC MS does include most of the elements expected in a system that meets IFC Performance Standards objectives, data monitoring and reporting (both baseline and operational) is limited. CBG has committed to an intensive monitoring program for the existing operations to better define current impacts and inform mitigation measures in the various plans and procedures.

Policy

Within the QSE Policy CBG has set itself several key objectives, including the implementation of a negotiated involuntary resettlement program for Project Affected Peoples (PAPs) in the area of the Expansion Project, which is in accordance with IFC Performance Standard 5. CBG has committed to retroactively assess legacy involuntary resettlement and to identify outstanding grievances relating to past compensation. The Environmental and Social Management Programs (described below) also make reference to over 50 procedures that underpin the

HSEC-MS, skills and training requirements and the audit process. Many of these were provided for review during the due diligence process.

Identification of Risks and Impacts

Mining: The Expansion Project will necessitate an increase in the rate of vegetation clearance and overburden removal in existing areas within the CBG concession. The lateritic soils are stripped and removed for use in rehabilitation before overburden removal. Usually, the quantity of overburden is very low, as the bauxite ore is generally close to the surface. The total area for the Expansion Project is 3,200 hectares, over which habitat (including farmed areas) will be lost/degraded. Mining is straightforward with extraction of bauxite ore typically using standard drilling and blasting techniques. The ore is trucked along dedicated haul roads to stockpiles at Sangarédi from where it is loaded onto trains. The expansion will also entail the acquisition of additional plant and equipment (loaders, trucks, bulldozers and water tanks) and additional workers. New mobile machinery workshop facilities will also be required. Improvements to the town infrastructure at Sangarédi (and Kamsar) will be made for the additional workforce. Construction of temporary construction camps within the industrialised and mining zones of Kamsar and Sangarédi is also planned.

Studies for the Expansion Project which state that they were designed to meet the requirements of Guinean law and IFC's Performance Standards, including an Environmental and Social Impact Assessment (ESIA) were developed by an international Canadian based consultancy during 2014. The studies cover the life-of-mine (assuming a production level from 18.5 to 27.5 mtpa) and were submitted, publicly disclosed including numerous consultations with local communities and approved by the Bureau Guinéen d'Études et d'Évaluation Environnementale (BGEÉE) in May 2015. The environmental permit that allows for the Expansion Project was issued by the Government in June 2015. In addition for any future activities that significantly alter the scope or footprint of the project, CBG will be required to conduct an appropriate environmental and social assessment process in compliance with the same standards including full consultation and disclosure.

From the IESC's and ITC's draft due diligence reports (the IESC report is essentially a review of the project ESIA and associated HSEC MS documentation) as well as IFC's own review, gaps with the IFC Performance Standards were identified in the ESIA, especially a need to strengthen and expand baseline data. The framework management plans contained within the ESIA were also identified as requiring additional detail to enable better definition of project mitigation measures. These draft reports covered only the proposed Expansion Project but have since been updated to also cover review of the SIP including the existing operations. The revised reports were finalized in early November 2015 and have been reviewed as part of the appraisal.

Railway: The bauxite ore is transported from Sangarédi to the Kamsar plant via a railway operated under a concession granted to CBG by the Guinean government (through ANAIM, the State-owned entity that owns the rail infrastructure). The construction of a new rail yard, extension of the sidings and storage area in Parawi and associated facilities (road, bridges, railway) already planned by CBG in order to operate to the north of the N23 national road will be brought forward. An overpass, linking to the new bauxite storage area will be

constructed to cross the national road. Key impacts relating to operation of the railway are noise and vibration as well as safety of nearby residents.

Currently, between five and seven trains per day, each comprising two 3000 HP locomotives and 120 loaded bauxite ore wagons leave the Sangar¹-di mine for Kamsar. Each wagon contains around 82 tonnes of bauxite ore. The expansion to 18.5 mtpa does not entail significant changes to the railway, the key impact being between two and four additional trains per day. These trains will comprise 130 wagons (an increase of 820 tonnes of bauxite per train). The ITE considers that use of the existing road locomotive fleet can be optimised to operate the heavier trains and increase the daily frequency to between seven and nine trains per day. No new passing loops are required but the existing loops at Tan¹-n¹- (KP 72.7) will be extended by 600 m to accommodate the longer trains, but the other existing loop at Bok¹- (KP 54.7) will not require major works.

A Multi-User Agreement has been established as a framework for other mining companies to potentially have access to the railway as long as defined criteria are met. P¹öCBG will continue to be in charge of maintenance, management and operation of the railway infrastructure as concessionaire.

The civil engineering work for the new and existing passing loops is all within the existing railway corridor, however impacts associated with potential physical and economic displacement due to the construction of the passing loops, opening of borrow-pits and quarries has been considered and will be included in the Resettlement Action Plans (RAPs) and Livelihood Restoration Plans (LRPs) being prepared for future resettlement as appropriate.

Kamsar Processing Plant: On arrival at Kamsar, the ore trains enter a marshalling yard from where the wagons are uncoupled and then individually emptied at the wagon dumper. This is time consuming as each wagon is hoisted up several metres before being inverted so that the ore may be tipped into the hoppers at the dumper from where it is fed by conveyor to the processing plant. The increased production levels will involve construction of a completely new wagon unloader that will include rotating wagon couplers so that the wagons may be tipped without uncoupling. This will also require some modifications to the track layout in the marshalling yards. The new wagon unloader area will be fully enclosed to reduce noise and fugitive dust emissions. A dust control system, including ventilation, curtains and fogging nozzles is planned in the unloader area to address fugitive dust emissions associated with the current operation.

The processing plant has a simple circuit. The ore initially passes through crushers which consist of hammer mills that crush the ore according to market specifications. For the Expansion Project, a new crushing facility will be located in the unloader area. A conveyor will then feed the ore to stockpiles via a new transfer tower. No changes will be made to the current stacking and ore reclaiming systems.

The bauxite ore is currently dried in heavy fuel oil fired rotary dryers to achieve a moisture content of 6.7% prior to shipping, these are equipped with dust scrubbers. Two new rotary dryers will be necessary for the processing of the additional ore, also fitted with scrubbers. The dried bauxite is stockpiled in a covered storage shed prior to shipment, and an additional storage shed will be built as part of the Expansion Project that will be located adjacent to the existing shed to provide capacity for 150 000 tonnes of ore. There is no waste

from this process, however bauxite slurry from the scrubbers is currently discharged into a sedimentation pond from where it is removed, dried and recycled into the process as raw material.

The existing plant has historically generated significant quantities of fugitive dust as well as particulate and gaseous emissions from the dryer stack. This has generated complaints and grievances from residents in Kamsar town, although additional filters and scrubbers were installed on the dryer stack in recent years. The additional monitoring described above will allow the current baseline and impacts on Kamsar town to be fully characterised prior to the start of construction. The Expansion Project includes designs for enclosed conveyor systems and transfer points plus additional scrubbers so that dust emissions can be brought within defined air quality targets.

The project currently has heavy fuel oil powered generators at both Kamsar and Sangar~~di~~. The energy needs associated with the expansion will increase demand from 22 MW to 29 MW. Heavy fuel oil is also used to fire the dryers and a steam boiler. The fuel is stored in large, fully bunded above ground tanks.

Port: Currently, the ore is transferred from the storage sheds by conveyor to a 275 metre long concrete jetty equipped with ship loading conveyors. This will be extended by a further 301 metres with a second set of ship loaders to enable the mooring and continuous loading of two Kamsarmax vessels (DWT of 70,000 and a ballast draft of 7 m). This quay will be extendable and therefore able to accommodate larger Cape size vessels (DWT of 150,000 and draft of 9 m) if needed in the future. The extended quay will comprise a concrete deck supported on foundation piles.

The channel and turning basin that provide access to the pier are currently dredged about once every two to three years (and have been since 1973). This turning basin is sufficient for the 18.5 mtpa expansion. This routine maintenance dredging generates around 100 000 tonnes of sediment. The sediment deposition area used historically (and for the Expansion Project) is at the mouth of the Rio Nunez estuary in deeper water that does not represent an important fishing area and is outside of the area considered to be representative of critical habitat. There will also be an increased number of support vessels, for example, a pilot boat and tug. The proposed dredging activities at the port (300,000 m³ of material), required as part of the Expansion Project, were assessed in the ESIA and various recommendations made, which CBG has incorporated in a Dredge Management Plan. This plan will be updated to meet GIIP including detailed specifications for dredging techniques and methods.

The shoreline around the port comprises extensive areas of mangroves, no additional physical impacts to these have been identified as a result of the Expansion Project. Monitoring of the mangroves, especially fish populations will be undertaken. Consideration of local fishermen is covered by the PS 5 section.

Specifically, CBG has committed to a number of mitigation measures that were made as recommendations within the ESIA, these include: (i) avoidance of the use of suction dredgers. If there is no alternative, a turtle deflector or other means to avoid impacts on marine life will be used; (ii) measures to reduce underwater noise to a minimum whilst dredging; (iii) completion of a study to determine the benthic fauna of the sediment deposition zone; and (iv) if

possible, dredging will be avoided from August to January to minimise impacts to the Blackchin Guitarfish.

Cumulative Impact: The project is one of several current or potential bauxite mining operations in northern Guinea and while the risks and impacts are significant (though not yet possible to define accurately), this Expansion Project presents a significant opportunity for IFC and other potential partners to influence development in the region in a manner that aligns with the IFC Performance Standards. Furthermore, World Bank Group involvement can also be used to proactively build capacity within the Guinean government to help in the strategic and sustainable development of the country's natural resources in a sustainable manner. A key opportunity is for IFC to assist with building a platform for broader linkages and sustainability in the management of cumulative impacts.

The potential cumulative loss of habitats, fragmentation and other associated impacts arising from CBG and other projects are likely to be significant regionally. This is against a background of ongoing biodiversity loss and encroachment as a result of other factors such as in-migration and growth in agriculture.

The ESIA includes a cumulative impacts assessment (CIA) that is stated to follow the guidelines of the Canadian Environmental Agency on CIA. Combined, the current and proposed mining projects in Guinea will have significant biodiversity, community and cross-cutting ecosystem services impacts and landscape level (even Country level) solutions will be required, especially around biodiversity off-set identification and management and its interaction with land requirements for resettlement. Proposals for off-sets within the concession and external to the concession will be competing for land with resettlement / livelihood restoration activities of the various companies.

Project-specific offsets are an important tool for addressing significant residual adverse impacts of a project, however because of the uncertainty around land tenure, competing land uses, and a rural population that is heavily dependent on forest resources, selecting offset sites that are politically, socially, and technically feasible to implement in or near the CBG concession area is likely to be challenging. The ability of any company to achieve compliance with PS 6 under such circumstances is uncertain and the timescale to reach a point at which Net Gains in biodiversity can be determined is likely at least ten years or longer.

CBG is working through the mitigation hierarchy and exploring a number of options to avoid, minimize, restore and offset impacts. It is possible that a landscape level solution is required, that might be phased over time and with other resources and partners who are, as yet, undefined. Work is underway by the Wild Chimpanzee Foundation (WCF) in the Fouta Djallon area of Guinea (the Bafing Nord area) to identify and establish a conservation area for the West Africa Chimpanzee to offset the impacts of mining and other development on chimpanzees. However, the land required is mostly owned by the Government of Guinea and it will require many additional partners to enable this to succeed. Discussions with the Ministry of Environment and the National Directorate of Parks and Reserve have already taken place.

Other agencies and institutions are known to be planning a project to focus on the implementation of the mitigation hierarchy and offsets in Guinea, including the development of national policy. Part of that work will be a focus on potential pilots that could work to inform that policy and effective approaches on the ground. The project may be able to use a CBG offset as a pilot and is very keen to develop partnerships with IFC and others around this initiative.

IFC and the World Bank have initiated a strategy group to help build a coalition of institutions, conservation organizations, national authorities and local populations. One initiative would be to start with a regional workshop including partners, government ministries, mining companies, national and international NGOs, to assist in the realization of a landscape level offset. CBG is committed to collaborating with and supporting such initiatives in respect of its own zone of influence and responsibility.

There are also likely to be significant social impacts due to displacement and reduced food security, and impacts on water quality and availability in some areas. The World Bank's Mining Sector Governance Support project for Guinea aims to strengthen the capacity and governance systems of key institutions for managing the minerals sector in Guinea. There are a number of components including a regional aspect and will most likely focus on at least one growth corridor, (iron-ore in the South-East or bauxite/alumina in the North-West). Part of this may include a Strategic Environmental and Social Assessment.

There are a range of other IFC investments and advisory initiatives in Guinea that could serve as a unique platform to convene the range of stakeholders around major environmental and social challenges to preserve stability and livelihoods in Guinea.

In the case of the railway, the Multi-User Agreement also defines a process whereby CBG, as concessionaire, is required to undertake the ESHS assessments necessary for other potential users. Such users are required to follow a process of notification and provision of project details to CBG to inform the ESHS assessment, at the current time no other potential users have done so.

Management Programs

IFC's appraisal considered the environmental and social management plan (ESMP) for both the existing operation and the Expansion Project, and gaps (if any) between these plans, IFC requirements and CBG's existing and proposed corporate policies, systems and procedures. Where necessary, corrective measures, intended to close these gaps within a reasonable period of time, are summarized in the paragraphs that follow and in the agreed Environmental and Social Action Plan (ESAP). CBG has committed to implement these management plans and the ESAP so that the project as well as any future exploration or development activities of CBG are designed and operated in accordance with Performance Standards objectives. The initial ESMP for the Expansion Project was integrated with the ESIA and included (i) a summary of CBG's HSEC MS, plans and procedures; (ii) an explanation of the ESMP's integration with the broader HSEC MS, including the development of detailed environmental and social plans and procedures; and (iii) a list of mitigation measures.

The due diligence review and process of meeting lender requirements has resulted in CBG undertaking a significant upgrade of the ESMP, which is considered to be

a live document that will require periodic update as actions are completed or new actions become necessary.

The revised ESMP (disclosed in the SIP) describes the mitigation measures to which CBG has committed in respect of its expansion activities (defined as the 27.5 mtpa future expansion rather than the 18.5 mtpa that IFC is financing). The actions defined in the ESMP form the basis for the operational controls to be introduced into the HSEC MS for the project and then for CBG as a whole. A monitoring and audit process will measure the performance of the project and of CBG in terms of compliance with the ESMP. A mitigation measures register is organized by topic and sub-topic, and indicates the phase and specific component addressed by each measure. The categories of mitigation measures are:

Management framework, programs and plans
Air quality
Greenhouse gases
Noise and vibrations
Water and sediment quality
Soil
Biodiversity Action Plan (BAP)
Social and demographic structure
Community safety
Community health
Infrastructure and basic services
Economic environment and household strategy
Access to land, resettlement and compensation (RAPs)
Governance and social
Communication and information
Traffic and transportation
Cultural heritage and archaeological sites

For each mitigation measure, the details of the undertaking; the phase during which the undertaking will apply (design, construction, operations or closure); and the project component to which the undertaking will apply (mine, railway or plant/port) are included.

A number of other plans, including: (i) a mine rehabilitation plan (Sangar-di); (ii) a harvest management plan for bushmeat; (iii) a management plan for the harvest of firewood; (iv) a forest protection plan (Sangar-di); (v) a plan to protect vegetation bowals; the Cogon corridor protection plan; and (vi) a plan to protect the estuary of the Rio Nuñez are in the process of being amalgamated within the BAP referenced above. Finalisation of the BAP and the preceding BAP Framework are a requirement of the ESAP. Accordingly reference to these plans is not included in the revised ESMP disclosed within the SIP.

Organizational Capacity and Competency

CBG has the structures appropriate for the management of a large mining company, it also has access to the resources of shareholders Alcoa and Rio Tinto who provide technical advice (including ESHS advice) through structures defined in the Management Agreement. There are functional department heads in key areas. Implementation of the Expansion Project ESMP will be the responsibility of the HSEC Manager Expansion Project who is also the primary contact with the construction contractors and therefore essential to the implementation of the ESMP. However, in one area, strengthening of the team is required, the due

diligence process identified that the Expansion Project is being planned and managed by a team separate from the existing operations. The need to build capacity that can manage the cross-cutting issues for the entire CBG operation, especially CBGÇÖs collaboration in the management of cumulative impacts will require additional resources, especially a dedicated Biodiversity Manager and a Monitoring Specialist supported by a team. CBG has in place a training program and development plans for its staff which are updated on an annual basis.

Emergency Preparedness and Response

CBGÇÖs current approach to emergency response is outlined in its Emergency Response Procedure issued in January 2015. The procedure is intended to cover all significant emergency situations including fires, explosions, spills of hazardous materials, release of toxic gases. The plan defines linkages with other organisations to be contacted/involved in an emergency response including communication with the public; roles and responsibilities within CBG and makes reference to the following specific plans within the procedure: (a) derailment of a train carrying hazardous materials (e.g.: fuel); (b) oil or fuel spills both onshore / offshore and oil, fuel or other hazardous material fire. The plans refer to response actions and also specific high-level requirements for training and periodic exercise drills. CBG is in the process of revising and updating the plans to include more specific detail and to make it fully operational as stipulated in the ESAP.

Monitoring and Review

The ESIA for the Expansion Project relied on a combination of monitoring and predictive modelling data to establish baseline pollutant concentrations. The IESC and IFC reviews identified a need to strengthen the database and for both air and water resources in particular, monitoring will be expanded both in terms of the number of locations and duration and frequency of monitoring. Baseline modelling of the existing operations will be expanded to include other existing sources of pollutants such as local traffic, other industrial sources and domestic heating. Some comparison of the monitored versus modelled pollutant concentrations has been carried out to validate the modelling, and whilst this shows good agreement (e.g.: for short term particulate concentrations), further monitoring will enable better validation of the models. The revised monitoring program (both baseline and emissions monitoring) across a wide range of parameters is defined in several actions in the ESAP but it will take at least a year to obtain full seasonal variations for the database. An adaptive management approach is being taken whereby environmental management plans will be modified as required as additional data becomes available.