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Environmental and Social Impact Assessment of the CBG Mine Expansion Project

Chapter 7 – Social Impact Assessment

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ACRONYMS

°C:	Degrees Celsius
AIDS:	Acquired immune deficiency syndrome
AIP:	Annual investment plan
AMC:	Alliance Mining Commodities Ltd.
ANAİM:	Agence Nationale d'Aménagement des Infrastructures Minières [national agency for mining infrastructure development]
APA:	Laboratoire Archéologie et Peuplement de l'Afrique [African archeology and settlement laboratory]
APAÉ:	Association des parents et amis d'élèves [parents and friends of students]
ARV:	Antiretroviral
BAP:	Biodiversity action plan
BEPC:	<i>Brevet d'études du premier cycle du second degré</i> [middle-school leaving certificate]
BGÉEÉ:	Bureau Guinéen d'Études et d'Évaluation Environnementale [Guinean bureau of environmental studies and assessment]
BM:	Banque Mondiale / World Bank (WB)
BPII:	<i>Bonnes pratiques industrielles internationales</i> / Good International Industry Practice (GIIP)
C/P:	Frontline fishing camps and ports
CA:	<i>Chiffre d'affaires</i> [revenues]
CBG:	Compagnie des Bauxites de Guinée
CCME:	Canadian Council of Ministers of the Environment

- CCNUCC:** *Convention-cadre des Nations Unies sur le changement climatique / World Bank United Nations Framework Convention on Climate Change (UNFCCC)*
- CDD:** *Contrat de durée déterminée [contract of defined length]*
- CDI:** *Contrat de durée indéterminée [contract of indefinite length]*
- CECI:** *Centre d'études et de coopération internationale / Centre for International Studies and Cooperation*
- CECIDE:** *Centre du Commerce International pour le Développement [international trade center for development]*
- CEDEAO:** *Communauté économique des États de l'Afrique de l'Ouest / United Nations Economic Commission for Africa (UNECA)*
- CFB:** *Chemin de Fer de Boké [Boké railroad]*
- CITES:** *Convention on International Trade in Endangered Species*
- CMG:** *Chambre des Mines de Guinée [Guinean chamber of mines]*
- COD:** *Chemical oxygen demand*
- COPC:** *Contaminant of potential concern*
- CoPSAM:** *Comité Préfectoral de Suivi des Activités des Miniers [prefectoral mining activity monitoring committee]*
- CPC:** *Contaminant potentiellement préoccupant / contaminant of potential concern (COPC)*
- CPD:** *Comité Préfectoral de Développement [prefectoral development committee]*
- CPÉ:** *Consultation et participation éclairées / informed prior consent (IPC)*
- CR:** *Commune rurale [rural commune]*
- CRD:** *Commune rurale de développement [rural development commune]*
- CSA:** *Centre de santé amélioré [improved health center]*

CSO:	Civil society organizations
CSR:	Corporate social responsibility
CU:	<i>Commune urbaine</i> [urban commune]
CVÉ:	<i>Composante valorisée de l'écosystème</i> / valued ecosystem component (VEC)
dB:	Decibel
dBA:	A-weighted decibel
dBZ:	Decibel relative to Z
DEP	Direction Préfectorale de l'Éducation [prefectoral directorate for education]
DPUHC:	Direction préfectorale de l'urbanisme de l'habitat et de la construction [prefectoral directorate for housing and construction]
DUDH:	<i>Déclaration universelle des droits de l'homme</i> / Universal Declaration of Human Rights (UDHR)
ÉDG:	Électricité de Guinée
EIA:	Environmental impact assessment
ÉIE:	<i>Étude d'impact environnemental</i> / environmental impact assessment
ÉIS:	<i>Étude d'impact social</i> / social impact assessment (SIA)
EITI:	Extractive Industries Transparency Initiative
EPA:	Environmental Protection Agency (United States)
EPI:	Extended Program on Immunization
EPT:	Ephemeroptera, Plecoptera and Trichoptera (types of aquatic insects)
ESCOMB:	<i>Enquête de surveillance comportementale et biologique sur le VIH/SIDA</i> [HIV/AIDS behavioral and biological surveillance survey]
ESIA:	Environmental and social impact assessment

ESMP:	Environmental and social management plan
ETAE:	<i>Eaux tropicales de l'Atlantique Est</i> [tropical waters of the Eastern Atlantic]
FEL 1:	Front-end loading – preliminary economic assessment
FEL 2:	Front-end loading – prefeasibility study
FEL 3:	Front-end loading – detailed engineering study
FPIC:	Free prior and informed consent
GAC:	Guinea Alumina Corporation
GdG:	<i>Gouvernement de la Guinée</i> / Government of Guinea (GoG)
GDP:	Gross domestic product
GES:	<i>Gaz à effet de serre</i> / greenhouse gas (GHG)
GHG:	Greenhouse gas
GIEC:	Groupe d'experts intergouvernemental sur l'évolution du climat / Intergovernmental Panel on Climate Change (IPCC)
GIS:	Geographic information system
GNF:	Guinean franc
GoG:	Government of Guinea
GPS:	Global positioning system
GRI:	Global Reporting Initiative
GTP:	Ground truth point methodology
Ha:	Hectare
HAP:	<i>Hydrocarbure aromatique polycyclique</i> / polycyclic aromatic hydrocarbon (PAH)
HFO:	Heavy fuel oil

HP:	Horsepower
HSE:	Health, safety and environment
IBA:	Important bird area
ICCPR:	International Covenant on Civil and Political Rights
ICESCR:	International Covenant on Economic, Social and Cultural Rights
ICMM:	International Council on Mining and Metals / Conseil International des Mines et des Métaux
IFC:	International Finance Corporation / <i>Société Financière Internationale</i> (SFI)
IFI:	International finance institutions / <i>institutions financières internationales</i>
ILO:	International Labor Organization
IPCC:	Intergovernmental Panel on Climate Change
ISQG:	CCME Interim Sediment Quality Guideline
IST:	<i>Infections sexuellement transmissibles</i> / sexually transmitted infections (STIs)
ITIE:	Initiative pour la Transparence des Industries Extractives / Extractive Industries Transparency Initiative (EITI)
IUCN:	International Union for Conservation of Nature / Union internationale pour la conservation de la nature (UICN)
km:	Kilometer
km²:	Square kilometer
LA_{eq}:	Equivalent sound level (dBA)
LDIQS:	CCME Interim Sediment Quality Guideline
L_{eq}:	Equivalent sound level (dB)
m:	Meter

m²:	Square meter
m³:	Cubic meter
m³/h:	Cubic meters per hour
MDDEP:	Ministère du Développement durable, de l'Environnement et des Parcs du Québec, now called the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques [Quebec ministry of sustainable development, environment and parks, now called the ministry of sustainable development, environment and the fight against climate change]
MDT:	<i>Matières dissoutes totales</i> / total dissolved solids (TDS)
ml:	Milliliter
mm:	Millimeter
MME:	Ministère des Mines et de l'Énergie / Ministry of Mines and Energy
MTPA:	Million tonnes per annum
MW:	Megawatt
N/A:	Not applicable
NEP:	<i>Niveau d'effet probable du CCME</i> / CCME probable effects level (PEL)
NGO:	Nongovernmental organization
NP:	<i>Norme de performance de la SFI</i> / IFC Performance Standard (PS)
NSP:	<i>Ne s'applique pas</i> / not applicable (n/a)
OAU:	Organization of African Unity
OCDE:	Organisation de Coopération et de Développement Économique / Organization for Economic Cooperation and Development (OECD)
OECD:	Organization for Economic Cooperation and Development

- OIT:** Organisation internationale du Travail / International Labor Organization (ILO)
- OMS:** Organisation mondiale de la Santé / World Health Organization
- ONG:** *Organisme non-gouvernemental* / nongovernmental organization
- ONU:** Organisation des Nations-Unies / United Nations
- OSC:** *Organisations de la société civile* / civil society organizations
- OUA:** Organisation de l'unité africaine / Organization of African Unity
- OWINFS:** Our World Is Not for Sale
- PACV:** *Programme d'appui aux organisations villageoises* [village support program]
- PAI:** *Plan annuel d'investissement* / annual investment plan
- PARC:** *Plan d'action de réinstallation et de compensation* / resettlement and compensation action plan (RAP)
- PCB:** *Plan de conservation de la biodiversité* / biodiversity action plan (BAP)
- PCS:** *Partenaires contre le SIDA* [AIDS prevention group]
- PDL:** *Plan de développement local* [local development plan]
- PEL:** CCME probable effects level
- PEPP:** *Plan d'engagement des parties prenantes* / stakeholder engagement plan (SEP)
- PÉV:** *Programme élargi de vaccination* / Expanded Programme on Immunization (EPI)
- PGES:** *Plan de gestion environnementale et sociale* / environmental and social management plan (ESMP)
- PIB:** *Produit intérieur brut* / gross domestic product (GDP)

PIDCP:	<i>Pacte international relatif aux droits civils et politiques</i> / International Covenant on Civil and Political Rights (ICCPR)
PIDESC:	<i>Pacte international relatif aux droits économiques, sociaux et culturels</i> / International Covenant on Economic, Social and Cultural Rights (ICESCR)
PK:	Point kilométrique / kilometer point
PM₁₀:	Particulate matter in air up to 10 micrometers in size
PM_{2.5}:	Particulate matter in air up to 2.5 micrometers in size
PMH:	<i>Pompe à motricité humaine</i> / manually operated pump
PNUD:	Programme des Nations-Unies pour le Développement / United Nations Development Program (UNDP)
PP:	<i>Parties prenantes</i> / stakeholders
PPV:	Peak particle velocity
PRCB:	Projet de renforcement des capacités de Boké [Boké rural community development project]
PS:	IFC Performance Standard
QSE:	Quality, safety and environment
RAP:	Resettlement and compensation action plan
RAP:	Rapid assessment program / rapid biological assessment
RSE:	<i>Responsabilité sociale des entreprises</i> / corporate social responsibility (CSR)
RTA:	Rio Tinto Alcan
SAG:	Société Aurifère de Guinée [Guinea gold corporation]
SDT:	<i>Solides dissous totaux</i> / total dissolved solids (TDS)
SEG:	Société des Eaux de Guinée [Guinea water corporation]

SEP:	Stakeholder engagement plan
SFI:	Société Financière Internationale / International Finance Corporation (IFC)
SIA:	Social impact assessment
SIDA:	<i>Syndrome d'immunodéficience acquise</i> / acquired immune deficiency syndrome (AIDS)
SIG:	<i>Système d'information géographique</i> / geographic information system (GIS)
SNAPE:	Service national des points d'eau [national water supply service]
SO_x:	Sulphur oxides
SP:	<i>Sous-préfecture</i> [subprefecture]
SSC:	Species Survival Commission
SSE:	<i>Santé, sécurité, environnement</i> / health, safety and environment (HSE)
SST:	<i>Solides en suspension totaux</i> / total suspended solids (TSS)
STI:	Sexually transmitted infections
TDR:	<i>Termes de référence</i> / terms of reference (TOR)
TDS:	Total dissolved solids
TOR:	Terms of reference
TPE:	<i>Très petite entreprise</i> / very small business
TPH:	Tonnes per hour
TSP:	Total suspended particulates
TSS:	Total suspended solids
UDHR:	Universal Declaration of Human Rights

- IUCN:** Union internationale pour la conservation de la nature / International Union for Conservation of Nature (IUCN)
- UN:** United Nations
- UNDP:** United Nations Development Program
- UNECA:** United Nations Economic Commission for Africa
- UNESCO:** United Nations Organization for Education, Science and Culture / Organisation des Nations unies pour l'éducation, la science et la culture
- UNFCC:** United Nations Framework Convention on Climate Change
- UniGE:** Université de Genève / University of Geneva
- UTM:** Universal Transverse Mercator
- VEC:** Valued ecosystem component
- VIH:** *Virus de l'immunodéficience humaine* / human immunodeficiency virus (HIV)
- WB:** World Bank / Banque Mondiale (BM)
- WHO:** World Health Organization / Organisation mondiale de la Santé (OMS)
- ZÉE:** *Zone économique exclusive de la Guinée* [Guinea economic exclusive zone]
- ZICO:** *Zone importante pour la conservation des oiseaux* / important bird area (IBA)

CHAPTER 7 – SOCIAL IMPACT ASSESSMENT

7.1 Non-technical summary

This non-technical summary provides an overview of the assessment of the social impacts of the CBG mine Expansion Project. A full description of the social impact assessment is provided in sections 7.2 to 7.6.

7.1.1 Social impact assessment

This social impact assessment follows a range of preparatory work carried out in implementing the CBG Expansion Project, specifically the stakeholder management plan (included in Chapter 6) and the socioeconomic baseline study (Chapter 5) both undertaken in the project impact zone in 2013-2014. The social impact assessment also considers some of the results of the project's environmental impact assessment performed in 2013-2014 (chapters 2, 3 and 4).

The objective of the social impact assessment (SIA) is to evaluate in terms of the baseline situation the potential impacts of increasing bauxite production and support facilities on social components in the Project's area of influence. It describes the mitigation measures to be put in place to prevent, minimize, reduce and/or compensate for any negative impacts in addition to enhancing or optimizing the project's benefits in the case of positive impacts.

The first step in the social impact assessment involved developing an environmental and social management plan (ESMP) to conduct a full review of the risks associated with building and operating the project on the social environment, enable the cohesive implementation of the various proposed mitigation/enhancement measure, and hence ensure sustainable project management for the project proponent and host communities (Directive for the Implementation of Impact Assessments, 2014).

7.1.2 Legal framework and international standards

There are various sets of international standards and norms to help prevent and mitigate social impacts for local communities that may be affected by industrial projects. The Guinean government retains 49% interest in CBG, while the Halco Group holds 51% (including 45% by Alcoa, 45% by Rio Tinto Alcan and 10% by Dadco). Alcoa and Rio Tinto, the multinational shareholders of the CBG project, uphold international standards and norms that promote mine governance based on a commitment to social responsibility and environmental sustainability. These standards and norms are outlined in section 7.1.2. Dadco complies with corporate ethics, performance and environmental protection standards. However, the adherence of these shareholder companies to performance standards does not apply to the management of the CBG project, which is a separate legal entity. The many existing standards should not overshadow the fact that the proponent is connected with the Guinean government by way of the national laws of Guinea, the mining agreement and its amendments as well as by other international commitments CBG makes as a company incorporated under Guinean law.

Despite the various commitments made by CBG (including the multinational shareholders) in connection with its corporate social responsibility (CSR), major challenges remain for it to adhere to the international standards and norms as regards social and community management in the Project Area. The Expansion Project represents an opportunity for the CBG to adopt new social impact management tools and change some of its management practices with a view to modernizing its governance and making it consistent with the new standards established by the 2011 Mining Code and other legislation governing mining operations in Guinea, including the Code for the Protection and Enhancement of the Environment, 1989, also referred to as the Environment Code.

The main social issues raised by the CBG Expansion Project in terms of complying with international norms and standards essentially concern the involuntary physical and economic displacement required to restore the means of subsistence and living conditions for affected communities (SFI, 2012). Remedial work will be required owing to inherited practices that do not comply with best practices recommended by international organizations, essentially the IFC.

Although CBG does have major community management guidelines in place, it lacks the human and financial resources along with planning tools to formally implement a strategy for preventing and mitigating impacts and fostering community development in the Project Area.

The main CSR issues raised by the Expansion Project for the proponent in relation to national legislation and international standards are:

- implementing a stakeholder engagement plan (SEP) for the entire Project Area;
- implementing the ESMP and the resettlement and compensation action plan (RAP) for managing involuntary physical and economic displacements (IFC, 2012);
- putting in place mechanisms for communicating with, consulting and informing shoreline residents regarding the project description, agenda, extraction methods and related risks;
- managing the hiring process, as well as the expectations of the local population as regards employment;
- providing individual and group compensation for those who are displaced, or for loss of cropland, pastureland or goods;
- maintaining the buffer zones and protective measures to be applied between the edge of the pits and village dwellings or infrastructure as well as land uses for protected areas;
- maintaining water supply conditions for villages in the rural area of the mine;
- applying pollution standards and control methods as regards noise, vibration, dust/mud, water, and railroad-related accident risks;
- giving due consideration for cultural (sacred) and archeological sites; and
- controlling and monitoring health and safety impacts for nearby populations, along with applicable prevention, mitigation and monitoring measures.

7.1.3 Methodology for the social impact assessment

Three areas were delineated for specifying the impacts of the CBG Expansion Project (see Chapter 1):

- Zone 1: urban and rural area of the mine, Sangarédi and villages in the mining concession area;

- Zone 2: the urban and rural area associated with the port, town of Kamsar, and the villages and fishing camps in the estuary; and
- Zone 3: railroad area (500 m on either side of the railroad track).

This social impact study is based on:

- the technical description of the Expansion Project prepared by CBG;
- the information gleaned from previous studies of the Expansion Project including the Stakeholder Engagement Plan (included in Chapter 6), and the socioeconomic baseline study (Chapter 5);
- a consultation process with local stakeholders in the three impact zones (the CBG, local authorities and potentially affected communities).

The study was based on two project phases: the construction/installation phase, and the operation/maintenance phase. Given that the CBG project is already operational, the construction and mining phases, unlike in a majority of mining projects, will be running concurrently until about 2022. Three stages of mining are envisaged for the Expansion Project. Project phasing details are outlined in Chapter 1.

The identification and assessment of the impacts of the Project were based on these three mining phases, which will dictate the pace of the Expansion Project. The assessment was also carried out using field observations, the results of consultations on expectations and concerns, as well as information gleaned from previous studies. The consultations with authorities and potentially affected individuals in the Project Area were recorded in reports that were subsequently compiled using Darzin data processing software to facilitate analysis.

This preparatory work helped identify a number of valued ecosystem components (VECs), i.e., the fundamental elements used to anticipate impacts on the lifestyle of communities in the Project Area (economy, governance, land use, cultural heritage, flow and circulation, health and safety, etc.). Each VEC was divided into subcomponents. The Expansion Project's potential impacts were assessed for each of these subcomponents, using an impacts matrix.

For each of the impacts, the matrix described: the sources of the impact, the relevant project phases, the type of impact (positive/negative), a description of the impact, the relevant project area and phase, the value of the VEC, the degree of disturbance, and the scope and duration of the impact (see Chapter 1).

In the social impact assessment, the value of a VEC is estimated on the basis of two reference points. The first considers the value assigned to each of the VECs connected with potential impacts by stakeholders in the Project Area who were involved in the consultation process. This assessment was based on the number of times the VEC was mentioned during the consultations. In addition to the frequency it was mentioned, also considered were the length of the discussions on the impacts, the level of insistence expressed by participants that these issues be mentioned in the assessment, the level of commitment expressed in relation to concerns or expectations, and the diversity of stakeholders (elders, young people, women, etc.) who made a point of indicating the issues were priorities. To ensure better objectivity in the assessment process, we cross-referenced the judgments expressed by potentially affected populations with an “expert” evaluation based on our knowledge of the technical aspect of the project, the land and mine property. This two-pronged evaluation led to an assessment of the value of each of the VECs associated with the Expansion Project’s potential impacts.

This information was compiled to generate a value estimating the level of both the negative and positive impacts. For each of the negative impacts, prevention and mitigation measures were proposed to provide CBG with solutions for limiting the impact of the Project. In the case of positive impacts, enhancement measures were recommended. Residual impacts after implementation of proposed mitigation and enhancement measures were also assessed as part of this social impact study.

7.1.4 Socioeconomic baseline study

7.1.4.1 *Background*

The Project Area has generally been economically and socially shaped by the presence of the CBG, even though most of the villages existed prior to the company’s arrival in the 1960s (see Chapter 5 – Socioeconomic Baseline Study). Mining operations and the Kamsar plant have attracted significant numbers of people to the Sangarédi and Kamsar areas who are seeking employment or wanting

to make the most of economic opportunities created by the presence of company employees. The economy in these towns is essentially informally structured around trades and services.

Over the years, the CBG has made significant social investments (i.e., schools, health centers, and water supply and electric power systems). These investments, especially the water and electric power systems in urban areas, provide a good level of comfort for residents in the workers' towns in Sangarédi and Kamsar (which have much better access to electricity than many other towns in Guinea). Unfortunately, with the growth of the local population, many of these investments have become inadequate, and a lack of regular maintenance has meant the systems are now fairly run-down. Although other areas in these towns do benefit from these systems, service is not guaranteed for a majority of the population. Generally speaking, socioeconomic spinoffs from CBG's presence in the Project Area are deemed inadequate by the local population. The population is also growing, further increasing demand for basic services.

CBG suffers from a bad reputation throughout the Project Area. This observation was reported repeatedly by the team during the consulting process especially in the mining (Zone 1) and port (Zone 2) areas where the company's activities are concentrated. Such dissatisfaction with the company is expressed in the most remote hamlets in the mining area as well as the large town, by local people as well as local and commune authorities.

This situation seems to be connected to a lack of social integration for CBG activities in host areas as indicated by there being no ESMP, no formalized compensation system in the mining area, no complaint-handling mechanism, a very limited community relations team consisting of four individuals for all three zones, no communications policy, and poor optimization of community action plans. Many of these issues were mentioned in the stakeholder consultation process (Chapter 6).

The dissatisfaction does not simply stem from CBG being poorly integrated into the environment. It also arises from the unwillingness on the part of the government to supply communities with basic services and a lack of communication on CBG's part regarding its commitments to communities and the weak level of organization among rural communes. The unfulfilled expectations also result from the fact that with the government being a major shareholder in the company, local authorities

and populations tend to assimilate the CBG and the government and assume they have the same prerogatives when it comes to developing the Project Area. This confusion is further enhanced by the preferred taxation system, from which CBG has benefited since it was founded, which means it was one of the first contributors to the national budget (Soumah, 2007). Many people in the Project Area consider that this contribution is being made at the expense of local populations and their development.

7.1.4.2 Mining concession area

The mining concession area includes the town of Sangarédi, with its population of about 53,000 residents (Chapter 5). Local residents live mainly from commercial and activities and selling services to the local population whereas the rural population lives off farming largely for local consumption but also for sales to the closest urban centers.

The urban area of Sangarédi is greatly dependent on CBG activities. Since the launch of mining operations, the towns of Kamsar and Sangarédi have developed with direct and indirect spinoffs solely from this unique regional industrial center.

The relatively large rural population in the mining concession (about 16,200 inhabitants) resulted from the migration of Peuls from Foutah at the end of the theocratic empire in this region. There were few subsequent migrations. The population relies on an agrarian system (slash-and-burn agriculture) which is changing and is becoming depleted owing to demographic and land pressure. The poor fertility of the soils, lack of modern agricultural techniques, and the major loss of land owing to the expansion of the mine in the past 40 years have contributed to the general impoverishment of communities in the area. This situation has been exacerbated by the chronic lack of public investment (from the government, business revenue taxes and land taxes) in the rural area of the Project.

7.1.4.3 Rail corridor

The rail corridor connects the foothills of Foutah and the Sangarédi Commune with the Basse-Côte and the town of Kamsar.

Settlement along the rail line is highly diversified. The area is rural and the local population lives primarily off the land. Closer to Rio Nuñez and the sea, however, people have turned to fishing as their source of livelihood.

This area is relatively accessible (except for a few isolated villages west of Tinguilinta in Tanéné and Boké communes) thanks to the paved road between Sangarédi and Kamsar.

Train traffic raises certain safety concerns for the population and livestock, and to a lesser extent, issues as regards habitat quality and quality of life (noise and vibrations).

7.1.4.4 Kamsar and surrounding areas

Kamsar and surrounding areas are very densely populated. The town of Kamsar in particular saw its population explode with the arrival of CBG operations.

The Kamsar economy is based on four sectors of activity: direct and indirect employment with CBG, trade and services, agriculture (market gardens, mangrove rice fields, permanent and annual crops), and artisanal and semi-industrial fishing.

There is a gap in access to services (electricity, water, etc.) between the workers' town and the other districts. The gap is currently widening and could in the short term lead to more social conflict as has been seen in recent years (e.g., the riots of 2009/2012). The people living outside the workers' town complain about restricted access to basic social services for the "non-CBG beneficiaries." For them, health care is costly, electricity and water are poorly distributed or not even available even in central districts, and public schools are in an advanced state of disrepair.

A significant proportion of the both the urban and rural coastal population survives on the basis of the pluriactivity of households involved in both fishing and agricultural activities. The fisheries sector not only generates income for fishermen, but also for the many women who smoke and market fish products. Ever increasing numbers of people (some from neighboring countries) are living off fishing in the two small ports, Port Fory and Port Néné, in the town of Kamsar. Given that most of the boats are not motorized and that the port facilities are outdated, incomes generated from fishing are limited and render this population highly vulnerable to any change in the environment. The implications the Project may have on fishing go

well beyond this local population, since the fisheries sector makes a significant contribution to the Project Area in terms of both financial input and food security.

7.1.5 Identification and assessment of the main social impacts of the Project, along with prevention, enhancement and mitigation measures

7.1.5.1 Zone 1: the mine

Identification and assessment of main impacts

Urban area

The town of Sangarédi, which has historically grown in step with the CBG project, will be permanently impacted by the Expansion Project. This growing town has experienced haphazard development owing to a lack of urban planning and poorly organized migration to the town.

The Expansion Project will lead to a limited number of direct and indirect jobs in every phase (see Section 7.4.5). Some will involve the construction of new housing for workers, because under CBG's policy the number of housing units to be built is equal to the number of permanent full-time workers. The area of the workers' town is therefore expected to increase with the development of new urbanized areas in Sangarédi. Households there will enjoy comfortable living conditions, with access to salaried employment at CBG, quality housing, and guaranteed access to basic services (i.e., water, electricity, roads and sanitation services).

The negative impacts for the town of Sangarédi will be felt in the non-CBG districts, which currently benefit from the water and electric power systems that are maintained and powered by the company. On the basis of current urban dynamics, the town of Sangarédi is expected to grow in the decades to come, a growth trend that will be sustained by the CBG Expansion Project. The anticipated job creation, as well as the impact of the Project on agricultural land in the rural area of the mining concession could in fact result in an ever-increasing influx of individuals and households in search of new economic opportunities in Sangarédi.

Without appropriate planning measures, there is the risk of rapid demographic and spatial change, as has occurred in many other African towns. Sangarédi's identity of being a "two-sided" town would be confirmed, with a workers' town, whose development is planned and maintained at a higher level than in any other Guinean town, and the other part of town with its more haphazard development.

Without jobs, resources and forward planning by public authorities, this urban growth is expected to lead to insecurity, urban anarchy, health hazards, inflated cost of housing, deterioration in access to basic services (i.e., education, health care, water and transportation), and finally the general impoverishment of the population. The consequences of such a process will be major impacts on the social climate, the degradation of which could destabilize local authorities and result in social tension and conflict.

Rural area

The primary impacts for communities in rural areas will stem from the increase in the pits and volumes of bauxite mined. The Expansion Project will involve the loss of substantial farmland and pastureland, hence the major sources of income for village communities. Many villages ultimately risk losing not only a significant part of their land but also becoming more isolated and cut-off once surrounded by working pits. Daily life in the villages, the majority of which are located in lowlands, could be preserved only if the water sources (springs, streams and rivers) are not affected by mining operations (dust, mud and destruction of watercourses) and if measures are implemented to compensate for economic losses.

Given the main agricultural techniques used in the mining concession area (slash-and-burn practices that require significant areas for fallow land), the Expansion Project will result in significant loss in resource space for communities. If appropriate compensation measures are not put in place, this impact may well seriously and permanently impoverish the communities on the perimeter of the concession. As has already happened, some villagers could find themselves without any farmland and be motivated to migrate (even temporarily). Some will go to other rural areas to find available land to farm and others to urban centers to try and find employment. Ultimately some villages may lose a significant number of their active population.

Under the current mining plan, some hamlets, parts of villages or entire villages will need to be resettled. The CBG will comply with a 100-m buffer zone around human settlements, infrastructure and future mining areas, as specified in the Mining Code (Articles 111, Protected and prohibited areas). In light of CBG's current mining plan (October 2013 version), a number of dwellings in the mine zone will need to be relocated. On the basis of the future mining road plan, it should also be noted that villages could be hemmed in once new mine roads are opened (mine roads are not available for use by shoreline communities).

A relatively small construction camp will be built at the N'Dangara mine site for workers. The impacts of building this camp are essentially non-existent in terms of potential land loss.

The impacts associated with noise, vibration and dust may well be high for households living in the vicinity of the pits. Dust will also be generated by blasting operations, open-pit mining in the pits near the villages and the round-the-clock operation of mine machinery. Mine operations will lead to general degradation of the landscape and in living conditions in the rural mine area. The authorities who were consulted believe that these impacts cannot be compensated by the Expansion Project, without embarking on negotiations with the government to ensure CBG makes a sizeable contribution to local community development through taxes intended for this purpose under the Mining Code (i.e., business revenue and land taxes). CBG's community relations team is currently not on site at the mine, and hence is not able to help the company take local needs and concerns into account. Furthermore, there is no formal complaint-handling mechanism in place for the CBG Project.

The potential public health impacts of the Expansion Project in the mine area include an increase in respiratory problems in the most vulnerable populations (i.e., children, the elderly and the sick). The impact of mining operations on public health in this area warrant analysis as part of a more comprehensive, long-term epidemiological study, particularly in mine areas where aluminum concentrations in surface water and air are expected to increase. It is anticipated that increased dust and mud levels will contribute to a general degradation of sanitary conditions in the villages (air and water quality). With regard to public safety, the opening of new pits and mine roads in the vicinity of inhabited areas will increase the risk of accidents in the Project Area. Also note that the future mine road plan was not available at the

time of drafting this report. Further degradation in public safety is anticipated especially given that there are no health centers in the rural mine area. The increase in rail traffic and the longer length of trains will also impact the villages located near the railroad line, resulting in insomnia, stress and an increase in the risk of accidents for humans and livestock.

As for employment, a majority of the affected villages expect CBG to compensate for losses in their agricultural and livestock revenues by creating sustainable jobs for young people in the villages. They have high expectations with regard to the development of infrastructure and services (i.e., schools and health centers), but are riddled with mistrust. As an elder from the village of Hamdallaye said, “A pump cannot replace a spring and water a forest that thrives on its presence.” Traditional governance mechanisms may well be weakened given that their legitimacy essentially rests on preserving the integrity of village land, group management of natural resources and relationships with animist practices.

In this regard, many of the sacred sites that mark the mining concession may well have to be destroyed. The Project will therefore have negative impacts on tangible cultural heritage (sites) as well as intangible cultural heritage (practices) in the area. The archeological mission revealed the presence of archeological heritage sites in the concession area that were marked for safekeeping. Owing to the exceptional nature of these sites, they warrant further study.

Significant cumulative impacts are also anticipated given the large number of mining projects that could rapidly come online (see Chapter 9). The GAC mining project, for example, is expected to be launched very soon on the periphery of the CBG concession. The cumulative impacts generated by these projects could impact migration, health, the economy, safety, income sources, and isolation, etc. for communities in the concession.

7.1.5.2 Zone 2: the port

In the port area, the Expansion Project will essentially result in a series of projects to modernize and increase the processing capacity of the plant and the port, in addition to housing newly recruited employees. Over the various mining phases, the project will lead to an increasing amount of ore transported to Kamsar, processed in the plant and loaded on ore carriers for export.

The socioeconomic impacts will first involve the creation of about 275 permanent jobs (22.5 MTPA phase, year 2017) along with a few hundred temporary contractual jobs in the construction phase (660 jobs in the 18.5 and 22.5 MTPA and construction phases). This job creation will result (as occurred in the town of Sangarédi) in an albeit small increase in the number of households that see direct and significant long-term improvement in their living conditions.

The new employee housing will be built in an inhabited area (on the boundary of Bas-fond and Balanta districts). Existing households, businesses, even some infrastructure will need to be relocated and compensated. This area will also take up a mangrove rice-growing area, for which compensation will also be required. In the rail loop, cropland will be relocated for the construction of rail sidings. The land area involved is however very limited. The issues involved with resettling people should not be underestimated in a town as densely populated as Kamsar, where all households aspire to live in the centre of town and benefit from the water and electricity services offered by CBG.

A construction camp to house about 600 employees will be located in the CBG industrial area in Kamsar. It will not involve any land losses for the local population. However, the concentration of a large number of employees (a majority of unattached men) at this camp will quite likely lead to public health impacts.

Expanding the turning basin at the port so that two ore carriers can be loaded will require dredging the Rio Nuñez River (although over a smaller area than indicated in original plans). This dredging, to occur essentially in the construction phase, will have a limited and site-specific impact on fishing operations (chapters 2, 3 and 4), which represent a major source of income in Zone 2 of the Project. The doubling of ore carrier traffic during mining operations will have a major impact on the safety and activity of fishermen in the port zone. Since a majority of the fishermen do not have motorized boats, the presence of the carriers poses a significant potential hazard (i.e., heavy wave action with each pass). The cumulative impact of several other projects coming on line in the estuary (barges, dredging, construction of other ports, increase in the number of cargo ships in the estuary, accidental toxic spills, etc) could threaten the local artisanal fisheries, as it is currently practiced.

The impacts of the urbanization of the town of Kamsar will be essentially the same as for the town of Sangarédi. There could however be significantly more migration,

given that Kamsar is already more densely populated, spread out and known to be the main hiring pool for CBG and its subcontractors. In the absence of government action, it is likely that living conditions (access to basic services) in the non-CBG-managed districts of the town could decline for a majority of the population, perhaps even more so than in Sangarédi. Issues as regards insecurity, the deteriorating health status, and the impact of dust discharged by the plant are already a central focus of local concerns. The spread of HIV/AIDS (and other diseases and epidemics) in the Kamsar (and Sangarédi) impact zone could also increase, in light of accelerating migration and risky behaviors often found in mining and port areas.

Governance-related risks will depend on the level of CBG's internal level of organization. The research undertaken as part of this assessment leads to the conclusion that if CBG continues to operate with a reduced community relations team (four employees) that has very limited resources, while it benefits from fairly substantial fiscal exemptions under its mining agreement, the Expansion Project will not result in any significant improvement in the development of local communities in the Kamsar area. The Expansion Project generally cannot rely on pre-existing community governance structures within CBG to come up with a specific local community development project. With the existing project, such governance is currently lacking and needs to be rebuilt.

This situation combined with expectations of benefiting from the positive impacts of the Project, expectations which in some cases have risen exponentially, could as in the past create a climate of social tension, and foster conflicts in the area.

7.1.5.3 Zone 3: railroad

An initial series of impacts related to the railroad will be connected with the construction of a railroad siding at KP 14. Three village territories, Kamakouloun, Toumbéta and Katomou, will be directly impacted by loss of land and the displacement of houses and other infrastructure (Katomou and Toumbéta).

The main source of impact of the Expansion Project for the entire railroad area will be the increase in train traffic per 24-hour period (increase from 12 to 24 trips/day by 2022) along with an increase in train length. This increased train traffic will essentially result in a slow-down/blockage of the flow of people and goods, an

increase in safety hazards for individuals and livestock, and finally an increase in stress levels (insomnia) for people living beside the railroad track. Expectations in terms of job creation may not be met, in that CBG job creation plans essentially involve the mine and port areas. This zone should receive special attention from CBG in order to minimize social inequities among the three project impact zones.

7.1.5.4 Prevention, improvement and mitigation measures

Certain mitigation and enhancement measures could significantly reduce the level of disturbance in the Expansion Project's three impact zones if they were implemented as part of the SEP, ESMP and RAP plans. It is anticipated that these measures will prevent, mitigate and compensate for the negative impacts and enhance the positive impacts of the Project.

The main measures proposed for the Project overall are listed below.

- comply with applicable national legislation and international standards as regards social norms (including the IFC Performance Standards);
- develop and implement a communications strategy for the entire Expansion Project as part of the SEP (clarification of communication channels, selection the spokesperson selection process, and information content);
- strengthen CBG's community relations team by revamping its methods of governance and installing some of the team in Sangarédi to cover the mine zone;
- develop and implement an ESMP for CBG's Expansion Project (even the entire CBG project) and a specific RAP for the Expansion Project;
- adopt a global policy to end the isolation of villages in the mine zone and along the railroad line, with the construction of alternate roads in the mine zones and overpasses over the railroad tracks;
- adopt a formal policy for the entire project to ensure compliance with "buffer and protected zones" (minimum of 100 m) around inhabited, farming or grazing areas (agriculture, springs, livestock, etc.) as specified in the Mining Code;
- protect cultural heritage sites and practices by minimizing disturbances or destruction of them in compliance with the recommendations in the baseline study (IFC Performance Standard 8).

- Focus compensation management planning on promoting community development, taking into consideration any loss of earnings caused by the substantial loss of land areas and hence sources of revenue, disturbance of fishing operations, loss of goods, combined with appropriate compensation measures;
- Conduct comprehensive and independent public health impact assessment (as a complement to the one carried out in 2014 by the CBG on the impact of emissions for nearby communities and workers (Évaluation des risques à la santé face aux émissions provenant de la Compagnie des Bauxites de Guinée pour les communautés riveraines et ses travailleurs) included in Volume 6 of the ESIA), combined with a monitoring/control mechanism for the mine area;
- As regards public health protection, set up an environmental monitoring plan including data compilation and corrective measures in cases where standards are exceeded (including water, dust, noise and vibration standards);
- Develop and implement an effective and transparent complaint-handling mechanism to be administered by CBG;
- Develop a migration management plan for the towns of Sangarédi and Kamsar;
- Provide technical and financial support in collaboration with decentralized authorities for the development of master plans for expanding the towns of Sangarédi and Kamsar;
- Ensure systematic involvement of local authorities and populations in the implementation of the various project phases, the ESMP, and the RAP, including consultations and a participatory decision-making process, etc. (IFC Performance Standard 1).

7.1.5.5 Summary of potential and residual impacts

The impacts of the Expansion Project were re-assessed to incorporate the implementation of the mitigation measures discussed in this chapter and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are as described below.

Mitigation measures applied for social impacts often include supplemental studies and management plans, along with specific measures. Residual impacts take these studies and plans into account. If studies are not performed or plans remain incomplete, residual impacts will need to be re-assessed.

Table 7-1 presents a summary of impacts.

Positive impacts

High	Medium	Low	n/a
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Negative impacts

High	Medium	Low	n/a
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n/a = not applicable

Table 7-1 Summary table of potential social impacts and their significance in the three project zones for the construction and operation phases of the CBG Expansion Project

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
DEMOGRAPHICS AND SOCIAL DYNAMICS						
DDS1 – Rural exodus (to other rural areas)	High	n/a	n/a	High	n/a	n/a
<i>Residual impact</i>	Medium	n/a	n/a	Medium	n/a	n/a
DDS2 - Migration to urban centers	High	High	Medium	High	High	Medium
<i>Residual impact</i>	Medium	Medium	Low	Medium	Medium	Low
DDS3 – Changes to social and family structures	High	Medium	n/a	High	Medium	n/a
<i>Residual impact</i>	Medium	Low	n/a	Medium	Low	n/a
HEALTH AND SAFETY						

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
SS1 – Degradation of sanitary conditions (access to basic services)	High	High	Low	High	High	Low
<i>Residual impact</i>	Medium	Medium	Low	Medium	Medium	Low
SS2 – Degradation of sanitary conditions: increase in pollution sources / health impacts	High	Medium	Low	High	Medium	Low
<i>Residual impact</i>	Medium	Low	Low	Medium	Low	Low
SS3 – Risk of railroad-related accidents	Low	Low	Low	High	High	High
<i>Residual impact</i>	Low	Low	Low	Medium	Medium	Medium
SS4 – Risk of road accidents	Medium	Medium	Low	Medium	Low	Low
<i>Residual impact</i>	Medium	Medium	Low	Medium	Low	Low

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
SS5 – Risk of maritime accidents	n/a	Low	n/a	n/a	High	n/a
<i>Residual impact</i>	n/a	Low	n/a	n/a	Medium	n/a
SS6 – Risk of accidents in or near pits	High	n/a	n/a	High	n/a	n/a
<i>Residual impact</i>	Medium	n/a	n/a	Medium	n/a	n/a
SS7 – Degradation of public security	Medium	Medium	Low	Medium	Medium	Low
<i>Residual impact</i>	Low	Low	Low	Low	Low	Low
ACCESS TO INFRASTRUCTURE AND BASIC SERVICES						
IS1 – Degradation in access to water and sanitation services	High	High	Low	High	High	Low
<i>Residual impact</i>	Medium	Medium	Low	Medium	Medium	Low
IS2 – Decreased access to electricity	Medium	Medium	Low	Medium	Medium	Low

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
<i>Residual impact</i>	Low	Low	Low	Low	Low	Low
IS3 – Decreased access to education and training	Medium	Medium	Low	Medium	Medium	Low
<i>Residual impact</i>	Low	Low	Low	Low	Low	Low
IS4 – Decreased access to health services	High	High	Low	High	High	Low
<i>Residual impact</i>	Low	Low	Low	Low	Low	Low
IS5 – Decreased access to recreational and cultural services	Medium	Low	n/a	Medium	Low	n/a
<i>Residual impact</i>	Medium	Medium	Medium	Medium	Medium	Medium
IS6 – Improved housing for CBG employees	Medium	Medium	n/a	Medium	Medium	n/a
<i>Residual impact</i>	Medium	Medium	n/a	Medium	Medium	n/a
LAND						

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
F1 – Loss of land	High	Medium	Low	High	n/a	n/a
<i>Residual impact</i>	High	Medium	Low	High	n/a	n/a
F2 – Weakening of traditional land management system / Modification of land tenure and the relationship with the land	High	Medium	Low	High	Medium	Low
<i>Residual impact</i>	High	Medium	Low	High	Medium	Low
F3 – Projected displacements	High	High	Medium	High	n/a	n/a
<i>Residual impact</i>	High	High	Medium	High	n/a	n/a
ECONOMIC ENVIRONMENT AND HOUSEHOLD STRATEGIES						
EE1 – Increase in social inequities – impoverishment of rural and urban areas	High	High	Low	High	High	Low

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
<i>Residual impact</i>	Medium	Medium	Low	Medium	Medium	Low
EE2 – Job creation (direct, contract, indirect and temporary)	Low	Low	n/a	Medium	Medium	n/a
Residual impacts	Medium	Medium	Low	Medium	Medium	Low
EE3 – Disruption of fishing activity (in the estuary)	n/a	Medium	n/a	n/a	High	n/a
<i>Residual impact</i>	n/a	Low	n/a	n/a	Medium	n/a
EE4 – Support for community development projects	Low	Low	Low	Low	Low	Low
<i>Residual impact</i>	Medium	Medium	Medium	Medium	Medium	Medium
FLOW AND CIRCULATION						
FC1 – Isolation	High	n/a	Low	High	n/a	n/a
<i>Residual impact</i>	Medium	n/a	Low	Medium	n/a	n/a

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
FC2 – Improved access	Low	n/a	Low	Low	n/a	n/a
<i>Residual impact</i>	Medium	n/a	Low	Medium	n/a	n/a
FC3 – Disruption of flow and circulation due to increased train traffic	n/a	n/a	n/a	High	High	High
<i>Residual impact</i>	n/a	n/a	n/a	Medium	Medium	Medium
FC4 – passenger train frequency	Medium	Medium	Medium	Medium	Medium	Medium
<i>Residual impact</i>	Medium	Medium	Medium	Medium	Medium	Medium
FC5 – Deterioration of traffic conditions in the estuary (passenger and fishing boats)	n/a	Medium	n/a	n/a	High	n/a
<i>Residual impact</i>	n/a	Low	n/a	n/a	High	n/a
GOVERNANCE AND SOCIAL COHESION						

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
GCS1 – Stress on local governance modes	High	High	Medium	High	High	Medium
<i>Residual impact</i>	Medium	Medium	Low	Medium	Medium	Low
GCS2 – Community development expectations	High	High	Medium	High	High	Medium
<i>Residual impact</i>	Medium	Medium	Medium	Medium	Medium	Medium
GCS3 – Potential conflicts and social tension	High	High	Medium	High	High	Medium
<i>Residual impact</i>	Medium	Medium	Low	Medium	Medium	Low
GCS4 – Communications and information-related impacts	High	High	High	High	High	High
<i>Residual impact</i>	High	High	High	High	High	High

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
CULTURAL AND ARCHEOLOGICAL HERITAGE						
PC1 – Risk of affecting the integrity of sacred sites and ritual practices	High	Low	Low	High	Low	Low
<i>Residual impact</i>	Medium	Low	Low	Medium	Low	Low
PC2 – Risk of affecting integrity of archeological heritage	High	Low	Low	High	Low	Low
<i>Residual impact</i>	High	Low	Low	High	Low	Low
LIFESTYLE AND LANDSCAPE						
CV1 – Increased noise levels	High	Medium	Medium	High	Medium	Medium
<i>Residual impact</i>	High	Medium	Medium	High	Medium	Medium
CV2 – Increased dust and mud	High	Medium	Medium	High	Medium	Medium
<i>Residual impact</i>	Medium	Low	Low	Medium	Low	Low

VEC/ impact by subcomponent	Construction Phase			Operation Phase		
	Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
CV3 – Increase in vibrations	High	Low	Low	High	Low	Low
<i>Residual impact</i>	Medium	Low	Low	Medium	Low	Low
CV4 – Visual impacts: landscape degradation	High	Medium	Medium	High	Medium	Medium
<i>Residual impact</i>	Medium	Medium	Medium	Medium	Medium	Medium

7.2 Social impact assessment method

This section complements the section of the report on the impact assessment method (Chapter 1), in that it looks more specifically at the methodological features of social impact assessments.

7.2.1 General objectives of the social impact assessment

As regards the scope of this social impact assessment, the decision was made jointly with CBG that the study would address only the construction and operation phases of the Expansion Project. The closure phase for the CBG Expansion Project therefore is not included in this social impact assessment.

Also, as noted in the terms of reference, the social impact assessment team worked in close cooperation with CBG's technical teams (extension unit) and where feasible with its subcontractors to take stock of the options and their development in relation to the various phases of the Expansion Project.

Field consultations were conducted across the Project Area, and an exhaustive list of impacts produced on the basis of the exact type of work to be performed and their impacts on socioeconomic components. The impacts in connection with the construction phase were examined followed by those associated with the operations phase of the Project. They were assessed using the information acquired as part of the socioeconomic baseline study discussed in Chapter 5 and the SEP presented in Chapter 6. Prevention and mitigation measures were proposed for each of the impacts identified in each project impact zone and for each project phase (construction and operation). The impact levels were subsequently re-assessed to incorporate all the mitigation measures in accordance with an aggressive implementation schedule and appropriate resources. The residual impacts determined under these conditions were then specified.

7.2.2 Social impact assessment schedule

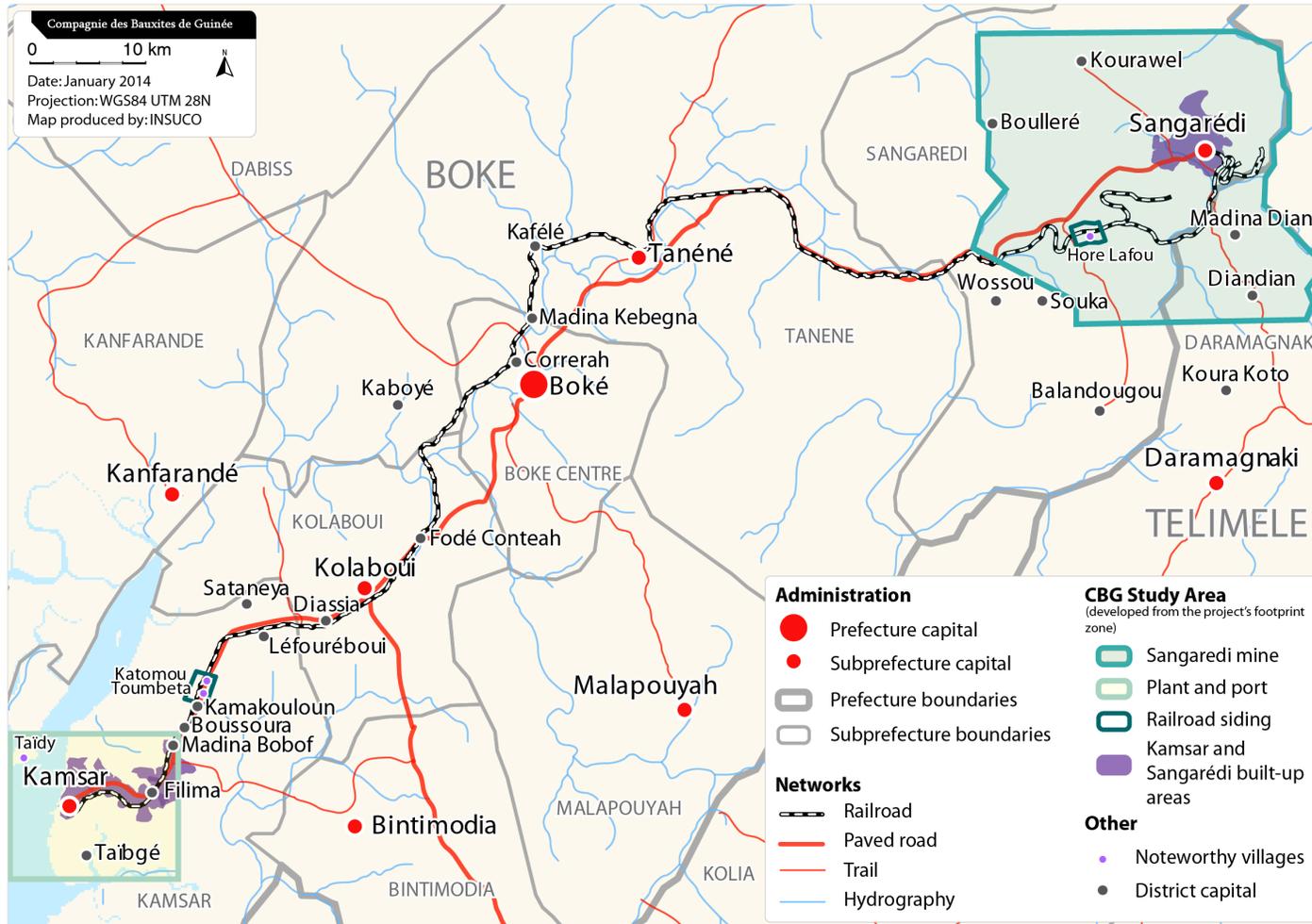
The team assigned to the social impact mission was mobilized for one month from February to March 2014. One week was devoted to preparing the field mission, two weeks for consultations in the three Project zones and a final week to analyze the field data and prepare a report. More detailed information on the consultation program is presented in the section in Chapter 1 that discusses the methodology of the consultation process.

This social impact assessment hinges on the technical description of the Expansion Project that became available when the socioeconomic baseline study in Chapter 5 of this report was finalized in March 2014. It is based on the mining plan for the CBG Expansion Project dated October 2013 (CBG, 2013), except for the environmental components which were based on the 2014 mining plan.

7.2.3 Delimitation of the social impact study area

The social impact study area for the Expansion Project extends from the mining concession, located on the outskirts of the town of Sangarédi, to the town of Kamsar where the plant and port are located. It includes the villages along the railroad line that connects the mining concession with the port zone. The study area covers a distance of 136 km. Map 7-1 provides an overview of the study area, which is described in detail in the following sections.

Map 7-1 Administrative and location map for CBG Expansion Project



The study area selected for this social impact assessment is the same as the area defined in the socioeconomic baseline study in Chapter 5. Below is a brief reminder of the three different project impact zones defined for this study.

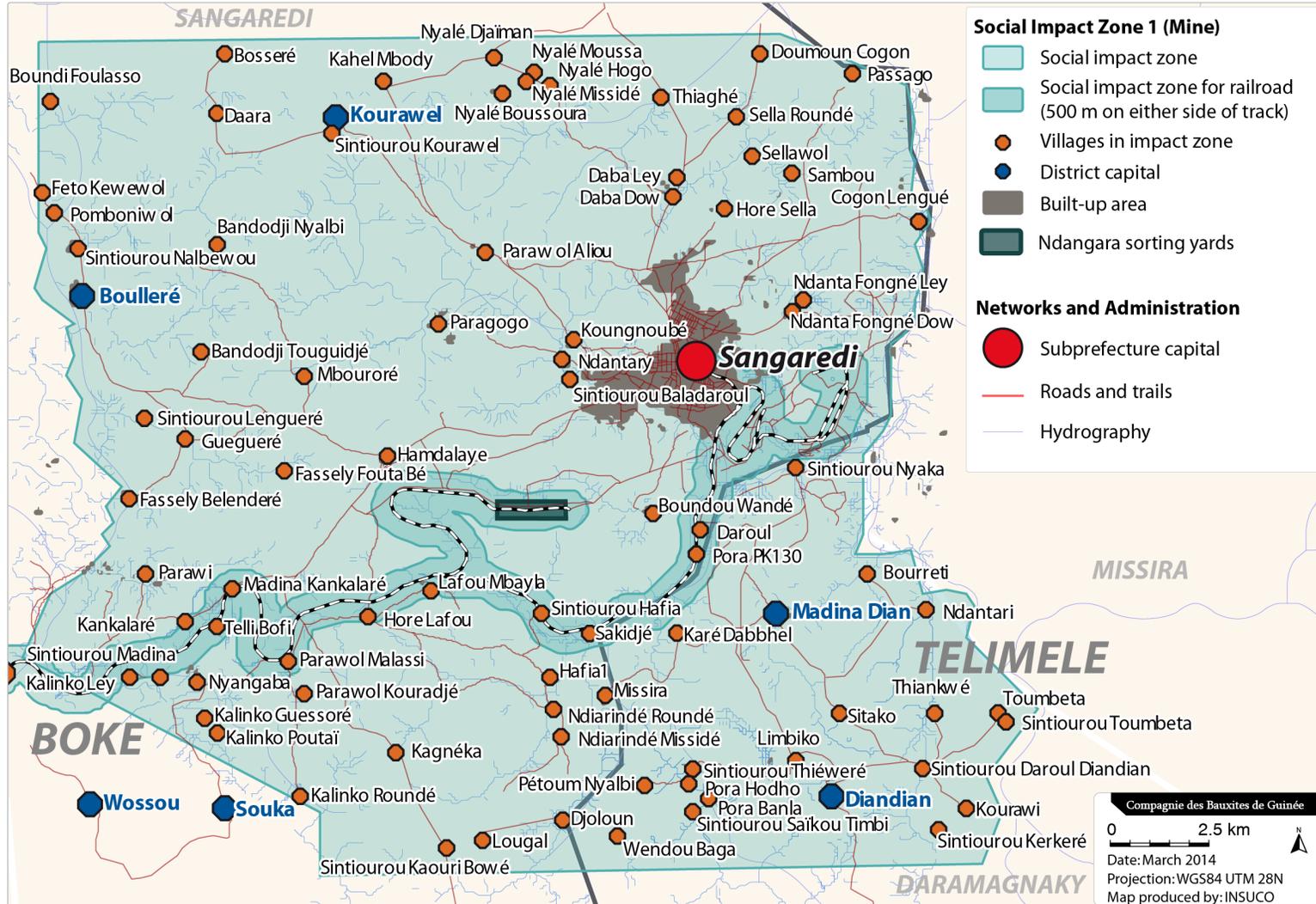
The CBG Expansion Project is divided into three distinct geographic zones:

Zone 1: The mining concession area includes the mine extraction areas, mine roads, the loading area and the sorting yard.

The first study area includes a rural section as well as an urban area. The rural section overlaps two rural communes: Sangarédi commune, which is part of the Boké prefecture (administrative region of Boké), and Daramagnaki commune, which is part of Téliélé prefecture (administrative region of Kindia). In the rural section, a special effort was made to target areas that are inhabited and/or occupied by local people who will be in the vicinity of the future pits to be mined as part of the Expansion Project development plan.

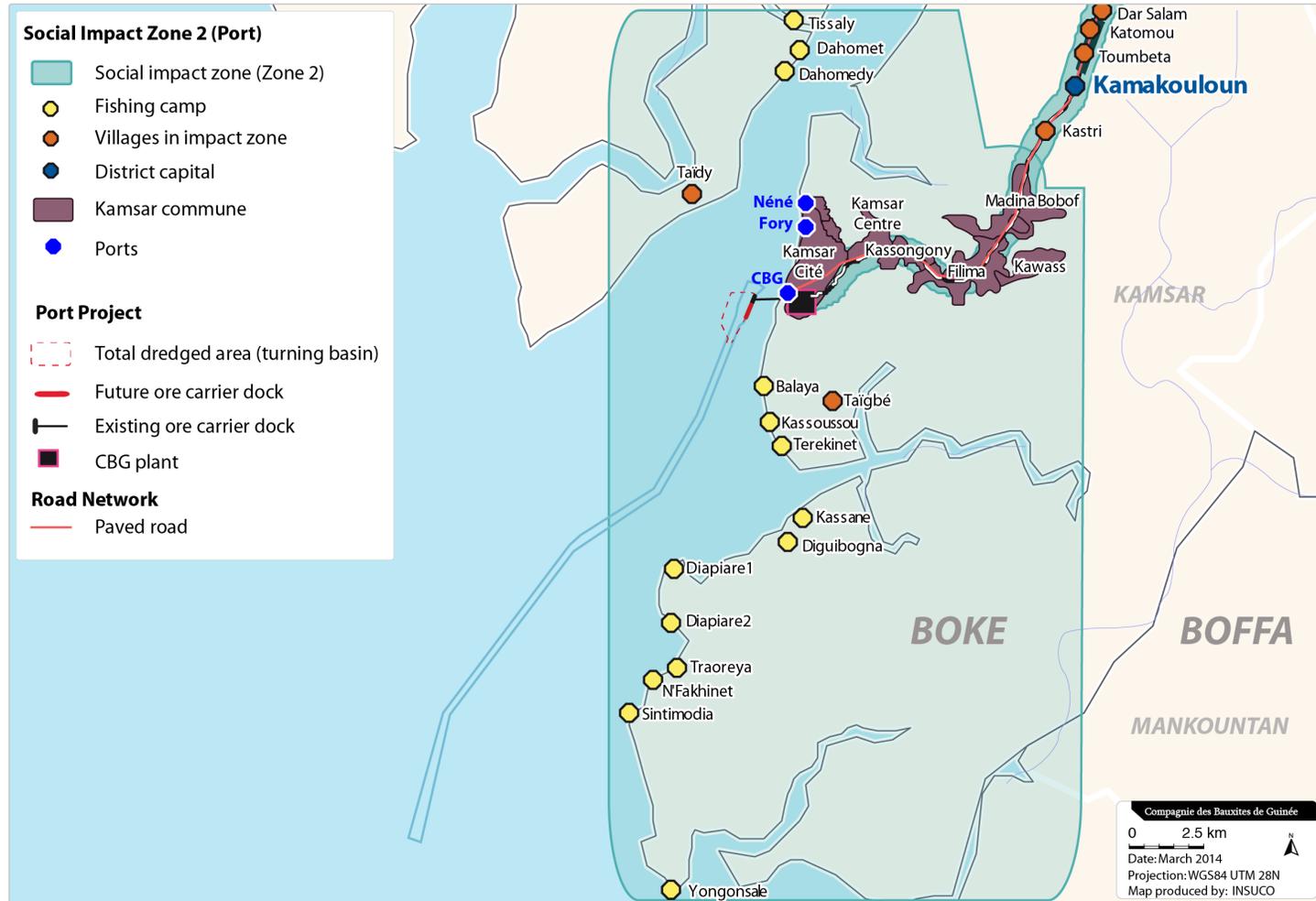
Map 7-2 illustrates the boundaries of the concession study area (also called the mine zone in the body of this report) with the town of Sangarédi and the villages located within the concession.

Map 7-2 Zone 1: mining concession (or mine zone)



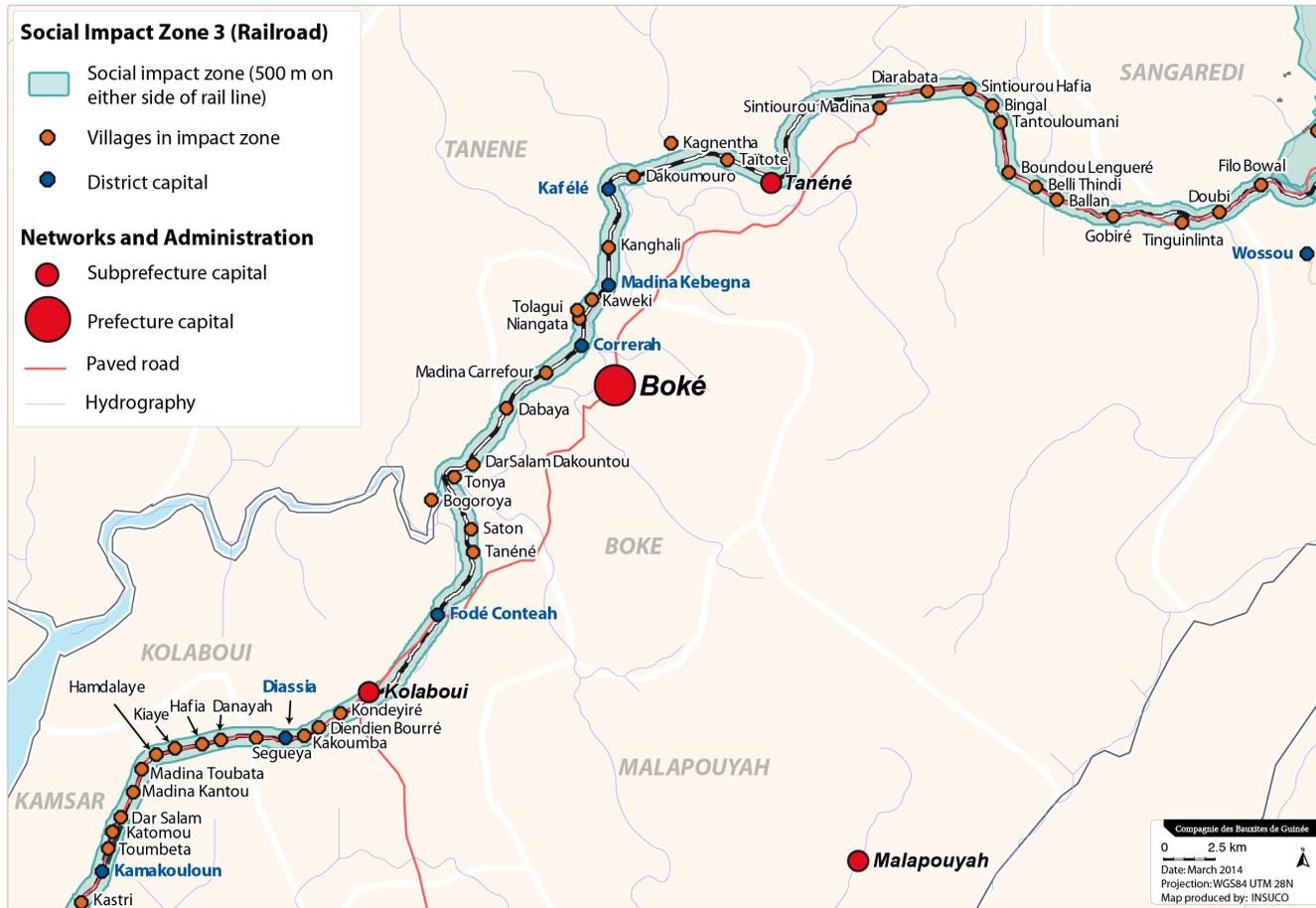
Zone 2: the port. This zone includes the town of Kamsar and surrounding areas, and takes into consideration the plant modernization work (with no increase in footprint), dredging operations in the port, and the construction of the mine camp and workers' housing. Map 7-3 illustrates Zone 2's footprint, which incorporates a maritime section, including potential impacts on fishing activities, and a land portion.

Map 7-3 Zone 2: the port



Zone 3: the railroad. This zone connects Sangarédi and Kamsar, and includes a number of villages along the existing railroad line. The impact zone extends 500 m on either side of the existing railroad track. Only those villages along the railroad line will be impacted by the Expansion Project. Map 7-4 shows the boundaries of Railroad Impact Zone 3.

Map 7-4 Zone 3: Railroad



7.2.4 Initial condition of receiving environment

This social impact assessment examines the impacts of the Expansion Project on the initial receiving environment, as described in previous work carried out as part of:

- the scoping study;
- the socioeconomic baseline study described in Chapter 5;
- the stakeholder engagement plan (SEP) in Chapter 6; and
- the consulting sessions held by CBG and the social impact assessment team, as described in Chapter 6.

7.2.5 Identification of sources of impact and VECs

The first step in impact assessments is to identify sources of impact. The technical description of the Mine Expansion Project was used to identify sources of impact. Identifying these sources means determining all Project components that could impact the socioeconomic or general environment. They are associated with the work and activities required to develop and enhance bauxite production.

The main sources of impact identified in the study include: increase in surface area mined, construction of port infrastructure, and an increase in train traffic. These impact sources may arise in different phases of the Project, i.e., during construction or mining operations.

The next step entails defining categories of impacts, which are based on the various socioeconomic dimensions of a given community (i.e., economy, culture and values, living conditions, health and safety, etc.). These categories are called valued ecosystem components (VECs), and each VEC is divided into sub-components.

The main VECs evaluated in this study are indicated below.

Tableau 7-2 Main VECs and sub-components

Main VECs	Related Sub-Components
Social structure and demographics	Migration; elderly; young people; status of women; natural population growth; retirees
Health and safety	Spills; runoff water; groundwater; residual materials; air pollution; public safety; sanitary conditions; road and rail accidents; dust; soils; illnesses; public health; health of vulnerable population
Infrastructure and basic services	Water; electricity; recreation and culture; health; education; transportation; worker housing
Economic environment and household strategies	Economy – local procurement (CBG); direct job creation; indirect job creation; induced job creation; induced economic development; impacts on agriculture; impacts on hunting; impacts on fishing; impacts on grazing and herding; inflation/monetization; royalties and taxes; equity funding; impacts on flora; impacts on fauna
Land	Loss of land; subdivisions and land development; displacement (communities and activities); relocation of activities; loss of goods; changes to land tenure (individualization of ownership); land security strategy
Governance and social cohesion	CBG – community relations management approach, accentuation of social inequities; devolved governance; decentralized governance; traditional governance; social tension and potential conflicts; complaint-handling mechanism
Communication and information	Communications/CBG consultations (information)
Flow and circulation	Access to roads and village roads; traffic conditions
Cultural and archeological heritage	Tangible – archeological heritage; tangible – sacred sites; intangible – language; intangible – cultural practices
Lifestyle and landscape	Noise, vibration, dust and visual impacts

7.2.6 Description of valued ecosystem components (VEC)

The main VECs selected for this assessment arise from the structural dimensions of the socioeconomic baseline study (Chapter 5) and the consultations carried out as part of the impact assessment. The VECs selected will account for a majority of the potential social impacts (positive and negative) caused by the CBG Expansion Project. A total of 10 VECs are included in this study (Table 7-2).

7.2.6.1 *Demographics and social dynamics*

The demographics in the Project study area provide an initial snapshot of the current level of settlement. We focused on the mine zone where an exhaustive count was undertaken. Far more subtle and detailed information is available for the mine than for the railroad or port zones. The assessment for the railroad and port zones is based on secondary information and the consultations carried out as part of the impact assessment. Kamsar has all the characteristics of both a mine and a port town. The impact assessment will take this dual characteristic into account, given that diffuse and intense migration flows always tend to be concentrated in this type of urban center.

The impacts have therefore been considered in terms of these migration phenomena, which could be caused, even accentuated by the development of the Expansion Project (including internal migration within zone, external migration, rural exodus, and concentration in towns). The impacts of the Expansion Project on the local social structure have also been examined along with any changes that may occur in family configurations in the Project Area. The focus was on:

- migration-related issues; and
- social and family structure.

7.2.6.2 *Health and safety of the local population*

Presenting the issues associated with potential health impacts on the local population is a difficult exercise within a social impact assessment. The CBG

conducted an initial study of health impacts on the population (CBG, 2014a). This type of assessment requires in-depth epidemiological and public health expertise. From the consultations, it is possible to list local perceptions, along with some of the characteristics of the mining project that are likely to have health impacts for the local population.

Public safety issues, however, are addressed more specifically. The CBG mining plan (CBG, 2013), field observations and consultations were used to assess potential safety hazards for the local population that need to be considered during project implementation.

The focus was on:

- health of the population (including vulnerable populations);
- road and rail accidents; and
- public safety.

7.2.6.3 Access to infrastructure and basic services

Addressing the issue of access to infrastructure and basic services means first taking stock of existing structures and the status of services in the mine zone. The next step is to consider what impacts (both positive and negative) will be generated by the Expansion Project on the quality and quantity of infrastructure and the main changes in access to available services for the local population.

The focus was on access to:

- water and sanitation services;
- electricity;
- education/training;
- health;
- recreational and cultural facilities; and
- housing for CBG workers.

7.2.6.4 Economic environment and household strategies

Addressing the economic environment and household strategies helps investigate:

- project impacts on economic dynamics in each project zone (i.e., inflation, creation of new markets, new opportunities, job creation, etc.);
- changes caused by the Project on household sources of income; and
- strategies used by these households to cope with changes brought on by the Project.

The focus was on:

- the local economy and procurement sources;
- induced economic development;
- agriculture;
- herding;
- fishing (Port Zone);
- hunting and fishing (Mine Zone);
- direct and indirect job creation;
- inflation/accentuation of social inequities;
- community development via taxes and CBG equity funding; and
- increase in social inequities.

7.2.6.5 *Land*

Impacts on land issues are essential to understanding local dynamics, different land uses and the main land tenure systems. Given that the mine project is characterized by a substantial increase in the surface areas to be mined, essentially in the mine zone, this assessment focused on the impacts associated with loss of land (i.e., loss of income sources, potential displacement for some settlements/villages, and the need to redefine land tenure system, etc.).

The focus was on:

- loss of land (crop land, fallow land, pastureland, etc.);
- loss of goods;
- changes to land tenure and relationships to the land (boundaries between the villages, individualization of land tenure, acquisition of land titles, security through permanent crops, etc.); and
- projected displacements.

7.2.6.6 Flow and circulation

Mining projects all result in changes to existing roadways. They may lead to new roadways being built, or existing roads being blocked, thereby affecting the local people's social life as well as the local economy. The increase in the number of trains and daily train trips is another essential component of the impact assessment, in that increased train traffic will impact the flow of people and goods throughout the Project Area.

The focus was on:

- destruction of village roads resulting in increased isolation;
- opening of mine roads resulting in improved access;
- increased traffic during construction and mining phases (including transportation of equipment necessitating temporary closure of certain roads and trails);
- passenger train traffic;
- train traffic: disturbance to flow and circulation of people and traffic; and
- the movement of boats in the Rio Nuñez estuary.

7.2.6.7 Governance and social cohesion

On the basis of a detailed knowledge of the way local authorities operate (i.e., traditional, religious, or devolved or decentralized powers), the impact assessment highlighted some changes that are likely to affect local methods of governance. Moreover, governance and social cohesion issues are the cornerstone of any social impact study, in that they can help predict factors that trigger tension and conflicts in the Project Area.

The focus was on:

- project governance by CBG;
- governance by Guinean government (of the CBG project and the impact zone);
- local governance (sectors, districts, rural communes, subprefectures (SP) and prefectures; traditional governance);
- potential conflict (between local population and CBG, within local population); and

- communication and information (complaint-handling mechanism, information dissemination, and consultations, etc.).

7.2.6.8 Cultural and archeological heritage

An important characteristic of Guinea is the existence of strongly entrenched religious syncretism (fusion of two religious systems, one monotheistic and the other animistic). Ritual practices associated with sacred sites have emerged from these beliefs and are prevalent throughout the Project Area. The socioeconomic baseline study (Chapter 5) provided an inventory of these sacred sites, while the social impact assessment recommends methods for properly managing these sites and ensuring respect for the local cultural heritage in collaboration with the local population. Recommendations will also be issued for protecting archeological heritage as well as the discovery of new sites with historical significance in the mine zone.

The focus was on:

- tangibles (sacred and archeological sites); and
- intangibles (languages, ritual practices).

7.2.6.9 Lifestyle and landscape

Mine projects generate impacts that will change lifestyles and landscapes for people living in the vicinity of the mine (i.e., dust, noise, vibration, pit development and road and infrastructure construction, etc.). Given that many villages and settlements will need to cohabitate with mine infrastructure, the impact assessment needs to determine which aspects of the project are likely to change lifestyles and landscapes, along with the extent of such changes.

The focus was on:

- noise;
- dust/mud;
- vibration; and
- visual impacts.

7.2.7 Consultations

The process of identifying then assessing impacts is primarily based on observations and analyses by the team of specialists deployed in the field as part of the consultation exercise. Consultations with potentially affected stakeholders were essential to this study, as required in Guinean legislation (Code minier, 2011); the decree on the ESIA (République de Guinée, 2014); and applicable international standards (for example, the IFC Performance Standards on Environmental and Social Sustainability, 2012).

In the three project impact zones, every category of potentially involved and/or impacted stakeholder was invited to take part in the impact assessment during the more extensive consultation sessions.

All three of the Expansion Project impact zones were covered in these consultations. The stakeholders who were directly mobilized included without being limited to:

- potentially affected chiefs and lignage elders;
- council of elders and Mosque councils;
- authorities at regional, prefecture and subprefecture levels;
- decentralized authorities (mayors, commune advisers and district presidents);
- technical services;
- NGOs and other civil society organizations; and
- potentially affected village populations (including women).

The individuals consulted were given precise information on the Expansion Project and in light of this information were questioned as regards their fears and expectations.

The consultations undertaken in the three Project impact zones were systematically compiled in reports appended to Chapter 6. In cases where the public consultations involved a few dozen people, only the contact information for local authorities present was recorded. However, the number of people who took part in the consultation was indicated for each of the meetings held with potentially affected populations.

7.2.8 Identification of impacts

Once the consultations were complete, the impacts were identified and grouped under the VECs, then further divided into more specific sub-components.

These components and subcomponents were then evaluated on the basis of:

- the existing situation in the impact zone with reference to information in the socioeconomic impact assessment in Chapter 5;
- identified sources of impact;
- representations from local people consulted;
- detailed description of impacts for each VEC and its subcomponents, during the construction and operation phases, taking into consideration the different mining scenarios provided by the company; and
- the results of the environmental impact assessment in the case of certain impacts.

Identified and perceived impacts were also cross-referenced in a summary matrix, which was used to assess the following for each VEC and subcomponent:

- level of impact in each of the two project phases; and
- level of residual impact, assuming that the actions specified in the ESMP were implemented as required.

The justification for the levels of impact indicated in the summary matrix is provided in the body of the report. Recommendations as regards prevention and mitigation measures are indicated for each category of impact by Project phase. The social impacts and mitigation measures are used to develop a preliminary social management plan that will form the basis for future socioeconomic management plans developed and implemented by CBG.

7.2.9 Impact assessment and mitigation measures

The method for assessing impacts and presenting mitigation measures along with residual impacts is detailed in the general part of this impact assessment report in Chapter 1.

7.2.10 Social impact monitoring indicators

Beyond the initial implementation phases for the Expansion Project, it is vital for the company to commit to ongoing monitoring of impacts given that impact-related risks will evolve during operations, with changes in the Guinean mining context, and as the mitigation measures are implemented (for example, a stricter normative framework, a review of mining contracts, initiatives to ensure transparency, support for community projects, RAP, compensation and communication.).

Moreover, the decree on the implementation of ESIA's (République de Guinée, 2014) specifies that residual impacts shall be subject to an environmental monitoring program and characterized using appropriate impact indicators (Article 4.8.2 Directive réalistaion des etudes d'impact, 2014).

Evaluating changes in the host environment on a regular basis is an additional guarantee of good project management and the company's compliance with the mitigation, compensation and improvement measures to which it has committed in the ESMP developed for the mining Project.

Assessments of social impacts are based on an ongoing process of consultation with stakeholders in the impact zone, especially affected local communities.

As in the case of environmental impacts, it is vital to develop indicators for assessing changes in Project impacts on host environments. The statistical method applied in the socioeconomic baseline study (Chapter 5) can be used to specify qualitative and quantitative indicators for monitoring the main impacts identified.

The socioeconomic baseline study is used to document these impacts in year 0, from which a process of documenting impacts throughout the project can be put in place. The calculation method used in the case of quantitative monitoring indicators is presented so that future evaluators can use them to set up a scorecard for monitoring social impacts in the Project Area (see summary table of social impact

indicators in Annexe 7-1 Tableau synthétique d'indicators de suivi des impacts sociaux).

7.3 National regulatory framework and international standards

There are two overriding objectives as regards compliance with national and international standards:

- environmental and social preservation of the Project area, with the focus being to assess, prevent and minimize the negative impacts of the mining project using an appropriate, integrated approach.
- sustainable development, with the focus on optimizing resources to ensure equitable distribution between host communities and the mining company. Note that there is a strong focus on employment and training for Guinean personnel in a majority of the documents produced at the national level.

7.3.1 National legal framework

The legal texts and documents that apply to the CBG Expansion Project:

- Constitution of April 19, 2010, promulgated by decree on May 7, 2010;
- Mining Code dated September 9, 2011 (approved by the National Transitional Council), partially amended by a law passed on April 8, 2013;
- Land and Domain Code, March 30, 1992;
- Local Government Code, May 15, 2006;
- Public Health Code, June 19, 1997;
- Labor Code, January 28, 1988;
- Code for the Protection and Enhancement of the Environment (1987, amended by Order dated 1989);
- Water Code, February 15, 1994;
- Mining agreements and amendments.

The following texts also apply to the Project:

- *Decree D/2014/014.PRG/SGG on the adoption of a directive to conduct an environmental and social impact assessment of mining operations, 2014, (République de Guinée, 2014);*

- Order 2012/8004/MDEEF/CAB/SGG on the creation, powers, composition and operations of prefecture committees set up to monitor environmental and social management plans, 2012; and
- Order 8993/SGG, October 11, 1993, establishing technical nomenclature for classified installations.

Presentation and analysis of national legal framework

The decision was made to discuss only those sections in legal texts that related specifically to social impact issues, not the entire content of the legal texts and documents that pertain to Expansion Project activities.

7.3.1.1 Mining legislation

The 2011 Mining Code incorporates a planning-oriented approach to actions taken as part of mining projects. There are numerous references to national plans (e.g., the anti-corruption monitoring plan) or management plans the mining proponent will be required to develop and submit, such as environmental management plans, plans to mitigate negative impacts and improve positive impacts, environmental social and monitoring plans, basic sanitation development plans, plans to support Guinean companies with job creation and/or strengthening the capacities of small and medium sized enterprises and industries that belong to or are controlled by Guinean nationals, as well as community development plans.

Impact assessments

The Mining Code, which came into effect in September 2011, refers to preliminary studies and documents to be produced. It specifies that permits are granted if the company provides the government with:

- a feasibility study that incorporates an environmental and social impact assessment including the results of a public survey, a mitigation plan for negative impacts and enhancement plan for positive impacts, an environmental and social monitoring plan including a sanitation impact assessment, and a basic sanitation development plan approved by the environmental and sanitation impact assessment committee (CEISE);

- a Guinean business support plan;
- a community development plan appended to the local development agreement on training, and medical, social, school, road, water, and electricity supply infrastructure; and
- a local development agreement to be signed on delivery of the mining title (Title II, Section 3, Article 36).

Promoting good governance and anti-corruption measures

The main measures specified in the Mining Code are as follows:

- prohibition of the payment of bribes by companies (Article 154);
- title holder's obligation to sign a code of good conduct with the Ministry of Mines (Article 155); and
- Anti-corruption monitoring plan to be submitted annually (Article 156).

Decree on the implementation of impact assessments (2014)

In January 2014, the Guinean government issued a Decree in the form of directive D/2014/014/PRG/SGG (République de Guinée, 2014) governing the performance of impact assessments, as an update to the previous document that dated back to 1989.

Consultation with local populations

This directive reiterates the proponent's obligation to consider the opinions, reactions and main concerns of individuals, groups and communities. However, no explicit mention is made regarding an obligation to develop a stakeholder engagement plan (SEP) as part of the impact assessment.

Paragraph 2.3.1 in the directive specifies that compliance with IFC Performance Standard 1 is strongly recommended and that the proponent should take concerns expressed by the local population into account at the outset and throughout the project.

Chapter 3.1 "Public consultations" specifies that environmental and social impact assessments are required to:

- consider local and regional interests, values and concerns;
- ensure their involvement at every stage of the project planning process starting with the design phase;
- implement a communications process before, during and after the impact assessment (including an information phase in the form of public consultations).

Chapter 3.6 “Public consultations and involvement” which discusses the above specifies that:

“Recommendations that emerged from the consulting sessions are recorded in minutes signed by the relevant local authorities that are duly established by an investigating commissioner recruited by the Ministry of the Environment at the expense of the proponent.”

The exact nature of the public consultations is not specified, but it can be assumed that the above refer to the feedback sessions on the results of the impact assessments.

Social and community development

Article 165 of the Mining Code specifies that the mining tax, fixed fees, and the tax on quarry substances paid to the National Budget by mining companies are distributed as follows:

- national budget: 80%
- direct support to local community budgets: 15%
- Mining Investment Fund: 5%

Terms for the use, management and monitoring of resources (i.e., 15%) allocated to local communities pursuant to the preceding provisions are determined by a joint order of the ministers in charge of Mines, Decentralization and Finance, in accordance with provisions of the Local Government Code. This joint order had not been officially issued as at September 2014.

Concerning local community development, the amount of contributions from mining title holders to community development is set at 0.5% for category 1 mineral

substances (including bauxite). These contributions from title holders are made to a local development fund (LDF) from the first year of operations.

A local development agreement must be signed by the proponent and the local communities (Article 130):

“The purpose of the local development agreement is to establish conditions that are conducive to the efficient and transparent management of local development contributions paid by mining title holders, and to strengthen the capacities of local communities to plan and implement community development programs.”

The terms for developing this agreement (defined in a joint order of the ministers in charge of Mines and Decentralization) and for managing the local investment fund, defined in a Decree issued by the President of the Republic, had not been officially adopted as at September 2014.

Hiring and training management

A number of articles in the Mining Code cover management of the worker hiring and training process.

In short, mining companies are required to give preference to Guinean businesses whose services are comparable with those of foreign companies (i.e., price, timelines and quality) (Article 107). Similarly, another provision requires that Guinean managers be given preference along with training to promote their development within the company (Article 108).

The document approved by the National Transitional Council on April 8, 2013 (L/2013/No053/CNT), specifies certain employment- and training-related legal standards for mining companies.

This amendment in the 2011 Mining Code regarding the hiring of local employees, an area that has considerable influence over how project proponents interact with the social environment, needs to be addressed in the social impact assessment:

- with hiring preference given to Guinean citizens with equivalent qualifications;

- Guinean personnel to be hired exclusively for unskilled positions (articles 108 and 109 in the Mining Code);
- unskilled positions to be reserved for members of the local community (Article 108: employment);
- training and development plan to be developed incorporating six-month internships for graduates of vocational schools and universities, and initial two-month internships for students undergoing initial training; and
- Guinean employees to take part in courses/training sessions held in Guinea or abroad (Article 109: personnel training).

Closed, protected or prohibited areas

In the chapter of the Mining Code specifying areas that are closed, protected or prohibited as regards staking, exploration and mining, a distinction is made between:

- “closed areas” that may be decreed temporarily off-limits in the interests of public order by the President of the Republic on the recommendation of the Minister of Mines, and in which all mining operations are suspended or not permitted (Article 110); and
- “protected or prohibited areas”, which may be established by joint order of the Minister of Mines and the ministers of the relevant departments, where it is in the public interest to, for example, protect buildings, cultural sites, or waterholes, without the title holder having any claim to compensation in this regard (Article 111);

The article further specifies that:

“No prospecting, exploration, or exploitation of mine or quarry substances may begin without authorization within a radius of one hundred (100) meters:

- around properties surrounded by walls or such enclosures, villages, settlements, wells, religious buildings, cemeteries and sites considered sacred, without the consent of the owner; and
- on either side of communication channels, water lines, and generally around any works of public use and works of art.”

Protected areas are created at the request of a mining title or concession holder, after an investigation by the National Mining Authority. An order is issued by the Minister of Mines defining an area around the title or concession holder's jobsites in which activities by third parties are completely or partially prohibited (Article 112).

"Expanded security areas" are established within the perimeter of the mining title, around building or infrastructure indicated in Article 111. The objective is to prohibit, restrict or impose certain conditions on exploration or mining activities by the mining title holder; or alternatively, authorize certain types of work in the specified area (Article 113). If such an expanded security area is established in an area where the mining title holder has already built infrastructure, which would become ineffective or would need to be demolished, compensation is possible (Article 114).

Occupational health and safety

This topic is addressed in Title IV, Chapter VIII of the Mining Code, which specifies that mining title holders and their subcontractors are required to comply with national laws such as the Labor Code [Code du travail] and the Public Health Act [Loi de santé publique].

Environment, health and safety

An entire chapter of the Mining Code (Title IV, Chapter VII, articles 142 to 144) is devoted to environmental and health issues. The Mining Code has an all-encompassing definition for the concept of the environment, in that it refers to both the natural and human environments.

The plan to resettle populations displaced by mining operations should incorporate compensation for loss of income and livelihoods along with the infrastructure component.

Mining title holders are responsible for preventing or minimizing any negative health and environmental impacts of their activities:

- preventing the use of toxic, hazardous chemicals; and minimizing noise emissions with adverse health impacts; unpleasant odors with adverse health

impacts; water, air and soil pollution; and the degradation of ecosystems and biological diversity;

- promoting or maintaining the living conditions and good health of the local population;
- preventing and managing the HIV/AIDS virus at the local level;
- managing waste materials efficiently; and
- setting up a system for protecting workers from occupational and industrial hazards (including screening for nuisance factors, routine once yearly medical appointments for workers, and implementation of a health adjustment plan) (Chapter VII, Article 143).

Land tenure and compensation

Articles 123 to 127 in the Mining Code address land tenure and related compensation issues:

- Confirmation of the rights of land owners, users and occupants: “Mining rights do not extinguish property rights (...) The rights of the owners, users or occupants of land, as well as their successors, are not affected by the issue of mining titles.” (Article 123).
- Confirmation of the principle of paying compensation to lawful occupants of the land for the disturbance of enjoyment experienced by such occupants. “The amount of compensation must be reasonable enough so as not to compromise the viability of the project, and proportional to the disturbance caused by the mining operations” (Article 124); however, the frequency, amount and method of payment are specified in regulations.
- The occupation of target land areas, which does not result in the transfer of property, may occur with the consent of the owner or the owner’s successors, be allowed as part of the mining title, or be specified in an order issued by the Minister of Mines.
- Confirmation that the Guinean government may in the public interest either expropriate land from the landowner, which will result in compensation that may not be less than the compensation indicated in the above case of occupation of the land, or require that the property owner permit work to be carried out on the property subject to adequate compensation provided in advance and determined as in the case of an expropriation (Article 125).

- Confirmation of the principle of compensation for damages caused to owners, users or legitimate occupants of the land as indicated in Article 124; in other words, compensation for any disturbance affecting the use and enjoyment of the land. It is further stated that if any work undertaken by these persons or if any facilities they own on the land are “rendered worthless as a result of the mining operations, the title holder shall reimburse them for the lower of the cost of the work or facilities, or their value on the date they became worthless” (Article 126).
- The principle that such compensation shall be offset by any benefits derived from the work or activities undertaken by the title holder (Article 126).
- Confirmation of a guarantee of peaceful enjoyment of the land on the perimeter of the operating permit or mining concession given that any third party interested in occupying the land is required to obtain prior authorization from the Minister of Mines, failing which any damages caused by mining activities to any unauthorized buildings or facilities shall not give rise to compensation (Article 127).

7.3.1.2 Mining agreement, amendments and supplementary clauses

Mining Agreement

The Mining Agreement between the CBG and Government of the Republic of Guinea was signed in October 1963, and included the possibility of renewal and further negotiations.

It is understood that this agreement is legally binding, notwithstanding any future amendments to Guinean laws. The legislation used as reference for establishing tax status is the law in effect as at March 16, 1963.

The only socioeconomic issues raised with regard to the CBG Expansion Project involve employment. The company is required to guarantee:

- a gradual Africanization program promoting technical instruction for Guinean workers and selecting Guineans from business and technical schools for training and employment (Article 9); and

- the exclusive employment of Guinean workers for positions that require no special qualifications, with priority given to equally qualified Guinean workers for positions that require special qualifications (Article 9).

2001 amendment

Amendment 1 to the Mining Agreement between the Government of the Republic of Guinea and Halco Mining Inc. is dated April 17, 2001.

In Chapter VI of the amendment, Article 9 bis was added to the Agreement, with regard to priority employment of Guinean personnel by Guinean companies. Under this clause, companies are required to:

- develop a training and development program and schedule for Guinean personnel; and
- promote the supply of goods and services from Guinean companies.

Article IV of the amendment adds specifications to Article 4 of the Mining Agreement (Infrastructure) with respect to environmental and heritage protection. In Article 4 bis of the Mining Agreement, the company agrees to

- conduct its activities in such a way as to ensure the health and safety of its employees and members of the community; and
- refrain from displacing any objects discovered in an archeological site on the perimeter of the mining project and inform the Guinean authorities thereof without delay.

Decree No. D/2005/052/PRG/SGG on changes to initial territory and assignment of new area of operation to CBG

No special mention of any socioeconomic aspects were added in this document.

7.3.1.3 Environmental protection legislation

Ordinances No.045/PRG/87 and No.022/PRG/89 under the Code for the Protection and Enhancement of the Environment (Environment Code) establish the legal framework for the environmental impact assessment procedure (Title 5, Chapter 1).

In compliance with environmental protection legislation (Ordinance No. 045/PRG/87 and No. 022/PRG/89): “Environmental protection is an integral part of the national economic, social and cultural development strategy.”

7.3.2 International norms and standards

Article 122 of the Mining Code discusses the State’s international commitments, specifying that mining title holders “must comply with international commitments the State has made to improve governance in the mining sector, specifically those relative to the Economic Community of West African States (ECOWAS), the Kimberley Process and the Extractive Industries Transparency Initiative (EITI).”

7.3.2.1 *IFC Performance Standards*

The IFC’s Performance Standards on Environmental and Social Sustainability (SFI, 2012) are intended for clients who receive direct investments from the IFC (including project and corporate finance provided through financial intermediaries). The IFC requires its clients apply the Performance Standards to managing environmental and social risks and impacts and thereby ensure development opportunities are enhanced.

Many mining developers who run projects in countries where the standards governing their practices are incomplete, poorly defined or relatively outdated opt to follow best practices set out in international standards.

In cases where the IFC is a project shareholder, IFC performance standards must be automatically applied to the project.

These standards were designed to help avoid, mitigate and manage risks and impacts as a way of doing business in a sustainable manner, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities.

The IFC updated its performance standards in 2012 (SFI, 2012), along with Guidance Notes on the content of the standards (SFI, 2012a). The IFC Performance Standards that apply to the Expansion Project are listed below.

Performance Standard 1: Social and Environmental Risks and Impacts

The IFC's Performance Standard 1 addresses the assessment and management of environmental and social risks and impacts. It underscores the importance of managing environmental and social performance throughout the life of a project.

"An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by management, and involves engagement between the client, its workers, local communities directly affected by the project and, where appropriate, other stakeholders." (SFI, 2012)

The project's area of influence is defined in terms of:

- the project area, as well as the activities and facilities that are directly owned, operated or managed by the client (including contractors) and that are part of the project;
- impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; and
- indirect project impacts on biodiversity or on ecosystem services upon which the affected communities' livelihoods depend.

Associated facilities are defined as facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.

Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

In addition, under the performance standards impact assessments should lead to the development of an environmental management system or plan structured around:

- a policy statement;
- identification of risks and impacts;
- a management program, presentation of organizational capacity and competency;

- an emergency preparedness and response plan;
- a stakeholder engagement plan; and
- monitoring and review mechanisms (IFC Performance Standard 1).

Performance Standard 2: Labor and Working Conditions

Performance Standard 2 recognizes that the pursuit of economic growth through employment creation and income generation should be balanced with the protection of the fundamental rights of workers.

Performance Standard 3: Resource Efficiency and Pollution Prevention

Performance Standard 3 recognizes that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional and global levels.

Performance Standard 4: Community Health, Safety and Security

Performance Standard 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts.

Performance Standard 5: Land Acquisition and Involuntary Resettlement

Performance Standard 5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land.

Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development.

Performance Standard 8: Cultural Heritage

Performance Standard 8 recognizes the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this Performance Standard aims to ensure that clients protect cultural heritage in the course of their commercial activities.

The IFC Performance Standards are supported by guidelines on environmental, health and safety issues (2007). IFC's Environmental, Health, and Safety (EHS) Guidelines (SFI, 2007a) are technical reference documents relating to IFC's expectations with regard to the application of its performance standards. The guidelines cover the environment, occupational health and safety, community health and safety, construction and decommissioning. A review of the performance standards was published in 2012 and the IFC is currently in the midst of a three-year consulting process to review the guidelines. Until the new standards are approved and published, the 2007 guidelines shall remain the reference.

7.3.3 United Nations Global Compact

Rio Tinto is a founding member of the Global Compact having become one of the first signatories in 2000. Alcan and Alcoa are also committed to this initiative.

The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption.

The ten principles are derived from

- the Universal Declaration of Human Rights;
- the International Labour Organization's Declaration on Fundamental Principles and Rights of Work;
- the Rio Declaration on Environment and Development; and
- the United Nations Convention Against Corruption.

These ten principles are as stated below:

1. Businesses should support and respect the protection of internationally proclaimed human rights within their sphere of influence; and
2. make sure they are not complicit in human rights abuses;

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labor;
5. the effective abolition of child labor; and
6. the elimination of discrimination in respect of employment and occupation.
7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and diffusion of environmentally friendly technologies.
10. Businesses should work against corruption in all its forms, including extortion and bribery.

7.3.3.1 United Nations Guiding Principles on Business and Human Rights, as well as other normative frameworks on human rights

Refer to Chapter 8, which addresses the issue of human rights.

7.3.3.2 International Council on Mining and Metals

The Rio Tinto Alcan group is a member of the International Council on Mining and Metals (ICMM). Alcoa also supports the initiative on an ad hoc basis.

In May 2003, ICMM approved a set of sustainable development principles and committed member companies to implement and measure their performance against these 10 principles. They are based on leading international standards including the Rio Declaration, the Global Reporting Initiative, OECD Guidelines on Multinational Enterprises, World Bank Operational Guidelines, ILO Conventions 98, 169 and 176, and the Voluntary Principles on Security and Human Rights.

The ten principles are to:

- uphold fundamental rights of our employees and those of our subcontractors throughout their working life;
- seek continual improvement of our occupational health and safety performance;

- contribute to the socioeconomic development of the communities in which we operate;
- implement strategies to mitigate the impact of our activities on greenhouse gas emissions;
- seek continual improvement of our environmental performance and contribute to the conservation of biodiversity;
- promote responsible use, reuse, recycling and disposal of waste materials;
- implement risk management strategies based on valid data and sound science;
- integrate sustainable development considerations within the corporate decision-making process;
- improve the quality of our products and services in a sustainable manner and in line with our client's needs and expectations; and
- implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders.

7.3.3.3 The Equator Principles

The Equator Principles is a (non-binding) initiative that was launched in June 2003 and updated in June 2013 by a group of financial institutions for managing environmental and social problems connected with project financing.

The Equator Principles apply globally to all industry sectors. They represent the financial sector's reference framework for "determining, assessing and managing environmental and social risk in projects." They represent a benchmark for the development of internal environmental and social policies, procedures and practices. If the banks funding the Expansion Project adhere to the Equator Principles, they would require CBG to apply the following ten principles:

- review and categorization;
- environmental and social assessment;
- applicable environmental and social standards;
- action plan and management systems;
- stakeholder engagement;
- grievance mechanism;
- independent review;
- covenants;

- independent monitoring and reporting; and
- reporting and transparency.

7.3.3.4 Extractive Industries Transparency Initiative (EITI)

The EITI is a global standard to promote open and accountable management of revenues derived from natural resources. It is supported by a coalition of governments, companies and civil society working together. In July 2014, Guinea was awarded the status of an EITI Compliant Country by the international EITI Board at its meeting in Mexico City.

Article 122 “Compliance with International Commitments” in Guinea’s Mining Code (2011) specifies that mining title holders are required to comply with international commitments made by the Guinean State, including commitments to the Economic Community of West African States (ECOWAS, and to the Extractive Industries Transparency Initiative (EITI)).

When EITI supporting companies start mining operations, they are

- required to publicly declare support for the EITI Principles by publishing a statement of support on their company website;
- required to contribute to implementation in EITI Candidate and Compliant countries; and
- officially recognized by EITI and invited to EITI conferences.

EITI Requirement 2 specifies that “EITI implementation requires a sustained commitment to multi-stakeholder dialogue and collaboration. Companies and civil society organizations must be substantively engaged in the design, implementation, monitoring and evaluation of the EITI process, contributing to public debate.”

7.3.3.5 OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are far reaching recommendations for responsible business conduct that 43 adhering governments – representing all regions of the world and accounting for 85% of foreign direct investment – encourage their enterprises to observe wherever they operate.

An update of the OECD Guidelines for Multinational Enterprises was issued on May 25, 2011.

The recommendations for responsible business conduct in a global context address:

- concepts and principles;
- general policies;
- disclosure;
- human rights;
- employment and industrial relations
- environment;
- combating corruption, bribe solicitation and other forms of extortion;
- consumer interests;
- science and technology;
- competition; and
- taxation.

In summary, CBG is bound to the Guinean government through the national legal framework and its Mining Agreement (amendments and additions). It is also required to comply with the various international commitments Guinea makes.

Some of the funding agencies for the Expansion Project (banks or international bodies) may require that CBG comply with certain standards of good governance.

As a legal entity, CBG may uphold international principles, norms and standards primarily on a voluntary basis.

7.4 Impact assessment

7.4.1 Demographics and social dynamics

7.4.1.1 *Overview*

The demographics in the Project Study Area provide a snapshot of the current population. The focus of this assessment was on the mine zone where an exhaustive enumeration had been undertaken. Impacts were then assessed essentially from the perspective of migration, which could be induced, or accentuated by the development of the Expansion Project (i.e., internal migration, external migration, rural exodus, and concentration in towns, etc.).

Owing to the lack of precise data on changes in migration processes, the assessment of impacts on demographics and migration flows in the railroad and port zones is essentially based on an analysis of information from secondary sources, consultations, and the assessor's expert judgments.

The focus was on:

- migration-related issues; and
- social and family structure.

7.4.1.2 *Current situation*

An assessment of the demographics and social dynamics in the Study Area, specifically the Sangarédi region, demonstrates the importance of CBG's role in shaping the socioeconomic situation in the Study Area.

Zone 1 – Sangarédi

Urban area

The exhaustive census of the population in the town of Sangarédi revealed there are 53,789 inhabitants and 8,591 households according to the socioeconomic baseline study presented in Chapter 5. Although this figure is low compared with estimates from local authorities (of up to 120,000 inhabitants), it does demonstrate the substantial demographic weight of this town compared with the rest of the Project

impact zone (outside the towns of Kamsar and Boké). In the mine zone, the urban/rural figures point to a ratio of one rural inhabitant to more than three town people. In the rural area of Zone 1, 2,258 households were recorded for a total of 16,220 individuals or an average of 7.2 individuals per rural household, as compared with 53,789 individuals and 8,591 households in the urban area, an average of 6.2 individuals per household according to the socioeconomic baseline study. Sangarédi is the main settlement area in the mining concession. Guinea is characterized by rapid population growth (more than 3% per annum), a phenomenon that is an indicator and driver of profound change in Guinean society. The high rate of migration toward the towns of Kamsar and Sangarédi are part of a demographic shift of national scope, namely the rural exodus toward urban centers. This shift in demographics means Guinea is characterized by strong disparities in the concentration of urban and rural populations (Bidou et Gbéré Touré, 2002).

Migration flows have been fundamental to the growth of Sangarédi since CBG started operations. Seventy-four percent of the heads of households are not originally from the town: 52.8% of them settled there between 1970 and 2000, and 31.4% as of 2000. The arrival of CBG made this area especially appealing: 19.7% of households settled there to work for CBG and 24.8% to look for other job opportunities. These migration flows created a cultural mix in that 70% of the town population is Peul, 11% Soussous and 7% Malinké. Some migrants were from outside the country, specifically Mali and Sierra Leone (see Chapter 5).

Rural area

The rural area of Sangarédi, however, does not have the same economic pull. When CBG launched operations in 1973 there were no massive rural migrations. A number of villages existed prior to CGB's arrival (see Chapter 5). The villages subsequently created (Daba Dow, Ndanta Foyné Ley, Ndanta Foyné Dow, Sinthiourou Daroul, Daroul, Pora Balla) were founded by people from other villages in the area. This area seems to be an area of population retention. Demographic growth consisting primarily of the locals indicates that people from the area are not particularly interested in migrating. According to a number of testimonials gathered during the consultations, however, the heads of households in villages most affected by mining operations do leave on a seasonal or more permanent basis to find land to use in other villages outside the area, while the women, children and elderly stay in the

village. Periodic migration seems to be occurring with the gradual disappearance of sources of income from herding and farming.

Zone 2 – Kamsar

A similar situation but amplified ten-fold has occurred in Kamsar with the massive influx of economic migrants once CBG started operations. The town has grown exponentially. In the space of 40 years, the spatial organization of the village and farming areas has been transformed into a town of more than 400,000 inhabitants (according to estimates from the World Bank, 2009). According to some Kamsar authorities, the town's population 35 years ago was about 300 people originally from Baga communities. The town of Kamsar therefore experienced a population growth rate of 1,332% over 35 years, although it should be noted that these figures are estimates intended to illustrate a growth trend.

CBG workers settled in the centre of town, which the local aboriginals (Baga population) had left. The Baga settled on the eastern edge of the town. Today Kamsar extends more than 10 km along the railroad line and the national highway, and its central area is more developed than the periphery (see Chapter 5).

About 90% of CBG retirees remained in Kamsar with their children and dependents (Banque Mondiale, 2009). They settled in the outskirts of the town, where basic services are limited. These people who had known life in the workers' town found being relegated to the secondary districts difficult.

Kamsar is characterized by yet another migration phenomenon, in that professional fishermen from Boké and Boffa prefectures, as well as Sierra Leone and Guinea-Bissau have moved there, settling, often permanently, in the town of Kamsar near Port Néné and Port Fory.

Some seasonal farmer-fishermen also converged on Kamsar settling in fishing camps, generally after the rice harvest in September until the start of salt production in February. These seasonal fishermen are generally farmers from local areas who need to boost their income.

Zone 1 and 2 – Social and family structure

Traditional values are strongly entrenched in rural areas. A majority of villagers live off of farming. The men are polygamous and there are large numbers of children per household. In the mining concession area, households consist of 7.2 individuals on average. Children are both future workers and retirement insurance. In the traditional system, young children are called on to care for the elderly. Some young people in the villages pursue higher education in the hope of finding employment outside the farming sector. Many count on being recruited by CBG, whom they see as the main opportunity in the area. However, if they fail to land a job they return to farming in their village, or turn to running a small business or to the informal and highly precarious service economy.

In urban areas, there are many households consisting of single apprentices (drivers, mechanics, artisans, etc.). They are primarily located in downtown Sangrédi, where there are more economic opportunities. In the Bappa Sargent district, 20.9% of households consist of singles (see demographic section in Chapter 5). The large number of men working or searching for employment typical of mining areas helps shape the structure of households and social dynamics in such areas.

7.4.1.3 Sources of impacts

Two major factors underscore migration flows that may be generalized by CBG's Expansion Project:

- the new areas identified by CBG for bauxite mining are agricultural areas and to a lesser extent herding areas. The most strongly impacted villages (specifically Kourawel, Sinthiourou Kourawel, Fassaly Foutabhé and Hamdallaye) will be deprived of their livelihoods from the loss of most of their crop and pasture land, potential deterioration of their water sources and their main sources of income. These populations may well be forced to leave their villages and move either to a host village in search of new land (in-migration within rural area) or to a town (rural exodus) in the hope of finding new sources of income.
- the CBG Expansion Project and related promises of employment will potentially appeal to the inhabitants of local villages, as well as other towns, regions, even neighboring countries (essentially single men setting off on an

adventure to improve the fate of their families), to Kamsar and Sangarédi and to a lesser extent the town of Boké.

Migration to towns, change in economic direction (growth of business and services to the detriment of farming), as well as the influx of outsiders and the increase in the number of CBG workers will impact social and family dynamics essentially in the mine zone.

7.4.1.4 Impact assessment

Table 7-3 Assessment of impacts on demographics and social dynamics

Level of Impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Rural exodus	High	High	n/a	n/a	n/a	n/a
Impact 2 – Migration to towns by job seekers	High	High	High	High	Medium	Medium
Impact 3 - Changes to family and social structure	High	High	Medium	Medium	n/a	n/a

Impact 1 – Rural exodus and Impact 2 – Migration to towns by job-seekers

The rural migration of fathers to other villages (in and out of the Project Area) or to towns generated by the Expansion Project stands to rise in both the construction and operation phases.

Sangarédi rural area

The Sangarédi area will be the most affected by this type of migration in that mining operations occur exclusively in this area. The bauxite plateaus CBG plans to develop are located in areas used primarily for plantations (permanent, annual and market garden crops) or for grazing. Mining operations in these areas will lead to the degradation or destruction of land, and the loss of the farmers’ and herders’ main livelihood. Destruction of the land has in fact already begun with land having been cleared in preparation for exploration drilling.

The villages or parts of villages the most affected by the Expansion Project will probably be displaced. The inhabitants will either stay in rural areas or migrate to

towns (primarily Sangarédi) based on available opportunities and individual aspirations. These displacements may be connected with induced migration caused by the Expansion Project.

To ensure the survival of their families, some villagers who see a decline in their agricultural earnings may also leave the land and villages in search of new sources of income. The young and heads of families will leave in search of land, elsewhere in the region or in another country (i.e., Guinea-Bissau and Senegal), leaving women and children behind. The villages may therefore undergo a desertification process. In the Daramagnaki subprefecture many landless farmers and herders have already founded a new village called Magodjé on the border with Guinea-Bissau. Farmers and herders from Hamdallaye joined them, while others left for Sansalé, Kamsar, Libochhlosé or Guinea-Bissau. This migration, which has already been reported in a number of villages (Cogon Lengué, Kourawel and Parawol Malassi), could well increase, further disrupting social organization and cohesion in the rural areas of the mining concession.

Sangarédi and Kamsar urban areas

Sangarédi urban area

Being located in the middle of the mining concession, the town of Sangarédi will become an even stronger host center for migration flows. It is anticipated that many young people and families will seek economic alternatives in Sangarédi, essentially in the services sector. Direct hiring by CBG however occurs in Kamsar, not Sangarédi. It is therefore likely that the flow of people seeking work will be concentrated around CBG subcontractors, essentially during the construction phase for short-term contract jobs.

In the consultations, some villagers confirmed that they were expecting to move to town, even if they hoped to continue farming some of their rural land. Households already settled in Sangarédi will serve as a refuge for family members who decide to try their luck in the urban area.

The new housing for workers, as well as a construction camp for 60 workers, will increase the demographics of the town and extend its footprint with new districts added.

With the migration flows as well as the natural population increase, which is higher than elsewhere in Guinea (see Chapter 5), the towns in the study area will experience accelerated growth, indeed uncontrolled growth in the peripheral districts. The most well-off migrants or those with a large family network, will settle primarily in those areas with better access to basic infrastructure (Sangarédi workers' town and all districts except for Thiankounaye, which has poor service), creating ever more pressure on the already very inadequate basic infrastructure.

Kamsar urban area

Kamsar is known in the region as the hiring centre for the CBG project. The influx of job seekers has therefore always been significant. Kamsar is a dynamic growth area as a mining town and a port town. Its services sector is also well developed. It benefits from the presence of major infrastructure such as the paved national highway, two fishing ports, and the basic (water and electric power) infrastructure supplied by CBG in central districts.

The announcement about job creation (especially during the construction phase, and to a lesser extent the operation phase) will definitely lead to a continuous influx of immigrants seeking a chance at a better life. Given that Kamsar offers more (although precarious) employment opportunities than any of the other towns in Guinea, it is anticipated that many job seekers will set their sights on Kamsar.

This trend will be further enhanced if other planned mining projects in the area come to fruition in the near future (see Chapter 9). As a growing industrial centre, the Project Area will further strengthen its economic drawing power, which extends beyond regional and national boundaries.

These migrant job seekers will join those who have already found employment as part of the Expansion Project. During the construction phase, temporary employees will settle in the construction camp built in Kamsar (planned to accommodate 600 workers of different nationalities). Many could stay in the town of Kamsar once their contracts end, in the hope of continuing to work for the Project through occasional subcontracting opportunities.

These migration movements are viewed in a positive light by inhabitants of Kamsar's periurban districts. Many hope that the arrival of migrants will lead to true economic development and positive demographic pressure and hence an

improvement in basic services. The village of Kawass (periurban area of Kamsar) hopes to increase its business opportunities and develop its infrastructure. Many in Kamsar hope that the subprefecture will one day with the extension of the town achieve the status of a prefecture. The change in administrative status is clearly tied to aspirations for developing and modernizing the town's urban infrastructure.

Impact 3 – Changes to social and family structure

Sangarédi and Kamsar areas

The impact of the CBG Expansion Project on the local and family structure will show up primarily in the disruption of traditional values in rural areas. With the disappearance of family farmland, the young people in the villages in the mining concession area will turn toward the formal and informal services sector in urban areas. Also, during the construction phase, it is anticipated that many men and women will leave farming to seek out contract jobs in urban centers.

This influx of job seekers cannot be accommodated by direct and indirect jobs created by the Expansion Project. Many of these individuals therefore run the risk of being unemployed (even over the long term) meaning they will not be able to support their families and more broadly their villages as is the tradition. These individuals and their families are therefore at risk of impoverishment. The many young men and women who leave their villages to seek employment in urban areas will not only not be able to provide for their families as anticipated, but they are likely to impoverish them by depriving them of invaluable farm labor.

The many villages in the mining concession area may well be reconfigured with male heads of families leaving their villages (either temporarily, or even permanently) while the wives, children and elderly stay behind. Some of the most impacted and isolated villages could in the short term see their active population disappear. It is anticipated that the elderly and children in the villages in the mine zone will increasingly be called upon to contribute to the workings of the village and fill the labor gap created by the departure of the young men of the village.

For the families whose children undertook advance studies, the lack of skilled jobs for young graduates will result in frustration for the households who financed the education of some of their children but were unable to reap the anticipated financial rewards. It is even possible that this situation may stir up intrafamily conflict, given

that the parents had hoped to be financially supported by their children whose education entailed significant sacrifices by the extended family. The rate of higher education may well decrease, with the greater impact on young women, who account for only a third of secondary school students (see Chapter 5). Early marriage could remain high, even increase in the Project Area.

Moreover, it is anticipated that the ever-increasing presence of CBG workers and job seekers in the Project Area will lead to families being reconfigured with the attendant social tensions. Divorces may increase, because women may be tempted to remarry with salaried workers (even contract workers), and it is very likely that many young women will be married off early to CBG workers, who represent a source of financial security for families.

7.4.1.5 Mitigation measures

Impact 1 – Rural exodus

Communication/information

- To limit a rural exodus and uncontrolled growth in the towns of Kamsar and Sangarédi, a local, regional and national communications/information plan should be implemented in advance as part of the SEP to clearly inform potential job seekers of the actual opportunities offered by the Expansion Project.
- To limit the departure of young men from the mining concession villages, prior to the construction phase, efforts should be made to communicate with potentially impacted villages about the scope and agenda for the mining plan and organize consultations with them to prepare for the implementation of a resettlement and compensation action plan (RAP).

Support for job creation, development and training

- Promote farming and herding support initiatives to encourage rural populations to stay put and limit the numbers who leave for urban areas. In collaboration with the government and specialized NGOs, support a process for modernizing farming techniques to intensify production and increase yield thereby compensating for the loss of land.

- In collaboration with the State and international and national NGOs, support income-generating initiatives such as farming training sessions, and the diversification of local activities (i.e., product processing and training for various trades based on needs assessment).
- Develop a hiring strategy (for cooperatives, VSEs and direct employment) for the benefit of affected villages along with skills training.
- Promote local employment for unskilled positions.

Development planning, environmental preservation and rehabilitation

- Embrace a strategy concentrating operations in the same geographic area enabling CBG to reduce the number of areas impacted at any given time. Such a strategy would allow for better control of impacted areas (concentration of available resources) through the systematic implementation of prevention, mitigation and compensation measures in line with needs and the company's resources (including mobilizing the CBG's community relations team, implementing development projects, and environmental protection programs, etc.).
- In cooperation with impacted communities develop a strategy to provide maximum protection for vital resources (water sources, rivers, watering holes) and farmland.
- Develop a rural development plan for Sangarédi commune that takes local development plans (LDP) into account.

Project governance

- Set up a complaint-handling mechanism along with any necessary remedial measures (IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts and Performance Standard 5: Land Acquisition and Involuntary Resettlement; and
- Strengthen CBG's community relations team: promote collaboration with NGOs, embrace the continuous consulting process, and support programs designed to limit the impacts of loss of income sources and hence a rural exodus.

Monitoring

- Set up a mechanism to monitor demographic change in the villages in the mine zone using indicators established in the socioeconomic baseline study (see summary table of impact monitoring indicators in Annexe 7-1).

Impact 2 – Migration of job seekers toward urban areas

Communication/information

- Communicate regularly and clearly regarding actual employment prospects associated with the Expansion Project: at the local, regional and national levels (for the construction and operation phases of the project).
- set up CBG information offices in the main towns in the project area with the objective of limiting the influx of people to the town of Kamsar and the project area in general, while limiting employment-related disputes spread through rumors (see Chapter 10).

Project governance

- Set up a number of employment centers, one in the town of Sangarédi to promote local communication about the project and limit the influx of job seekers to the town of Kamsar.

Development projects

- Conduct an in-depth prospective study of migration dynamics in the Project Area, with a focus on the main towns (i.e., Sangarédi, Boké and Kamsar).
- Develop a migration management plan in the project area, in collaboration with competent authorities (prefecture, subprefecture and communes).
- Collaborate on developing an urban management plan for Kamsar and Sangarédi communes in collaboration with regional, prefecture and commune authorities.

Impact 3 – Changes to social and family structure

Project governance

- Develop a hiring strategy for inhabitants of affected villages.

Community projects

- Support income-generating entrepreneurial initiatives that fill the gap created by the loss of land; and
- Support education and occupational training programs with a focus on encouraging the participation of girls.

7.4.1.6 Residual impacts

The impacts of the Expansion Project were re-assessed in this section to incorporate the implementation of the mitigation measures discussed in the previous section and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are as described below

The level of residual impacts is shown in Table 7-4.

Table 7-4 Assessment of residual impacts on demographics and social dynamics

Project zone	Level of residual impacts					
	Zone 1 (Mine)		Zone 2 (Port)		Zone 3 (Railroad)	
	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Rural exodus	Medium	Medium	n/a	n/a	n/a	n/a
Impact 2 – Migration to towns by job seekers	Medium	Medium	Medium	Medium	Low	Low
Impact 3 - Changes to social and family structure	Medium	Medium	Low	Low	n/a	n/a

7.4.2 Public health and safety

7.4.2.1 Overview

Protecting the health and safety of individuals impacted by the Expansion Project is one of the requirements set out in Guinea's Mining Code (Chapter VII, Environment and Health), the IFC Performance Standards on Environmental and Social Sustainability (SFI, 2012), as well as in the amendment to the Mining Agreement (2011). Regarding health and safety risk management, these standards require "a sound understanding of the social and cultural processes through which communities experience, perceive and respond to risks and impacts" as stated in IFC Guidance Note 4 - Community Health, Safety, and Security (SFI, 2012a).

Specifying the issues associated with potential health impacts is a difficult exercise within the context of a social impact assessment. Public consultations are designed to help list public perceptions, along with the features of a mining project that are likely to have health impacts.

The assessments undertaken in the physical and biological environmental impact assessment provide indications of potential pollution levels. A preliminary study of human health impacts of the Expansion Project was also carried out by the CBG (2014a) but this study does not allow us to base our assessments on a true epidemiological risk assessment.

It should be noted that CBG has a corporate policy in place ensuring compliance with high environmental, health and safety standards including:

- a quality, safety and environmental (QSE) document (CBG, 2011) although no mention is made of the health and safety of people in the Project Area;
- a quality, safety and environmental (QSE) document dated 2013 (CBG, 2013a) in which the only mention of local communities is as follows "CBG personnel are all committed to maintaining mutually beneficial relationships with suppliers, subcontractors, local communities and other stakeholders"; and
- a document confirming CBG's general manager's commitment to an integrated quality, safety and environmental management system consistent

with ISO 9001, ISO 14001 and OHSAS 18001 standards (GBG, 2011a). No mention is made of health and safety issues for local populations in the Project Area.

These were the only guidance documents provided for the preparation of the social impact assessment. Given no technical documents (strategies, development actions, annual reports, etc.) have been made available, it is not feasible to assess the effectiveness of the resources at CBG's disposal to meet development, safety and health objectives for the local population. The main health and safety commitments CBG has made with regard to the Expansion Project are outlined in the Expansion Project's ESMP.

CBG's mining plan was the reference document used to assess potential health and safety impacts (CBG, 2013). In addition, some field observations and consultations were used to highlight potential health and safety impacts on the local population on the basis of the fears and expectations expressed by the local populations that would be affected by the Project.

The focus was on:

- health of local populations (including vulnerable populations);
- road and rail accident risks; and
- public safety.

7.4.2.2 Current situation

Guinea's health policy has been consistent with the Bamako Initiative (BI) since 1987, which involves collecting user fees and managing health centers and posts with input from the hygiene and sanitation committees set up by each rural commune. Yet the sanitation situation in Guinea remains critical. The government's efforts have not improved the situation either in terms of the volume or the quality of care delivered. Health facilities in rural areas are limited in number and often poorly equipped. Health infrastructure in urban areas are much better in quality, but owing to a lack of accessible publicly funded health-care infrastructure, health care remains still too costly for non-CBG households, who complain of a two-tier health system.

Health

A physician practicing in the town of Sangarédi noted that the most frequently treated diseases at his health center were malaria, water-borne diseases (diarrhea, parasitic infections and typhoid fever) and respiratory infections. Water-borne diseases such as diarrhea, typhoid fever and amebiasis, are apparently also widespread in the towns.

Kamsar hospital and the workers' towns are managed by the national agency for mining infrastructure development (ANAIM), a public institution with industrial and commercial roots. The hospital has a regional reputation for delivering quality service (see Chapter 5). But there is an essential difference in access to care for CBG and ANAIM beneficiaries and the local population (i.e., fees, quality of care, and care provided by physicians vs. trainees, etc.).

Sangarédi has two public health institutions (a health center and a health post), the CBG dispensary, which resembles a hospital, and nine private medical clinics (including one traditional medicine clinic). Everyone has access to health care at the CBG dispensary, but under different conditions. Workers and subcontractors and their families (wife and children) are partially looked after by the company. Only a minimum amount is withdrawn from workers' salaries. The rest of the population can also access health-care services at the dispensary, but at their expense. It costs about 8,500 GNF (US\$1.20) for a general consultation, and more than \$200,000 GNF (US\$30) in the case of hospitalization.

Given the public deficit, strong population growth and growing demand for health services, health care has become a lucrative market. To wit, there are nine medical practices in Sangarédi, including a traditional medicine clinic. Three quarters of them have been in practice for less than five years and half do not have State accreditation. Throughout the Project Area, access to health care is characterized by a health-care market that is strongly influenced by the patients' status vis-à-vis the CBG and the families' financial means.

Perceived health impacts connected with CBG activities – Kamsar and Sangarédi area

According to a majority of the people consulted in Zone 1 and 2 (mine and port), CBG activities are vectors of the many diseases that are widespread in the town and

surrounding villages. The Kamsar plant emits large volumes of fumes into the atmosphere and is considered by the local population to be responsible for symptoms associated with respiratory illnesses (i.e., asthma and sinusitis) and vision problems. Many claim that dust is corrosive, because it rusts metal roofing and is considered to be toxic and a health hazard. Public consultations revealed that the inhabitants of Kamsar and the surrounding areas have not been provided with any official information on the composition and health impacts of general emissions from the plant. Over time, a series of beliefs have been forged around the health impacts of emissions. These beliefs (even if some may well be justified) are fueled by recurring symptoms and diseases and a set of fears that have never been challenged owing to a dearth of information.

It should be noted that CBG invested US\$17 million in 2005 to decrease dust emissions from the Kamsar plant by 80%. The local population has indicated that dust emissions have decreased, but maintain that much remains to be done.

During the public consultations, water pollution in the port estuary caused on the one hand ill-timed fuel and waste oil spills from the plant and the ore carriers is also considered a major health hazard by the population whose livelihood is fishing.

In the railroad zone, those who live along the railroad line mention the impact of dust from the bauxite rail cars. Again given the lack of specific information, local residents associate the presence of dust with a major source of pollution that will directly impact public health.

In the mine zone, dust and mud are mentioned by those consulted as the main sources of pollution that represent a direct public health threat through the contamination of water sources. People in this project zone also complain of respiratory illnesses and vision problems. The people consulted further noted that operations that lead to deforestation and increased soil erosion create dust and mud that degrade water quality, with the water then becoming a disease vector during the rainy season.

Whether spread by air or transported in the wet season in mud, bauxite is thought by the majority of the local population to be responsible for general degradation of the environment, an increase in water turbidity and an increase in the threat to public health.

According to our observations in the mine zone, mine machinery that is on the move day and night in the pits constitutes a health nuisance where mining areas are located near inhabited areas.

This machinery traffic exposes the local population to high dust levels (outside the wet season) because the roads are neither paved nor sufficiently watered down to contain dust levels. The 90-tonne plus trucks use diesel fuel (producing exhaust gas) which has adverse health effects. The World Health Organization (WHO) in 2012 placed diesel fuel on the list of Group 1 carcinogens for humans. The impact is limited today in that the N'Dangara mine, which is in operation, is relatively far away from inhabited areas.

Photo 7-1 Mining area, N'Dangara mine (Zone 1, concession)



Local people have real concerns with regard to the potential adverse impacts of the Expansion Project on the environment and public health. On January 19, 2014, representatives from a number of communes in the Sangarédi subprefecture (Aye Koye, Balandougou, Boulléré, Guildhé, Kahel, Sangarédi, Soucka, Wossou) addressed the memorandum in Annexe 7-3 to CBG on the expansion of the CBG mining area in Sangarédi. The memo essentially demands that CBG comply with legislation applicable to the Expansion Project. Chapter VII (Environment and

Health) of the 2011 Mining Code is widely cited in an effort to ensure CBG addresses the public health issues associated with the increase in mining operations for its Expansion Project.

HIV/AIDS - Kamsar and Sangarédi

In countries and areas with industrial and artisanal mining-oriented economies, HIV/AIDS represents a particularly critical and high risk epidemiological situation. This applies to Guinea and the CBG Project area. The epidemiological situation in the Project Area was examined by Partners Against Aids (PCS), an NGO created by the Agence française pour le développement, SIDA-Entreprises and the Global Business Coalition on HIV/AIDS, Tuberculosis & Malaria. Seven mine sites in the Republic of Guinea's three main mining areas were the subject of a feasibility study to integrate HIV/AIDS medical and psychosocial care services (PCS, 2009). The feasibility study was published in 2009 and was based on the Guinea HIV/AIDS behavioral surveillance survey (Enquête de surveillance comportementale et biologique sur le VIH/SIDA) carried out in 2007 by the NGO Stat View International (ESCOMB, 2007). The survey included 600 industrial miners and 600 artisanal operators from different mining areas in Guinea.

Although UNAIDS, the Joint United Nations Programme on HIV/AIDS, estimated HIV/AIDS prevalence rate to be 1.7% for Guinea, the ESCOMB survey determined a prevalence rate of 5.3% (including HIV-positive and infected people) among men working in the mining sector and up to 7.5% for workers in Lower Guinea. The same survey maintained the rate could be as high as 14.2% among single miners. Among fishermen, who are more at risk, 5.6% carry the virus. In Boké prefecture, mining areas are magnets for those seeking work, but also for sex workers among whom the prevalence rate rises to 34.4%.

Given these figures, which paint a very troubling picture from a public health perspective, a number of prevention programs have been initiated by mining companies and the Guinean chamber of mines (CMG). These programs have however proved to be limited in their impact, and inadequate in terms of prevention, screening and health care. The involvement of public authorities in these campaigns was also lacking.

According to the PCS study, the Chamber of Mines initiated a public-private partnership (PPP) in 2009 with support from Alcan and Rio Tinto, CBG's main

shareholders to address the accessibility of HIV/AIDS screening tests in mining areas. The projects however targeted only the workers and their dependents, whereas the entire local population is potentially affected by the virus. Only a long-term, large-scale partnership including the State, international organizations, private companies and specialized NGOs would have the capacity to cover the entire population in the mining areas.

Currently in Sangarédi, CBG personnel and their dependents have access to proper health care for HIV-positive cases (see Chapter 5). The CBG health center is in actual fact better equipped than the public facilities when it comes to screening and treating the disease (with screening kits and antiretroviral drugs). Of course, there is still room for improvement in terms of modernizing the equipment, physician training and raising public awareness. The spread of HIV/AIDS is generally concentrated in the poorest pockets of the population. The impact of the disease in Thiankounaye district in Sangarédi, the least developed area of the town, is particularly severe (see Chapter 5).

One of the physicians interviewed from the CBG health center estimated that the disease was also very widespread in the rural area of the mine, essentially because of a lack of information and prevention. Lack of information and discrimination go hand in hand throughout Guinea. Many people prefer not to get tested for fear of having to deal socially with a confirmed HIV-positive status. Those with HIV/AIDS are highly stigmatized, and many avoid specialized health services for fear of being identified as a carrier and banned by society.

The HIV/AIDS issue throughout the Project Area is still poorly documented despite its potentially high public health impact. Given the known risks associated with this epidemic in the majority of mining areas, prevention measures and available health services are currently inadequate, despite the existence of specialized services

Safety

Railroad – Kamsar, Boké, Sangarédi

Many villages in the project area are located along the railroad line. Some were there before the railroad, others were built or expanded after it was built. Train traffic therefore has an impact on life in these villages which was indicated as a major concern by those interviewed. Currently, the concerns entail the 12 daily train

trips on the line between Sangarédi and Kamsar. The maximum speed for empty and loaded ore car trains on the main track is 60 km/h, except in certain areas where trains need to slow down for technical reasons (i.e., bridges and curves). The speed limit in urban areas of Kamsar (from KP 1.6 to KP 09) is 40 km/h. In this area trains are all escorted by cars. In protected areas all trains are required to run at a restricted speed, i.e., a speed at which trains can stop within one-half of the sighting distance of an object ahead. Rail operating rules specify the circumstances for the use of horns (level crossings, approach to stations, presence of animals or people near the railroad tracks, etc.). To ensure railroad safety, no changes are currently being considered with respect to the Expansion Project.

Despite the safety rules established by CBG, the railroad has represented a significant hazard for nearby residents throughout the study area since the start of the CBG mining project. The concentration of inhabitants along rail lines is characteristic of the project area. Cars, motorbikes, bikes and pedestrians cross the tracks on a regular basis in areas that are not safe, where there are no level crossings requiring them to stop and check for oncoming trains. Bridges which are rare and are usually pedestrian footbridges and level crossings still do exist. Safety at these crossings is generally ensured by CBG subcontractors; however, everyone met in the field would say there are not enough of them. For example, the village of Kamakouloun (Port Zone 2), which is divided in half by the track, demonstrates the lack of safe crossings for people and the disputes that arise. The inhabitants of this village, as elsewhere in Katomou, talked about their attempt to build a crossing by filling the space between the tracks with dirt. CBG's security team responded by arresting about ten individuals and imposing fines. No alternative solution has as yet been found.

The fact that the track is not illuminated in rural areas at night can make the railroad line and crossing the track more hazardous.

Public consultations also revealed that a majority of the local people were poorly informed about train horn signals, specifically the signals used to indicate a train starting up again after having stopped on the open track. That means some people could cross the tracks even though a train was about to start moving again.

The CBG supports the "Gare au train" track safety initiative. Security officers are stationed along the tracks. The villagers interviewed in the Kamsar area were aware

of the initiative and asked for it to be strengthened. In the railroad zone, however, no one mentioned this program.

The railroad zone is concerned by this issue because a number of villages have been built right near the railroad tracks. In some cases, walking along side or crossing the tracks is a daily occurrence for the local people. For example, students in Dakoumourou have to cross the tracks to get to Kafélé school, and Kafélé and Taytote farmers have to cross over the tracks to reach their cropland. Inhabitants of these two villages also have to cross the track in the dry season to get to the Tinguilinta River for water. The village of Madina Kebegna, on the outskirts of Boké, was divided in two (with Madina on one side and Kébégna on the other) when the railroad was built.

Photo 7-2 Railroad tracks as walkway (left) and as a crossing (right), village of Kamakouloun



Many of the villages visited reported train-related fatalities in the consultations. In 2006, a child was killed by a train in the village of Kamakouloun. In Kafélé, five individuals (three adults and two children) died between 1981 and 2011. In Corrérah, eight accidents including one involving a CBG employee were reported for the period from 2002 to 2011. In some cases, the villagers confirmed that CBG paid for burial costs for the deceased, in addition to providing the family with a bag of rice. CBG noted that accidents are dealt with on a case-by-case basis, by the personnel manager and the railroad, not by CBG's community relations team.

Accidents have been reported in the mine zone as well. An inhabitant of Boundou Wandé reported that in December 2013 and February 2014 seven accidents occurred, most involving motorcycle taxis. These taxis often drive along the tracks (on parallel tracks) without necessarily paying due heed to the imminent danger of a 120-car train travelling at 60 km/h.

In some villages near the tracks in the town of Boké, the inhabitants mentioned fires that occurred in the past as a result of track maintenance work. Some track maintenance sites caused fires that impacted nearby crops. According to the locals, CBG has stopped doing this type of work during the dry season.

Pits – Sangarédi and Kamsar

Mining areas can lead to accidents because of the newly configured land forms as well as from the presence of mine machinery.

In the case of blasting operations, CBG's military adviser confirms that villages within a 500-m radius of the blasting site are evacuated and a safety perimeter is set up around villages using road blocks. Blasting is prohibited after 6:30 pm. Local people want the community relations team not just the mine teams to be involved in blasting-related evacuation procedures. They have asked CBG for guarantees that their goods will be secured and thefts prevented and that CBG acknowledge and compensate the villages for any degradation of village infrastructure associated with blasting operations.

CBG has also operated quarries near Kamsar to extract raw materials for its construction work. There is a quarry near Madina Borbof that is no longer in use by CBG but has never been rehabilitated. During the rainy season there have been accidents there when the quarry fills with water. It is all the more hazardous given that it is located near a school.

In some areas, mine roads are used by the locals owing to the disappearance of some village trails. This is tolerated by CBG and managed on a case-by-case basis. No official information was provided by the company.

The channel

The channel in which the ore carriers travel represents a hazard for Kamsar port fishermen, given that a majority of their pirogues are not motorized. Access to the channel is strictly prohibited for fishing and passenger boats. Everyone interviewed was aware of this; however, according to most of the fishermen and port authorities interviewed, boats are occasionally taken by the currents into the shipping channel. The lack of clearly defined signage is yet another issue, especially to indicate the location of sand banks. Some fishermen interviewed note that they have good

communications with CBG's patrol boats, who come to the assistance of boats that get carried along by channel waters.

7.4.2.3 Sources of impacts

Health impacts – influx of job seekers and impoverishment of the population

- The increase in population, due primarily to the influx of job seekers, will lead to a deterioration in sanitary conditions tied to increased pressure on water and health infrastructure and increased volume of waste in the towns.
- The degradation in hygienic conditions will promote the spread of disease and epidemics in urban areas.

Health – high-risk behaviors

- Influx of male job seekers, at high risk for HIV/AIDS, and the increase and the impoverishment of the population are likely to lead to increased prevalence of the disease in the area (i.e., prostitution, teenage pregnancies, and lack of understanding of HIV transmission).
- Two construction camps to be built in the Project Area for single male workers including the Kamsar camp, which is expected to accommodate 600 workers, are likely to have a negative impact on community health: it is anticipated that high-risk sexual behaviors will lead to a potential increase in the spread of HIV/AIDS in the area.

Health – general pollution from CBG activities

Potential impacts on air, water and sediment quality are detailed in Chapter 2 and the 10 annexes attached to Chapter 2. Information on these impacts on human health is presented in CBG's study on human health (CBG, 2014a).

Mining concession area

The increase in the pit area and the volume of bauxite mined will lead to an increase in cleared areas and a potential increase in soil erosion during the wet season. In the dry season, there will be more dust generated, during both the construction phase (site and road preparation) and the operation phase (during blasting and

intensive machinery movements). Dust will impact villages near the mining areas and may have health impacts for people in the villages. Dust may also find its way into watercourses, degrading the quality of the water consumed by local people and animals.

Photo 7-3 Blasting and bauxite loading operations, Sangarédi mine, CBG.



Significant noise and vibration levels associated with blasting are a major stress factor for people and livestock living near the mining sites.

An additional source of pollution (i.e., increased dust and exhaust gases) will come from the increase in mine machinery movements, along with increased road traffic in the vicinity of the villages near the project area. On mine roads, there will be continuous movement of hundreds of trucks day and night.

With the start of Expansion Project activities, CBG will build many other mine roads including some near villages. The impact of these roads on community health should be assessed in terms of their location and the intensity of machinery traffic. Given that there is currently no mine road plan available, it is not feasible to determine the impact of new roads on the villages in the mine area.

The future stockpile area to be located near the village of Hamdallaye will represent a major source of noise and air pollution for the neighboring community.

The main sources of air and water pollution are:

- dust;
- SO₂ and NO₂ emissions that may impact water and air quality; and

- accidental spills (for example fuel) or leaks caused by vehicles and machinery.

As regards pollution of surface waters, studies performed as part of the environmental impact assessment in chapters 2 and 4 demonstrate that mine activities may have pollution-related impacts on small watercourses (dust deposits).

The studies concluded that:

“Concentrations of pollutants other than aluminum are expected to remain low. There is a potential impact on aluminum levels in surface waters in the Sangarédi region.” (see Chapter 2 section 2.4.4.1).

The potential impact of high aluminum concentrations in surface waters (as well as in air near the mine areas) is a source impact that should be addressed.

The conclusions drawn in the physical impact assessment point to potential positive effects on groundwater flow and quantity owing to the potential for increased infiltration of precipitation into the subsoil as it is exposed by mine excavation activities (see Chapter 2).

In light of this assessment, it is anticipated that the impacts of the Expansion Project on water quantity in traditional wells and manually operated pumps will be limited, even positive as regards the availability of water resources in the mine area.

Kamsar area

The description of the new project indicates that efforts to modernize and secure Kamsar facilities have been planned as part of the expansion phase. These efforts will lead to a decrease in particulates, despite increased production levels:

“The CBG Expansion Project is not expected to increase concentrations of particulate matter in the ambient air, unlike combustion gases. The plant has been operating with old technologies since 1973. The new rail car dumper station will be underground and will involve less handling, which will minimize airborne particulate matter. The dumper station will also be equipped with the latest dust control technology. Unlike the current conveyor system, the new conveyors will be enclosed and a dust control mechanism installed at

every chute and transfer point. The new ovens will also be connected to a washing system.

Although the modelling performed by SENES Consultants point to guidelines potentially being exceeded for existing operations and for short-term events on the basis of results from baseline and modelling studies (see Chapter 2), it is anticipated that IFC criteria will be met by the 18.5 MTPA production phase and for every subsequent phase.” (CBG, 2014a)

As for health impacts, it is indicated that gas and water levels could increase:

“Extending production could lead to a considerable increase in airborne gas concentrations. On the basis of the modeling performed by SENES Consultants, short-term exposures could occasionally exceed recommended values primarily in the 27.5 MTPA production phase. In the short-term, the industrial area in Kamsar could be exposed at times to concentrations on the order of 0.25 to 34 ppm of SO₂ (10 min) and 0.14 to 0.20 ppm of NO₂ (1 h) in the case of unfavorable weather conditions. These projected values will therefore be up to two times higher than WHO guidelines. SENES Consultants indicated that these estimated short-term values (10 min, 1 h, 24 h) represent the maximum single concentration that may be measured in an event that occurs at any time over a five-year assessment period. The SENES Consultants assessment however suggests that maximum 24-hour and annual exposure values would comply with applicable guidelines.” (CBG, 2014a)

With regard to potential surface and groundwater pollution, the environmental impact assessments concluded that surface water quality in the Kamsar area will not be affected or only marginally affected by the project. Groundwater in the Kamsar area, on the other hand could be moderately impacted (see Chapter 2).

Every impact zone

The doubling of train traffic from 12 to 24 trips per day (27.5 MTPA scenario in 2022 horizon) will result in additional noise pollution. The high noise levels associated with the passage of each train can cause insomnia and stress for people living near the railroad tracks. Although train noise levels will not increase, the increase in the

frequency of train traffic will increase the sources impact round the clock (see Chapter 2).

Safety

Increase in road, rail and maritime traffic

- Intensification of CBG activities will lead to an increase in local road traffic (national highways and village roads) connected with the general increase in the population and the return trips between the rural village areas and the towns, resulting in an increase in traffic accidents.
- Increase in surface areas mined will lead to an increase in mine machinery traffic in the mining concession area.
- The doubling of train traffic will contribute to increasing the risk of rail-related accidents throughout the area. More frequent train trips could also be associated with more trains stopping on the tracks, causing the accident risk to rise significantly, essentially in terms of the number of train trips associated with the operations scenario at 18.5, 22.5 and 27.5 MTPA.
- The doubling of the frequency of boat movements could lead to an increased risk of accidents for fishermen and other boats in the port.

Increase in the number of pits and production volume

- The doubling of bauxite production volume and hence the surface areas mined will generate accident risks for pedestrians and traffic in the vicinity of the pits and on mine roads.
- The disappearance or temporary closure of some village roads may lead people to use or cross active mine roads.

Increase in urban population

- It can be assumed that an increase in urban population connected with the impoverishment of most inhabitants and an increase in social inequality will create tension and general degradation in public security. The inhabitants of Kamsar have indicated that the areas in town with no electricity are considered to be unsafe at night.

7.4.2.4 Impact assessment

Table 7-5 Assessment of the impact on public health and safety

Project zone	Level of impact					
	Zone 1 (mine)		Zone 2 (port)		Zone 3 (rail)	
	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Degradation in sanitary conditions: pressure on basic services	High	High	High	High	Low	Low
Impact 2 – Degradation in sanitary conditions: increase in sources of pollution	High	High	Medium	Medium	Low	Low
Impact 3 - Risk of train-related accidents	Low	High	Low	High	Low	High
Impact 4 – Risk of road accidents	Medium	Medium	Medium	Low	Low	Low
Impact 5 – Risk of maritime accidents	n/a	n/a	Low	High	n/a	n/a
Impact 6 – Risk of accidents near and inside pits	High	High	n/a	n/a	n/a	n/a
Impact 7 – Degradation of public security	Medium	Medium	Medium	Medium	Low	Low

Description of impacts

Impact 1 – Degradation in sanitation – pressure on basic services and the spread of disease

With the implementation of the Expansion Project, the towns of Sangarédi and Kamsar will become even stronger magnets for job seekers (see Demographics and Social Dynamics section). In both Kamsar and Sangarédi, access to basic infrastructure and sanitation services is already fairly limited for most districts (outside the workers’ towns).

Under such conditions, the rapid, massive influx of job seekers is likely to generate enormous pressure on the existing, inadequate services, in terms of both quality and quantity. The health centers will have even more trouble dispensing services, drinking water will become even scarcer, and waste more voluminous. Urban centers will become even more fertile ground for the spread of disease and epidemics.

The significant influx of people (including many single men) and the impoverishment of the towns are also likely to lead to an expansion in HIV/AIDS cases in urban as well as rural areas. The population in mining areas, which has been increasing far faster than Guinea's natural average 3% growth rate for urban areas, is particularly at risk with regard to this epidemic.

The importance construction camps play in concentrating people who are particularly at risk of contracting sexually transmitted diseases including HIV/AIDS should not be overlooked.

In addition, it can be assumed that impoverishment and unemployment in urban and rural areas will lead to problems with under-nutrition, especially among children. Despite the agricultural activities in the rural mine area, the fact that many villages have already indicated problems providing children three meals a day (Boundou Wandé, Madina Dian) suggests further degradation in the overall situation, essentially in light of the loss of and changes to cropland (due to the combined effect of local farming practices and the impacts of the increase in mining areas).

Impact 2 – Degradation in sanitary conditions – increase in sources of pollution

Some individuals interviewed particularly in Kassangoni, in the district of Kamsar, confirmed that CBG had already made efforts to reduce dust emissions. Environmental impact assessments demonstrate that fine particle levels in the Kamsar area are declining owing to the more modern facilities. Health risks associated with airborne dust pollution should be mitigated (see Chapter 2).

An increase in combustion gas emissions in Kamsar is however anticipated.

In the railroad zone, the main dust emissions will be produced during the construction phase, and they will be limited (i.e., localized over short periods).

In the mine zone, however, as noted in the Physical Environment Study (Chapter 2) and the health impact assessment (CBG, 2014a), air pollution generated by an increase in CBG operations (essentially caused by road traffic and blasting as well as open-pit mining operations near villages) could lead to an increase in respiratory problems and ophthalmological infections during both the construction and operation phases.

The potential increase in aluminum concentrations in surface waters in the mine zone could also result in public health impacts.

Construction phase

Railroad-related construction will be a temporary source of dust emissions, pollutant discharges (machinery movements) and increased noise pollution. In the scenarios considered by CBG, the impact will be localized and vary as follows:

- as part of the 18.5 MTPA production scenario, the impact will remain moderate and limited to Kamsar where a new sorting yard will be built.
- by 22.5 MTPA production scenario in 2017 (or later), the impact will be more significant in the mine zone. This scenario includes extending the siding to KP 22, as well as the construction of a sorting yard at Parawi (on the outskirts of the villages of Hamdallaye and Fassaly Foutabhé), opening of new mine roads, and site preparation for future mining areas.
- the 27.5 MTPA production scenario in 2022 includes the construction of two railroad sidings, as well as the opening of new pits and roads. Air and noise pollution from the work will affect villages near KP 14 (particularly Katomou, Kamakouloum Tournbéta) and the village near KP 118 (Horé Lafou).

In the Kamsar area, noise levels in every phase of the project will remain below maximum IFC/WHO thresholds.

Noise, vibration and dust levels will be very limited in the railroad zone during the construction phase. Some ad hoc disturbances (noise and dust) may however occur at the railroad siding jobsites.

During the construction phase, noise, dust and vibration levels are projected to be high exceeding many of the IFC/WHO thresholds for many of the villages in the area (see Chapter 2).

Operation phase

At the Kamsar plant, the 18.5 MTPA production scenario and the 22.5 MTPA scenario for 2017 involve the installation of a dumper line and a new milling system, while the 27.5 MTPA production scenario for 2022 includes a second system. The 2022 scenario also includes either installing a fifth 1400-TPH oven or increasing the capacity of existing ovens. CBG is planning on upgrading all its machines. Despite the increased production volume, the level of particulates is expected to decline significantly and meet IFC/WHO criteria. An increase in combustion gases is however anticipated.

In the Kamsar area, noise levels will remain below maximum IFC/WHO thresholds in every project phase (18.5 to 27.5 MTPA) (Chapter 2).

In the railroad zone, noise levels will not increase because the same type of trains will be used (with the addition of a few rail cars). The higher frequency of train runs, however, will lead to more incidents of disturbance or additional stress. These negative impacts will essentially be felt at night for dwellings within 500 m of the railroad track.

Although an increase of three to five decibels in noise level is anticipated in the mine zone, significant exceedances of noise thresholds were recorded in the environmental impact assessment near a majority of the villages in the mine zone. It should be noted that round-the-clock mining activities will have an even greater impact on local people at night (causing stress and insomnia). For many of the villages, mining activities associated with the Expansion Project (including truck movements) will result in significant exceedances of IFC/WHO daytime and nighttime noise standards (see Chapter 2).

Included among the other sources of impact:

- daytime blasting will be a significant cause of disturbance (evacuations) and stress; and

- mining, storing, sorting and handling activities will also result in noise and dust pollution, primarily for the villages of Hamdallaye and Fassaly Foutabhé.

The villages likely to be the most affected by project noise impacts are identified in the physical impact assessment (see Chapter 2).

Air and water pollution will be the most significant in the mine zone during every phase of the Expansion Project. These sources of pollution should not be underestimated. Other environmental impact assessments predict a substantial increase in airborne dust levels (i.e., near mine roads, during mining and blasting phases) and dust contamination of surface waters, which are widely used by local people in daily life (see Chapter 2).

The effects of a potential increase in aluminum concentrations in surface waters and air could have health impacts. Benchmark epidemiological studies (see InVS-Afssa-Afssaps, 2004) list symptoms related to extended, high-level exposure to aluminum:

- neurological impairments;
- bone related impairments;
- anemia;
- asthma and bronchitis; and
- cancers (bladder and lung)

Impacts 3, 4 and 5 – Increased risk of pedestrian, road and maritime accidents

Traffic accidents are likely to increase throughout the project area from Kamsar to Sangarédi as well as the railroad zone.

Train-related accidents – throughout project area

The gradual increase in train traffic from 12 to 24 runs daily will probably be connected with an increasing number of pedestrian accidents. Improvements to traffic control devices planned for the Expansion Project, specifically the installation of safety barriers at KP 31, KP 37 and kP 77, lighting at level crossings, an on-board beacon system, and rail signaling using the Communication-Based Train Control (CBTC technique could mitigate but would not eliminate accident risk locally). The

rail accident risk will be higher in villages near the railroad line throughout the Project Area.

Road accidents – urban areas and pits

Population growth will lead to not only increased road traffic, particularly in urban areas, but also a significant increase in pedestrian circulation. Accidents involving vehicles as well as vehicles and pedestrians are likely to rise, while health services for accident victims (as in the case of all general health services essentially in the rural mine area) remain inadequate in quality and quantity.

In the pits, the increase in mine machinery is also likely to cause accidents with vehicles and pedestrians in the surrounding areas. The number of 90-tonne trucks used in the mine is expected to rise from 20 to 36 by 2022.

At the time of writing this report, the road plan for the mine area had not been finalized. The impacts of new mine roads associated with the Expansion Project on community health and safety therefore cannot be assessed.

The assessment should however be tempered by the fact that access to the pits is generally prohibited to non-CBG people. The status of mine roads should however be clarified given that CBG currently seems to tolerate the roads being used by people from isolated villages without having put in place any specific safety measures.

Port accidents

The increase in the number of ship movements is likely to cause an increase in the risk of accidents in the channel and ore carrier docking area. More area will be dredged, but the increase is expected to be insignificant. The effect of waves and currents on fishing and passenger boats is expected to increase marginally.

Impact 6 – Risk of accidents near and in pits

The expansion of the bauxite pits in the Sangarédi area and their proximity to villages are likely to be a significant source of accidents. All the more so if strict safety measures are not systematically applied by CBG and its contractors, including evacuating inhabited areas near the pits during blasting, securing the mined areas

and rehabilitating decommissioned areas. Children will be particularly vulnerable to accidents in the pits, where they sometimes play.

Currently, CBG evacuates people living within 500 m of blasting operations.

Photo 7-4 Temporarily abandoned bauxite pit, Sangarédi mine



Impact 7 – Degradation of public security

According to a Sangarédi police representative, the influx of job-seekers to the town, where the youth unemployment rate is high and basic social services are not accessible, could lead to increased crime and petty theft. The same could apply to the town of Kamsar, where the same migration occurs (see Governance section). Rural areas too could also be affected by an increase in theft, if new mine roads serve to open up isolated villages. The area around villages often represents a source of food, e.g., small grazing ruminants, as well as fruit and vegetable crops. People in recently developed mining areas often note that outsiders or workers employed by the company or subcontractors often harvest resources from local areas without authorization.

7.4.2.5 Mitigation measures

Impact 1 – Sanitary degradation – Pressure on basic services and spread of disease

Project governance

- Comply with Mining Code, Chapter VII Environment and Health, including article 143 which specifies promoting or maintaining the living conditions and general good health of the population as well as preventing and managing HIV/AIDS at the local level (*Code minier*, 2011).
- Comply with item 10 in IFC Performance Standard 4, which requires that the client “avoid or minimize transmission of communicable diseases that may be associated with the influx of temporary or permanent project labor.”
- Update and expand HIV/AIDS prevention program for employees and subcontractors in particular, but also for the entire population in collaboration with the State, specialized NGOs and other mining companies operating in the area.

Community projects

- In collaboration with the State, support initiatives to modernize, develop and maintain water and sanitary facilities, waste treatment systems throughout the urban districts and rural areas.
- Develop a partnership with the State to improve infrastructure and access to public health services; contributing to training of health-care staff, upgrading facilities, implementing social tariffs, building a hospital in Sangarédi, building health posts and centers in the rural areas of the project with the appropriate equipment and staffing, and so forth.
- Support income-generating entrepreneurial initiatives that ensure the population’s food supply (see Economy and Household Strategy section).
- In collaboration with PAM, establish school cafeteria program in villages in the rural mine zone.

Impact 2 – Sanitary degradation – Increase in sources of pollution

Project governance

- Comply with national legislation such as measures in Chapter VII Environment and Health of Guinea’s 2011 Mining Code; and the air, water and soil provisions set out in the Environment Code, 1989: etc.
- Continue efforts to modernize structures and tools (i.e., plant, workshops, mine machinery, and boats) to limit emissions of industrial pollutants and perform regular audits of this situation. CBG could base prevention measures on the main recommendations in national legislation and international standards.
- Develop an Emergency Plan and a Hygiene, Health and Safety Plan as specified in Chapter VII Environment and Health of the Mining Code, which in Article 142 specifies that all mining concession holders are required to use appropriate techniques and methods to protect the environment and the safety of workers and the local community in accordance with the Environment Code and relevant international best practices.
- Comply with Article 111 of the Mining Code on protected and prohibited zones.
- In accordance with paragraph 6 of IFC Performance Standard 4, take into consideration community safety during the infrastructure construction and project operations: “The client will design, construct, operate, and decommission the structural elements or components of the project in accordance with GIIP, taking into consideration safety risks to third parties or affected communities.”
- Implement SEP, including a communications plan for communities near project activities (Kamsar and Sangarédi) to clearly explain the situation along with related risks in a timely manner, e.g., poor weather conditions and peak pollution incidents.
- Apply mitigation measures recommended in the environmental study (chapters 2 and 4).
- As regards public health and the impact of water and air aluminum concentrations, conduct specific and regular epidemiological studies on people living near mine roads and mining areas. Apply corrective measures in the event the results demonstrate human health impacts (levels that exceed IFC/WHO thresholds).
- Water down mine and village roads in the dry season and pave roads near villages for maximum control over dust emissions. As soon as possible adopt the technical option of paving roads in the vicinity of villages.

- Consider using surface miners for CBG operations near inhabited areas to minimize blasting-related noise and vibration.
- Use the technical option that involves working in one mine zone at a time when extraction areas are located near vulnerable inhabited areas. Concentrating mining activities reduces noise, dust and vibration impacts.
- Consider displacing residents when available technical measures cannot decrease noise, vibration and dust levels below IFC/WHO guidelines.
- Conduct a specific social impact study in advance to select technical options for the future mine road plan that will minimize community impacts.
- Apply other technical measures to mitigate noise levels in the vicinity of villages (natural or artificial noise barriers).
- In the railroad zone, promote awareness activities among commune and prefecture authorities, i.e., prohibiting the construction of new dwellings within 100 m of the railroad line.
- Ensure the complaint-handling mechanism is well known and efficient. Compile complaints from the same area on the same issue, and treat on a priority basis.

Community projects

- In compliance with IFC standards, consider the following measure as indicated in paragraph 9 of Performance Standard 4: “The client will avoid or minimize the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases, and communicable diseases that could result from project activities, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups.”
- More generally, natural resources “should be protected so as not to pose an unacceptable risk to human health, safety, and the environment due to the presence of pollutants.” (IFC Guidance Note 6). In this regard, a number of prevention and mitigation measures were identified:
 - initiate partnerships with the State to improve access to basic water and health services for the entire population in the project area;
 - support modernization and/or the implementation of waste management systems in the towns in the project area.

Impacts 3, 4 and 5 – Increased risk of pedestrian, road and port accidents

Development planning

IFC Performance Standards suggest that companies improve road safety conditions (and traffic in general) within their areas of operation. The company's intervention in this area is especially essential in countries where traffic-related infrastructure is limited and of poor quality and where emergency health services are either non-existent or non-functional. CBG could therefore implement various measures to reduce the impact of road, rail, pedestrian and even port safety as part of the Expansion Project.

Rail traffic

- Increase the number of level crossings and/or overpasses on the rail line, for pedestrians as well as motorbikes and bikes (with locations determined in collaboration with the affected communities); overpasses for two-wheeled vehicles could be built to prevent ill-timed and dangerous crossing
- Set up a new rail traffic management system, as planned by CBG for the Expansion Project.
- Recruit personnel to ensure safety at crossing points.
- Illuminate railroad tracks near villages.
- Promote awareness of railroad safety issues. For example, develop an "Gare au train" track safety program in the railroad and mine zones (impact zones 1 and 3) with the focus on trains that have stopped on the tracks.
- Secure frequently used roads, along the railroad track; and
- Assume the cost of accidents involving the CBG train (i.e., hospitalization, funeral, and possible pension-related costs).

Road traffic

- In cases where CBG operations block village roads, build alternate routes so that local people can travel to neighboring villages and urban centers (i.e., Sangarédi); the routes should be determined with input from the affected communities. Throughout the project, these roads should be maintained by CBG to ensure they are all-weather roads.
- Train CBG and subcontractor drivers on road safety rules.

- Establish a specific road traffic code for mining areas (near pits and mine roads) and clarify local people's rights to use the various mine roads.
- Avoid having local people use mine roads by building safe, alternate routes.
- Secure crossing points for mine roads and between mine and village roads.
- Assume costs associated with accidents involving CBG vehicles.

Port traffic

- Inform and consult port authority and fishermen representatives of the work to be carried out as part of the Expansion Project (i.e., dredging channel, extension of loading dock, etc);
- Raise awareness of fishermen who navigate in the channel;
- In collaboration with the State and port authorities, contribute to upgrading the channel signaling system with the goal of improving safety for boat passengers and fishermen.
- During the work, increase the boat patrols responsible for monitoring the channel to prevent accidents; and
- Assume the cost of accidents involving vessels connected with the CBG project.

Impact 6 – Risk of accidents in and around the pits

Development planning

- Comply with Article 142 of Chapter VII Environment and Health in the Mining Code: "Appropriate techniques and methods must be used to protect the environment and the safety of the workers and local community in accordance with the Environment Code or international best practices in this area."
- Comply with paragraph 7 of IFC Performance Standard 4 which specifies that "Where there is a potential for the public (including workers and their families) to be exposed to hazards, particularly those that may be life-threatening, the client will exercise special care to avoid or minimize their exposure by modifying, substituting, or eliminating the condition or material causing the potential hazards."

Project governance

- Use leading edge blasting methods to limit the impacts of blasting, i.e., noise, dust and vibration.
- Secure all zones simultaneously, as well as any mined areas that have not been rehabilitated, during construction and mining work.
- Continue to systematically evacuate inhabitants in villages that may be affected by blasting within 500 m of the blasting area .
- Implement system to control infrastructure impacts with appropriate measures to compensate for blasting-related degradation.
- Raise awareness within villages near mining areas of the risks and inform villagers about mining activities in their area.
- Rehabilitate mined areas once operations are complete, involving communities in the process.

Monitoring

- Put in place a program to monitor the number and severity of accidents in the mine, railroad and port zones, along with the prevention, corrective and compensation measures applied.

Impact 7 – Degradation in public security

The risk of deterioration in public security is strongly correlated with migration as well as economic degradation in urban even rural areas. The mitigation measures are applied to these issues:

Project governance

- Develop a migration management plan in the project area, based on a preliminary study and urban planning initiatives for the towns of Sangarédi and Kamsar.
- Initiate collaborative efforts by police forces and CBG's security team so as to coordinate efforts to ensure compliance with the law.

Community projects

- Support income-generating entrepreneurial efforts with training, equipment funding and local development programs.

- In conjunction with the State and the other mining companies operating in the area, support initiatives to improve access to basic infrastructure.

Monitoring

- Set up an operations monitoring program led by the security team, tracking the frequency, cause and type of operations, possible incidents, and corrective measures.

7.4.2.6 Residual impacts

The level of impacts of the Expansion Project were re-assessed in this section to incorporate the mitigation measures described in the previous section and summarized in the ESMP (Chapter 10) in accordance with an aggressive implementation schedule and appropriate resources. The residual impacts determined under these conditions are presented below.

Table 7-6 Assessment of residual impacts on community health, safety and security

Level of residual impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Sanitary degradation: pressure on basic services	Medium	Medium	Medium	Medium	Low	Low
Impact 2 – Sanitary degradation: increase in sources of pollution	Medium	Medium	Low	Low	Low	Low
Impact 3 – Risk of train-related accidents	Low	Medium	Low	Medium	Low	Medium
Impact 4 – Risk of road accidents	Medium	Medium	Medium	Low	Low	Low
Impact 5 – Risk of maritime accidents	n/a	n/a	Low	Medium	n/a	n/a
Impact 6 – Risk of accidents near and in pits	Medium	Medium	n/a	n/a	n/a	n/a
Impact 7 – Degradation in public security	Low	Low	Low	Low	Low	Low

7.4.3 Access to infrastructure and basic services

7.4.3.1 Overview

Addressing the issue of access to infrastructure and basic services means providing an initial assessment of existing infrastructure and the status of services in the project area. The next step is to determine both the positive and negative impacts the Expansion Project would have on the quality and quantity of infrastructure and the main changes in access to available services.

The focus was on access to:

- water and sanitation facilities;
- electricity;
- education/training;
- health;
- recreational and cultural facilities; and
- housing for CBG workers.

7.4.3.2 Current situation

Access to water (infrastructure and natural water sources)

Rural area

The socioeconomic baseline study revealed that more than half the villagers in the rural part of the mine Study Area take their supply of water from rivers and streams (Chapter 5). Rural areas have very little in the way of sanitary facilities and no waste treatment and management system (waste disposed of in nature and/or burned).

Springs located in lowlands have many uses, including those associated with daily living in addition to on occasion serving as sources of drinking water. Every village has at least one spring that provides water year round and some have about a dozen perennial or seasonal springs. In the majority of cases, villages in the mine zone have secure access to water, even if water quality may be lacking. In the dry season, streams dry out and in the wet season the turbidity level rises.

Photo 7-5 Spring in lowland village of Hamdallaye



In villages throughout the project area, the number of traditional wells far exceeds the number of water wells, many of which have deteriorated and have not been repaired. According to local people interviewed at the N'Dangara mine on the outskirts of Hamdallaye, water and mud flow over the edges of terraced plateaus directly into watercourses. Villagers indicated that the opening of the mine has led to the destruction of a number of springs on their territory and the general degradation of water quality around the site currently being mined. The same testimonies were gathered from Boundou Wandé and N'danta Foyné Dow and Ley.

Urban areas

The three main towns in the project area, Kamsar, Sangarédi et Boké, have their water and electricity supplied by CBG. In Sangarédi, the water network in place, which was initially installed by CBG in 1996 to supply water to the workers' housing, no longer has the capacity to meet the needs of the ever expanding town. Some households can nonetheless connect to the system if they assume the cost of installing the connection, after which water is distributed free of charge. Water is

also supposed to be available round the clock. Many water cuts however do occur along with weak water flow. The coverage rate is also limited. Only 37.2% of Sangarédi households are officially or illegally connected to CBG's drinking water supply system. There are significant disparities among districts. In Bappa Sargent, 69% of households are connected to the water system, compared with 4.4% in Thiankounaye (see Chapter 5). Seven water wells were dug in the district of Thiankounaye by the National Water Supply Service (SNAPE), but some have broken down often for lack of maintenance or repairs.

Those who are not connected to the CBG system essentially use central taps, pumps or traditional wells, which are in limited supply and in which water quality is not guaranteed. The only stream close to town is used for various activities (including washing cars and laundry) and villagers know the stream water is polluted and unsafe for drinking.

Sangarédi is largely dependent on CBG facilities, which do not have the capacity to meet the needs of every district. There are therefore considerable spatial and social disparities in access to water in Sangarédi.

In Kamsar, CBG distributes water daily free of charge to CBG workers in the Kamsar workers' town. The supply currently exceeds current needs. With the water being free and available round the clock, there is considerable waste. In 2012, CBG decided to install a drinking water line to the Bas-fonds and Camp-Balanta districts. The remaining districts in Kamsar do not have access to a drinking water supply system. They use essentially traditional wells, even though the water quality is generally poor and inadequate. Madina Borbof and Kawass districts also have a few manually operated pumps (equipped wells) that SNAPE built. Being free, they are heavily used and often give rise to social conflict.

Kassangoni district, which is densely populated by the families of CBG retirees, is representative of the lack of infrastructure on the periphery of the town, with its single functioning water source for the entire district.

Sanitation

In the town of Sangarédi, a majority of the population has access to latrines with 76.6% using improved latrines. However, the impact of latrines on public health has to be put in perspective, since the latrines are often poorly designed, used by

several households and are very rarely tended. There is a considerable risk of soil, groundwater and hence water contamination. There is currently no company that empties pit latrines in the area. The situation is quite different in the CBG workers' towns where a flush-and-discharge system is in place. The lack of latrine maintenance also raises numerous questions as regards soil pollution and contamination of nearby watercourses. In the town, culverts designed to collect rainwater are in actual fact used as waste receptacles. Other than waste collection organized by CBG (three times weekly in the workers' town and twice weekly in the other districts), there is no waste management system in place.

In 2010, CBG delegated the collection and disposal of solid waste from Kamsar's workers' town to two very small businesses, SOCAM and SONECI. Project governance issues however created tension in the local population living near the landfill site. Negotiations are under way, while waste collection continues.

As for wastewater treatment, the workers' town is partially equipped with a flush-and-discharge system and a wastewater treatment plant. There is however no system in place for collecting and treating rainwater. The culverts in the Kamsar workers' town lead simply to the sea. Water treatment in the other districts of Kamsar is practically non-existent. The locals dispose of their solid waste in dumping grounds between the road and the railroad track or in mangrove forests. In light of the increasingly deplorable sanitary conditions in the town and the attendant health risks, a number of private initiatives and NGOs (CÉCI, TPE SOVIDFOS) have attempted to improve the situation without much success for lack of funding and/or support from the local population who are generally fairly oblivious to public health issues.

When it comes to managing sanitation issues, there is a huge disparity between the two workers' towns (in Sangarédi and Kamsar) and the rest of the districts. In the Kamsar and Sangarédi workers' towns every household enjoys modern comforts in terms of water, sanitation and waste collection services. In other districts in Kamsar and Sangarédi, however, public or private sanitation services are non-existent or inadequate to treat the wastewater and household waste generated by an ever increasing population.

Electricity

Access to electricity is a primary issue for those living in the urban and periurban districts of the project area. CBG distributes electricity free of charge round the clock to workers' housing in Kamsar and Sangarédi. Thanks to CBG, Sangarédi is an exception in Guinea in terms of access to electricity. Today, a substantial portion of Sangarédi's population (more than 85%) is officially or unofficially connected to the system. However, given the demographic growth and expansion of Sangarédi, the electrical distribution system is malfunctioning and CBG is unable to keep up. In the town of Kamsar, the workers' town also has a good supply of electricity. The outlying districts given the distances and large number of inhabitants have no or very little electricity. These shortcomings stem from the problem of a private company supplying basic services in the absence of functional public services.

To gradually withdraw from its role as a service provider, CBG in 2009 supported an initial effort in association with the World Bank and the State to charge for services in the town of Kamsar. The project involved building and equipping a power station to electrify the districts of Kamsar Centre, Filima and Kassongony using prepaid meters. The initiative failed as a result of governance problems with the service provider. In October 2013, the President of the Republic required CBG to provide minimum service to these districts (4 to 5 hours of electricity daily) until public authorities found a new service provider. The situation had yet to be resolved when public consultations were held.

The workers see the supply of electricity by the company as one of the "social benefits" that CBG must maintain. The general population considers that CBG-supplied electricity is something they are owed as compensation, even if some hinted that they would accept the social pricing project if better service resulted. Some prefecture authorities cited the example of the town of Fria to argue on the contrary that public utilities, i.e., Électricité de Guinée (ÉDG) and Société des eaux de Guinée (SEG), should be the only water and electricity service providers. The independence of local communities vis-à-vis mining companies is in their opinion a guarantee of the continuity of the service. However, they added that local economic spinoffs from mining projects should enable these communities to build infrastructure, asserting that the amount of business revenue taxes paid by CBG in this regard is woefully inadequate.

As far as CBG is concerned, it has no intention of redistributing its production surpluses elsewhere in accordance with the current model. For CBG, providing electricity in other districts is strictly a temporary measure it is taking in the interests of preserving social peace.

None of the villages in the rural area have access to electricity. Some local authorities deplore the situation, citing the example of certain Guinean villages that are electrified by gold mining companies on the basis of rumors circulating about the assumed electrification of rural areas by SAG that operates mines in Siguiri.

Access to electricity in the towns of Sangarédi and Kamsar can be summarized as follows:

- electricity initially produced for industrial use has increasingly been diverted to the towns (Sangarédi and Kamsar);
- frustration is on the rise in those districts in Kamsar and Sangarédi with no electricity, where there are strong expectations that CBG not the State come through and provide the service;
- high potential for social tension if the situation does not improve;
- lack of network management and control system that would meet needs and basic safety standards;
- no contribution whatsoever from system users (along with abusive use with fixtures lit continuously, and commercial activities);
- State's complete withdrawal from providing a service under its jurisdiction;
- failure of initial attempts to set up a user-pay system;
- urgent need to take charge of planning electricity distribution by the Minister of the Environment, Energy and Public Services (by ÉDG) with the objective of providing service that meets increasing demand and ensuring social peace in urban centers (see socioeconomic baseline study in Chapter 5); and
- few expectations expressed by villagers with regard to accessing electricity, essentially because those interviewed felt it was unrealistic to aspire to have access to electricity.

Education and training

Urban areas

The town of Kamsar has a total of 49 primary schools, including 15 public institutions, and 14 secondary schools of which five are public schools. The school system consists primarily of private schools, some of which are not accredited and are not officially recognized. The private schools in Kamsar workers' town however provide very high quality service. This stems from strong involvement by parents who understand the importance of an education. In Sangarédi, a double-shift system was put in place to address the problem of classroom overcrowding. This system is in effect in three of the five public primary schools. Owing to the limited number of schools, many private primary schools have opened in recent years. The same situation is happening at the secondary level. The main characteristics of the secondary school system in Sangarédi are: low enrolment rates for girls, a majority of students attend public schools, disparities in teaching conditions between the public and private systems, and an excellent successful completion rate for middle-school leaving certificate (BEPC) and high school diploma (see Chapter 5).

The NAFA Centre, also known as the "second-chance school," opened in Sangarédi in 2003 and is still operating today despite many financial difficulties. A second post-primary professional training center (CFPP) opened in 2013 with Canadian cooperation. The objective is to provide educational support for troubled children so that they can return to mainstream education.

In terms of university and vocational training, the town of Boké is relatively well equipped as compared with other secondary towns in Guinea: it has the Boké Centre for Professional Training, the School of Community Health Care (École des soins de santé communautaire de Boké); the École normale des instituteurs de Boké, the Institut supérieur des mines et géologies (traditionally funded by CBG).

Rural area

Daramagnaki commune has five schools and Sangarédi has 12 operating schools. More than half these schools (11 of 17) are community schools. They are located in the most densely populated villages and are fairly well distributed. Community schools offer only the first years of primary education. The school attendance rate for the entire area is about 78.9% (see Chapter 5). This is particularly high for rural

areas in Guinea and demonstrates the importance the local people place on their children's education. The children in smaller villages have to walk long distances to get to school. As for secondary school students, the high cost of daily trips to school is often a burden for families. No school bus service is provided for village children in the mine zone.

Health

Rural area

In the mine study area, there are no health-care facilities outside the health-care center in Bouléré and Boundou Wandé, which is not in operation (an investment and planning aberration). This service gap may be due to the proximity to the town of Sangarédi, the link between the villages and the foreign nationals who are housed in Sangarédi. The larger villages may have health-care facilities (i.e., health post), but it would be difficult to attract qualified personnel who would agree to live in a village that is so close to an urban center.

Urban areas

Kamsar is well equipped with health-care facilities. It has a hospital, a health-care center (a health-care center in Kayenguissa district is not operational), and 17 private medical centers. Nonetheless, access to health care remains an issue, and varies depending on socioeconomic status. The quality of health-care services to which households may aspire will depend on their financial means.

In Sangarédi there are two public health-care facilities (one center and one post), the CBG dispensary, which resembles a hospital, and nine private doctors' offices (including one traditional medicine practitioner). There are major disparities in access to health care among the districts.

An evaluation of the health-care system in Sangarédi reveals that:

- less than half of the nine private doctors' offices are accredited by the State;
- 203 observation room and hospital beds are available for the entire town and the mining concession area;

- as in the case of education, health care has become an economic sector where private initiatives marked by limited expertise and unequal levels of skill abound; and
- access to health care reflects socioeconomic inequalities. Besides the CBG workers who enjoy a special system, the ability to access quality service is correlated with wealth.

Recreational and cultural

The town of Sangarédi has a cultural centre called the Maison des jeunes. There is a stadium nearby along with a number of sports fields (i.e., basketball, volleyball and petanque). These facilities are located right in the center of town in Bappa Sargent district. They were all built with CBG funding and are accessible only on request to the company. There is no detailed information available on the town of Kamsar, since the baseline study focused on the mine area. It has however been noted that the former golf course was converted into a large park which is now used as a playing field by young people in the town.

As for rural areas, a majority of the villages have community-built soccer fields, but they are generally very outdated.

Access to CBG workers' housing

During the construction phase, CBG will build two construction camps for workers: one in the N'Dangara mine area to accommodate 60 workers, and another in the industrial area of Kamsar for 600 workers. A majority of temporary workers will be housed by CBG during the construction phase.

CBG has plans to build 388 dwellings reserved exclusively for future Expansion Project employees and their families, including 133 in the town of Sangarédi and 275 in Kamsar by 2017. In principle, the number of dwellings built will be proportional to the number of permanent positions created. The objective is to develop and expand the Kamsar workers' town and house a majority of the workers in the same area to ensure they have secure access to basic services. CBG will continue to apply its social policy of providing housing for its workers' families.

7.4.3.3 Sources of impacts

Access to water/sanitation

Rural area

During both the operation and construction phases, the main sources of impact on access to water for villages in the Mine Zone will be pit operations, road construction work, dust emissions from the plateaus and mud slides into the lowlands where a majority of the springs are located. Water quality may well be altered in some watercourses (as a result of the presence of aluminum in dust deposits). There should be very limited impact on groundwater and the quantity of groundwater should in fact increase (see Chapter 2).

Urban areas

In urban areas (Kamsar and Sangarédi), outside the districts where the workers' towns are set up and where service quality should be maintained, access to water could also deteriorate given the increased demand in a context where public policy is lacking and where CBG is moving toward gradually withdrawing from the provision of basic services, or at the very least is not willing to commit more to a service that falls under the State's jurisdiction.

The deterioration in access to a sufficient quantity of good quality water is likely to arise from a combination of 1) the natural increase in population and predicted growth in migration to urban centers as a result of the Expansion Project; 2) chronic lack of public investment in infrastructure and basic services in the long term, coupled with a relatively limited investment in development projects by CBG and the communes (from equity funding as well as business revenue taxes) in relation to increased needs. The same applies to sanitation services, given the ever increasing amount of waste produced in urban areas.

Access to housing for the 388 workers' families (Kamsar and Sangarédi) will bring increased access to services for a very small part of the total population in the Project Area.

Electricity

Rural area

No positive or negative impact is anticipated as part of the Expansion Project. With no government policy in effect, the villages will remain without electricity and the Expansion Project will not result in any change to the current situation.

Urban areas

In Kamsar and Sangarédi urban districts where the workers' towns are set up, service will be maintained at current levels and will be developed in extended areas. Access to housing for the 388 workers' families will result in better access to services for a relatively small part of the total population in the Project Area.

In the remaining, urban districts, access to electricity will deteriorate as a result of the increased population and hence increased demand and CBG's intention to gradually transfer the provision of electricity to the government, which is currently failing to meet its responsibilities in this regard.

Education

Rural areas

In rural areas, the sources of impact on access to education are limited. It is anticipated that

- owing to a lack of investment (i.e., public funding, business revenue taxes and equity funding) existing educational facilities throughout the project area will deteriorate and become inadequate given the migration generated by the Expansion Project (essentially to urban areas);
- as is currently the case, some villages could benefit from CBG-funded projects (combined with part of business revenue income being redistributed to communes) for the construction of new facilities (essentially primary schools);
- in villages such as Hamdallaye, the proximity of future schools to the pits could be a major nuisance for schools, in that students may find it difficult to get to school and the increased noise levels could be disruptive.

Urban areas

In the urban areas of Kamsar and Sangarédi, where the workers' towns are set up, access to education could also deteriorate owing to increased demand and the lack of public facilities. School tuition fees are likely to increase with the growth of private facilities. This is an indirect impact tied to natural population growth combined with increased migration resulting from the Expansion Project.

Health

Rural areas

In rural areas, the sources of impact on health care will be limited. It is anticipated that

- owing to a lack of investment (i.e., from public funding, business revenue taxes and equity funding throughout the area) existing health-care facilities will deteriorate and become inadequate given increased needs caused by the Expansion Project; and
- as is currently the case, some villages could benefit from CBG-funded projects to build new facilities (which will need to be supplied with equipment and qualified personnel by the Government).

Urban areas

In the urban areas Kamsar and Sangarédi, outside the CBG workers' towns, access to health care is likely to deteriorate owing to the increased demand, lack of public infrastructure and the development of a health-care market to which access is determined by household wealth.

Access to housing for the 388 workers' families will lead to an increase in access to basic services.

Recreational and cultural facilities

Rural area

The sources of impact on the essentially non-existent recreational facilities will be limited. It is likely that some soccer fields often located on the outskirts of villages will need to be destroyed when some of the pits are opened.

It is also anticipated that no recreational and cultural facilities will be developed in rural areas given that communities prefer to give priority to developing basic services when funding becomes available.

No specific recreational and cultural project was developed in the consultations associated with the Expansion Project.

Urban areas

In urban areas, the sources of impacts on the deterioration in access to recreational and cultural facilities are essentially the lack of investment (public policy, limited business revenue taxes, and priority given to basic services in the case of CBG funding), and the increase in urban population and hence demand. This is considered an indirect impact of the Expansion Project.

Access to workers' housing

Sangarédi and Kamsar urban areas

CBG has a workers' housing policy in place for those employed directly by the company. The workers hired by CBG for the Expansion Project will be housed in Sangarédi and Kamsar. This is a positive impact in that having access to housing will represent an increase in standard of living for these 388 families. In addition, access to all basic services will be facilitated as a result of the social policy CBG applies for all its workers. It should be noted that CBG is increasingly encouraging workers to live in less central districts such as Kassangoni and Kawass in order to prevent overcrowding in the centre of Kamsar. A private home ownership project for employees of CBG and other mining projects in Kawass district is currently being developed in connection with an urban planning strategy. This project could eventually be extended to people other than CBG employees if basic services are guaranteed as planned in periurban districts of Kamsar.

7.4.3.4 Assessment of impacts

Table 7-7 Level of impacts on access to infrastructure and basic services

Level of impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Degradation in access to water and sanitation services	High	High	High	High	Low	Low
Impact 2 – Degradation in access to electricity	Medium	Medium	Medium	Medium	Low	Low
Impact 3 – Degradation in access to education and training	Medium	Medium	Medium	Medium	Low	Low
Impact 4 – Degradation in access to health-care services	High	High	High	High	Low	Low
Impact 5 – Degradation in access to recreational and cultural facilities	Medium	Medium	Low	Low	n/a	n/a
Impact 6 – Improvement in access to housing for CBG employees	Medium	Medium	Medium	Medium	n/a	n/a

Description of impacts for sub-component

Impact 1 – Degradation in access to water and sanitation services

Rural areas

Some villages in the rural areas of the mine are likely to see their access to water deteriorate during the construction phase, and even more so in the operation phase.

Given that most households use wells, natural springs, streams and rivers as sources of water for drinking and daily living activities, mining operations could well have a very high negative impact on access to water. The villages of Boundou Wandé and Hamdallaye are typical of the villages that have seen their springs and streams extensively affected by mining operations. When new pits are opened, it is likely that there will be a deterioration in access to water in Zone 1 villages in the vicinity of the pits. In some cases, an increase in groundwater flow is anticipated, which would be a positive impact. These impacts are detailed in Chapter 2, which discusses the assessment of impacts on the physical environment.

It is anticipated that both drinking water sources (quantity and quality) and sources of water used for daily living and agricultural activities could be impacted. Some infrastructure such as improved wells and manually operated pumps may also need to be destroyed if they are compromised by being within the perimeter of future pits or the 100-m buffer area around future pits.

In cases where mining activities degrade village access to water, the villagers expect CBG to come up with alternatives. They also insist that it would be unthinkable to replace a spring with a single water well. Springs are used to water plantations and crops, for which a water well is unlikely to have the capacity.

Urban areas

In urban areas of Sangarédi and Kamsar, the primary impact of the Expansion Project involves migration into the area that will increase already substantial pressure on existing services (CBG systems) and water resources (wells, streams and rivers). Access to water, which already poses serious problems in the various districts of Kamsar and Sangarédi, is likely to further deteriorate in quality and quantity and give rise to strong social tension. Access to water for CBG workers housed in the workers' towns will on the other hand be maintained at a similar level.

Expectations are very high in the two towns for CBG to provide the local population with sufficient quantities of good quality water. It seems almost everyone agrees that that is CBG's responsibility since State services (including SNAPE) were almost never mentioned as being responsible for guaranteeing access to services. In this context, if CBG is working toward gradually withdrawing from supplying basic services, or at the very least not increasing its distribution capacity, and the State does not take the lead, this situation could represent a source of increasing social frustration.

Impact 2 – Degradation in access to electricity

Rural areas

In rural areas, the Expansion Project is not expected to have any positive impacts on access to electricity. Electricity is not available, and no improvement of the situation is anticipated. There are strong expectations within some villages however near the railroad track and in the outskirts of Kamsar that they will get access to electricity through the Expansion Project.

Urban areas

Population growth is expected to generate new needs that cannot be fulfilled. In urban areas, access to electricity is very likely to deteriorate if CBG gradually withdraws from providing the service and the State does not take the lead in setting up a user-fee service along with a social tariff system (involving prepaid meters). In CBG's two workers' towns, access to electricity will be maintained, but will more than likely gradually deteriorate over the years in the outlying districts.

In deciding to set up new housing for employees in urban areas, CBG will not be involved in promoting the service in outlying districts. The house ownership initiatives in outlying districts could also create tension if services are not guaranteed in those districts. Given that a majority of the population interviewed expects improved coverage to be guaranteed by CBG (possibly in the form of a public private partnership with State funding), conflict is likely to arise over this issue (see Governance/Social Tension section).

Impact 3 – Degradation in access to education and training

Rural and urban areas

If in the years ahead during the Expansion Project, the State and CBG do not guarantee investments for maintaining and renovating existing buildings, upgrading pedagogical materials and the quality of instruction in villages and towns, access to public education may well deteriorate in both urban and rural areas.

Demographic pressure in towns in the project area is likely to heavily impact the number of students in classrooms. As in the health sector, the development of fee-based private facilities will definitely widen social inequalities in the field of education.

Without adequate government funding, existing training centers (higher education and adult education) are also likely to be undermined with a deterioration in the quality of instruction. If however support/funding programs are backed by the government, the Expansion Project is likely to have a positive impact on higher education and adult education.

Impact 4 – Degradation in access to health services

Given the increased migration the Expansion Project is likely to trigger, access to health in urban and rural areas is also expected to deteriorate if investments from the government and CBG in training qualified personnel and equipping existing health centers other than CBG facilities are not forthcoming. Currently, health facilities are sorely lacking in rural areas, and access to health care is poor even very poor (depending on the distance between the village and Kamsar or Sangarédi. Since Project activities are likely to increase the risk of accidents and the spread of disease (essentially in the mine area), the Project is likely to have a significant adverse impact on access to health care in rural areas if there is no quantitative and qualitative improvement in access conditions.

In urban centers, access to health care is also likely to deteriorate for a majority of the population with the exception of employees and their dependents given that access to existing, good quality health care is increasingly determined by household wealth (with no social tariffs available). It is anticipated that a majority of the job-seekers drawn by the opportunities offered by the Expansion Project will not have sufficient means to access health care. Pressure on existing public services will also increase and for-profit private initiatives will multiply, without necessarily any guarantee as to the quality of the services provided.

Impact 5 – Degradation in access to recreational and cultural facilities

The public consultations seemed to indicate that there is already an issue accessing the recreational facilities available in the town of Sangarédi in addition to an equipment issue at the cultural centre. Youth organizations complain that CBG does not allow free access to the recreational facilities it built for the general population. The large towns in the Project Area all lack cultural and recreational facilities (the fact that Sangarédi has no library was mentioned many times). Since a majority of the population is under 30 (see Chapter 5), the existing supply of recreational facilities is already inadequate and will be even more so in the years to come.

The total lack of recreational and cultural facilities in rural areas suggests that any investments made would easily improve the situation (i.e., soccer and other playing fields).

Impact 6 – Improved access to housing for CBG employees

Access to housing for the 388 families of workers recruited by CBG for the Expansion Project will have positive but limited impacts on access to housing throughout the area. The families involved will however enjoy new, healthy, well-equipped housing along with very good access to basic services.

7.4.3.5 Mitigation measures

Development planning and communications

- Develop an ESMP and RAP in compliance with the most stringent international standards (i.e., IFC Performance Standards, 2012), including individual and community compensation for restoring even improving the affected communities' access to facilities and basic services (i.e., health, education and water, etc.).
- Replace social facilities that will be destroyed or whose operation will be altered by the development of the project.
- Sign a local development agreement, as described in the Mining Code (Article 130, 2011), to plan social projects including the development of services and facilities, in collaboration with affected communities.
- Take the communes' local development plans into account when selecting actions to be financed (with business revenue taxes and equity funding).
- Engage in a dialogue with the government about handing over responsibility for the supply of basic services to public agencies. The situation as regards access to electricity and water services in the town of Kamsar and surrounding areas is in itself a priority.
- In cooperation with prefecture, subprefecture and commune authorities commit to developing a master plan that will ensure consistent development of the urban and rural areas associated with the Project (including funding of public infrastructure, and provision of services).
- Set up a community relations department charged with overseeing the operation of social facilities CBG has funded (via equity funding and business revenue taxes), and implement any necessary corrective measures (pumps, schools, health centers and posts, etc.).
- Clearly identify the water and electricity services provided by CBG throughout the Project Area and ensure transparent communications in that regard.

- In collaboration with very small businesses and/or local associations, support projects that promote sanitation services in the towns of Sangarédi and Kamsar (awareness campaigns, waste management, etc.).

Access to basic services

- In collaboration with ANAIM and the Ministry of Health, consider a social tariffs system for those who are not entitled to receive services in health centers and hospitals managed by ANAIM and CBG to promote the principle of universal access to health care.
- Promote the rapid opening of the Boundou Wandé health center funded by CBG, by guaranteeing its facilities and negotiating the transfer of qualified health care staff with the government.
- Promote and support any initiative that involves building and equipping new health centers and posts in the rural area of the mining concession.

Protection of natural resources

- Protect springs and water courses used by rural populations.
- Comply with minimum 100-m buffer zone between the pits and inhabited areas, as recommended in the Mining Code.

Culture and recreation

- Initiate a dialogue involving CBG, local authorities and youth representatives in Kamsar and Sangarédi on needs for and access to recreational and cultural facilities for young people and the wider urban population.

Monitoring

- Develop a program for monitoring access to basic services, including water, electricity and health care, in the mine area.

7.4.3.6 Residual impacts

The level of impacts of the Expansion Project were re-assessed in this section to incorporate the implementation of the mitigation measures described in the previous section and summarized in the ESMP (Chapter 10) in accordance with an

aggressive schedule and appropriate resources. The residual impact determined under these conditions is presented below.

Table 7-8 Assessment of residual impacts on access to infrastructure and basic services

Level of residual impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Degradation in access to water and sanitation	Medium	Medium	Medium	Medium	Low	Low
Impact 2 – Degradation in access to electricity	Low	Low	Low	Low	Low	Low
Impact 3 – Degradation in access to education and training	Low	Low	Low	Low	Low	Low
Impact 4 – Degradation in access to health care	Low	Low	Low	Low	Low	Low
Impact 5 – Degradation in access to recreational and cultural facilities	Medium	Medium	Medium	Medium	Medium	Medium
Impact 6 – Improvement in access to housing for CBG employees	Medium	Medium	Medium	Medium	n/a	n/a

7.4.4 Land

7.4.4.1 Overview

To determine the impacts on land, it is essential to understand local dynamics, the various types of land use and the predominant land tenure systems. The Guinean directive on impact assessment (Directive sur les études d'impact, République de Guinée, 2014), in a specific section on the land-use plan (Article 4.7.9.5, 2014), states that impact assessments must take into account existing land use and possible future changes in land use, such as zoning for tourism or agriculture, ancestral grazing pastures, ritual sites, etc. Since the mine project will substantially expand the surface area used, mostly in the mine zone, this study focuses on the impacts of the resulting loss of land (lost sources of income, potential displacement of some homes and/or villages, modification of land tenure systems, etc.).

The study mainly deals with:

- loss of land (cropland, fallow land, grazing pastures, etc.) and compensation;
- changes in land tenure and traditional land management systems (village boundaries, individual rights, land acquisition, security of permanent crops, etc.); and
- anticipated displacements.

7.4.4.2 Current Situation

Mine zone: rural area

As described in the Socioeconomic Baseline Study in Chapter 5, in rural areas of Guinea and the Project Area, the local legal system is still customary land tenure and the rural development communes are therefore rarely required to register landholdings or administer them.

The first village settled in an area obtains “founder” status; the “parent villages” are Wossou and Boulléré. This primacy gives them certain rights, including the right to allow (or disallow) new settlers. The settlement process therefore fosters a land tutorship between two villages, with varying social and land tenure-related obligations. Acceptance of “migrants” and gradual development of satellite

settlements on the periphery lead to densification and eventually exert pressure on the land. Today, opportunities for investing in new spaces are rare, even nonexistent. In some villages, land saturation is apparent and the agricultural system is reaching its limits.

The same principle applies within the villages. Settlement seniority creates a tenure hierarchy between the family lineages in a village community. Land tutorship also structures the relationships between the founder lineages and the new lineages they accept.

Decisions relating to land management and all village affairs are thus made by the founder lineage, either with information from the other lineages, as is the case in the villages of Kourawel, Boulléré, M'Bondy Foullasso, N'Diarindé Missidé, Karé Dabel, Kalinko Roundé, Lafou Baïla, Passago, etc., or, as in the villages of Parawi, Madina Dian, Cogon Lengué, N'danta Foyné Ley and Dowou, Nialé Moussa, etc., the founder lineage is required to consult the elders of all the other lineages in the village. Just as with the parent village (supravillage) or the village, lineage constitutes a standard socioeconomic reference for understanding land management in the zone. In the concession zone and for every level considered, these founder relationships are still in effect.

Under the traditional land tenure system, individuals do not “own” land, but enjoy some rights or are authorized to use resources in certain ways. The “resource space” concept covers a variety of land uses in a space utilized by certain groups. Different types of activities are conducted that vary seasonally or employ different operating methods (fallow land, concentration of grazing to fertilize the soil with manure).

The dominant activity in the mine zone is agriculture, followed by trade/employment and livestock herding in the rural zone. Soil fertility is generally restored by letting fields lie fallow and to a lesser extent by livestock wandering in the fallow fields. The current agricultural system based on resting the soil has reached a certain limit in town and mine perimeters and is a practice that exhausts or impoverishes the soil. Reduction of the usable land surface (mine, town, plantations), the population increase (more pressure on specific areas) and the removal of animals (herders want to get away from the mine noise and conflicts with farmers) are all factors that upset the balance of the agrarian system.

Under traditional management, tenure rights can differ from one resource space to another (from a plain to a hillside, for instance), but a given resource space can be used for various purposes and have different types of status depending on the season (for example, a plain used to cultivate rice by one individual may be used to graze the village's livestock in the off-season). The uses, functions and levels of rights attributed to these spaces are described in the Socioeconomic Baseline Study (see Chapter 5). These tenure systems are highly complex, variable, changing and unlikely to be taken into account in the national Land Tenure Code.

In fact, the Guinean Land Tenure Code adopted in 1992 makes no explicit reference to traditional land tenure systems and considers the State to be the only legitimate land authority (to own property, title must be issued by the appropriate level of government). At the moment, the impact of this Land Tenure Code is very limited in rural areas, all the more so because it is better to be recognized as a landholder by the community living on the land concerned than by a State that has limited presence in the immediate vicinity and is unable to protect the landholder's rights if the customary authorities do not recognize them.

Many villages have already suffered the negative impacts of mining in the zone. These impacts caused the loss of large tracts of land in such villages as Boundou Wandé, Daroul, Pora KP 130, N'danta Foyne Ley and Dow, Congo Lengué, Hamdallaye. Open-pit mining so far has relied on the "requisition or expropriate" method to obtain land, with no policy of compensating the villages affected. Discontent with CBG's policy is high in all the villages concerned in the zone.

Rehabilitation of the mined areas is an institutional requirement under the company charter, the Mining Code and the Environment Code. In 2013, CBG rehabilitated more than 1,000 ha of the mined land in the zone.

Almost all the plots that have been mined a first time by CBG may be mined by the company a second time or more, depending on their bauxite content. This operating system means that the land is never returned to or reappropriated by the community. As a result, the local public is very confused about the status of these rehabilitated areas (cashew and acacia plantations). It appears that anyone can gather fruit on the cashew plantations, despite a lot of stories to the contrary obtained during the consultations. Many villagers told us about the presence of CBG

security guards who prevent the locals from picking cashews and may even arrest them and impose fines.

Photo 7-6 Former open pits rehabilitated and planted with cashew trees, mine zone, Sangarédi.



For this impact study, the following facts about rural land in the mine zone were taken into consideration:

- the traditional land tenure system dominates in rural areas;
- land is essentially collectively managed;
- villages and lineages are involved in tutorships that authorize land access and usage: the parent villages play a major role in resolving land-related conflicts;
- these tutorships may allow tutor villages and lineages to demand that some of their lands be given back when land becomes scarce;
- villagers do not connect the concept of private property with land and instead use community resource spaces;
- the spaces used may have different functions and status depending on the year and season (for example, fallow land);
- in the current situation, agriculture in the mine zone has already been rendered fragile by a number of factors: the mine, urbanization, reduced yields, demographic pressure;
- many villages have already lost substantial tracts of land since the mine pits were opened and there is no system of compensation;

- people are confused about the status of land replanted by CBG and are unable to benefit fully from the rehabilitation; this land, however, will definitely not be restored to the communities.

Mine zone: urban area

In the urban section, the town of Sangarédi has now spread into the territory of many villages that are structured around the customary land tenure system described above. Modern legislation has been superimposed on the existing land management system; some principles have been maintained while others generate land conflicts. The government boundaries rarely coincide with the customary lands. These differences may cause significant difficulties when the urbanization process enters the picture. Land tenure in Sangarédi has not been governed by any planning logic. Consequently, the rural commune now has practically no reserve land for building public utility infrastructure (sales of commune land are also part of the problem).

When urbanization and densification occur, the pressure on land gives it new value. Monetization of the land has caused conflicts of interest to escalate and encouraged people to make compromises between the two tenure systems.

The study of the urban area reveals:

- land management in which a traditional management system exists in tandem with a modern management system based on deeded property;
- urbanization in Sangarédi has occurred haphazardly and the town is now saturated to the point of lacking space to build public utilities;
- a land market exists that tends to replace traditional land management systems;
- conflicts are escalating and the authorities best placed to settle them are those that have customary authority as well as representative status in sector and district institutions;
- planned construction by 2022 of about a hundred homes for CBG employees and a temporary construction camp in Sangarédi.

Railroad zone - KP 14

Unlike the situation described in Sangarédi, seniority is not the primary factor in the social hierarchy that organizes land access in this zone. In theory, tenure in this zone involves collective management by lineage members supervised by the elder. Over the past decade, some landholdings have been broken up and sold to migrants. This is the case for a *kharé* (a plantation and market gardens) in Toumbéta territory that was sold to a Kamsar resident who wanted to plant cashew trees and oil palms. This purchase granted full rights to the buyer.

A land tutorship is recognized between the villages of Kamakoloun, Toumbéta and Katomou that generates certain moral attitudes (mainly solicitude), but all these villages are *nalous*, which means that none of them owe land-related obligations to their tutor. This identity gives them full rights over the land they occupy. Most often, strips of lineage land near the railroad tracks encompass a living area (concession), a *kharé* and a rice field on the vast mangrove plain. Each of these locations may therefore be involved in negotiations without CBG referring to the high-level customary authorities.

In the railroad zone, a first siding is being built as this impact assessment report is being written. A resettlement plan for Kolaboui (*Plan de réinstallation pour la zone de Kolaboui*) was commissioned by CBG from AECOM in 2011. This document describes all the steps needed to develop and implement a specific Resettlement and Compensation Action Plan (RAP) for this project that meets IFC/World Bank international standards. The compensation measures described in the RAP have already been implemented and this aspect of the project is not included in this impact assessment, at the requested of CBG.

Port zone

The port dredging zone is located at the mouth of the Rio Nuñez, one of the main coastal rivers on the northern coast of Guinea. Since the socioeconomic issues are mainly related to changes in fishing activities, the impacts are dealt with in the “Economic environment and household strategies” section of the report.

The coastline is bordered with mangrove forests that leave fairly broad tidal flats covered in places with sand, silt and sometimes rocks. Mangrove rice fields are

generally found along these shorelines. Market gardens and annual croplands are also situated in the center and outskirts of Kamsar.

In the 1960s, CBG requisitioned farmland (inhabited and farmed by the Baga people) in the present town of Kamsar to build a port, a plant, a railroad and worker housing. Since then, the town has continued to grow around this hub which constitutes CBG's presence in the zone.

7.4.4.3 Sources of impacts

Mine zone - rural

Most of the impacts in the rural mine zone are related to the opening of new bauxite pits, mine facilities (sorting yard, stockpile, sidings) and roads.

The mining plan will be carried out gradually and the pits will not all be mined at the same time. When a number of open pits are in operation concurrently and the pits are close to a sensitive habitat (village), CBG intends to mine only pits located in different village territories in order to limit the impacts (mostly noise, dust and vibrations).

All the pits that have been mined in the past, like those currently in operation or tagged for operation in the mining plan, are now considered lost to the communities. However, in its new mining plan, CBG intends to plant trees on these lands, even when the pits may be mined again. That will enable the communities to use these spaces for their farms and livestock.

The siding will be extended on the Sangarédi side (an extra 30 meters at KP 72, in 2017 or later). The land impacts will therefore be limited in this area.

Workshops will be built at N'Dangara (target 2022) within the current sorting yard. The land impacts for the public will be nonexistent. As soon as the construction phase begins for the 18.5 MPTA scenario, a construction camp will be built with a capacity of 60 construction workers. The camp will be located on the premises of the pit being mined in N'Dangara, already partly requisitioned by CBG. As mentioned, for the Expansion Project (bauxite production scenario 22.5 MTPA/year in 2017), CBG also plans to build 113 housing units in Sangarédi.

A new sorting yard and stockpile will be developed near Hamdallaye, on the Parawi side (22.5 MTPA scenario – 2017 or later). Extension of the sorting yard in the direction of Parawi will intersect with the national highway. An overpass is planned: trains and trucks will go under it.

A new siding will be built near the village of Horé Lafou at KP 118. The siding will be built on the north side (side of the national highway). Two new sidings will be built for the 27.5 MTPA scenario in 2022, i.e., not by 2017 as shown in the project specifications.

Mine zone - urban

In Sangarédi, CBG plans to build 113 housing units for CBG employees who will be recruited for the Expansion Project (22.5 MPTA – 2017). Construction of the workers' houses will likely require CBG to requisition some land and may even involve displacements.

Railroad zone

The land impacts in the railroad zone are mainly concentrated at KP 14, where the future siding will be built (in 2022). The current main track will become the siding, linking the future Kabata project to a siding and not directly to the main track. The new track built will therefore become the main line.

The new siding will occupy about 7.5 ha of land in a narrow strip parallel to the current railroad track. The new sidings will not be used in the 18.5 MTPA production scenario. They will be built for the 22.5 MTPA scenario in 2022, not by 2017, as currently stated in the Expansion Project.

CBG also plans to build a construction materials depot but has not yet determined the location.

Port zone - Kamsar

For the Expansion Project, CBG plans to build 275 housing units in Kamsar for its employees (22.5 MTPA scenario in 2017) and a construction camp for technicians assigned to the plant. This camp, with a capacity of 600 workers, will be located in

the project’s industrial zone. There will therefore be no impacts involving resettlement of Kamsar inhabitants.

On the other hand, planned worker housing on the Bas-Fond and Balanta sector border will be built in a densely populated area that is encroaching on a mangrove plain (agricultural zone).

In Kamsar, CBG plans to prohibit and remove crops that are being grown between the railroad tracks.

7.4.4.4 Impact assessment

Sub-component 4: Land

Table 7-1 Assessment of the impacts on land

Project Area	Level of impact					
	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Loss of land	High	High	Medium	n/a	Low	n/a
Impact 2 – Weakening of the traditional land management system / Modification of land tenure and the relationship with the land	High	High	Medium	Medium	Low	Low
Impact 3 – Displacement of people	High	High	High	n/a	Medium	n/a

Description of impacts on sub-component

Impact 1- Loss of land

Mine zone - rural

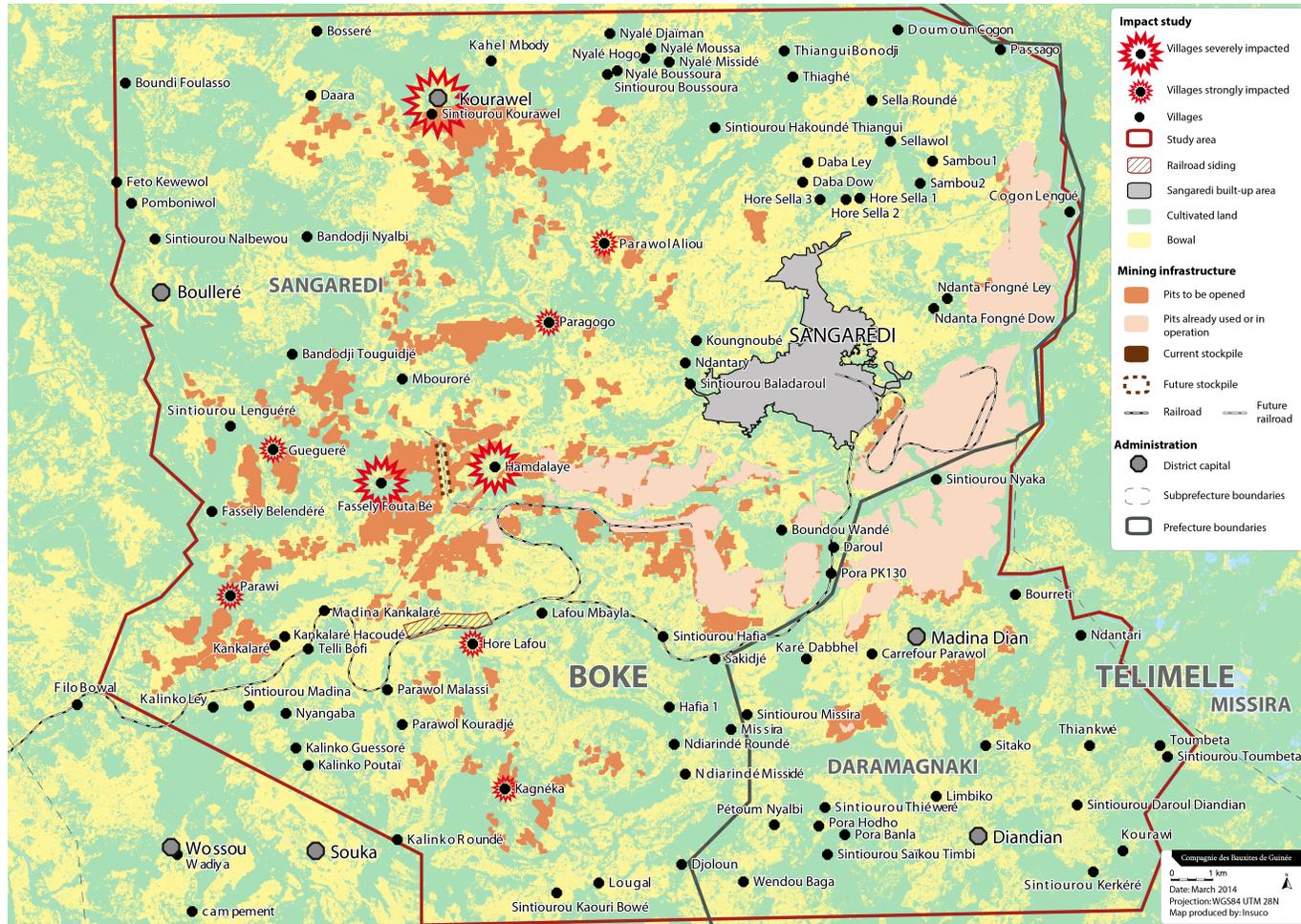
In the rural mine zone, the main impacts on land involve open pits encroaching on many inhabited areas and, especially, very long-term occupancy by CBG of much of the total village land. As explained above, traditional village lands cover large areas. They consist of lowland farms with village homes nearby and plateaus that are also used for agriculture, harvesting and grazing (see Chapter 5).

The Mine Expansion Project will therefore cause the loss of cropland and grazing pasture, as well as fallow land and land reserves maintained for village expansion or to meet village survival requirements when the land loses fertility.

Furthermore, this land will be lost gradually as the three planned mine scenarios are implemented: extraction of 18.5 MTPA or 22 MTPA in 2017 (or later), and 27.5 MTPA in 2022 (see the mining plan agenda).

The map below (based on the 27.5 MTPA in 2022 scenario) shows which villages in the mine zone may be impacted the most by encroachment on inhabited areas and loss of much of their territory.

.Map 7-5 Mine zone villages with the greatest potential impact on land and housing (27.5 MTPA in 2022)



This map shows three different impact levels.

1) Three villages where the impact may be severe:

- Kourawel center: 296 inhabitants
- Hamlet of Sinthiourou Kourawel: 58 inhabitants (*encroachment on inhabited areas*)
- Fassaly Foutabhé: 74 inhabitants
- Hamdallaye: 416 inhabitants.

2) Six villages where the impact may be strong:

- Horé Lafou: 307 inhabitants
- Parawol Aliou: 280 inhabitants
- Paragogo: 541 inhabitants
- Guéguéré: 377 inhabitants
- Parawi: 671 inhabitants (series of small hamlets in the same lowland)
- Kagnaka: 226 inhabitants

3) The impacts will be lower for the rest of the villages in the study area but village land will still be affected in most of them. It is not possible to study all of them for this impact assessment, but they should all be taken into consideration when planning work and compensation for loss.

Maintenance of a safety perimeter (buffer zone) and a protection zone

The current mining plan presents some difficulties regarding the 100-meter protection zone described in the Mining Code.

The Mining Code (Article 111) stipulates:

“No unauthorized prospecting, exploration, or exploitation of Mine or Quarry Substances can begin on a surface within a radius of one hundred (100) meters:

- around properties surrounded by walls or similar enclosures, villages, settlements, wells, religious buildings, cemeteries and sites considered sacred, without the consent of the owner;
- on either side of communication channels, water mains, and generally around any public works or engineering structures.”

The map below illustrates the distances that CBG would agree to maintain between inhabited areas and its open pits and mine infrastructure. For each village and hamlet where humans live, we projected a 100-meter distance from the outer limits of the built-up areas and/or infrastructure.

Examination of this map shows that:

- for all villages except the hamlet of Sinthiourou Kourawel, the mining plan respects the 100-meter protection zone specified by the Mining Code.
- for national highway 22, in several places, the mining plan does not maintain the 100-meter distance that establishes a protection zone between the open pits and a civil engineering structure.
- in many cases, mining will occur within a 500- to 100-meter perimeter of the villages. The legal limit for operations will therefore be 100 meters (protected or prohibited zones) from inhabited areas, as specified in the Mining Code. This situation will concern many villages and hamlets, such as Kourawel, Daara, Parawol Aliou, Paragogo, Guéguéré, Sinthiourou Lenguéré, Hamdallaye, Fassaly Foutabhé, Parawi, Kagnaka, Mbouroré. The impacts on these villages will therefore be greater in terms of noise, vibrations, dust and loss of village land.

Our estimates also consider the fact that CBG plans to maintain a 500-meter evacuation zone between the open pits and inhabited areas when blasting takes place. In other words, CBG will—as it already does just before, during and for a short time after blasting—temporarily evacuate people located within a 500-meter radius around the sites to be blasted. Note that setback distances to protect villages from the effects of dust, noise and vibrations are also specified in Chapter 2.

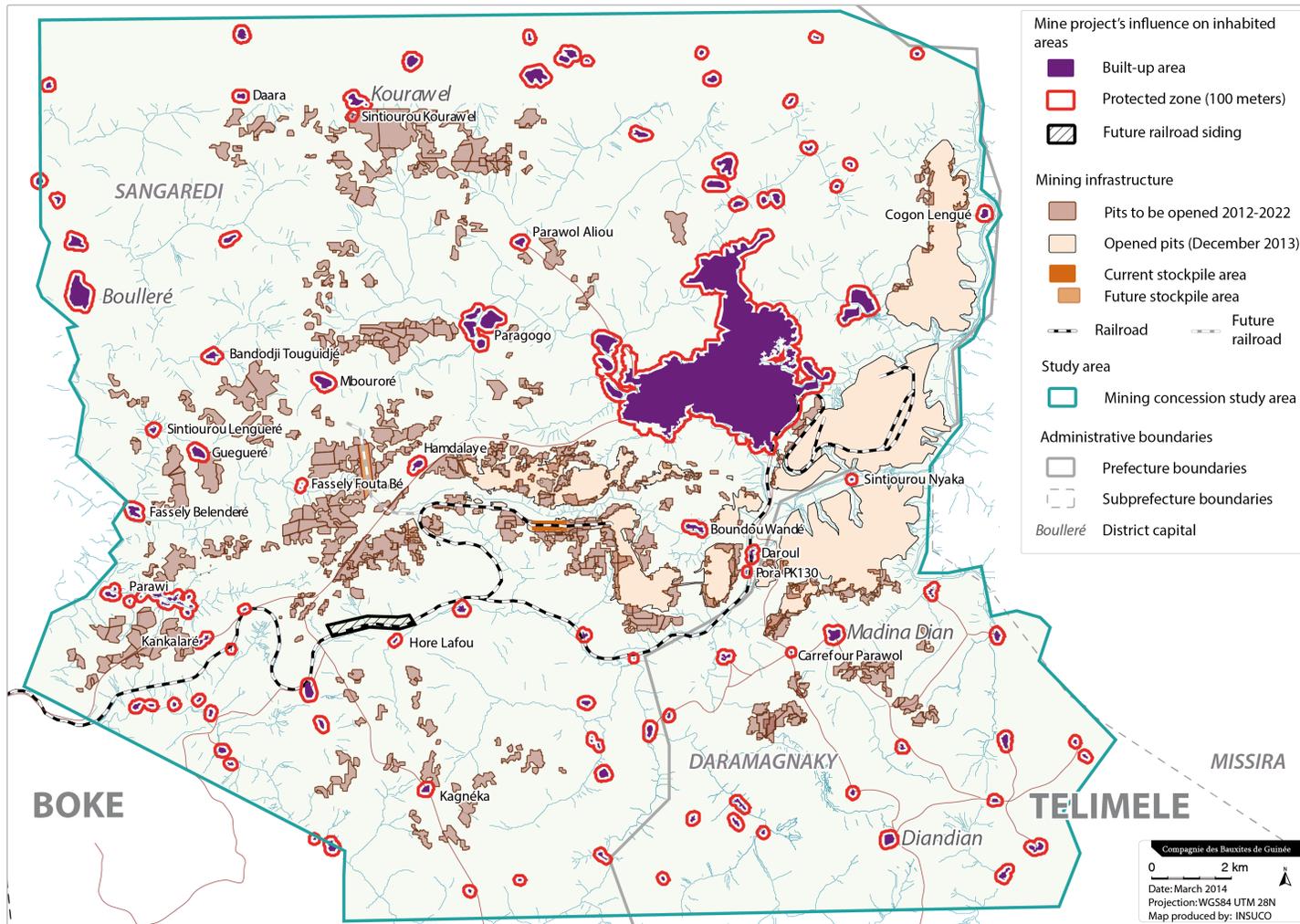
The first map below (Map 7-6) illustrates the 100-meter safety zone to be maintained under the mining plan.

The next map (Map 7-7) shows the 500-meter zones around mining areas that must be evacuated when blasting will take place. Note that many villages lie within a 500-meter perimeter of the future pits.

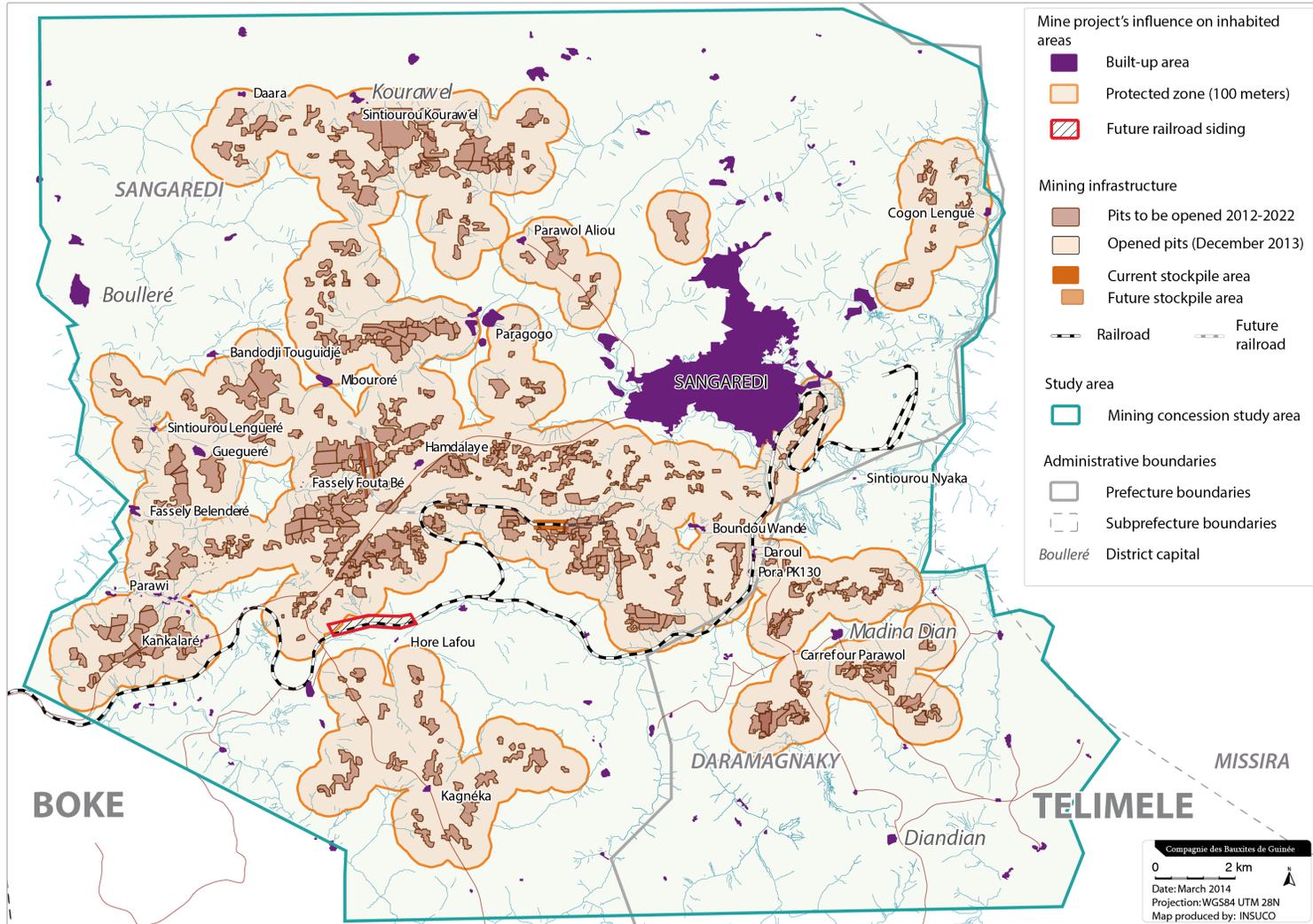
For the villages nearest to the open-pit mines, CBG must consider the fact that blasting may have negative effects on the villages (projectiles, deterioration, vibrations and cracks).

This discussion does not include the setback distances specified in Chapter 2 to prevent or reduce physical impacts (air quality, noise and vibrations). These setbacks would reduce the impacts on the villages.

Map 7-6 100-meter protection zone around villages in the study area



Map 7-7 500-meter blasting evacuation zone in mining areas



Resulting loss of village lands

The consultations conducted in most of the villages in the area reveal serious concern about the possible survival of village economy under the mining plan presented and the extent of the surface area that will be lost as a result.

In principle, it is difficult to describe the land loss that will really occur because:

- CBG's mining plan (CBG, 2013), on which this study is based, is expected to be changed slightly during FEL 3 (and the 2014 version used for the environmental study has been modified);
- the boundaries of the various village lands are not formally drawn: this knowledge belongs to the village elders and leaders (oral culture);
- the space devoted to annual crops is most important for the communities and covers vast areas although this land is not all under cultivation (the fallow system requires plots of land to rest for seven years before being farmed again); and
- bowal space is a major issue for livestock herding as it is used for grazing and transhumance areas or corridors.

The Socioeconomic Base Study in Chapter 5 showed that despite the almost desert appearance of some bowés (bauxite plateaus that are not cultivated but are used as grasslands for much of the year), every space within the study area belongs to a village and is potentially used for agriculture or livestock.

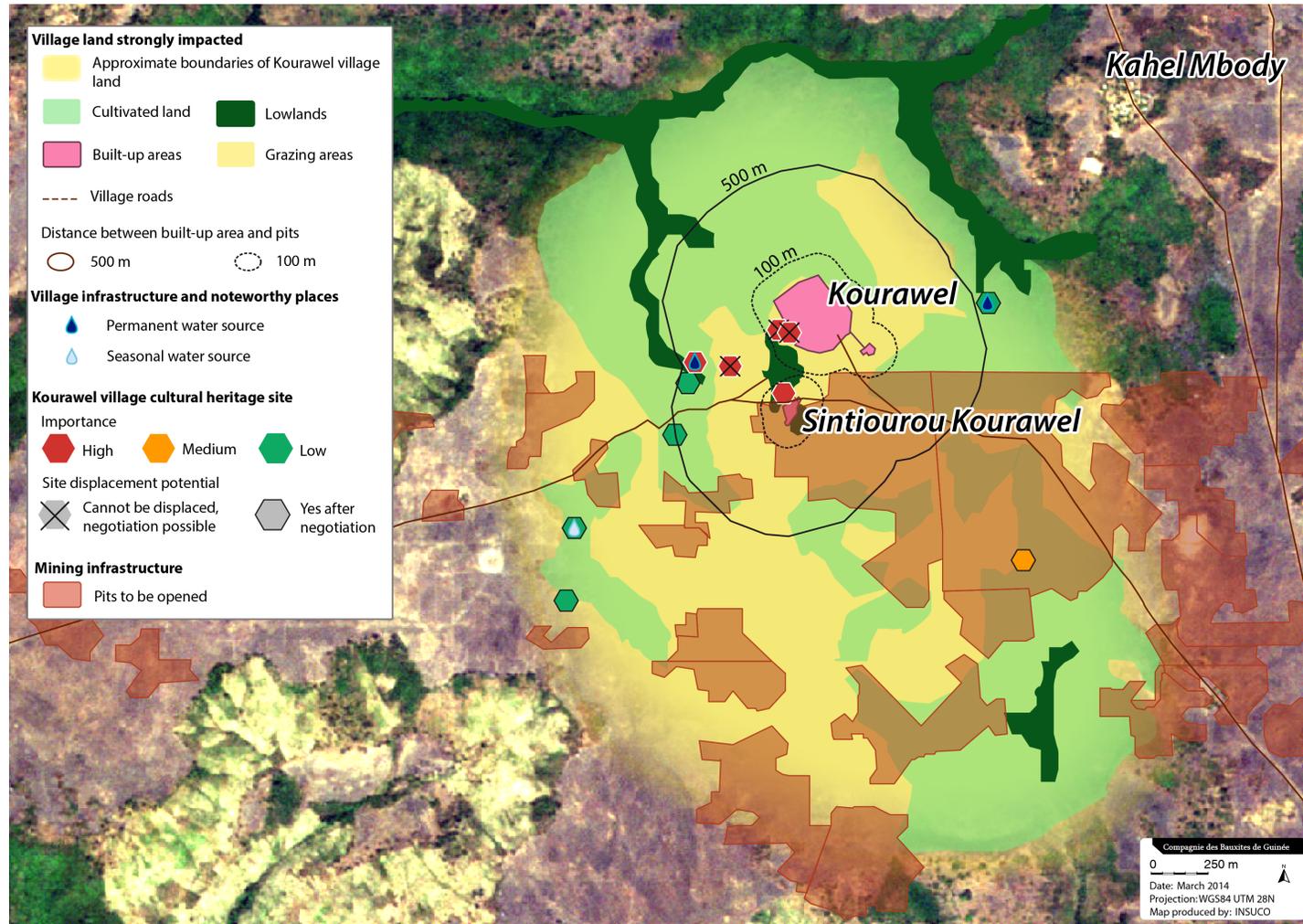
To illustrate the Expansion Project's impacts on village land, we chose to focus on four villages. Three, Kourawel, Hamdallaye and Fassaly Foutabhé, may suffer severe impacts, and one village, Horé Lafou, will suffer strong impacts.

Kourawel village

Kourawel and the hamlet of Sinthiourou Kourawel may be severely affected by the Expansion Project. Map 7-8 below shows that Sinthiourou Kourawel is located within the perimeter of one of the future open-pit mines. This situation automatically requires resettlement of the hamlet. The rest of Kourawel village is situated the regulatory distance of 100 meters from the new pits, and is therefore outside the protection zone.

Most of the village land will be affected, mainly the south plateaus where the annual crops and grazing pastures are among the most economically profitable for the village.

Map 7-8 Expansion Project impacts on Kourawel village land



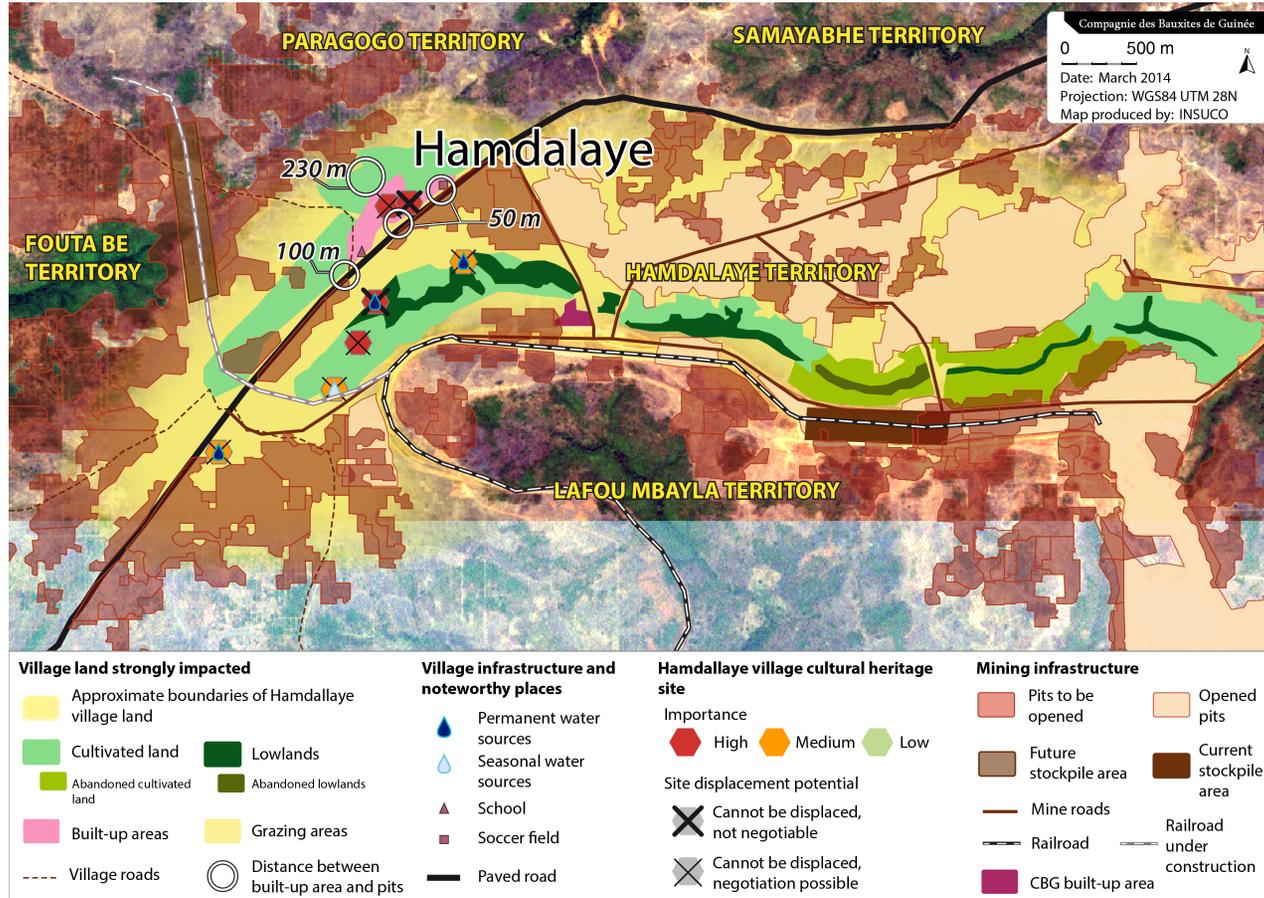
Hamdallaye village

The map below shows that extensive N'Dangara mine operations have already begun on Hamdallaye village land. According to the mining plan, the village is likely to lose even more of its land. The areas affected are uninhabited or sparsely inhabited, but are used for grazing (bowal) and annual crops and are essential to the village economy.

The sorting yard extension will also be built on Hamdallaye village land on the Parawi side. A section of track will be added and will intersect with national highway 22. CBG plans to build an overpass; CBG trains and trucks will go through a tunnel under the overpass. This structure will cause additional loss of land for Hamdallaye (as well as the associated noise and dust nuisances). A spring (which is also a sacred site) is directly threatened with destruction by construction of the railroad extension.

In addition, in Hamdallaye territory, the 100-meter protection zone between the open pits and highway 22 and between the pits and some built-up areas (storytellers' house, school, pump, other types of buildings) is not maintained. If the mining plan stays the same, displacements are likely to occur. Also, some sacred sites will surely have to be destroyed and displaced.

Map 7-9 Expansion Project impacts on Hamdallaye village land

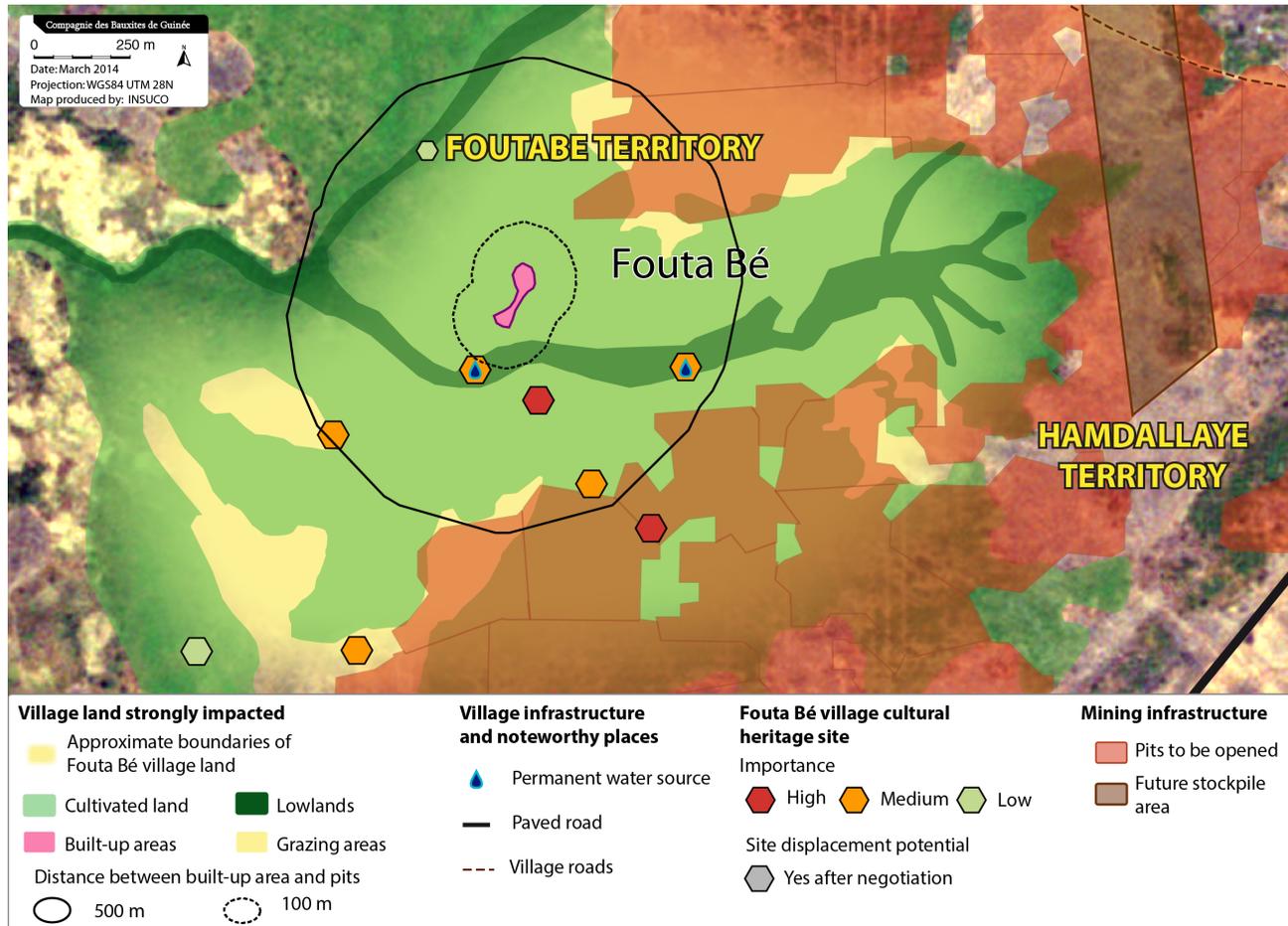


Fassaly Foutabhé village

Fassaly Foutabhé village is an eloquent example as it represents the situation of many villages in the mine zone. The land in this village has not yet been affected by CBG's mining operations. The village land consists of both lowland fields and plateaus. Two springs supply the village and are located in the lowland. According to the mining plan, an extensive portion of the village lands will be mined by CBG. Mining may come within 500 meters of the inhabited areas and water sources. Surrounded to the north, south and east, in the long run the village may become completely isolated and deprived of most of its cropland and grazing pasture. Some sacred sites within the perimeter or bordering the open-pit mines will have to be destroyed and displaced.

The presence of the future sorting yard/stockpile within 500 meters of the village must also be considered. CBG's operating area is therefore located on Fassaly Foutabhé village's cropland.

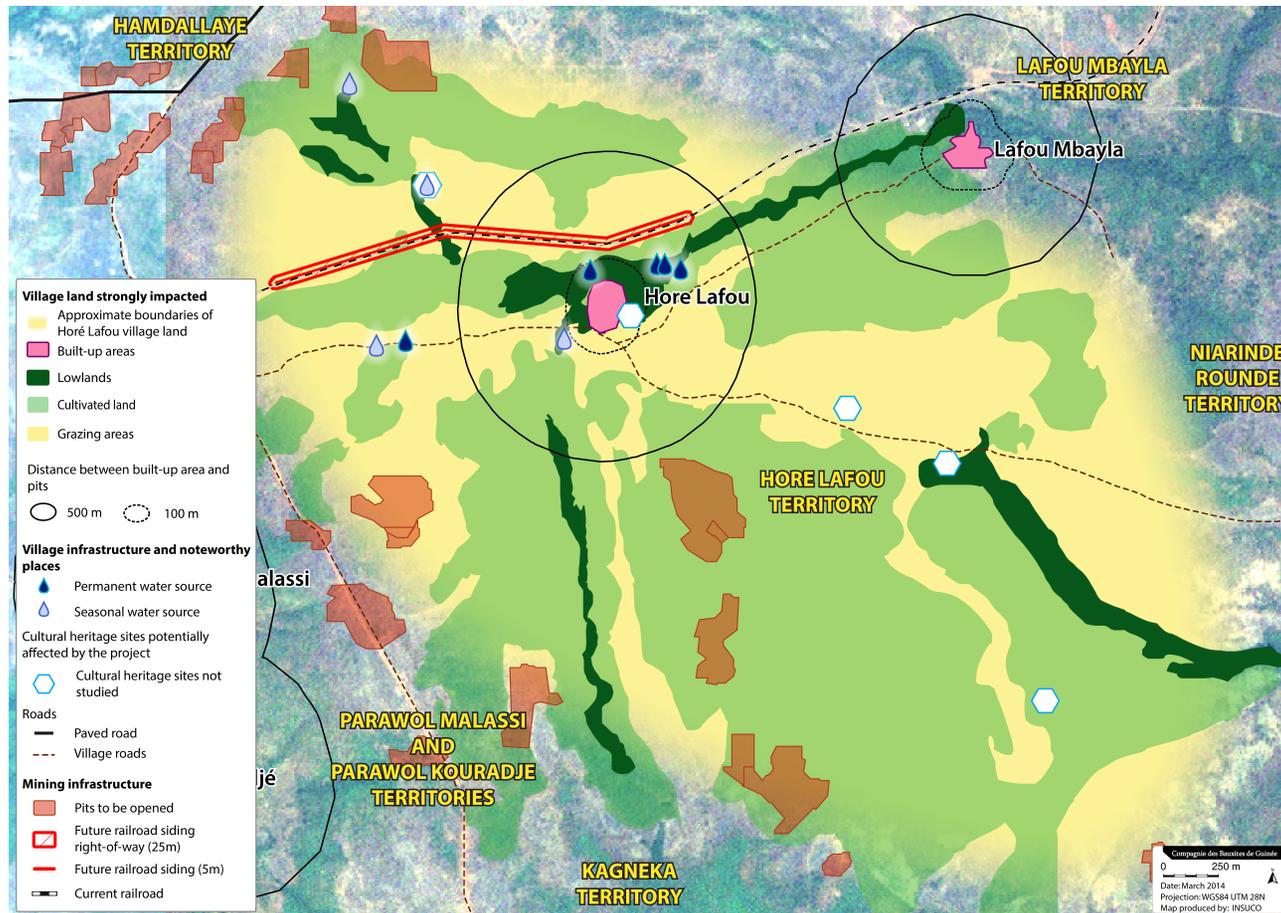
Map 7-10 Expansion Project impacts on Fassaly Foutabhé village land



Horé Lafou village

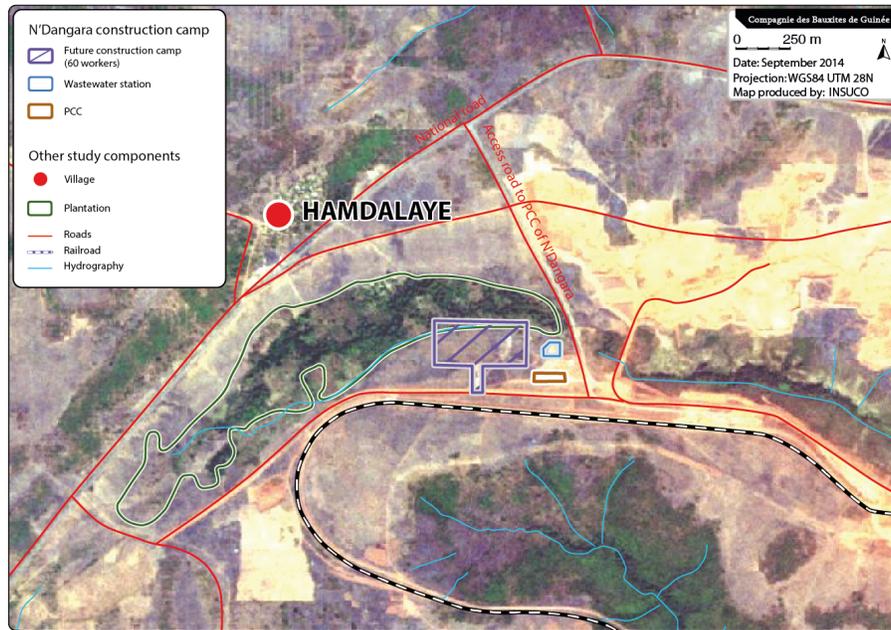
The case of Horé Lafou village, where the new siding will be built (sometime around 2017) shows how important it is for the villages to preserve their lowlands. The siding construction site should not require CBG to requisition too much of Horé Lafou's village land. However, the siding will deprive the village of a small tract of cropland. The study of this village reveals that its springs (some of which are sacred sites) are all located on wooded lowland. Although not directly threatened by construction and operations, they still need to be protected during both the construction and operation phases as their deterioration or disappearance would have a very negative impact on the entire village economy.

Map 7-11 Expansion Project impacts on Horé Lafou village land



Map 7-12 shows the location of the future construction camp on the N’Dangara mine concession. The map indicates that the construction camp could affect part of the adjacent plantation (the information provided when this report was written does not allow us to draw any conclusions about this potential impact).

Map 7-12 Location of the future N’Dangara construction camp, mine zone



Since the camp is located within the N’Dangara mine boundaries, the impacts relating to loss of land will be very limited or nil. However, the camp location warrants more specific attention since it appears to extend into the area occupied by the adjoining plantation. As a result, this construction will probably cause loss of land for Hamdallaye village which maintains this plantation. Unfortunately, the information available to us when writing this report was not specific enough to assess the actual extent of this potential land loss.

Main issues revealed by the rural land study

Anticipating the land-related impacts of a mine project in the rural zone involves:

- considering that land loss will begin with the construction phase and gradually progress during the operation phase;
- taking the inhabited areas and surroundings into account, as well as land that serves as resource land for the village;

- considering the impacts of mining on the permanent and seasonal springs used for farming, livestock herding and household drinking water; and
- maintaining at least the regulatory distances specified as protected zones in the Mining Code (Article 111);
- maintaining the setback distances recommended in Chapter 2.

Mine zone - urban

In Sangarédi, CBG plans to build about 113 housing units for future Expansion Project employees as well as a construction camp (N'Dangara mine) to house 60 workers during construction. At the moment, CBG has begun to build many worker houses to offset the lack of existing homes available for its employees. Photo 7-7 shows the kind of housing that will be built for the Expansion Project.

Photo 7-7 Construction of new worker housing in Sangarédi (March 2014)

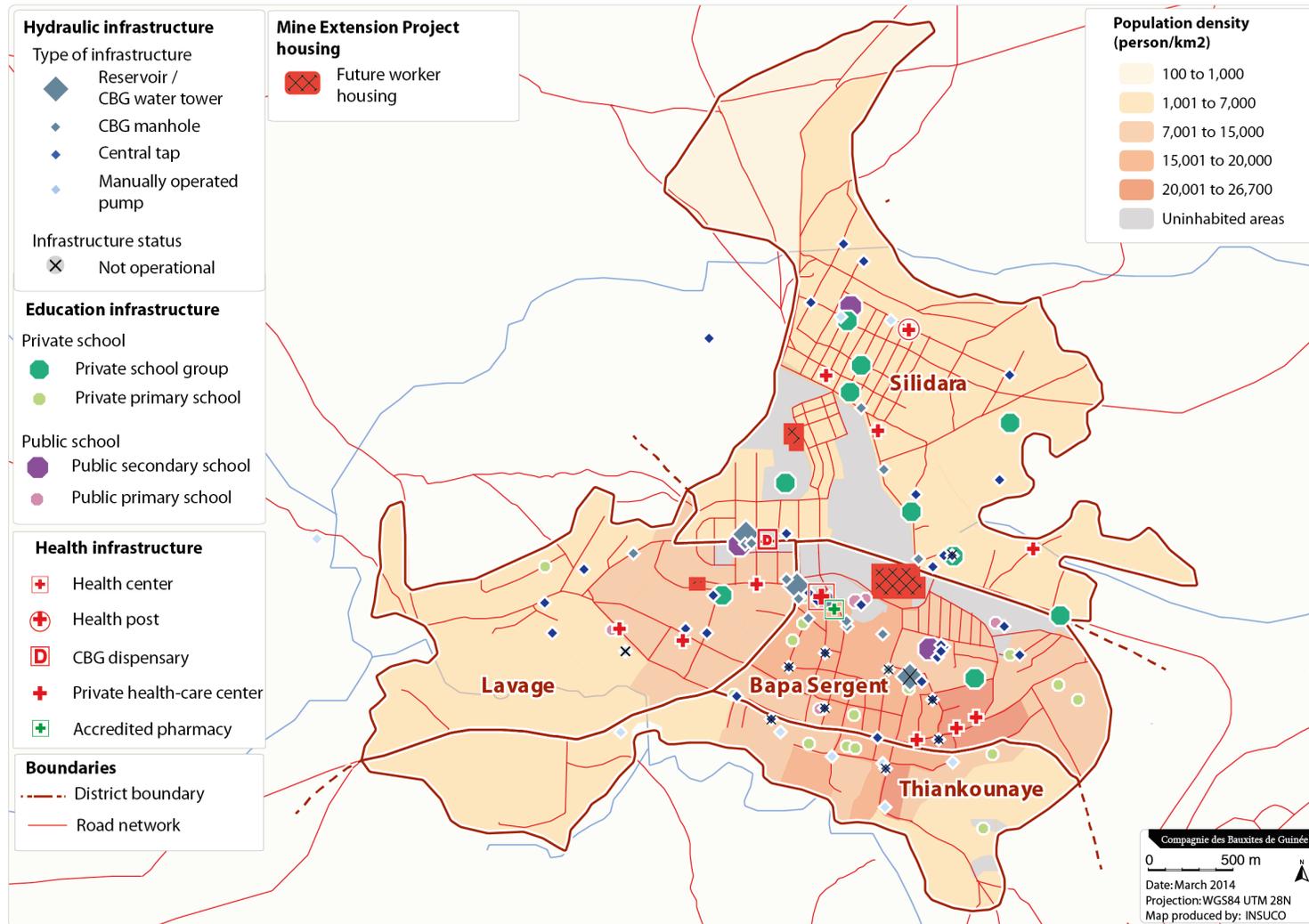


Analysis of the map shows that the housing units are divided into two groups. The largest will be in the Bappa Sargent district in an area that is thought to be unoccupied. However, the land-use map appears to show that part of the area where homes will be built is already inhabited, even densely populated.

The second group of homes will be built in the Silidara district. According to the map below, this group will straddle an inhabited subdivision and an uninhabited area.

The map below illustrates the planned locations of the 113 housing units for workers' families that will be built in two Sangarédi districts (around 2017).

Map 7-13 Location of housing to be built for Expansion Project employees in Sangarédi



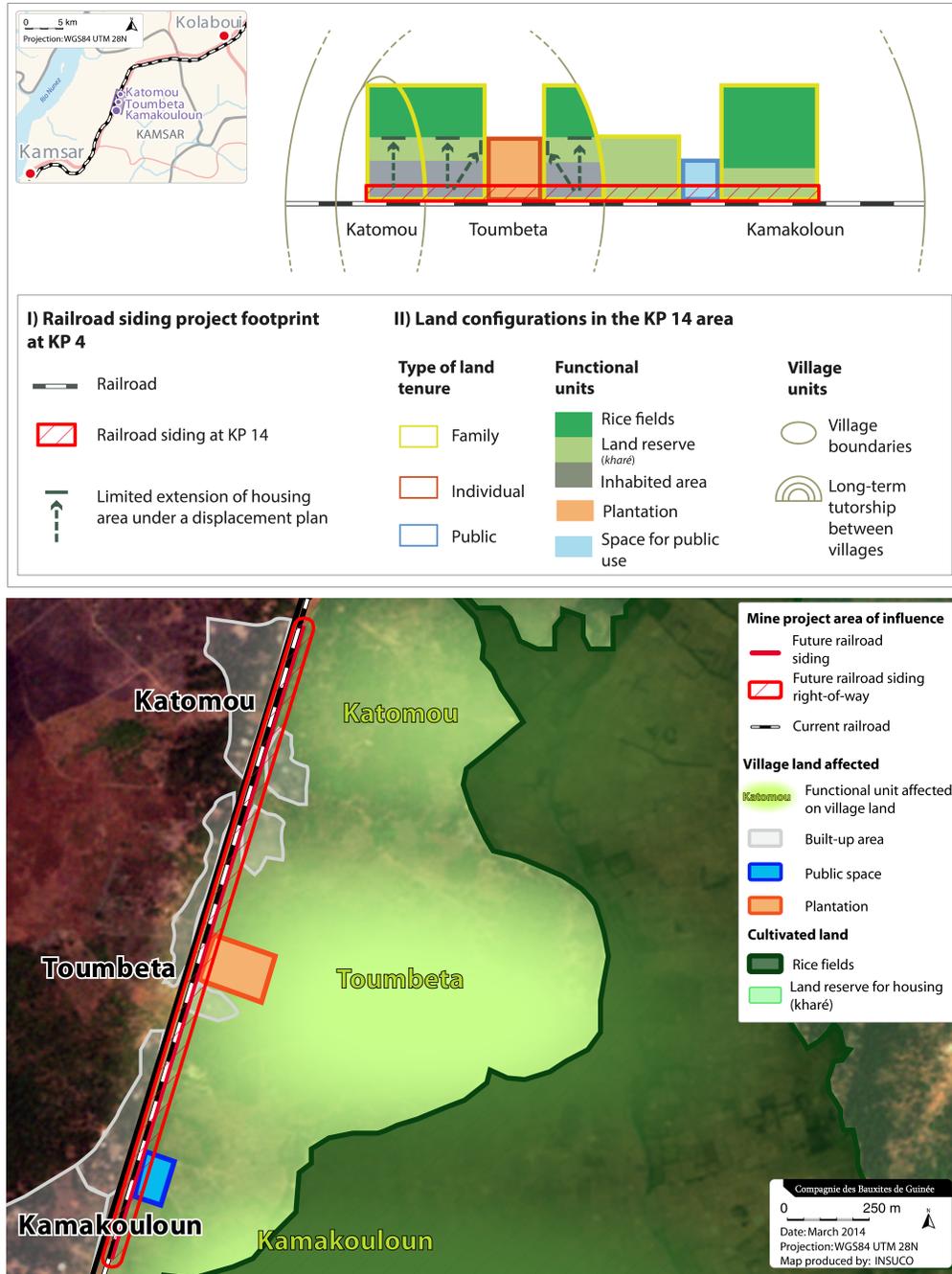
These areas will have to be checked before construction begins to confirm that they really are uninhabited. If some households are living there, their tenure rights should be clarified (land title and traditional tenure) and compensation, displacement and resettlement measures may need to be implemented.

Railroad zone

In the railroad zone, loss of land caused by the Project concerns the area where the new rail siding will be built (KP 14) near the villages of Toumbéta, Katoumou and Kamakouloum. The Expansion Project will use this new infrastructure for the 27.5 MTPA production scenario (2022). It is highly likely that work will begin several years before.

The footprint of this project component is relatively limited. However the territory of three villages will be affected: Katoumou, Toumbéta and Kamakouloun.

Map 7-14 Expansion Project impact on Katomou, Toumbéta and Kamakouloun land near KP 14



Analysis of Map 7-14 shows that construction of the new siding at KP 14, even though it will affect only a limited surface area (east of the current road), will have repercussions on various types of land belonging to the three villages: built-up areas, land reserves, plantations and public spaces. The KP 14 construction will involve displacement of many households from their current homes, and probably some small businesses, but only in the villages of Katomou and Toumbéta. The built-up areas in Kamakouloun will likely not be affected because they are west of the future siding.

Port zone

In the port zone, land loss will mainly be related to the construction of 275 housing units for CBG employees (by 2017). Map 7-15 shows that no land will be lost with the construction camp because it will be built inside the industrial zone.

However, the location where the 275 workers' houses will be built is densely populated. Furthermore, the fields currently farmed by local residents between the railroad tracks (plant zone) will be requisitioned by CBG.

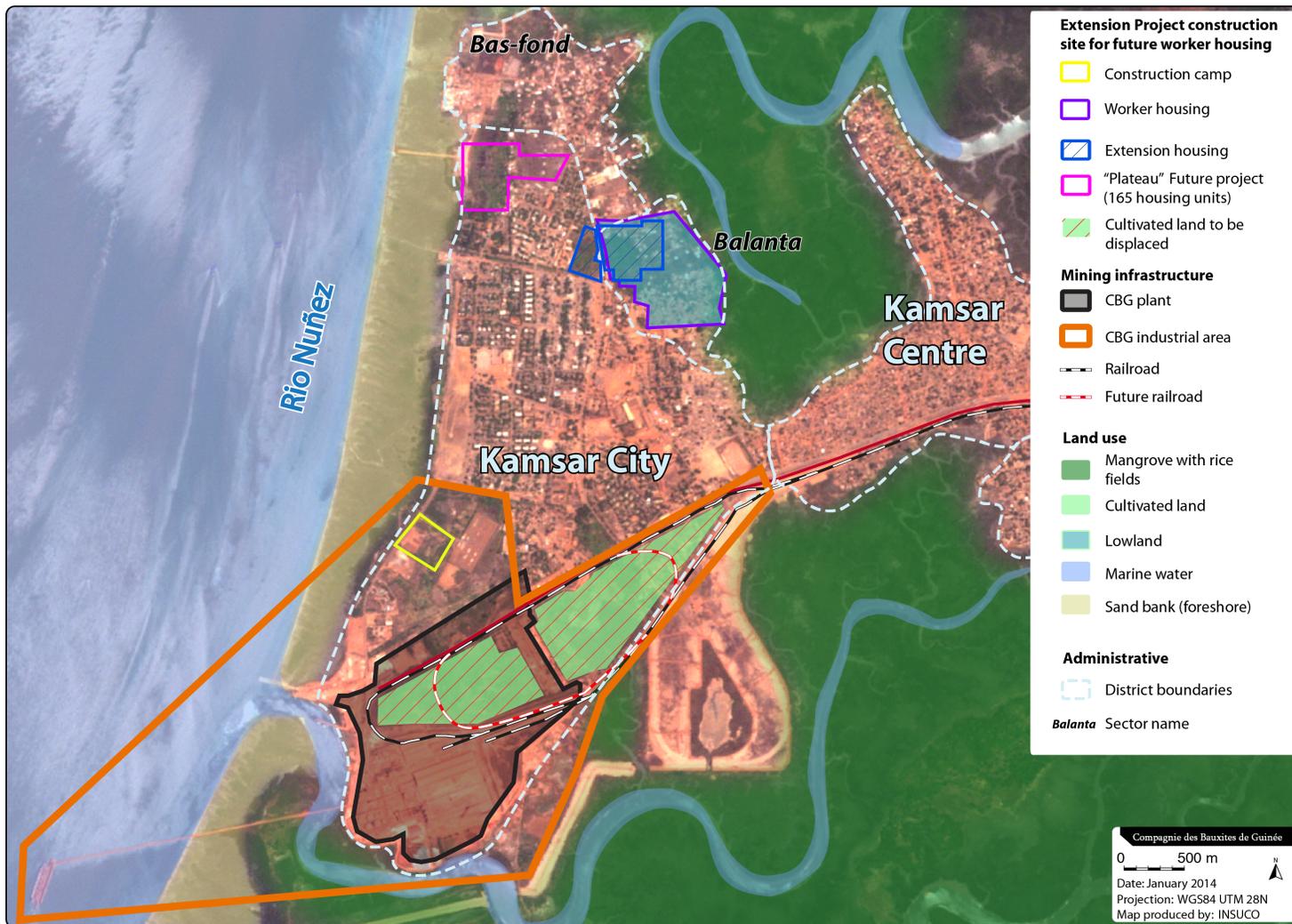
Construction of the 275 housing units for workers' families within Bas-Fond and Balanta will result in:

- displacement of many households (the number remains to be determined later in the RAP) and infrastructure (public and private, including at least one high school).

Railroad construction at Kamsar will cause:

- displacement of farms; and
- Map 7-15 shows the areas potentially impacted in Kamsar.

Map 7-15 Expansion Project impact areas in Kamsar



Impact 2 – Weakening of the traditional land management system / Modification of land tenure

For the predominantly rural lands in the three Project Areas, the impacts on traditional land management and related land tenure systems are likely to be negative.

Since most of the villages will lose available cropland and grazing areas, the pressure on resources will increase and the need for new land will rise:

- the tutorship principles that originally governed settlement of new people and/or villages in an area may well be invoked to drive out new settlers and recover plots of land. Tutor villages and lineages will eventually want to take back “their rights” to certain lands by means of land recovery and dispossession strategies.
- the concept of non-ownership of land and collective management may erode quickly in the mine zone. Individual landholding and the limitations that the management system is beginning to encounter (non-intensive, dependent on the fallow-land system) could be considered the first steps towards necessary changes in an agricultural system that cannot adapt to a denser population that wants to increase its share of income (see Chapter 5).
- given that available land will decrease drastically, traditional practices of fallow land and non-intensive livestock herding will no longer be possible. The time in fallow will shrink throughout the zone (from the current average of seven years to three or four years or even less) and livestock herding may gradually disappear from the mine zone. The two main factors supporting soil fertility will thus tend to disappear and the soil will lose its fertility.
- with regard to the changes in land security strategies, many individuals and families will be tempted to plant permanent crops to keep their land tenure and usage rights. In the Project Area, only permanent crops (fruit trees, oil palms) can be managed by a single individual or family. With no reserve land or surplus land to be loaned, new households will have no choice but to purchase land if they want to have any. Land may then become a commodity for sale in the rural zone as it already is in the urban zone (division into plots, speculation, etc.).

These issues will exist on a very small scale in the railroad zone at KP 14. The three villages affected by the project are Nalou villages. This identity gives them full rights over the land they occupy. On these lands, in principle, management is handled collectively by the members of a lineage, supervised by the elder. However, in the past dozen years, some lands have been broken up and sold to migrants. These aspects of land management, by lineages or migrants, will mean that CBG will deal with the lineage elders that control the land where some area will be lost.

In the port zone (Kamsar) and the town of Sangarédi, one might think that CBG's requisition of space for construction of new housing will help to promote the modern land management system based on individual property ownership and the existence of a speculative land market, to the detriment of the traditional system. However, CBG will still have to take traditional land management into account as it may be still in effect in the area where the homes will be built.

Impact 3 - Displacement of people

For some villages, the last mining plan scenario (27.5 MTPA in 2022) will not only cause substantial loss of village land and associated sources of income, but will also result in displacement of some homes or the entire village (depending on the public health and safety impacts).

Two deciding factors will dictate whether displacement of some infrastructure and/or entire villages is necessary:

- the fact that a hamlet (Sinthiourou Kourawel) is located within an area that will have to be mined makes its displacement automatic.

For the rest, possible displacement will depend on:

- the rules in Mining Code Article 111 involving zones that are closed, protected or prohibited from staking, exploration and operation of mines: this article requires a 100-meter perimeter around certain types of infrastructure and human settlements—mining is not authorized in these protected or prohibited zones;
- the mine project's footprint on village land and the extent of the loss of the village's main means of subsistence, specifically cropland and grazing land;

- the mine project's footprint on village land and the impacts on public health, stress and general deterioration in quality of life (noise, dust, vibrations, etc.)
- the setback distance recommendations in Chapter 2.

The compensation and displacement/resettlement process will depend on:

- the fact that in preparation for its Expansion Project, CBG wants to comply with international standards, specifically those of the World Bank Group (IFC Guidance Note 5, Land Acquisition and Involuntary Resettlement). The company asked AECOM to do a gap analysis. The analysis report was filed by AECOM in March 2011. As of the time this report was written, we have not received the report. The analysis identifies the differences between CBG's expropriation procedure and the IFC international standards on involuntary resettlement.

Mine zone - rural

Under the current mining plan, and insofar as the 27.5 MTPA scenario – 2022 is implemented, three villages (or parts of these villages) in the zone may have to be displaced. These recommendations are based on two observations: the proximity of the inhabited areas to the open-pit mines and the extent of the mine encroachment onto the village land.

The hamlet of Sinthiourou Kourawel will definitely be affected, and possibly the villages of Kourawel, Hamdallaye and Fassaly Foutabhé or some of their homes and infrastructure (see Map 7-5).

Assuming that the three villages most affected will be displaced entirely or partly, the number of inhabitants of each village is given below:

- Sinthiourou Kourawel: 58 inhabitants
- Kourawel center: 296 inhabitants
- Hamdallaye: 416 inhabitants
- Fassaly Foutabhé: 74 inhabitants

All the consultations in these villages show that none of the inhabitants want to be displaced. Furthermore, if displacement is inevitable, the villagers insist on being moved "into town", to one of the districts in Sangarédi. They insist that

resettlement on land in another village in the zone is difficult to consider for two main reasons:

- a village cannot consider being moved to a place where it is considered to be a “migrant” (see Land tenure systems, Chapter 5).
- most of the villages in the zone will suffer substantial loss of farmland because of the Expansion Project. Given that the agricultural system is based on fallow land (with low yields), it will be impossible for a village’s land to support the economic needs of a mass of people that is double (or more) the population of their village.

Mine zone - urban

In Sangarédi, it would seem that no displacement should occur because the locations chosen by CBG to build worker housing are unoccupied. However, this information needs to be checked on the site as the maps of the area lead us to believe that part of the area may be inhabited.

Railroad zone

At KP 14, the new siding project will have a relatively limited footprint so it would seem possible that the built-up areas will simply be shifted towards the *kharés* that are the lineages' land reserve. However, the concessions in this case are all squeezed between the mangrove plain and the railroad, which leaves little room for expansion or resettlement. If inhabited concessions are displaced (in theory this concerns only the two villages of Katomou and Toumbéta) towards the *kharés*, the new inhabited areas will mean that much less space for agriculture. Although resettlement may be facilitated by the existence of reserve housing land, the impact of the displacement on the agricultural system must not be overlooked.

Port zone

In the port zone, the project will cause many displacements. The future worker housing for the Expansion Project is located in a part of the Balanta sector that is already densely populated. The number of households concerned should be estimated and the best possible scenario determined to guarantee their displacement/resettlement in another part of Kamsar.

Furthermore, a 520 m² area between the railroad tracks, currently devoted to crops, will be expropriated by CBG. This cropland will be displaced and compensation must be paid for it.

7.4.4.5 Mitigation measures

To deal with the land issues (both urban and rural) in compliance with the reference standards, the following measures are envisaged.

- Comply with the Guinea Mining Code (2011), especially the articles in Section III Relations with Third Parties;
- Comply with the Guinea Environment Act (Ordonnances 045/PRG/87 and 022/PRG/89);
- Develop an Environmental and Social Management Plan (ESMP);
- Develop and implement a Resettlement and Compensation Action Plan (RAP) compliant with international standards (IFC Performance Standard No. 5: Land Acquisition and Involuntary Resettlement). IFC promotes a better quality of life for people affected by the project. Resettlement therefore should involve tangible improvements in the economic circumstances and social welfare of the people and communities affected;
- Comply with the IFC standard on Resource Efficiency and Pollution Prevention (Performance Standard No. 3) which requires the client to consider existing and future land use; and
- Comply with the IFC standard on Biodiversity Conservation and Sustainable Management of Living Natural Resources (Performance Standard No. 6).

Communication and information

- Adopt an ongoing, transparent communication strategy regarding displacement/resettlement issues and be sure to avoid the “surprise announcement” impact. Conduct prior consultations in compliance with international standards (IFC, 2012);
- As part of the Stakeholder Engagement Plan (SEP), develop a communication plan and, as soon as possible, inform the communities that will be affected by the land requirements of the various Project components and the operating agenda. Conduct prior consultations with the people who may be affected to build a consensus based on active participation by the publics concerned;
- Set up a grievance mechanism with corrective measures as needed. A complaints and grievances management system is recommended by the World Bank (IFC Performance Standards No. 1: Assessment and Management

of Environmental and Social Risks and Impacts and No. 5: Land Acquisition and Involuntary Resettlement).

Rural zones

Resource protection measures

- Protect cropland (hillsides and *ndantaris*), lowland forests and all the main resource spaces essential to village life that are located on the periphery of the infrastructure and open-pit mines insofar as possible;
- Take into account the Project's impacts on cultivated and fallow land, market gardens and water sources when developing the ESMP and RAP and provide a compensation system for individuals and communities;
- In the mine zone, create buffer zones between the open-pit mines and cropland (20 to 30 meters) separated by berms. Set up a regular monitoring program and implement any corrective measures needed as quickly as possible; and
- Adopt systematic protection measures for the heads of permanent and seasonal springs, streams and rivers during both the construction and operation phases, in dry and wet seasons, for all villages in the mine zone. Set up a regular monitoring program and implement any corrective measures needed as quickly as possible.

Follow-up

- Introduce a follow-up program for complaints and prevention and compensation measures, as well as corrective measures implemented (see Tableau synthétique des indicateurs de suivi des impacts sociaux, Annexe 7-5).

Displacements/resettlement

- Minimize involuntary displacement and give preference to alternative measures that enable the affected communities at least to maintain their living standard and possibly improve it;
- When displacement is unavoidable, implement a RAP that should identify all the people affected by the Project and all negative impacts that land acquisition by the Project will have on their means of subsistence;
- The RAP must ensure that the people affected by the project are compensated appropriately and must therefore:
 - pay compensation for all losses incurred;
 - assist and support displacements and negotiations with host communities;
 - assist people in their efforts to restore and even improve the standard of living, income and means of production they had before the resettlement;
 - for unavoidable displacements, respect people's acceptance (or refusal) regarding the choice of the resettlement location;
 - involve the host communities in preparations for the displacements;
- Delay mining of pits that will most affect inhabited areas in the mine zone as long as possible to allow proper planning and implementation of compensation measures or eventual displacements in compliance with international standards (adaptation of mining plans);
- Insofar as possible, maintain a 500-meter buffer zone between inhabited areas and open-pit mines as planned by CBG; otherwise maintain the 100-meter protection zone specified in the Mining Code;
- In the railroad zone (KP 14), recognize that displacement of homes towards cultivated areas will cause lost income (loss of cropland) that requires compensation.

Loss of land, cropland and livestock grazing areas

- Hold information and consultation sessions well before requisitioning any village land;
- Also ahead of time, meet with the authorities (elders and leaders) in each village to determine the boundaries of the village lands that may be affected;
- In conjunction with the people, map the village lands in the mine zone;
- Systematically implement the measures adopted in the ESMP and RAP;
- Ahead of time, consult the people to determine the boundaries of the grazing areas and find alternative solutions to limit the disappearance of livestock herds in the zone (fences, feed crops, market garden protection from animal incursions, protection along the railroad tracks, etc.);
- At KP 14, compensation plans must identify the elder of each lineage in order to propose resettlement solutions. It seems difficult to displace living areas very far away when their farmland is now near the living area. On the other hand, the study identified the *kharés* as land reserves for housing. Therefore it may be possible to move the concessions several meters inside these spaces. However, the impact of displacing buildings must not be ignored as they will occupy land that was reserved for other uses.

Compensation measures

- With regard to compensation, job creation (even contract jobs) is not recommended as a compensation measure. If the company uses this strategy, applications will rise exponentially and will not meet the company's real needs. In addition, each new event will become an opportunity to negotiate new jobs. These jobs are often precarious and do not really help the affected households and communities maintain their standard of living over the long term;
- Do not offer the villages affected by land loss equivalent surface areas to replace them. Where land is managed collectively, compensation for land loss will have to benefit the entire community and enable them to maintain their standard of living by making existing sources of income secure and diversifying them;
- To avoid tension within the villages, first clarify the status of land that will have to be requisitioned for mine operation (village, lineage, individual management, etc.) before considering what compensation measures to use;

- Rely on creation of intervillage committees to clarify land boundaries (involving village elders and leaders) before the compensation process;
- As part of the RAP, consider not only agricultural losses incurred when land is requisitioned, but also loss of land rights (tenure);
- Instead of paying financial compensation to villages (this is not appropriate for the local land management system), in cooperation with the State and development NGOs, support modernization programs, mechanization of agriculture and creation of income-generating businesses that are requested by the villagers (mechanization of conversion operations, inputs, technical and material support for lowland market gardening, training, intensification of market gardening, etc.). Implement monitoring, evaluation and adaptation mechanisms to track the real economic spinoffs of projects initiated as compensation measures;
- Assess financial compensation proposed on the basis of different land uses and occupation types;
- Promote recourse to specialized local development NGOs (with a sound reporting mechanism for the people affected and CBG) for implementation and follow-up of development projects funded as compensation measures.

Open-pit mine rehabilitation

- Comply with article 144 of the Mining Code “Closure and Rehabilitation of mining sites”;
- Encourage rehabilitation initiatives for pits temporarily shut down to restore tracts of cultivatable land and grazing areas to the surrounding villages, even temporarily; and
- Clarify the status of rehabilitated areas using a collaborative strategy (CBG/affected populations) to ensure that rehabilitated spaces really meet the people’s needs and that their access to these areas is formally recognized as being encouraged by CBG.

Urban zones

Development planning

- In the urban zone, inspect the “unoccupied” areas in Sangarédi and Kamsar before beginning any work there to make sure that no displacement needs to be considered;
- Involve all the people affected by involuntary resettlement, especially vulnerable groups, in all stages of resettlement planning and implementation;
- Ensure that all displaced people return to a similar, or even better, standard of living in compliance with a RAP that meets IFC standards. All land (buildable and not buildable) and infrastructure must be paid for based on a compensation management plan that covers losses by both individuals and collectivities; and
- To minimize social tension, consider the communities that will “host” the displaced people and the impacts of the arrival of new inhabitants in these areas. Compensation measures will be proposed insofar as the influx of new settlers would change the social dynamics in certain areas (for example, if the new settlers have more modern homes or if the pressure on water, health and education services increases, etc.).

Information and communication

- Introduce a solid communication and consultation strategy in Sangarédi and Kamsar before considering any displacements (both in the communities to be displaced and in the host areas).

Follow-up

- Adopt a follow-up program for complaints (from individuals and communities) and for the corrective measures implemented.

7.4.4.6 Residual impacts

The Expansion Project’s impact levels have been reassessed in this section based on implementation of all of the mitigation measures described in the preceding section and summarized in the ESMP (Chapter 10) according to an aggressive, sustained

schedule and with appropriate resources. The residual impact level determined under these conditions is shown in Table 7-10.

Table 7-2 Assessment of residual impacts on land

Level of residual impacts						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Loss of land	High	High	Medium	n/a	Low	n/a
Impact 2 – Weakening of the traditional land management system/ Modification of land tenure and the relationship with the land	High	High	Medium	Medium	Low	Low
Impact 3 - Displacement of people	High	High	High	n/a	Medium	n/a

7.4.5 Economic environment and household strategies

7.4.5.1 Overview

The economic environment and household strategies section concerns:

- the project's impacts on the economic vitality of each impact zone (inflation, creation of new markets, new outlets, job creation, etc.);
- changes caused by the project relating to sources of household income;
- strategies that households will use depending on the changes caused by the project;
- maintenance or increase of social inequality.

The following main issues are discussed:

- local economy and supply;
- resulting economic development;
- agriculture;
- livestock herding;
- fishing (port zone);
- hunting and fishing (mine zone);
- direct and indirect job creation at CBG;
- intensification of social inequality;
- community development stimulated by CBG;
- increase in social inequality.

7.4.5.2 Current situation

Sangarédi and Kamsar developed into towns with the arrival of CBG, but, for most of the population, the local economy is still based on agriculture, livestock herding and fishing.

The microeconomy in the study area is structured differently in the rural and urban zones. As in the baseline study, this analysis focuses on issues in the mine and port zones, as specified in the Terms of Reference. The mine zone covers a large agricultural area in the middle of which the town of Sangarédi sprang up. The port zone mainly consists of the town of Kamsar where the fishing port has grown

rapidly since the town became industrialized. The railroad zone is mostly agricultural and contains the towns of Boké and Kolaboui.

Zone 1 - Sangarédi

Households' income structure and economic behavior vary widely between the urban and rural zones. Only the income distribution is similar in these two zones. Half of the households have an annual income of less than 15 million GNF (about \$2,200 US per year and \$185 US/month) in both the urban and rural areas. For this study, the exchange rate used to convert GNF into US dollars is \$1 = 7,000 GNF; when the report was written, the official exchange rate was \$1 US = 7,020.99 GNF (March 2014).

Rural zone

In rural areas, resources are obtained by performing four, five or even six different activities simultaneously (see Chapter 5). These resources mainly come from annual crops (38 %) and permanent crops (24 %). Agriculture is practiced by 94% of households. The crops are mostly rice, a basic food that people generally grow to feed themselves, and peanuts, which make up over 15% of cash-crop income.

The main farming method is shifting cultivation on burns. Plots of land are cultivated for a year or two before being left fallow for about seven years. In the area around Sangarédi, fallow time is occasionally reduced to three years owing to lack of available space, which reduces yields and production and eventually exhausts the land. In the lowlands, the women produce eggplants, okra, peppers and tomatoes, etc. in market gardens, mostly for sale. All of these products contribute more than 18% of the households' farming income and nearly 60% of the crop-related cash income. In addition, 85% of the rural population has plantations producing mangos, oranges, bananas and cashews, generally grown for sale.

Photo 7-8 Lowland market garden and palm oil production, Madina Dian village



The number of plantations has grown in recent years, reflecting a new agricultural system. It is both a land-tenure security strategy and a source of cash income. Palm oil, whether from uncultivated or planted trees, accounts for over 18% of agricultural income.

Livestock herding accounts for 4% of income. Over 83% of the rural population owns animals (goats, chickens, small ruminants), some of which are moved around seasonally. These animals can graze on the plateaus, which also serve as transhumance space and corridors. Fishing brings in 3% of income and is practiced by one third of rural households, mainly to feed themselves.

Gathering activities represent only a small fraction of the households' total resources. On the other hand, both villagers and professionals cut firewood and produce charcoal. Logging in the past differed according to tree species and their use, but today all tree species are harvested for all uses because resources are scarce.

The rural households' strategy therefore lies in diversifying their activities and crops (also depending on the season) to limit risk; this strategy is necessary as households depend on what they can produce and use two thirds of it for subsistence.

Urban zone

Most town dwellers are involved in only one or two activities. Trade and employment account for 78% of household income. Employment in mining (directly or as a subcontractor) accounts for 23.6% of all employees in Zone 1. In Sangarédi,

700 households are positively impacted by salaried employment with CBG, of a total of 8,591 households counted at the end of 2013, for 8.1% of all households in the town.

Zone 2 - Kamsar

Fishing in the port zone

Fishing supplies the Guinean public with most of its animal protein requirements and is a priority for the Guinean government. One of the strategic priorities set by Guinea's Ministère responsable de la pêche et de l'aquaculture is to promote food security by increasing per-capita fish consumption.

The port area of Kamsar enjoys substantial natural assets, including the presence of mangroves, a broad floodplain and the organic debris contributed by the Rio Nuñez which provides most of the nutrients for the organisms in the river's estuary. These natural assets and the industrial growth of Kamsar have promoted significant artisanal fishing growth. Port Néné has become the second artisanal fishing port in Guinea after Boulbinet (Conakry).

The fishing area is vast but excludes the channel used by ore carriers, where fishing is prohibited. Fishermen travel farther and farther out to sea to catch fish with high commercial value that have become scarce near the coastline. Fishing can be done year-round owing the diversity of fishing nets that can be used at high and low tides. Some fishermen also grow rice and may only fish occasionally during the rainy season (see the Socioeconomic Baseline Study in Chapter 5).

Port Néné has the fish main market in the Project Area. It is also the hub for redistribution to domestic markets (Boké and Conakry) and to foreign markets (dried salt fish sold to Sénégal, exports of frozen and smoked fish). Fish can be resold fresh, smoked by women, salted and dried by men (done by 37.5% of the fishermen).

Photo 7-9 Fish smokehouse, Port Néné, Kamsar



Sixty percent of fishermen fish full-time. The remaining 40% who do other things are mostly farmers (especially rice farmers). Most of them are not well-equipped, which means they cannot travel far.

Women are present throughout the production chain, from catching fish to converting and selling them. Smoking fish is an important activity in Port Fory and Port Néné. Some women even prefinance production input (purchases of outboard motors and small boats).

Fishing is a priority in the Guinean government's development strategy, and is therefore vulnerable to outside impacts on water quality and traffic in the estuary.

Community development by CBG

Although CBG has a mining agreement that binds it by contract to the Guinean government, the Mining Code (2011) governs the relations between mine concession holders and local communities. Article 18 of the Mining Code specifies that "the provisions of the Mining Agreement supplement the provisions of this Code but shall not derogate from them".

As for community development, article 130 of the Code stipulates that "a holder of a Mining Operation Title must enter into a Local Development Agreement (LDA) with

the Local Community residing on or in the immediate vicinity of its Mining Operation Title” or concession.

Therefore, as part of its Expansion Project, in order to comply with the Mining Code (Article 37, Grant), CBG must create “a community development plan annexed to the Local Development Agreement covering, among other things, aspects of training, medical, social, educational, road, water supply, and electricity infrastructures (the Local Development Agreement will be signed upon delivery of the Permit)”.

CBG now has a Community Projects unit, known as the Community Relations team, which reports directly to senior management. This unit has developed an internal community relations policy and procedures (Politique et procédures des relations communautaires 2013 de la CBG, CBG, 2013d) based on a one-page board resolution (Résolution 99/DG/CBG/09, April 24, 2009) that very succinctly describes the policy, values, principles and selection procedures for funding projects. CBG claims it adheres to this policy, harmonized with Rio Tinto and Alcan-Alcoa requirements, with millennial development objectives (*Objectifs du millénaire pour le développement*), and has committed to producing bauxite safely and in harmony with the community values in its area of operations (CBG, 2013d). As of the writing of this report, we have received no other more substantial policy or community development document.

The funding for CBG’s current community development policy comes from two main streams and amounts to \$530,000 US per year (3.7 billion GNF):

- equity funding for 14 rural communes and the Institut supérieur des Mines et Géologies de Boké (supported by CBG), a total amount of \$500,000 US/year.
- payment of a business revenue tax, a lump sum of 200 million GNF/year under an agreement with the government, equal to \$28,571 US/year. CBG controls these funds, which are disbursed for projects submitted to it each year by the various rural communes concerned.

In essence, in terms of community development, CBG supports community infrastructure construction/renovation projects, funds training (Institut des mines de Boké), and the creation of very small businesses.

The policy of supporting the creation of very small businesses and companies has brought seven very small businesses and two companies into being so far with sales of 7 million GNF, or \$1,000 US/year. Based on public/private partnerships (PPP), CBG supports a program to improve management capabilities in fields of small business management.

With regard to very small businesses, a standard hourly wage is set with the companies, about 6000 GNF/hour (about \$0.8 US/hour). Since there is no systematic monitoring of the small businesses' internal operations, many abuses have been reported, with monthly wages paid to employees that, according to the people consulted, are only half of what the very small business agreed to pay. The informants admit that people rarely dare to complain openly about this treatment for fear of losing their jobs with the very small businesses, and consequently being barred from future CBG hiring opportunities.

Overall, CBG does not really have a governance strategy or tools for community development in the Project Area. Disbursement of the allocated funds does not involve any real control mechanisms, follow-up or return-on-investment assessments to guarantee true positive benefits for the population.

Equity funding for projects

Equity funding concerns the 14 rural communes in the Boké/Télimélé prefectures and includes a grant for the Institut supérieur des Mines et Géologies in Boké. In 2012, this represented an annual budget of \$500,000 US.

CBG chose to use a project-based approach with institutional anchoring in the communes. These projects took a participative approach to the process of identifying what to do. Upon instructions from the Ministre des Ressources Naturelles et de l'Environnement (letter No. 2155/CAB/MRNE dated 23/10/1991), CBG was asked to pay invoices submitted by the providers of infrastructure built at the request of the local government.

The rural communes submit community development projects to CBG that may or may not be confirmed by CBG.

The contracting authorities in 12 communes connected with the joint technical committee (CTC) issue calls for tenders. Once the successful companies have been

selected, the contract for each project is signed (by the communes, not CBG) with each beneficiary commune legalized by the Boké Tribunal. CBG participates in assessment and inspection of the work that is prefinanced before any disbursement. By letter with acknowledgement of receipt (joint, includes the contractor company), CBG sends the check payable to the contractor to the commune's mayor, and this serves as proof of payment by CBG.

If the total CBG funding earmarked for community development is not disbursed during a year, the funds are not carried over to the next year. These expenditures are included in operating costs and cannot be reduced from year to year according to the time period concept.

Business revenue tax/Land surface tax

CBG benefits from a special plan compared to other mining companies in Guinea, mainly because of the mining agreement signed with the Guinean government in 1963 that guarantees stable conditions, particularly with regard to taxation (Article 18, Mining Code 2011).

Furthermore, in principle, the business revenue tax should not apply to CBG's concession because this tax was created under a mining legislation amendment after the mining agreement was signed. However, an agreement signed with the government in the 1990s set a lump sum payment for the annual business revenue tax earmarked for local community development. The sum currently called business revenue tax is, in reality, 2.5% of the rent paid to the ANAIM (2.5% of \$6,500,000 US or \$162,500 US/year). The exchange rate differential has been paid to the national treasury since 1990.

An annual lump sum for the business revenue tax was set at 200 million GNF/year (about \$28,500 US) divided between the three Project Areas:

- Sangarédi rural commune: GNF 35 million (about \$5,000 US).

The Sangarédi rural commune therefore receives less than 17.5% of the 200 million GNF business revenue tax, even though all mining occurs in its territory.

- Boké urban commune: GNF 90 million (about \$12,800 US)
- Kolaboui rural commune: GNF 25 million (about \$3,500 US)
- Kamsar rural commune: GNF 50 million (about \$7,100 US)

Note that Tanéné and Kassongoni, which are rural communes, do not receive any of this funding.

These provisions are in effect until the base agreement expires in 2016. According to CBG representatives asked about it, no negotiations are currently under way to harmonize the business revenue tax currently paid with the standards in the present Mining Code which, in article 130, sets the business revenue tax at 0.5% of annual sales. In 2001, CBG's sales were \$300 million US. In 2013, sales were \$493 million US (Source: CBG, 2014). If the company were to pay the amount under the current mining legislation, given CBG sales in 2012 (\$499,813,648 US, source: CBG), it would have to pay about \$2.5 million US/year for local community development in the Project Area.

Note also that CBG does not pay the annual land surface tax that benefits local communities. The base agreement signed in 1963 did not provide for the existence of such a tax. For a new tax to apply, both parties would have to agree on an amendment.

Examples of projects

Many infrastructure construction projects have already been financed from the business revenue tax funds (often by combining the tax amount with CBG equity funds), such as schools, health centers (in Boundou Wandé for example), pavilions (for the Lavage district market in Sangarédi, for example), a community village in Boké, etc.

Photo 7-10 Lavage District market pavilion in Sangarédi (Source of funding TCA/CBG), awaiting inauguration in March 2014



However, it was reported that some projects did not last owing to unsound management or disagreement on projects between the communities and CBG. For instance, CBG financed the construction of a community village in Boké as part of the celebration for the 54th anniversary of independence in 2012. When management difficulties and a disagreement between CBG and local authorities on the vocation of this place occurred, the Boké urban commune officially returned the community village to CBG. It has not been used to this day. It cost CBG \$1 million US and the Boké urban commune paid GNF 180 million (\$25,700 US, which amounts to two years of business revenue tax funding received by the Commune).

With regard to work done for social projects, the authorities complain that many contractors have started, and even completed the work, but CBG took so long to pay them it jeopardized their business. This was the case for the primary school project in Dabouta.

Specific contracts are also signed to supply basic social services, but the programs' efficiency can be questionable. An example is the special CBG/SMSKPE agreements signed in February 2010 to set up a paid service to supply electricity and water in Kamsar and Sangarédi. This project, which would have installed prepaid electricity meters, ended quickly, according to CBG staff, because of a disagreement on

management methods (probably a refusal to pay by CBG employees, the first target of the system – see the Socioeconomic Baseline Study in Chapter 5) and according to some local authorities, because of serious governance problems within the firm SMS.

At the moment, CBG acts almost exclusively, fulfilling the mandate that belongs to the State, to provide social services in the two main towns in its area of influence (water and electricity in Kamsar and Sangarédi). It also contributes to construction and renovation of some social infrastructure in both the urban and rural zones (schools, health posts, etc.) (See the Socioeconomic Baseline Study in Chapter 5).

This state of affairs leads to the conclusion that, from its inception until now, CBG has enjoyed favorable tax treatment, which represents a major shortfall for development of the local communities impacted by the project. Moreover, the company, since it began operation, has been the sole supplier of basic services (water and electricity) in Sangarédi and Kamsar. It has also maintained a housing policy for its employees. These services involve substantial funding by CBG and the total annual amount would be worth evaluating so the public in these areas can be made aware of it.

The equity funds used for community action and the funds disbursed for community projects (from the business revenue tax) are based on low amounts, especially considering the local development needs and the company's annual sales figures or the company's contribution to the central State's budget.

As there are no tools to assess or monitor the positive impacts of CBG's community development investments, it is currently impossible to assess the impacts on community development of the projects funded from equity capital and the business revenue tax. With its Expansion Project, CBG could become a real driving force for a community development planning strategy for the entire Project Area.

7.4.5.3 Sources of impacts

Rural zone - mine

In the Sangarédi area, the increased surface area of the bauxite mines and the higher volume extracted will be the primary source of impact. The impact will affect farmers and herders and will mean the loss and deterioration of village resource

spaces. This impact will disrupt the entire socioeconomic structure and living standard in the mine zone villages, with substantial risk of impoverishment if suitable compensation and lifestyle restoration measures are not implemented.

The opening of new pits and mining roads will cause many villages to become isolated and their economy is likely to be affected.

On the other hand, dust and particulates generated by operation of the new pits and mining roads will not have any significant impact on the productivity of plants and trees in the zone (see Chapter 4).

The increased frequency and length of trains may disrupt the local economy by blocking roads between the villages and farmed fields, water sources or urban centers, etc. on a more regular basis.

If the current community development strategy and funding amounts remain unchanged, the socioeconomic impacts of the Expansion Project will be mainly negative for the rural mine zone.

Rural zone - railroad

The increased train length and frequency will have impacts on the economy of the villages located along the rail line: it will be difficult for them to get to their croplands, water sources, etc.

Urban zone - mine

In Sangarédi, the Expansion Project, owing to its creation of job opportunities, will reinvigorate the process of migration to urban centers.

Villagers, if their resource spaces are affected for the long term, can be expected to converge on the towns in the hope of finding new sources of income in the services sector and contract jobs generated by CBG and its subcontractors.

The jobs created for the Expansion Project will have direct, positive impacts on the local economy, though they will be limited in duration and number. As a result, economic dichotomy could be aggravated, giving CBG workers and their families a relatively comfortable standard of living while the rest of the people suffer a dearth of economic opportunities.

A lesser impact, but still to be considered, is that blasting will involve regular evacuations of the people within a 500-meter radius of the mine zone.

Urban zone - port

In the Kamsar area, extension of the dock, an increase in the amount of ship traffic in the port and dredging operations in the channel will impact the fishing industry and activities related to fish preparation and sales. As described in Chapter 2, another consideration for Kamsar is that the port is dredged on a regular basis. This was done in 2012 and about 100,000 m³ of material was removed. Dredging is expected to be done every two or three years. During, and for a short time after dredging, sediment concentrations in the estuary water are expected to be high. This will obviously represent a significant disturbance.

The dredging phases (initial and maintenance) may thus have an impact (although limited) on the local fishing economy: increased shipping traffic, increased turbidity in the water and increased wave strength.

The job opportunities associated with the Expansion Project are likely to rest particularly heavy on Kamsar, CBG's main labor market. In fact, the Project is likely to attract many people, Guineans and migrants, who are looking for work. This rapid, massive influx cannot be absorbed by the study area's villages and could exacerbate poverty.

Insofar as the current community development strategy and funding remain unchanged, the Expansion Project's socioeconomic impacts will be mainly negative for the urban port zone.

7.4.5.4 Impact assessment

Table 7-3 Assessment of the impacts on the economic environment and household strategies

Level of impact						
Project Area	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Increase in social inequity – impoverishment of rural and urban zones	High	High	High	High	Low	Low
Impact 2 – Job creation (direct, temporary, indirect)	Low	Medium	Low	Medium	n/a	n/a
Impact 3 – Disruption of fishing activity (in the estuary)	n/a	n/a	Medium	High	n/a	n/a
Impact 4 – Support for community development projects	Low	Low	Low	Low	Low	Low

Description – Economy and household strategies

There will probably be many impacts on the economy and household strategies and they will likely begin with the construction phase and continue over time, mainly in the mine and plant/port zones.

Impact 1 – Risk of increased social inequity

The main economic impact of CBG’s Expansion Project, unless adequate compensation measures are implemented, will be the loss of means of subsistence for the people directly affected, leading to household impoverishment. Social inequalities will be maintained, even accentuated, between the majority of households affected and those that will benefit from direct and indirect jobs in the Project economy.

Rural impoverishment

Under the current mining plan, rural areas are likely to become poorer because of the loss or deterioration of the large community resource spaces in the rural part of Sangarédi subprefecture (see the Land section, 7.4.4., and the economic discussion in the Socioeconomic Baseline Study in Chapter 5). As a rule, in the mine zone, large tracts of cropland and grazing areas are expected to disappear, causing a substantial drop in agricultural yields. This impact is all the more important since 94% of the households interviewed in the rural mine zone grow annual, permanent and market garden crops and will see their main sources of income significantly and lastingly affected. If suitable compensation measures are not implemented, most of the villages impacted are likely to suffer a deep, generalized and long-term slide into poverty.

Most of the future pits and roads are located on land belonging to the village communities that work it. The impact hits when mining exploration requires land to be cleared (without any compensation).

The firewood and charcoal economy will also be deeply affected in the long term by clearing future mine areas. It is likewise highly probable that urban and surrounding populations may take advantage of the villages' accessibility to enter the rural zone and abscond with "free" resources (wood, gathering, cattle theft).

The rural zone communities already believe that CBG will come and destroy most of their cropland and grazing areas. During the consultations, they expressed serious concerns, repeatedly asking "how are we going to live?"

Livestock herders will also suffer this impact if CBG mines land (specifically bowal) they generally use to pasture cattle. In the mine zone, more than 83% of the rural population owns animals. Throughout the study area from Kamsar to Sangarédi, livestock (cattle, sheep, goats) are generally left to roam free and the animals will also be exposed to more railroad accidents (there have been many already with no compensation) as the trains become longer and pass more frequently.

Smaller herds will also reduce manure input; consequently fertility will not be restored as efficiently after farming. Already heavily affected, large cattle herds may completely disappear from the mine zone.

One of the biggest risks for the rural economy lies in the pollution or disappearance of aprings and/or streams that are essential for agriculture and herding.

Freshwater fishing, hunting and gathering for personal consumption are also likely to decrease in the mine zone (see Chapter 4). Even a partial disappearance of these resources will reduce the quality of life (loss of food sources) and impoverish households (limited) that will be obliged to purchase replacement goods.

Evacuations for blasting may be disruptive and thus impact the local rural economy near the mine (interruption of farming, scattering of free-range herds).

Furthermore, if the operating zones cut off the roads the villagers use to get to town, the villages will become isolated. Farmers will face difficulties (increased time and transportation cost) selling their products at area markets. They also may have difficulty obtaining food from urban centers (Boké and Sangarédi). Likewise, town-dwellers will only have limited access to local agricultural products. This drop in availability may cause inflation, an indirect impact leading to urban poverty.

Impoverishment of urban areas

With the Expansion Project and rumors of job creation, more job seekers will quickly migrate to urban centers, especially if other projects start up in the same area (see section 7.4.6 Flow and circulation and the cumulative impacts). Demographic growth in towns (especially Sangarédi and Kamsar) may generate positive impacts by creating retail opportunities in the formal services sector and the informal goods and services economy.

However, the demand for jobs will be greater than the supply and the unemployment rate in the study area will rise during both the construction and operation phases. Although the Expansion Project will create steady and contractual jobs, the total number will not suffice to reverse an already well-anchored trend towards a serious unbalance between a limited supply of paid jobs and an ever-growing demand. The informal economy, mostly based on a precarious supply and demand for services, will continue to mobilize most of the population.

In addition, households (or individuals) that cannot count on stable sources of sufficient income will have to survive despite galloping urban growth that stimulates inflation and puts pressure on basic services. The circumstances of people recruited for temporary contracts will likely not be better. This job category is often subcontracted by CBG to very small local businesses where working conditions remain very precarious. CBG retirees' households will suffer from inflation since their pensions are relatively low and they have no review mechanisms.

Unlike these vulnerable people, in the three Project Areas, 388 new CBG employees will have direct, long-term contracts. Assuming there is one CBG employee per household, with households containing an average of 6.3 people (see Chapter 5), about 2,450 people will benefit directly from the 388 direct jobs generated by the Expansion Project.

These households will have new homes belonging to CBG and good access to services, infrastructure (water, electricity, schools, health services) and a ration policy (gifts of food). The portion of the population benefiting directly from the Expansion Project with paid jobs and a higher living standard will therefore be minimal compared to the entire population in the CBG mining concession. However, stimulation of the local economy could benefit a significant percentage of the

population as people find jobs and new sources of income in the goods and services sector.

Sangarédi has a total population of 53,789 inhabitants. CBG estimates the number of direct, permanent jobs that will be created to be 113 (for the 18.5 and 22.5 MPTA phases in 2017). The people who will enjoy the benefits of paid employment therefore represent about 1.3% of the town’s population, assuming one CBG employee per household and an average of 6.3 individuals in a household.

The Expansion Project will therefore likely have a strong impact on the overall standard of living in rural and urban areas. The direct positive impacts from job creation will only affect a small minority of households. The indirect positive impacts from stimulation of the local economy with increased supply and demand for services and consumer goods will also be noticeable but are currently difficult to assess. Generally speaking, we can expect that the Expansion Project will contribute directly and indirectly to the continuation and even exacerbation of social inequality throughout the zone.

Impact 2 – Job creation

Some impacts will be positive, especially the creation of the direct permanent jobs planned by CBG. The planned 388 jobs (phases 18.5 MPTA and 22.5 MPTA in 2017), will be long-term jobs with CBG either in the plant or in the mines.

For the 27.5 MPTA phase (around 2022), another 136 steady jobs will be created.

No direct permanent jobs will be created in the railroad zone.

Table 7-4 Number of direct permanent jobs by phase and by zone (construction and operation)

Number of direct, permanent jobs created per phase during construction and operation	Project Areas		Total jobs per phase
	Sangareidi	Kamsar	Sangarédi and Kamsar
18.5 MTPA (Date unspecified)	65	167	232

Number of direct, permanent jobs created per phase during construction	Project Areas		Total jobs per phase
22.5 MTPA (2017)	48	108	156
Total for 2017	113	275	388
27.5 MTPA (2022)	63	73	136
Total of 3 phases	176	348	524

Source: CBG, Expansion unit, September 2014.

At the same time, as shown in Table 7-13, CBG plans to create about 660 indirect temporary jobs (phases 18.5 and 22.5 MPTA together). These jobs will mostly be in Kamsar and involve construction.

For the 27.5 MTPA phase, the number of additional temporary jobs will be 460.

The number of temporary indirect jobs to be created in the railroad zone was not available at the time this report was written.

Table 7-5 Number of temporary indirect jobs, construction by phase and by zone.

Number of temporary indirect jobs created per phase for construction*	Project Area	
	Sangaredi	Kamsar
18.5 MTPA	60	400
22.5 MTPA	0	200
Total temporary indirect jobs for 18.5 and 22.5 MTPA	60	600
27.5 MTPA (Calculated separately)	60	400
Total indirect jobs for the 3 phases	120	1000

Source: CBG, Expansion unit, September 2014.

* The numbers for each Project operation phase were not provided.

At first glance, job creation seems to be a positive impact, but it will probably bring various problems. The total recruitment for the Expansion Project:

- will generate a limited number of new direct paid jobs at CBG: 388 in 2017 (some of the positions will be taken by current CBG employees, see section 7.4.7 Governance and social cohesion);
- will create only 660 indirect jobs (in 2017) with short-term contracts, hence precarious. These positions are usually highly specialized and engineering companies often use their own labor pool. The positive impact on the local population will therefore be limited;
- there is a substantial disparity between the number of jobs created in the Kamsar area and in Sangarédi (even more in the railroad zone where no job creation appears to be planned). Kamsar will see the creation of many more jobs, even though most of the mining and negative social impacts will be concentrated in Sangarédi; and

- some specialized positions are also likely to be held by international workers, especially in subcontracting. The share of new jobs reserved for expatriates was not available to us when this report was written.

With regard to the planned increase in mining activity, the number of jobs created seems low compared to the often disproportionate expectations of the authorities and communities. Based on the assumption that CBG currently employs about 2,256 permanent national employees and 18 expatriates (2011 figures), the number of Expansion Project jobs created will represent only a 17% increase in CBG's permanent workforce (during the 22.5 MTPA phase).

In most of the consultations, jobs were a priority in terms of Expansion Project spinoffs. The public generally considers that hiring should be a form of compensation for the Project's negative impacts on the village economy.

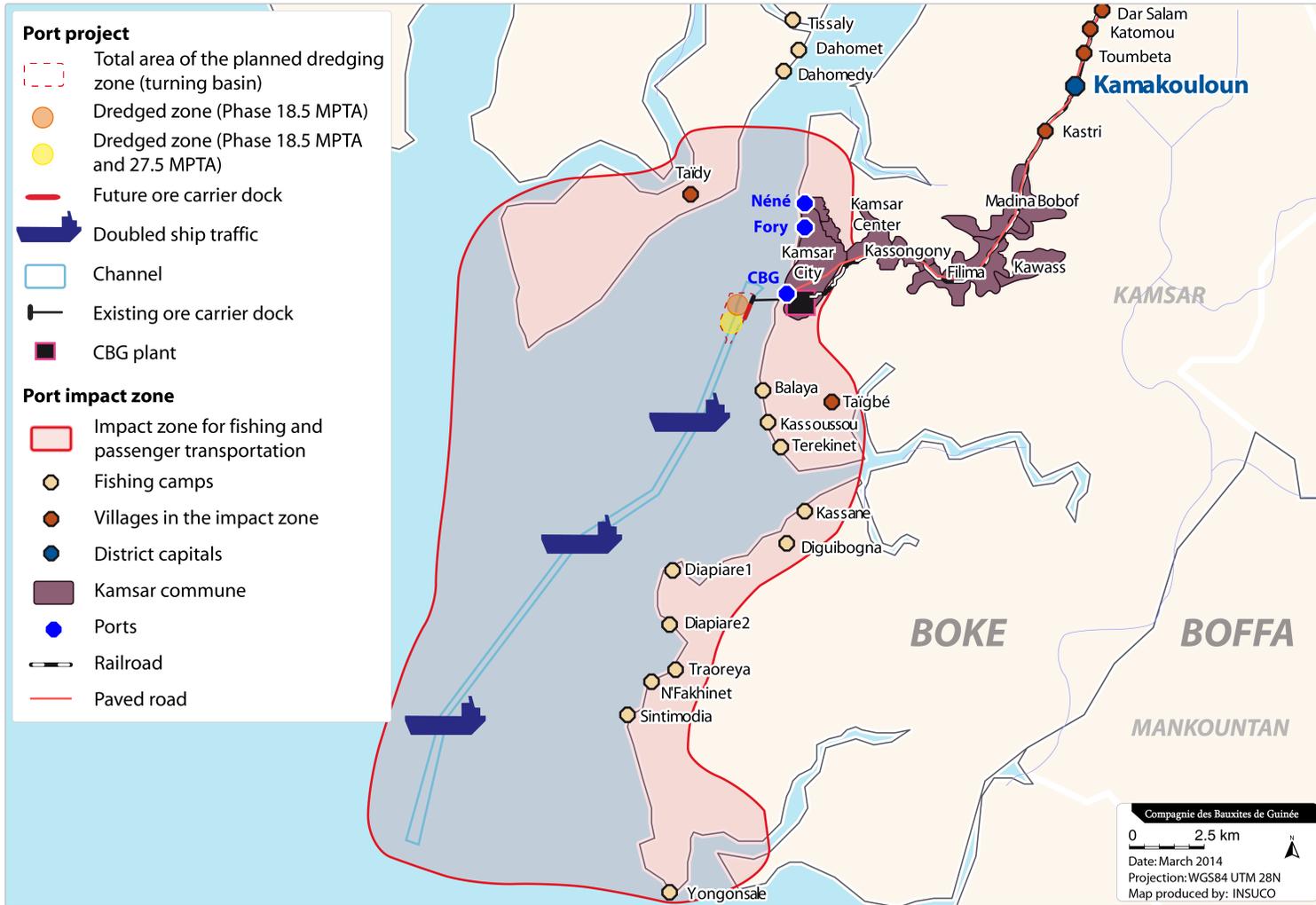
- Communities that fear losing their main sources of income are particularly attached to the idea that CBG will compensate them for losses and recruit their young people (long-term) to guarantee a new source of steady income over time. The village elders want to maintain the traditional household economic structure, currently rendered fragile by the CBG project, in which the younger people work and take care of their elders. Most say that recruitment of one or two people from the village will not be sufficient to care for all the community's needs. If CBG does not offer a number of secure jobs to the affected villages, the measures proposed by the people consulted would be that CBG "feed the villages" for the long term and invest in community development projects (agricultural input, conversion materials, etc.).

Impact 3 – Disruption of the fishing economy

The port zone (Kamsar and area) may be faced with a special problem created by the change in the port organization during construction. The dredging intended to double the area of the approach basin to enable two ships to berth there at the same time will probably affect the fishing yield. On the one hand, the dredging operations (initial and maintenance) may have a negative, if limited, impact on fishing in the estuary for short periods, as is already the case (see Chapter 2). The greatest impacts on the availability of fish stocks will have to be considered in the cumulative impacts in this study. On the other hand, the increase in the number of ore carrier trips (double the number of carriers for the 27.5 MPTA phase) will hinder traffic and increase navigation hazards in the estuary for pirogues. Note that most of the artisanal fishing pirogues do not have motors and are not very safe when currents change or in high waves. Waves about four meters high can be seen at the mouth of the estuary.

The ports and piers at Kabata, Tarnsa, Dian Dian, Dougoula, Taïgbe, Taïdi and Dahomet will be the most directly concerned by this project's negative impacts on fishing. During the operation phase, the increased number of ore carriers in the port will cause deterioration of the aquatic environment (pollutant emissions, mostly fuel). In 2013, an average of 24 CBG ore carriers per month was in the port zone, for a total of 262. If bauxite production doubles by 2022, 524 ore carriers will berth in the port each year. This calculation was based on the 2013 maritime traffic figures provided by the Agence de navigation maritime (ANAM) in Boké. Map 7-16 zooms in on the estuary impact area dealing with the fishing economy. Two ports, Fory and Néné, and the fishing camps are important to consider because their operations will be heavily impacted by any change in navigation conditions and water quality in the estuary.

Map 7-16 Enlargement of the Zone 2 (port) impact, part of the estuary



If deterioration of the aquatic environment is confirmed (see Chapter 9), it will, in turn, reduce long-term fishing yields and hence the entire local fishing economy (ports in Kamsar and fishing camps in the zone). A drop in fishing yield could cause fish prices to rise. Deterioration of the aquatic environment by dredging (initial and maintenance) and ore carrier traffic may also affect the rice fields and mangroves in the area.

If all the mine projects become operational in the coming years, the entire fishing economy and part of the mangrove farming activities would likely be heavily affected long-term. However, the planned Expansion Project work is limited, so the impacts on the Rio Nuñez estuary ecosystem will be relatively low (see Chapters 2, 3 and 4).

Impact 4 – Support for community development projects

The pressure from public expectations that the Project Area communities will benefit from fast, significant Project spinoffs will rise significantly. This pressure will weigh on both local authorities and CBG. This social pressure will lead to the need to clarify how responsibilities are to be shared between the company, the State (devolved and decentralized powers) and private operators.

Any issue relating to CBG's impact on community development involves four main aspects:

- the company's ability to cooperate with the State and not continue to substitute for it in supplying basic services to communities (mainly water and electricity), but by guaranteeing the urban public ongoing, even improved service quality.
- the start of future negotiations that lead to an increase (substantial or limited) in the amounts paid by CBG for community development in the mining concession (land surface and business revenue taxes). According to CBG no negotiations or planned negotiations are currently taking place on these topics between the company and the State.
- adoption very soon of a development agreement with the local community and creation of a local economic development fund. The Mining Code specifies that the objective of such an agreement "is to establish conditions that are conducive to the efficient and transparent management of the Contribution to

- Local Development paid by the holder of the Mining Operation Permit, and to strengthen the capacities of the Local Community in the planning and implementation of the community development program” (Article 130).
- changes in CBG’s community management methods. Increased staffing and support for CBG’s Community Relations team and addition of a team in the mine zone will be determining factors. Also, the current management methods for community development support projects do not measure their true contribution to community development or consistency with the communes’ local development programs. Centralization of CBG’s funds has now become an anomaly in business revenue tax management as governed by the Guinean Mining Code.

For the Expansion Project, CBG’s impacts on community development could quickly and significantly change. However, if the amounts allocated and the management methods remain the same, these impacts will remain limited and will not mitigate all the negative impacts of the increased mining activity in the Project Area. The company’s image may also deteriorate, especially if other mining companies move into the area and abide by the Mining Code rules regarding support for community development (see Chapter 9).

The memo sent to CBG by some Sangarédi subprefecture communities, dated January 19, 2014 (see Annexe 7-3), illustrates the local authorities’ concern that the company’s Expansion Project should comply with the Mining Code taxation and community relations provisions:

“To be able to extend its operating area on the Hamdallaye, Parawi, Parawol, Soukka Wossou, Teli Booti and Boulléré plateaus, the Assemblée Générale recommends and requires the following of CBG:

1. Strict compliance with the content of Mining Code Article 130, specifically the creation of a development agreement with the local community affected;
2. publication of the payment to the local public of 0.5% of the company’s sales as is done by other mining companies operating in Guinea.”

7.4.5.5 Mitigation measures

Impact 1 – Risk of increasing social inequity

All Project Areas

Project governance

- Develop an ESMP and implement a RAP before the construction phase begins to provide prevention and compensation measures to compensate for the Project's negative impacts on the standard of living in the Project Area.

Rural zone - mine

Development planning / preservation of the environment

- Protect village resource spaces by adopting a mine operation plan that takes into consideration the impacts of the pits and engineering structures on the villages' economy;
- Support subsistence restoration programs including modernization of agricultural practices in the mine zone and training, with special attention to activities carried out by women like market gardening and conversion of agricultural products (i.e., palm oil). These programs will be developed in conjunction with the State and development NPOs and will be regularly evaluated and monitored;
- Maximize protection of cropland near the pits (hillocks, woodlands within a 100-meter protection perimeter);
- When crops, fallow lands and/or herding areas are affected by mining activities (exploration, new facilities, operations), provide a compensation system that will maintain stable sources of income (support measures for product conversion activities, alternate income-generating activities); and
- Introduce a safety system to prevent collisions between trains and animals (protective fencing or low walls on stretches of track near grazing areas).

Community development

- Clarify responsibility sharing by the State, the Project and private operators concerning funding (in partnership with the State) for basic infrastructure (water, electricity, schools, health centers) to serve the entire Project Area

population in order to reduce inequalities in access to basic services (business revenue tax and equity funding). All community development projects should include impact assessment and control mechanisms;

- Consider involving specialized partners in community development issues (such as NPOs and regional, national and international associations) as project proponents (with systematic controls and evaluation of their work);
- Introduce preventive and compensation measures to ensure that the education of children and young people does not deteriorate and even improves because of the Expansion Project (village isolation for example); and
- Introduce a complaint and grievance mechanism that is efficient, transparent and managed by CBG.

Rehabilitation

- Maximize replanting of the cleared area or other perimeters as compensation to limit the impacts on firewood cutting and charcoal making, among other things;
- Restore alternate roads when mining activities have partially or completely destroyed access roads used by villages to go to another village or town.

Urban zones (mine and port)

Community development / development planning

- Support or collaborate with the State on community development programs that will improve urban dwellers' access to basic services;
- Support or collaborate with the State and NPOs on programs to develop income-generating activities that will reduce households' economic dependence on the mining economy;
- Initiate a dialogue with the State to clarify and review CBG's role in water and electricity distribution with a view to public services taking over management of basic services that are their responsibility. In a transition phase, initiate a rate strategy for electricity service that will cover all districts and minimize outages;
- In cooperation with the State services (SNAPE) and local groups, plan development of safe water outlets in urban districts of Kamsar and Sangarédi to limit deterioration in or improve water access conditions.

Impact 2 – Job creation

Project governance

- Comply with the Mining Code with special attention to the following articles: article 107 “Preference to Guinean enterprises”, article 108 “Employment”, and article 109 “Employee training” (Mining Code, 2011);
- Implement a transparent hiring policy. For example, create a central database containing the résumés of all job applicants that can be accessed from a number of recruiting offices and updated regularly, and make use of this selection process mandatory;
- Support local employment in affected villages (including the railroad zone): “Mine or quarry title holders and all enterprises working for them must give preference to residents of the local or neighboring communities and Guineans shall always be hired for all jobs not requiring qualifications”, (Mining Code, Article 108); and
- Restore CBG internship opportunities for young graduates by restructuring the system for selecting and monitoring interns: “The training and development plan will include accepting graduates from professional schools and universities for six-month internships for job training and two-month initial training internships so students will learn about the company” (Article 109, Mining Code).

Communication / information

- Disseminate job openings widely with the skills and training levels required for each opening (direct and contract) to make job access more democratic.

Community development

- Support the creation of new very small businesses to create new jobs focused on areas that will eventually enable the local population not to depend exclusively on mining;
- Guarantee job training for employees of very small business to ensure that they learn technical know-how that will be recognized by other companies;
- Audit very small businesses regularly as human resources management practices and salary policies often make working conditions particularly precarious;

- In the compensation measures and using equity funds, promote funding for programs that restore subsistence agriculture opportunities (mainly in the mine zone) and training in income-generating activities to limit the local economy's dependence on mining (economic diversification); and
- Ensure that certain jobs (especially temporary ones) benefit the inhabitants of the affected communities in the three zones.

Impact 3 – Disruption of the fishing economy

Preservation of the environment / safety

- Minimize water pollution (as required by IFC Performance Standard 4) to mitigate the reduced fishing yield; and
- Reinforce safety measures in the estuary while working on the loading dock and during dredging operations.

Information / communication

- Talk to fishermen ahead of time and regularly update them on the dredging progress and agenda (initial and maintenance) and all impacts that involve them in the project (hold regular meetings including subprefecture and commune authorities, fishermen's representatives and CBG before beginning the construction phase; and
- Increase the number of CBG shuttles on the Rio Nuñez during dredging (initial and maintenance) to make pirogue travel in the estuary safer.

Development planning

- In collaboration with the State, support (with business revenue tax and equity funding) the local fishing and fish products processing and sale industry by investing in upgrades to the port facilities or any other compensation measure suggested by the people affected in Port Néné, Port Fory and the surrounding fishing villages.

Impact 4 – Support community development projects

Development planning

- Begin negotiations with the State regarding CBG's role in supplying basic services (mainly water and electricity) in order to gradually involve the State and restore its prerogative of supplying these services;
- Eventually, plan to set up public/private partnerships (public service delegation) to supply basic services (water, electricity) in Kamsar, Sangarédi and Boké;
- Increase participation in community development through the business revenue tax (and the land surface tax) to provide sources of funding for development projects throughout the entire Project Area. Comply with the Guinean Mining Code (2011) in this regard; and
- Adopt a community development plan with the communities concerned to identify what action to take in the medium term (see Section V: Relations between the title holder and local communities, Mining Code 2011).

For the community development plan

- In cooperation with the affected communities, determine how the funds will be used, based on the needs and priorities identified in the local community development plans;
- Define the management process for community projects, always involving CBG, the local authorities and the public throughout the process: selection, funding, implementation, inspection and assessment;
- Find simple tools for regularly auditing projects in progress and assessing completed projects;
- In due course, release the funds for development projects that are to be disbursed by CBG (business revenue tax and equity funds).

Information / communication

- Tell the public about completed projects so they will no longer see CBG's operations as the source of all their economic troubles;
- Employ regular consultation mechanisms to involve representatives of the affected areas in the selection of community projects;

Project governance

- Prioritize support for projects that will limit the local economy's dependence on the mining project; and
- Consider creating a structure to organize annual budgets and suggesting capitalization of the leftover business revenue tax and equity funding. Creation of a larger development fund that occasionally allows larger-scale projects may be a major asset for the region. Such a structure could take the form of an independent foundation with the communities as members. An agency would operate it and manage the projects.

7.4.5.6 Residual impacts

The Expansion Project impacts were re-assessed in this section to incorporate the implementation of the mitigation measures discussed in the previous section and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are as described below.

Table 7-6 Assessment of residual impacts on the economic environment and household strategies

Level of residual impacts						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Increase in social inequities – impoverishment of rural and urban zones	Medium	Medium	Medium	Medium	Low	Low
Impact 2 – Job creation (direct, temporary indirect)	Medium	Medium	Medium	Medium	n/a	n/a
Impact 3 – Disruption of fishing activity (in the estuary)	n/a	n/a	Low	Medium	n/a	n/a
Impact 4 – Support for community development projects	Medium	Medium	Medium	Medium	Medium	Medium

7.4.6 Flow and circulation

7.4.6.1 Overview

Mining projects cause many changes in existing flow patterns. Sometimes new routes open up and other times flow channels are obstructed and can affect social life and the local economy. The increased train traffic is another important aspect of the impact assessment that will affect the flow of people and goods throughout the Project Area.

This aspect deals mainly with:

- destruction of village roads resulting in isolation;
- opening up of mine roads and isolated villages;
- passenger train traffic;
- train traffic that disrupts flow and circulation; and
- ship traffic in the Rio Nuñez estuary.

7.4.6.2 Current situation

In urban areas, the mining project's impacts are mainly positive as they add structure in districts where the mine workers' homes ("cités") and main traffic arteries are located. Paved roads make traffic relatively fluid and safe, especially with night lighting. In the other districts of Kamsar and Sangaredi, the streets are not paved or lit.

In all three zones, train traffic has already had two types of impacts, one positive, the other negative.

The railroad's positive impact is that it has opened a maintained artery (track) that is often used by the public to go from one point to another (mostly on foot). People are often seen walking on or beside the track.

People also frequently travel on the train as passengers. This train connects Kamsar, Kolaboui, Boké and Sangarédi, providing service between these towns with three trips per week.

Since its construction therefore, the railroad has opened up towns and villages throughout the Project Area.

However, the railroad also hinders flow throughout the area. For both humans and animals, the trains disrupt traffic and disturb social and economic life in the towns and villages. Comments collected throughout the Project Area mention the negative impacts of train length (about a 15-minute wait every time it goes by) and unexpected stops by trains on the track (up to 30 minutes sometimes). There are many direct impacts for the villagers:

- temporary traffic holdups and disruption of flow between villages and within a village when the track runs through it;
- bottlenecks in towns when a train is stopped for a while on the track;
- temporary but repeated holdups for children on their way to and from school;
- temporary but repeated holdups when attempting to get to water sources, health centers or posts (mainly a problem in sanitation emergencies);
- temporary but repeated holdups in getting to croplands and/or grazing areas or rivers that supply water to the village; and
- motor vehicles (motorcycles and cars) are not authorized to cross the tracks except at crossings that are considered be too few in number along the railroad track.

Specifically in the mine zone, the pits already mined have caused major nuisances for the villages near the sites:

- destruction of many village access roads (Boundou Wandé, Congo Langué, etc.) without construction of new replacement roads;
- some villages have become isolated and find it difficult, even impossible, to connect with other villages and urban centers nearby (especially in the rainy season). For example, the inhabitants of N'Danta Foyné and Boundou Wandé were denied access to the open-pit-mine road that would enable them to get to Sangarédi quickly. After negotiations, according to their comments, they obtained the right to walk or ride motorcycles on it in early 2013;
- with no alternate roads, many villages mentioned that some trips that took 15 minutes take two or three times as long to get to town. Trip time and cost has risen considerably; and
- the mine roads' status regarding their use by the local public is not clear. The people in Boundou Wandé told us that CBG refuses to allow them to travel on the roads in motor vehicles (motorcycles and cars). Pedestrians are tolerated on mine roads, but no formal rules exist.

In the Rio Nuñez estuary, boat traffic has already been disrupted by the existence of the CBG channel and two ports (goods and ore ports). Access to these areas is prohibited for fishing and passenger boats (pirogues). Furthermore, the ore carriers' wake (262 ore carriers used the Kamsar port in 2013, which is about one trip per day) increases the current velocity in the estuary. Since fishing activities depend heavily on the tides—the pirogues have no motors—the channel and pier depth pose problems for boat traffic because the waves are much stronger in this area and along the edges.

7.4.6.3 Sources of impacts

The main sources of project-related impacts will be:

- requisition of a large surface area to operate new mine pits;
- new mine roads must be built to operate them;
- the fact that some pits will be opened in an area, then left and later worked again will result in a large opened or potentially opened area that will have long-term negative impacts on flow in the villages. If old and new mine roads are opened to the local public, the impact may be positive in terms of circulation but will pose major safety problems;
- the longer train length and the number of daily trips (up to 24 trains every 24 hours in the 27.5 MT/year scenario) will also be sources of major impacts on flow and traffic in the Project Area;
- the various construction sites, involving the opening of new mine roads and pits, transportation of equipment along national highways, construction of sidings (KP 118 and KP 14) and construction of the new sorting yard and stockpile at Parawi, will all be sources of potentially negative impacts on flow and transportation;
- construction of employee housing and construction camps in Sangarédi and Kamsar will also change flow and circulation in urban areas and may have potentially negative impacts, but only during construction; and
- enlargement of the dredged area in the estuary (anchorage for ore carriers) and double the number of ships (in the 27.5 MTPA scenario) traveling in the mouth of the Rio Nuñez will affect local navigation conditions for fishing and passenger boats (more strong wave events).

7.4.6.4 Impact assessment

Table 7-7 Assessment of the impacts on flow and circulation

Level of impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 - Destruction of village roads and isolation	High	High	n/a	n/a	Low	n/a
Impact 2 – Opening up of mine roads and isolated villages	Low	Low	n/a	n/a	Low	n/a
Impact 3 – Disruption of flow and circulation by increased train frequency	n/a	High	n/a	High	n/a	High
Impact 4 – Passenger train frequency	Medium	Medium	Medium	Medium	Medium	Medium
Impact 5 – Deterioration of traffic conditions in the estuary (passenger and fishing boats)	n/a	n/a	Medium	High	n/a	n/a

Description of impacts for sub-component

Impact 1 - Destruction of village roads and isolation

As CBG has opted to mine a number of new pits simultaneously, many village roads will be impacted by operations. Village roads are not always easy to find or identify, but they enable the villagers to circulate within the area, either on foot or on motorcycles. If some village roads are completely destroyed, partly destroyed or simply cut off by pits or mine roads, access to the villages will be seriously disrupted. As a result, some villages will be isolated and people will no longer be able to get to other villages or towns where they have regular social and economic dealings. Travel times between villages will increase noticeably for lack of usable

village roads. For the public, related costs will therefore increase, mainly when the distance requires using a motorcycle taxi to get to Sangarédi or Boké to sell farm produce (see Section 7.4.5). In the mine zone this situation is likely to have major negative impacts in both the construction and mining phases.

Impact 2 – Opening up of mine roads and isolated villages

In the mine zone, CBG will have to open new mine roads to bring the bauxite out of the pits and take it to the stockpiles (N'Dangara and later Parawi). These mine roads may provide an opportunity to make some villages more accessible. However, the current construction method for mine roads makes them unsuitable for foot and motor traffic by the local public. In addition, CBG prohibits the use of motor vehicles on mine roads during operations (Boundou Wandé, for example), even though they could be tolerated in some places. The positive impact of opening these roads is therefore likely to be low for the mine zone. On the other hand, some mine roads that are no longer used for operations are regularly used by most villagers. They facilitate travel in the mine zone.

The mine road system was not yet laid out when this report was written, so we were unable to determine the geographic impact level.

In the mine and railroad zones, construction of the new stockpile and train crossings will certainly lead to new roads (during the construction phase). However, owing to construction equipment traffic, CBG will prohibit public access. These temporary construction roads will probably be available for the neighboring villages to use later, during the operation phase.

Impact 3 – Disruption of flow and circulation by increased train frequency

When the number and frequency of daily trains are doubled (24 trips per 24 hours, or one trip per hour in the 22.5 MTPA scenario in 2022) and the train length increased (about 130 cars), there will be a substantial increase in the present-day impacts described above, specifically:

- more flow disruptions (goods, people and herds) because of trains and unexpected stops on the track (even more along the sidings at KP 118 and KP 14);

- increased difficulty for urban populations (Kamsar districts) and villagers to access basic services (school, water, health care), their croplands and grazing areas; and
- more bottlenecks in towns (mainly in Kolaboui where the railroad track runs through the center of town).

During construction, the railroad extension that goes to the new sorting yard in Parawi will temporarily block traffic on national highway 22 at Hamdallaye. Construction of an overpass will restore traffic during the operation phase since the trains will pass under the road.

Photo 7-11 Level train crossing, Zone 3 (railroad)



Impact 4 - Passenger train frequency

Passenger trains between Kamsar, Kolaboui, Boké and Sangarédi are now a preferred mode of transportation for the public as they enable people to get to the area's main economic centers easily.

The increase in the number of mine trains will not reduce the passenger train traffic—trains will continue to run three times a week—but will delay and slow them down. The mining trains have priority. Passenger trains will therefore be switched to sidings more often to let the mine trains go by.

Impact 5 – Boat traffic in the Rio Nuñez estuary

In the estuary, dredging of a new part of the sea bed during the construction phase will have a major impact on pirogue traffic in the area (sediment removal). Then, during operations, the enlargement of the ore carrier berthing area will deprive fishermen of a relatively small fishing ground. However, doubling the number of ore carriers in the harbor (27.5 MTPA scenario in 2022) and recurrent dredging of the estuary will increase strong wave events and degrade traffic conditions in the estuary.

Photo 7-12 Néné port pier, fishing and passenger boats



7.4.6.5 Mitigation measures

Impact 1 - Destruction of village roads and isolation

Development planning

- When village roads are degraded or destroyed, alternate roads must be opened (or old existing roads rehabilitated) to prevent the affected villages from being isolated; and
- A transportation plan should be developed that examines risks and options with all the partners concerned and plans targeted actions.

Information/communications

- The affected communities should be consulted ahead of time to identify what village roads may be involved and make sure that the solutions chosen and the resulting impacts are known and accepted by the public concerned (IFC Performance Standard 1, Assessment and Management of Environmental and Social Risks and Impacts);

- Develop a communication and information plan for the entire Expansion Project: inform the public concerned in advance about the work that will be done by CBG in the village territory;
- Have a transparent, efficient grievance mechanism to deal with complaints about potential isolation of some villages (IFC Performance Standards 1 and 5); and
- Introduce a road traffic code for the entire Project Area.

Safety

- Install protective devices and safety guards at level crossings between mine roads and between mine roads and village roads; and
- Regularly maintain alternate roads created to benefit the affected villages.

Impact 2 - Opening up of mine roads and isolated villages

Safety

- Minimize foot and motor vehicle traffic on mine roads during operations;
- Create alternate village roads to prevent villagers from using the mine roads;
- When mine roads follow a route that villagers need, a facility should be developed so villagers can use them. This could be a smaller road parallel to but separated from the mine road by a berm; and
- Introduce a road traffic code for the entire Project Area: visible public protection measures (safe passageways, speed limits, speed bumps) and understandable road signs installed throughout the area will make life safer for the various types of road users.

Information / communications

- Clear communication of the operating schedule for various mine roads (during operations, not in use, or reused for operations, etc.); and
- Approach based on information and awareness instead of repression.

Impact 3 – Disruption of flow and circulation by increased train length and frequency

Development planning / safety

- Improve and increase the number of railroad crossings near the villages along the track (safe level crossings);
- Build overpasses by the villages so people can cross the tracks while trains are going by or are stopped on the track; and
- Provide crossing facilities to allow motorcycles, pedestrians and herds to cross the tracks. Overpasses should also be developed for two-wheeled vehicles (motorcycles and bicycles).

Information / communication

- Develop a communication and information strategy and plan for the entire Expansion Project: in advance, inform the authorities and publics concerned about work that will have impacts on their village land;
- Ahead of time, consult the authorities and affected communities to make sure that the solutions chosen are known and accepted by the authorities (and technical services), the publics concerned, and by CBG and its subcontractors (IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts); and
- Develop a transparent, efficient grievance mechanism to deal with complaints about potential isolation of some villages.

Impact 4 – Passenger train traffic

Development planning

- Maintain passenger train traffic conditions until a study can be done of the number of passengers using the train and the needs expressed by the local public; and
- Adapt passenger train traffic to the needs in the Project Area or propose alternative solutions if the number of trips is reduced or there are major delays (bus line).

Impact 5 – Traffic conditions in the estuary (passenger and fishing boats)

Information / communication

- Develop a communication and information strategy and plan for the entire Expansion Project: in advance, inform the authorities and affected public about work to be done by CBG that will affect their territory (land and sea); and
- Introduce a grievance mechanism with corrective measures as needed. Introduction of a complaints and grievances management system is one of the IFC recommendations (Performance Standards 1: Assessment and Management of Environmental and Social Risks and Impacts and 5: Land Acquisition and Involuntary Resettlement).

Safety

- Develop a marine traffic code specifically for the construction phase with reinforced safety measures to protect passenger and fishing boats; and
- Cooperatively develop a navigation plan that involves fishermen's and passenger transportation organizations to find routes in the Rio Nuñez estuary that are suitable and safe so they can continue their activities.

7.4.6.6 *Residual impacts*

The Expansion Project impacts were re-assessed in this section to incorporate the implementation of the mitigation measures discussed in the previous section and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are as described below.

Table 7-8 Assessment of residual impacts on flow and circulation

Level of residual impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 - Destruction of village roads and isolation	Medium	Medium	n/a	n/a	Low	n/a
Impact 2 - Opening up of mine roads and isolated villages	Medium	Medium	n/a	n/a	Low	n/a
Impact 3 – Disruption of flow and circulation by increased train frequency	n/a	Medium	n/a	Medium	n/a	Medium
Impact 4 – Passenger train frequency	Medium	Medium	Medium	Medium	Medium	Medium
Impact 5 – Deterioration of traffic conditions in the estuary (passenger and fishing boats)	n/a	n/a	Low	High	n/a	n/a

7.4.7 Governance and social cohesion

7.4.7.1 Overview

Based on an in-depth knowledge of how the local powers operate (traditional, religious, devolved, decentralized), the impact assessment covers the changes generated by the CBG Expansion Project that may influence local modes of governance. Governance and social cohesion issues are essential for any social impact assessment because they reveal factors that may trigger tension and conflict in the Project Area.

Primarily, the following issues are discussed:

- local governance (sectors, districts, rural communes, prefectures and subprefectures, traditional governance)
- CBG's project governance
- State governance of the project and the area
- potential conflicts (between the public and CBG and within the population)
- communication and information (grievance management mechanism, information, consultations, etc.)

7.4.7.2 Current situation

Local governance

Local governance in the Project Area is based on two main authority systems:

- institutional authorities that hold powers devolved from the State (prefecture, subprefecture) and authorities with decentralized powers (elected representatives of rural communes, districts and sectors);
- traditional authorities based on the chieftainship model with predominant traditional structures like the Elders' Council and religious authorities (see Chapter 5).

These power management methods cohabit, collaborate and compete depending on the context and the socioeconomic issues facing the communities.

The Prefecture authorities are based in Boké. The Prefecture plans to set up a Prefecture monitoring committee for mining projects to prevent unproductive

multiplication of monitoring committees. This committee will be multidisciplinary and will involve the Prefecture's development committee. A strong desire is evident among the Prefecture authorities and mining companies to structure, plan and collaborate. It may have a positive impact on governance of mining issues in the entire Prefecture.

Throughout the Project Area, sector and district representatives, as well as traditional and religious authorities, enjoy strong social legitimacy. It was often mentioned during consultations that subprefecture and commune authorities should not act as intermediaries between the public and CBG in negotiations regarding compensation. It was repeated many times that these authorities are beholden to CBG and contact the public only when the company has to manage conflicts to maintain social peace in the Project Area.

Non-trading company/NGOs

Some national and international NGOs or international development programs are operating in the Project Area (see the SEP in Chapter 6 and the Socioeconomic Baseline Study in Chapter 5). They are mostly concentrated in the towns of Sangarédi, Boké and Kamsar. The Centre du Commerce International pour le Développement (CECIDE) [international trade center for development] is present in the Sangarédi area. This national NGO intervenes in mining problems and promotes awareness of the Mining Code, among other things. CÉCI's presence is also an asset for Kamsar. The Centre for International Studies and Cooperation endeavors to build the development capabilities of disadvantaged communities. CÉCI would be interested in working with CBG on local development projects. Many NGOs in the prefecture could provide specialized connections to initiate and carry out development projects in cooperation with the communities affected by CBG.

Most of the existing associations are local, essentially organized as groups or cooperatives for a given trade or field (agriculture, education, former CBG workers, etc.).

Community development expectations

CBG's management mode throughout the zone is described as defective in its relations with local communities and its development spinoffs. The fact is that CBG's Community Relations team consists of only four people for the entire Project Area:

one superintendent, one coordinator, one jobsite inspector and one administrator. In addition to being chronically understaffed, the Community Relations team is not well equipped. For example, the team has no specifically allocated vehicles and no suitable mode of transportation for covering the marine zone.

The Community Relations team is located in Kamsar and has no presence in either the railroad or mine zones. People are unaware of this group's existence as it is almost never present on the Project's sites. This state of affairs only reinforces the communities' frustrations and they decry the company's wait-and-see policy regarding social issues in the Project Area.

The communities and authorities say that CBG is well aware of its operations' impacts on the public because it has been in business in the area for 40 years. They believe that the unresolved problems show a lack of willingness to implement prevention and mitigation measures.

CBG's hiring policy is often described by the people consulted (in all three project zones) as being opaque and based on "buying" jobs. Many authorities and citizens deplore the existence of a "tribal" management mode at CBG which focuses financial spinoffs with the central government and a small elite, to the detriment of the local people.

CBG's hiring policy enables a minority of workers and their families (described as "CBG beneficiaries") to enjoy working conditions and many benefits (housing, free health care, food at preferential prices, job security, pensions, etc.). On the other hand, the people employed by CBG's subcontractors work in precarious conditions (low wages, no employee benefits, short-term contracts, working equipment not provided). As for the rest of the population, most have no access to paid jobs or basic services. The resulting social inequities are fairly obvious in the Project Area. Sangarédi residents believe that Kamsar gets special treatment from CBG (mainly for hiring and electricity). The people consulted in Kamsar think that Sangarédi benefits more (mostly for water supply and electricity). With no transparent communication by CBG regarding its contribution to community development in urban areas, the frustrations are fed by rumors.

In fact, with regard to contacts between CBG and the public in the Project Area, most of the people consulted lamented the lack of information and dialog between the company and the local public (one exception was CBG radio, mentioned in

Kamsar). CBG's outside communication consists mainly of radio broadcasts. CBG has its own radio station in Kamsar (and an antenna in Sangarédi that does not cover the territory well according to our respondents). CBG radio is used more for awareness purposes than for information about the Project's changes. However, most villages in the mine concession have no access to FM radio broadcasts because of the terrain relief.

The consultations for this impact assessment were often described as the first since CBG began 40 years ago.

Photo 7-13 Information and consultation session, Parawi village (March 2014)



In the mine zone, the villagers and local authorities interviewed insisted on the fact that CBG, for decades, has taken their land without prior warning or consultation and even less material and/or financial compensation. A change was noted with the work on a new train siding currently being built in Kolaboui. The local authorities and public welcomed CBG's information sessions and the introduction of a compensation mechanism for losses caused by the construction.

Social tension and potential conflicts

There are many social tension factors in the Project Area. The rural populations have suffered extensive losses of rural land without the situation ending in open conflict with CBG.

The main conflicts that shake the Project Area are related to problems with access to basic services, mainly electricity and water, for the people living in urban and surrounding areas (outside the CBG “City” district). These people consider that free access to water and electricity should be guaranteed by CBG, mostly to compensate for the Project’s limited positive spinoffs in terms of local jobs. Young people in urban areas put pressure on the company to develop and improve these services. Conflicts break out regularly in Kamsar and Sangarédi (March 2014). They have sometimes resulted in brawls that were violently suppressed by the police, involving many injuries and even fatalities (see the 2009 and 2012 riots in Kamsar).

In rural areas, open conflicts with CBG are rare, but that does not mean the public is not frustrated with the mining project; such frustrations were often mentioned during the consultations. Many people said that all complaints addressed directly or indirectly to CBG got lost and never amounted to any corrective measures. When asked how they send their complaints to CBG, the people consulted admitted they did not know to whom they should submit them. There is supposed to be a mechanism in the communes in which people fill out complaint forms to be sent to CBG by the commune authorities. In reality, this mechanism is quite unknown or ignored and does not work.

Some people who have contacts in CBG try to send their messages through “relatives” who work for the company or VIPs like the mine manager. We were told that none of the complaints or memos filed ever gave rise to tangible measures (official response and/or corrective measures).

To be heard, when accidents occurred or their sources of income deteriorated, some villages blockaded CBG project operations (especially the railroad). However, fear of police reprisals caused many authorities to try to dissuade their public from expressing their frustrations by confrontation; at the end of the day, the public is always the big loser.

Within mine zone rural communities, there are significant conflicts between farmers and herders in all the villages. These occur in both the dry season (market garden plots) and in the rainy season (large annual crops). When a crop is destroyed by cattle, the cattle owners generally are required to pay fines that are sometimes unreasonable. Given the absence of management committees in the villages, conflicts are managed by local chiefs, district presidents and elders or referred to the development department if no agreement is reached.

7.4.7.3 Sources of impacts

The main sources of impacts on governance and social cohesion involve:

- a generalized increase in expectations relating to direct economic spinoffs from CBG for households and community development throughout the Project Area in both the construction and operation phases (jobs, community development, access to basic services);
- competition for access to jobs, even precarious ones, between members of the same household, lineage, village, between zone populations and migrants;
- implementation of a RAP that would require determining borders between villages and management of displacement and compensation; drawing borderlines for village land is a thorny undertaking and can cause major tensions between villages;
- implementation of compensation measures could cause strong social tension if positive results are not felt quickly;
- loss of land and deterioration of resource spaces in the mine concession could ignite conflicts between farmers and herders;
- insofar as the Expansion Project would not guarantee a program of effective, suitable compensation or fast economic spinoffs for most the population, the prefecture, subprefecture and commune authorities risk seeing their power questioned even more vigorously, as well as their legitimacy as public representatives;
- without any communication from CBG regarding the mining program, operating agenda, social measures initiated, their scale and timing, social frustrations are likely to skyrocket in the Project Area with tensions aroused between the company and the public.

The main factors that exacerbate these impacts are:

- comparisons with other mining companies’ operations in the area (such as GAC’s RAP) that boost local expectations;
- CBG’s community policy which, owing to lack of negotiation with government authorities, 1) continues to involve CBG in funding and supplying electricity and water services in the main Project Area towns, and 2) prolongs the tax benefits granted to CBG (the business revenue tax amount paid and exemption from land surface taxes);
- lack of a communication policy and management plan for the Project Area (being developed) which would be implemented in the SEP;
- lack of a grievance mechanism;
- lack of a local development agreement binding CBG to the Project Area people which means that community development actions are not planned (business revenue tax and equity funds);
- the current composition of CBG’s Community Relations team does not provide good coverage of the Project Area;
- hiring policies of CBG and subcontractors lack transparency;
- continuation of disparaged CBG practices relating to the lack of systematic handling of complaints, grievances and claims submitted to CBG by local communities.

7.4.7.4 Impact assessment

Table 7-9 Assessment of the impacts on governance and social cohesion

Project Area	Level of impact					
	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Tensions related to local governance modes	High	High	High	High	Medium	Medium
Impact 2 – Community development expectations	High	High	High	High	Medium	Medium

Impact 3 – Potential conflicts and social tension	High	High	High	High	Medium	Medium
Impact 4 - Communication and information	High	High	High	High	High	High

Description of impacts on the governance and social cohesion component

Impact 1 – Tensions related to local governance modes

The Prefecture development committee members are fully aware of mining issues. They have stated that they want to have better documentation on how mining projects operate in other parts of Guinea so they can make suggestions and mediate between the public and the mining companies.

With regard to governance throughout the Project Area, the potentially negative impacts of the Expansion Project involve a lack of transparency in the relations between CBG and the authorities (Prefecture, Subprefecture and commune) and between the authorities and the public in the Project Area. The public’s mistrust of the Subprefecture and commune authorities may increase unless a transparent, regular reporting mechanism is introduced. In this scenario, the people may be tempted to break off dialog with their representatives, accusing them more directly of being bought by the company to the detriment of their fellow citizens’ interests.

In fact, the public’s expectations regarding community development and jobs as positive Project spinoffs is likely to weigh heavily on the local authorities. At this level of governance, the authorities may see their legitimacy contested if the Expansion Project’s positive impacts do not truly benefit the people in the Project Area. Hiring practices, if not conducted transparently and in cooperation with the local authorities, may create strong tensions and divisions within the communities. The same goes for the loss compensation process (for goods and land) and resettlement.

The customary authorities (elders and leaders) will play an important role in the compensation policies, as they are the villages’ memory and supreme authority regarding village land boundaries. If they are not closely involved in any mechanism

for determining village boundaries, compensation and resettlements, local governance and social cohesion are likely to be disrupted. The traditional local governance could also be shaken if the treatment of sacred sites that have to be destroyed is not managed beforehand with the local authorities identified in the Socioeconomic Baseline Study (see Chapter 5).

In the railroad zone, the impacts in terms of pressure on local authorities will be fairly high throughout the project, because of:

- isolation of the villages located along the railroad tracks
- the distance separating the villages and the town of Boké from the mining zone and port, with lesser impacts on the local population.

Impact 2 – Community development expectations

The foreseeable negative impacts of the Expansion Project on CBG modes of governance in the mining zone are mainly the likelihood that the current issues of community management, recruiting, information and communication, supply of services (water and electricity), payment of a very low business revenue tax amount and the absence of a compensation policy for losses suffered by the people will continue and intensify. In many respects, the impact assessment consultations opened a Pandora's box of frustrations and expectations that CBG will make positive changes in its social governance of the Expansion Project. The consultations reveal the collective will to see practices evolve toward recognition of community development rights. CBG's Project governance methods concerning community issues were very often questioned by the respondents (residents and local authorities). Some consider that the consultations conducted for the socioeconomic impact assessment are a first positive impact of the Expansion Project to make CBG consider the public more in its Project management, and this should lead to tangible improvements.

CBG is now expected to comply with new community governance standards that the people see in other concessions. The people in the Project Area (mine zone) hope for change even more because of the approach by the Guinea Alumina Corporation (GAC-Mudabala and Dubai Aluminium) which implemented a RAP for its mining project near Sangarédi. The projects allowed and the compensation granted by GAC have become a standard for good mining practices in the area. The people who "belong to the CBG concession" (a direct quote) now compare the social approach of a company that has not yet begun mining to that of CBG, which has been in business for more than 40 years, and say they are ashamed of this company that has no pity for its people.

In most of Guinea's mining areas, we have observed in recent years that both the authorities and the public are much more aware of the mining companies' role in local community development. The authorities interviewed during the Project Area consultations had received mining sector training (in Conakry) and felt much better informed and empowered to defend their fellow citizens' rights.

Furthermore, these consultations were held in March 2014, two months after the new Guinean parliament was elected and after the legislative elections in September

2013. In this context, it was clear that the public was strongly predisposed to express their hopes that society as a whole would change rapidly and that local changes would happen quickly. Throughout our meetings with the public and their representatives, we were told repeatedly that times were changing, that they were now a democracy. The generalized hope for change fostered by the national elections must be taken into account to understand the virulence of some respondents' statements regarding "old practices that should be denounced and changed permanently".

The governance methods for the business revenue tax funds were often mentioned as an example of backward practices. Managed directly by CBG, the way these funds are governed was decried as a company stranglehold on public funds. Expectations are also high and numerous that CBG will comply quickly with the Mining Code regarding community development allocations and management of the business revenue tax funds.

Many authorities and individuals insisted that one of the major governance-related risks is continuation of company recruiting and promotion practices that are not transparent and, according to the respondents, constitute a double system of affiliation and buying jobs (it is commonly said in the Project Area that one has to pay 15 million GNF, or over \$2000 US, to a high-ranking employee to obtain a position with CGB). Note that as part of the Expansion Project, CBG has developed a workforce recruitment strategy for a preliminary total of 388 jobs created (CBG Expansion Project Human Resources group, 2014).

The main principles of this strategy are:

- prefer people already employed by CBG (229 CBG employees would be surplus);
- recruit outside only when the desired qualifications are not available within CBG;
- train young graduates recruited outside to hone specific skills and build know-how;
- fill trade positions with the students who have the best academic records and possibly offer them apprenticeships;
- have selection tests completed before hiring;

- for apprenticeships, test theory before going on to practice: the best people could then be recruited by CBG, as needed.

Note that in March 2014, CBG announced that it was terminating all internships with the company. This initiative is intended to comply with the Labor Code but is a tremendous blow to young Guinean graduates, especially in the Project Area, and could generate strong local frustrations.

Given all these aspects, it is highly probable that many of the jobs created for the Expansion Project will benefit workers who are already part of the company. It also appears that CBG's objective is to limit public calls for tenders, preferring a selective approach and hiring the best students from specialized schools. However, systematic testing and monitoring of the apprentices should make skills the main hiring criterion. By cutting short all the internships (instead of overhauling the system), CBG may close occupational training doors for many young graduates and foster strong discontent by making the company less open to its environment.

In the railroad zone, the expectations regarding CBG governance of possible Project spinoffs will be fairly high throughout the Project owing to:

- isolation of the villages located along the railroad tracks; and
- the distance separating the villages and Boké from the mining and port zone, with lesser impacts on local populations.

At KP 14, during construction of the siding, the public will expect CBG to comply with a mode of governance based on a compensation/resettlement system, as this was done in the Kolaboui area during the first construction phase.

Impact 3 – Potential conflicts and social tension

Community development expectations

The Expansion Project, which will double production by 2022, is considered by many of the people consulted to be an opportunity for the towns and surrounding areas to obtain access to electricity and water and receive continuous, satisfactory service. As a number of authorities put it, if the company doubles its production, it will also double its income, so it will invest even more in community development. Given the Guinean government's holdings in CBG (49%), many people equate the State's responsibilities with those of the company, particularly supplying basic services. If

access to and quality of basic services does not improve considerably in the coming years, many open conflicts risk breaking out in towns and surrounding areas, with CBG as the target. Even though the State is responsible for providing basic services—and many said so—the consultations revealed high expectations that CBG and the government would work together to significantly improve access to services in the Project Area.

In anticipation of the Expansion Project start-up, many Sangarédi concession communities have rallied to alert CBG to the negative impacts of the Project's current operating modes and governance and to demand changes in practices.

An open letter to CBG, dated December 2013, regarding the Expansion Project was sent to the company by Boulléré community representatives, (*Lettre ouverte à l'intention de la CBG suite à son Projet d'extension, Annexe 7-2*).

Communication / consultations and complaint mechanisms

The strategy and communication methods used by CBG during its Expansion Project will be an important source of impact that may have positive or negative impacts on social tensions in the area (see the ESMP in Chapter 10).

The lack of a mechanism for handling complaints, grievances and recommendations from the local public (such as the aforementioned open letter) or simply dialog, may provoke revolt and confrontation if it continues. Even before the Expansion Project, voices were demanding that CBG introduce a new form of mining governance more compliant with national regulations and respectful of the future of local communities and that it begin an ongoing dialog with communities.

Despite many attempts to establish dialog with CBG, many local authorities complained that, at the moment, the only really effective way to be heard would be to blockade the company's operations and they fear that these practices will continue. Many ultimatums were aimed at CBG during the consultations, saying that if the situation continues and gets worse, people will blockade the trains, go on strike, block machinery, prevent people from gaining access to their land, etc. The risk is that the Expansion Project will worsen these frustrations. At the moment, the local authorities in the mine zone complain that CBG consults them only, or nearly only, when there are problems. Given the high hopes that CBG will adopt a

communication policy and plan, it is possible that if the current practices continue, social tensions will keep growing.

Job creation

Job creation and the precarious jobs with CBG subcontractors may also have a strong impact on social tensions in the communities. In fact, as is currently the case, the few jobs available for the entire area may foster pressure, negotiations, racketeering, etc. Hiring even qualified workers from other parts of Guinea or abroad for unskilled work will arouse serious tension that is likely to increase. Tensions within households, lineages or even villages may increase when access to jobs becomes competitive.

Working conditions and wages paid by subcontractors and very small businesses, widely denounced as unacceptable, may also generate tension if CBG does not require its subcontractors and very small businesses to guarantee better working conditions for their employees. Many people who were hired as construction laborers by CBG subcontractors reported receiving less than \$1.50 US per work day.

Loss of sources of income, involuntary resettlement and compensation

Loss of land and other property because of the Expansion Project, mainly in the rural and urban mine zone, may also provoke strong social tensions and even conflict. Often, partial implementation of the planned compensation systems (announcement effect), misappropriation of funds, or the lack of compensation, result in conflicts (latent or open) between the public and the company's field staff.

Resettlement is also a major factor in social tensions and conflicts between the people in a given village, between the people from the displaced village and the people in the host location, between local authorities and the public, and between the displaced people and the mining company. These potential tensions should be expected and planned for. The "CBG expropriation system" strikes fear in the mine zone, and we heard stories of many families forcibly evicted with no compensation who ended up destitute (Daramagnaki area).

Also to be expected is that if a compensation mechanism for loss of land is implemented, the traditional village authorities will have to agree on land boundaries that have always remained vague. Land issues are very sensitive in the

Project Area. This undertaking is likely to generate strong tensions in the mine zone villages, mainly prior to construction (see Chapter 5). The substantial loss of land devoted to extensive livestock herding in the mine zone is also likely to stir up conflicts between herders and farmers. Animals deprived of grazing area will end up in the lowlands and crop fields. Conflicts will then abound, especially since there are no means to safeguard crops and no legitimate settlement mechanism for conflicts between villages or involving several people.

Sacred sites

Problems or negative impacts generating tension between CBG and the communities and within communities relating to the destruction of sacred sites without prior negotiation should also be anticipated. The mine zone sites have been cataloged with the idea that, with the information confided to the investigators, the company could:

- avoid destroying the sites, insofar as possible;
- comply with rules set by the community if sites are destroyed;
- in the railroad zone, potential conflicts and tension factors will be fairly high throughout the project owing to:
 - isolation of the villages located along the railroad tracks; and
 - the distance separating the villages and Boké from the mining and port zone, with lesser impacts on local populations.

7.4.7.5 Mitigation measures

Impact 1 – Tensions regarding local modes of governance

Information / communication

- Comply with the IFC Performance Standard on information and prior consultation of the communities affected throughout the project (IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts);
- Set up a discussion forum with quarterly meetings (Subprefecture, commune and district authorities, CBG and representatives of subcontractor companies) in the three Project Areas;
- Promote the circulation of information between CBG and local authorities and between the latter and the people they administer;
- Implement a regular, transparent public communication policy and plan focusing mainly on the Project agenda and job opportunities (develop the CBG radio network throughout the Project Area, focal points, etc.);
- Introduce a grievance mechanism with corrective measures as needed. A grievance-management mechanism is a World Bank recommendation (IFC Performance Standards 1: Assessment and Management of Environmental and Social Risks and Impacts and 5: Land Acquisition and Involuntary Resettlement).

Project management

- Relieve the subprefects and mayors of the responsibility of receiving and handling complaints meant for CBG;
- Involve the local authorities in selection of community projects funded by CBG equity based on the local development and annual investment plans of each commune.

Community development

- Develop and implement an ESMP and RAP for the Expansion Project that meet international standards and specify the status and role of the local authorities;

Impact 2 – Community development expectations

Community development

- Strengthen the Community Projects unit with more staff and sufficient means to achieve its mission in all Project Areas. Plan to manage this unit from Sangarédi, with a permanent presence in Kamsar and the railroad zone;
- Consider incorporating the Community Projects unit into the Health, Safety and Environment department (which could be renamed Health, Safety, Environment and Community);
- A national dialog should be started with the State and its devolved services on the following issues:
- Strengthen ties with the BGÉÉE, initiated during the SEP, for studies and implementation of an ESMP and RAP;
- Begin discussions to harmonize CBG's contributions with the Mining Code (Article 111, 2011);
- Return to the State the social services role of supplying water and electricity (also consider public/private partnerships);
- Conduct a national, regional and local public information campaign regarding CBG's real contribution to the supply of social services.

Hiring / jobs / working conditions

- Follow the hiring policy developed for the Expansion Project with control mechanisms at every stage of the recruitment process;
- Give preference to local hiring (mainly for unskilled labor when work is done on village land);
- To promote the circulation of information and support adoption of a transparent hiring policy, set up information and recruiting offices in all Project Area towns for all Project phases (construction and operation);
- Expand the communication strategy concerning the jobs created and recruiting conditions;

- Guarantee good working conditions to employees of subcontractors and very small businesses and include the standards to be met in the Terms of Reference (wages, safety conditions, provision of equipment, daily working hours, etc.). Conduct regular and unexpected inspections of subcontractors' jobsites and plan retaliation measures if commitments are not met (Ref. Labor Code, République de Guinée, 1988 and IFC Performance Standard 2: Labor and Working Conditions); and
- Do not cancel the CBG internship policy but continue to promote job training for young graduates. However, provide a better selection and coaching mechanism for the company's interns.

Information and communication

- Develop a communication policy, strategy and plan (internal and external) for the entire mining project, with particular focus on the Expansion Project components; and
- Build a discussion forum into the communication policy to maintain open dialog with groups and technical services.

Local communication must be based on the following

- Use facilitators from the districts concerned or the larger villages (elected or appointed by the population affected);
- Base communication teams in Kamsar and Sangarédi;
- Send out radio broadcasts from Kamsar;
- Promote rural radio in Sangarédi;
- Require providers and subcontractors to incorporate the basic messages in their terms of reference;
- Introduce a social charter to be respected in the villages by CBG employees and subcontractors;
- Introduce a complaint mechanism: "To ensure that grievances from Affected Communities and external communications from other stakeholders are responded to and managed appropriately" (IFC Performance Standard 1); and,
- Establish a framework for quarterly meetings with stakeholders in Sangarédi, Boké (including Tanéné and Kolaboui communes) and Kamsar.

Impact 3 – Potential conflicts and social tension

Information/communication

- Develop and introduce a long-term communication policy for the entire Project Area for the local authorities and public; transparent, regular information is essential for preventing tension;
- Set up a regular consultation process with the authorities and communities affected to ensure they participate proactively in the selection and implementation of mitigation measures, as recommended in IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts. It states: “An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by management, and involves engagement between the client, its workers, local communities directly affected by the project (the Affected Communities) and, where appropriate, other stakeholders”;
- Set up a discussion forum with quarterly meetings (subprefecture, commune and district authorities, CBG and representatives of subcontractor companies) in the three Project Areas;
- Introduce a transparent, efficient grievance mechanism (IFC, 2012); and,
- Implement a RAP in cooperation with local authorities (communes, subprefectures, districts) and the affected communities.

7.4.7.6 *Residual impacts*

The Expansion Project impacts were re-assessed in this section to incorporate the implementation of the mitigation measures discussed in the previous section and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are shown in Table 7-18.

Table 7-10 Assessment of residual impacts on governance and social cohesion

Level of residual impacts						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Tensions related to local governance modes	Medium	Medium	Medium	Medium	Low	Low
Impact 2 – Community development expectations	Medium	Medium	Medium	Medium	Medium	Medium
Impact 3 – Potential conflicts and social tension	Medium	Medium	Medium	Medium	Low	Low
Impact 4 - Communication and information	High	High	High	High	High	High

7.4.8 Cultural and archeological heritage

7.4.8.1 *Overview of cultural and archeological heritage*

In Guinea, it is important to consider the existence of strong syncretism (two religious systems cohabit in the Project Area, one is monotheistic, Islam, and the other animistic). These beliefs give rise to ritual practices attached to sacred sites that are scattered throughout the Project Area. The Socioeconomic Baseline Study in Chapter 5 inventoried these sites in the mine zone and gauged their importance for the public in terms of their usage value. The impact assessment is based on the main recommendations by the experts who wrote the cultural heritage part of the baseline study and looks at international standards on mining project impacts on cultural heritage (SFI, 2012). Recommendations will also be made to protect and develop the valuable archeological heritage discovered in the mine zone.

The following types of heritage are considered:

- tangible (sacred and archeological sites); and
- intangible (languages, ritual practices).

Guinean legislation refers to the handling of tangible heritage in its Mining Code, in Article 111, which stipulates that “No prospecting, exploration, or exploitation of Mine or Quarry Substances can begin on a surface within a radius of one hundred (100) meters: around properties surrounded by walls or similar enclosures, villages, settlements, wells, religious buildings, cemeteries and sites considered sacred, without the consent of the owner (...)”.

In addition, if CBG intends to comply with the international IFC Performance Standards on Environmental and Social Sustainability regarding treatment of sacred and burial sites during the Expansion Project, it must commit to Performance Standard 8: Cultural Heritage (SFI, 2012).

Cultural heritage, as defined in IFC Performance Standard 8, includes:

“tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; unique natural features or tangible objects that embody

cultural values, such as sacred groves, rocks, lakes, and waterfalls; and certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge”.

With regard to cultural heritage protection objectives, IFC Performance Standard 8 states (SFI 2012):

“The client is responsible for siting and designing a project to avoid significant adverse impacts to cultural heritage.

Where a project may affect cultural heritage, the client will consult with Affected Communities within the host country who use, or have used within living memory, the cultural heritage for long-standing cultural purposes.

The client should not remove, significantly alter, or damage critical cultural heritage. In exceptional circumstances when impacts on critical cultural heritage are unavoidable, the client will use a process of Informed Consultation and Participation (ICP) of the Affected Communities as described in Performance Standard 1 and which uses a good faith negotiation process that results in a documented outcome. The client will retain external experts to assist in the assessment and protection of critical cultural heritage.”

7.4.8.2 Cultural and archeological heritage, current situation

Cultural heritage

The cultural and archeological heritage studies focused on the mine zone as it will be almost the only area affected by the project’s expanded footprint. A more general impact assessment will be provided for the port and rail zones.

Among the known cultural sites in Guinea are genie (spirit) residence sites, burial sites, initiation sites, sites where fetishes are displayed, and archeological sites (see Chapter 5).

In the entire mine zone, a total of 541 sacred sites were cataloged, a number of which are very important. All the existing sites in the mining concession were inventoried.

However, the detailed public ethnographic surveys concerning the sacred sites identified remained within the perimeter of the future CBG open-pit mines (October 2013 version) and a 500-m buffer zone around the future mines.

The cultural heritage experts classified the 136 sacred sites located within 500 meters of the future pits mainly according to their importance for the public and their displacement potential (see Chapter 5) in the two tables below.

Table 7-11 Sacred sites according to their degree of importance (mine concession)

Importance of the sites for the public	Number of sites (in future pits and within a 500-m perimeter)
High	55
Medium	37
Low	44
Total	136

Table 7-12 Sacred sites based on displacement potential (mine zone)

Number of unmovable sites, not negotiable	Number of unmovable sites, potentially negotiable	Total unmovable sites	Number of movable sites after negotiation
22	22	44	92

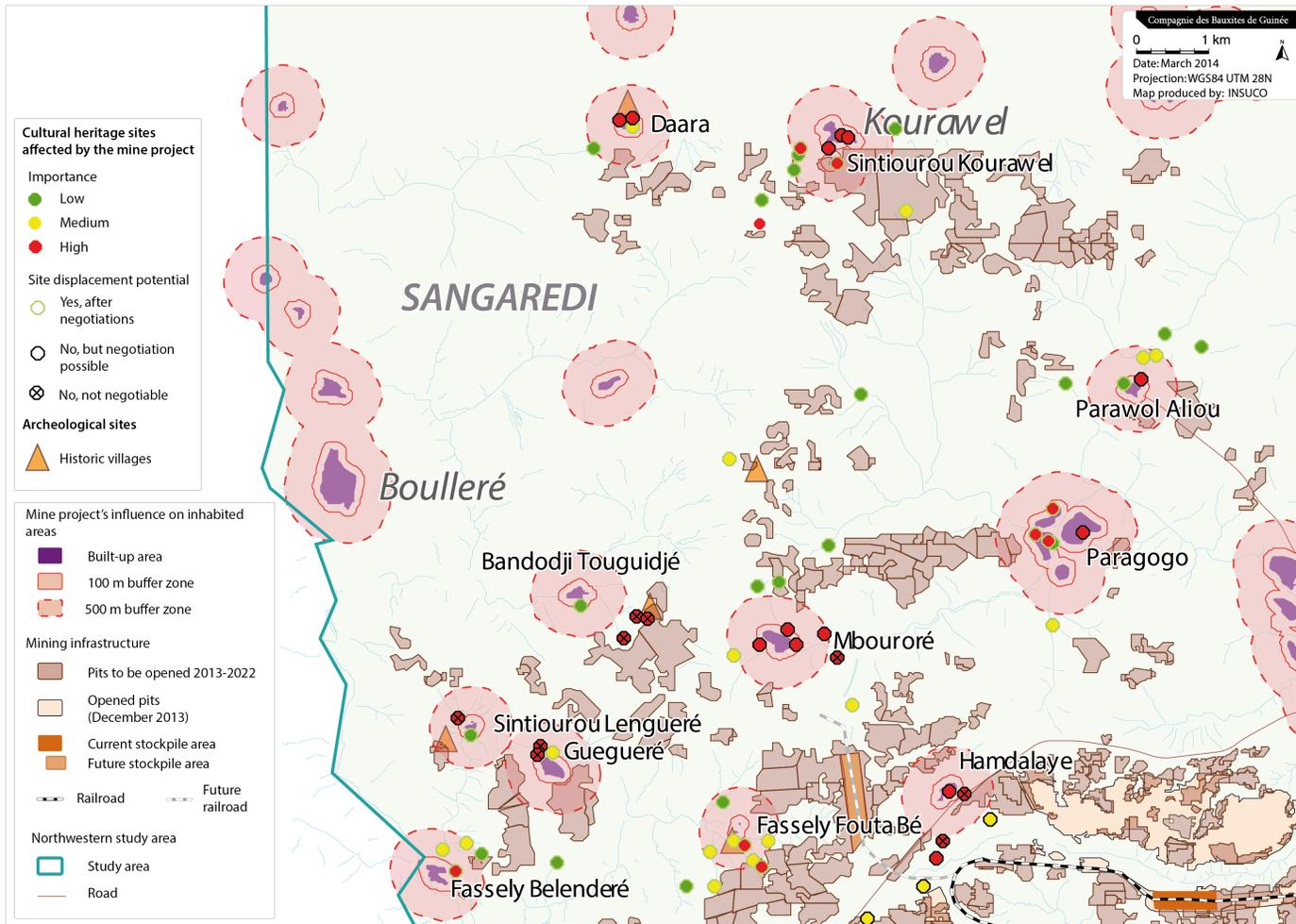
The three maps below show the number of sacred and archeological heritage sites in the mine zone according to:

- their location in the 100 to 500-meter perimeters that CBG plans to maintain around built-up areas;
- their importance for communities; and
- their displacement potential.

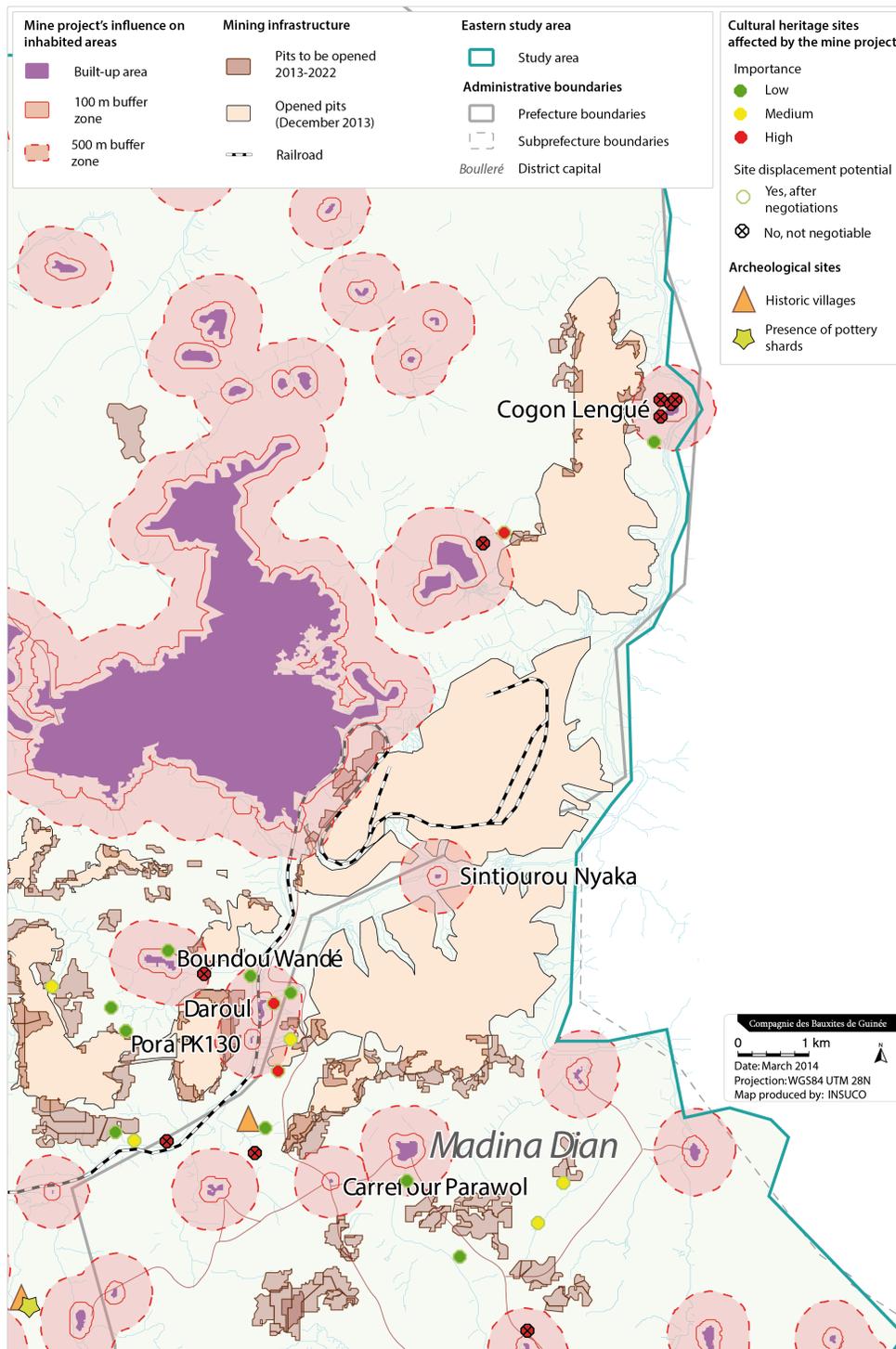
To obtain full information about all the sacred sites in the mine zone, see the Socioeconomic Baseline Study in Chapter 5.

These three maps show that there are many sacred sites throughout the study area. Although most of these sites are located within 100 meters of villages, many sites are found on or near the future pits.

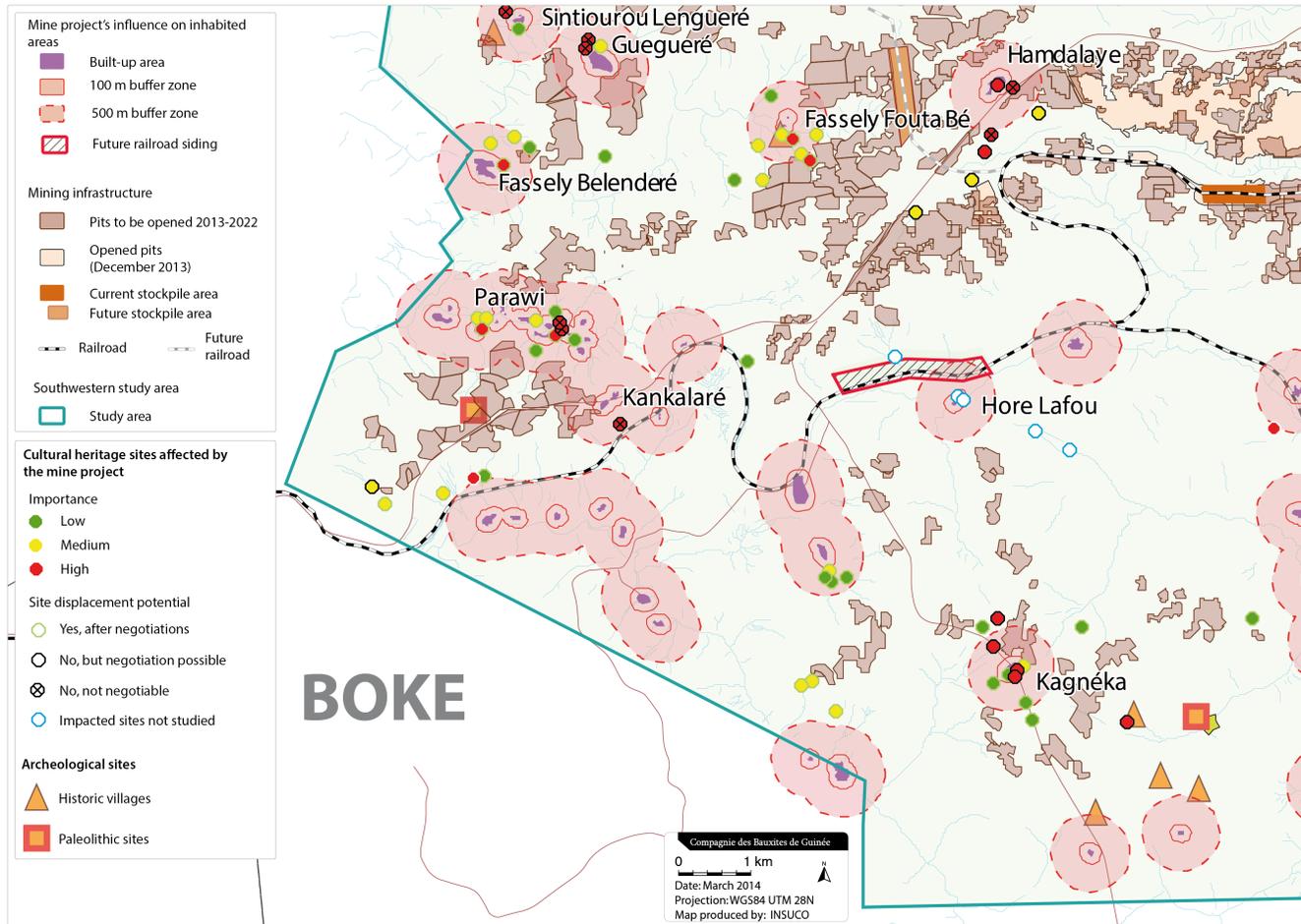
Map 7-17 Sacred sites and archeological heritage, northwestern part of the study area (Zone 1, mine)



Map 7-18 Sacred sites and archeological heritage, eastern part of the study area (Zone 1, mine)



Map 7-19 Sacred sites and archeological heritage, southwestern part of the study area (Zone 1, mine)



According to the Socioeconomic Baseline Study in Chapter 5, burial sites are considered most important by the public and, in every case, their destruction seems difficult to envisage. See the cultural heritage part of the Socioeconomic Baseline Study in Chapter 5 for more information.

Sacred sites in the railroad zone and port were not compiled as the Expansion Project's footprint will be relatively limited. Only two sidings involve a land loss in zone 3 (railroad), which is land located alongside an existing track. In the port zone (zone 2), the land to be occupied will be in an industrial zone and in mangrove rice fields. It is therefore very unlikely that heritage sites are located in these areas. However, before any work is done, the proponent is strongly encouraged to check, in compliance with the IFC standards and norms.

Archeological heritage

The few Paleolithic sites in Guinea cover a period of more than two million years and are very rare.

The 14 days of archeological surveys in the CBG expansion area (zone 1) revealed stone structures, foundations of ancient villages, religious sites, pottery and carved stone tools. A total of 16 sites were identified, covering a period from the Middle Stone Age to the present day. The discovery of pottery and stone materials in a cave, given the importance of caves in human history from prehistoric to modern times, provided an opportunity to map the caves and rock shelters in the area. This added 29 potential archeological sites to the count; they will be examined in a second phase as more time is needed for them.

The following discoveries were made during the surveys:

- twelve visible ancient villages (historic), with blocks of stone laid in circles or rectangles and traces of occupation, one contained pottery shards;
- twenty-eight caves/rock shelters;
- one cave with Paleolithic pottery and shards;
- one open-air Paleolithic site; and
- religious sites.

Among these discoveries, two appear to be outstanding:

- carved stone tools from the Middle Stone Age; and
- pottery shards with designs that are unknown in local traditions and date from the late Neolithic era (over 6000 years [around 4000 B.C.]).

The main sites mentioned above are shown on the cultural heritage maps (Maps 7-17 to 7-19 of this report).

The proposed classification for the sites identified in the study area is based on three values: A (Important), B (Medium importance) C (Low to zero importance).

This study's discoveries reveal the high archeological potential of CBG's expansion area. The remains of old villages in the study area are subjected to dreadful conditions through anthropic and environmental action and therefore are not really important heritage for Guinea, so their attributed value is C.

On the other hand, the two Stone Age sites found in a cave and in open air are definitely interesting. The open-air site is an important discovery for Guinea and the local area. To date, it is the only Middle Stone Age site found in the country: value A. For this reason, the Guinea National Museum has approved the request for the artifacts found to be temporarily exported. The stone artifacts will be studied thoroughly in the coming months.

Although the second Stone Age site in a cave contained a shard, it was given a B rating. The shard will also be exported with the other artifacts.

The potsherds found in the same Stone Age cave, although not in the best condition, will be part of future studies on pottery in Guinea because after a first analysis, they are unusual for this area, so are rated A. These artifacts will also be exported.

7.4.8.3 *Sources of impacts*

- In the mine zone, the main sources of impact are exploration, opening of new pits or extension of existing pits, opening of roads (temporary and permanent), construction of the new Parawi sorting yard, and siding construction (KP 118).

- In the railroad zone (Zone 3) the main sources of impact will be construction of the new sidings (KP 14 and Kolaboui) and any other unscheduled work that will involve requisitioning traditional village land near the railroad tracks.
- In the port zone (Zone 2), the main sources of impact will be requisition of land for construction of employees’ homes and the construction camp (Kamsar, Bafong district).

7.4.8.4 Impact assessment

Table 7-13 Assessment of the impacts on cultural heritage (mine zone)

Level of impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Risk of affecting the integrity of sacred sites and ritual practices	High	High	Low	Low	Low	Low
Impact 2 – Risk of affecting the integrity of archeological heritage	High	High	Low	Low	Low	Low

Description of impacts

Impact 1 – Risk of affecting the integrity of sacred sites and ritual practices

For sacred sites, three types of impacts are possible:

- the site is directly affected (it is inside future mine zones and must be considered for destruction, displacement or replacement;
- the site is not directly affected (it will not be destroyed and the practices there may continue), but it must still be considered because when work is done near the sites the rituals practiced or the spirits that reside there may be disturbed; and
- the site is neither directly nor indirectly affected; no treatment needs to be planned.

There are four possible ways of dealing with these sites:

- the site cannot be destroyed: in this case, if the site is directly affected (see above) and it is impossible to negotiate its destruction, the mining company will have to modify its operating plan to bypass the site;
- the site is destroyed and not replaced: this is the case for most of the genie residences in the study area. The spirits who reside in these sites must be asked to move (the mining company does not need to find a new site). The process requires negotiation between the community and the mining company and payment for sacrifices to apologize to the displaced spirits;
- destruction of the site implies its replacement: this is the case for cemeteries for which a new site must be selected and a new cemetery inaugurated. This constitutes replacement, not displacement, because the remains are not moved or dug up as the Muslim religion prohibits this practice;
- the site is displaced (and therefore replaced) with another site to be identified during the process. For example, the genie at the Ka kouewi site in Kourawel has to be rehoused because it was brought and placed where it is by the founders. It is sheltered in a box, so another must be built near its' owner's residence.

Impact 2 - Risk of affecting the integrity of archeological heritage

All work done in the mine zone that involves scraping soil, prospecting, operations, opening new roads, etc. is likely to damage or destroy sites where there are archeological remains.

7.4.8.5 Mitigation measures

Impact 1 – Risk of affecting the integrity of sacred sites and ritual practices

- Comply with the IFC international standards on cultural heritage (Performance Standard 8);
- To manage cultural heritage sites, make sure that the consultation process complies with IFC Performance Standard 1, Assessment and Management of Environmental and Social Risks and Impacts, and that the sites are treated in accordance with Performance Standard 8, Cultural Heritage;
- Before planning any work in the mine zone, refer to the Cultural Heritage part of the Socioeconomic Baseline Study in Chapter 5 where all sacred sites in Zone 1 are georeferenced;

- In the site descriptions annexed to the Socioeconomic Baseline Study, state whether or not each site listed can be displaced or destroyed;
- Whenever sites are not directly affected and practices are not disturbed, it is still useful to document their existence and location. This will prevent workers from disturbing the sites because they are unaware of their existence;
- When sites and practices are disturbed, there are a number of procedures to follow. All sacred sites mentioned by respondents are important and require special attention and treatment, simply because they were mentioned: nothing must be destroyed without the proper prior procedure that includes, as the case may be, one or more steps:
 - negotiate their displacement, destruction or replacement with the populations concerned and with the people responsible for the sites identified (named on the attached site descriptions);
 - consult genie specialists, named in the site descriptions, to determine what sacrifices are required; and
 - identify a replacement site for the genies that ask to be rehoused by humans or where dead genies can be buried;
- In the railroad and port zones where heritage studies were not conducted, check for the potential existence of sacred sites in areas that will be disturbed by the Project. The same treatment recommendations apply.

CBG should be forewarned that site treatment procedures may be problematic and take time because negotiations and consultations are required for each site (with communities, specialists and the spirits residing at the sites) to identify the appropriate treatment. Treatment procedures are fairly complex and should be identified beforehand (before work begins – sometimes waiting time is necessary between the treatments and the sacrifice that allows them) in great detail: sacrifices (that may be done in several steps that have to be spaced out over time), sacrifice days requested, people to contact, participants to invite, etc. Treatment of each site represents a financial cost that the people are not able to pay and the mining company must pay it. The company must expect that sacrifices that were not made at the sites for lack of means (when it is an obligation) must be honored before the treatment involved can be performed.

- For detailed identification of affected cultural heritage sites, we strongly advise mining companies to consult a team of qualified experts with experience in this type of undertaking;
- Develop a CBG management plan for cultural heritage sites to deal with the issue of site treatments. All the preparatory procedures must be followed before destroying a sacred site. For all the sites listed, negotiation is the main problem: it must be conducted to minimize the negative impacts from the villagers' point of view and to respect their religious practices.

Impact 2 – Risk of affecting the integrity of archeological heritage

- Comply with the clause in the amendment signed in April 2001 by the State and Halo that states in section IV Environment and heritage: "it is stipulated that every archeological discovery shall be reported to the government and shall not be displaced without its consent" (Convention Halo, amendment 2001);
- Develop a cultural heritage management plan to comply with IFC Performance Standard 8, Cultural Heritage, for the treatment of archeological sites and artifacts;
- Consider archeology in the Environment and Social Management Plan (ESMP);
- A more in-depth dig at the two main discovery sites is strongly recommended (in compliance with IFC Standards).

The ultimate goal of preventive archeology is to suggest to companies working in the area the most suitable procedure for safeguarding archeological and cultural heritage while looking after the company's best interests. Before the construction phase begins, archeological risks can be minimized in the executive phase: records of historic and archeological reports and stories have a tangible benefit for the land and its inhabitants.

Although all archeological data has chronological and cultural interest, some discoveries made in CBG's operating area are not suitable for further investigation because their conservation has already been compromised by weather and human activity, such as agriculture.

However, the two Stone Age sites in open air and a cave are certainly worth further investigation. For the open-air Paleolithic site on the Gany bowal, where one survey

revealed important evidence of the Middle Stone Age that is unique in Guinea, a second dig is recommended; this time the team will include an archeologist, a geologist with experience working on archeological sites in caves, and two competent dig assistants. The survey will be done quickly and will focus on the site; it will serve to determine whether archeological material is still present on the surface and in the stratigraphy. For the second Paleolithic site and the presence of remains outside the Fammèrè Horè Ndiaridè cave, the same team could conduct a more thorough investigation of the cave and sediment in a quick survey that would determine whether the cave was used for human inhabitation over time, or for an occasional extended stay.

By agreement with the Guinea National Museum, after all the information about the artifacts is studied and cataloged and the data published in international scientific journals, the artifacts will become museum pieces. This way, the secondary objectives of archeological surveys, i.e., reconstruction of the history of man's relationship with his land, will be complete.

7.4.8.6 Residual impacts

The Expansion Project impacts were re-assessed in this section to incorporate the implementation of the mitigation measures discussed in the previous section and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are as described below.

Table 7-14 Assessment of residual impacts on cultural heritage (mine zone)

Level of residual impacts						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Risk of affecting the integrity of sacred sites and ritual practices	Medium	Medium	Low	Low	Low	Low
Impacts 2 – Risk of affecting the integrity of archeological heritage	High	High	Low	Low	Low	Low

7.4.9 Lifestyle and landscape

7.4.9.1 *Overview*

All mining projects generate a series of major impacts that change lifestyle and landscapes for people living nearby (clearing, dust, noise, vibrations, open pits, roads, infrastructure construction, etc.). Since many villages and homes share the land with the mining project structures, the project aspects that are likely to modify lifestyle and landscape need to be determined, as well as to what extent.

The topics below have already been discussed in the section on public health issues. The two parts are complementary.

This section mainly deals with:

- noise;
- dust and mud;
- vibrations; and
- visual impacts.

7.4.9.2 *Current situation*

Mine zone

In the mine zone, the presence of many open pits, mine roads and structures have noticeably changed the landscape. There are many recurring noise, dust, vibrations and visual impacts. However, they are generally local, around the various mines in operation. Clearing has changed the landscape in many places. Most of the villages are located in the lowlands, so the environment near human living areas has not been directly degraded. However, on the plateaus, dust, noise, vibrations (from machinery and blasting) have been or still are major sources of impact for neighboring villages. To illustrate the potential impacts to consider, look at such villages as Boundou Wandé, Pora PK 113, Daroul or the villages northeast of the concession, Congo Lengué, N'danta Foyné Ley and N'danta Foyné Dow, which have been heavily and permanently affected.

The current N'Dangara mine, which is in operation, is located on land belonging to Hamdallaye village. Noise, vibrations and dust from mine operations are significant.

As for the noise and vibrations caused by trains going by, all the inhabitants of the villages within 500 meters of the railroad complain of noise (mostly at night) that generates stress and insomnia (Horé Lafou, Pora PK 130, Daroul, Parawol Malassi, etc.).

Photo 7-14 Train passing by homes, Parawol Malassi village



In the mine zone, dust is mainly mentioned as being unpleasant and the people questioned perceive it as carrying respiratory diseases and causing vision problems. Fine dust that falls on vegetation near the villages (annual or permanent crops) makes the residents say that the trees are red and less productive. Blasting near the villages causes fear and is perceived as being a major source of dust.

The environmental impact assessments reveal that blasting does, indeed, generate dust (microparticles), but it depends mostly on the wind (direction and velocity) and is concentrated for only short periods. The impacts of dust are therefore limited in terms of deposits that could affect plantations (see Chapters 2, 3 and 4).

Vibrations are reported by households living near the railroad tracks and by villagers whose homes are within 500 meters of the pits. Reported impacts of vibrations on homes include many cracks in walls.

The environmental impact assessments show that the vibrations generated by trains going by are very limited and it is quite unlikely that they would cause cracks in homes and buildings.

On the other hand, in the mine zone, blasting may be responsible for damage to buildings in villages near the pits (projectiles, vibrations) (see Chapter 2).

The concept of esthetic landscape deterioration is seldom mentioned. The impacts reported are always related to deterioration of vital resources (plantations, habitat, sources, etc.) and there is a strong feeling of isolation or being hemmed in.

However, the impacts are significant in that many pits have been mined and temporarily abandoned with the expectation of probably mining them in the future. These areas have been cleared. Vegetation does not grow back and huge ditches strewn with rocks crisscross the mine zone landscape.

According to the people interviewed, in the rainy season, bauxite carried by water causes mudslides that pose problems for the public in that they degrade springs, streams, market gardens, roads, etc. when the villages are located near the pits. Many people expressed expectations that CBG would protect the villages from these seasonal erosion and mud problems.

Large areas in the eastern part of the concession have been replanted by CBG to rehabilitate part of the mined landscape.

Railroad zone

In the railroad zone, the main impacts on lifestyle and landscape stem from the presence of the railroad tracks and the passage of trains (one train every two hours on average) through village land. In all the villages located along the railroad track, the impacts mentioned are mainly disturbance (stress and insomnia) caused by noise from the train going by (braking, locomotive noise, etc.). The people consulted mainly complained about nighttime disturbance, especially for vulnerable people, the elderly and children, who were awakened every time the train went by. More marginal were the reports of dust generated by the passing train (when they are full of bauxite) and the vibrations that could cause damage to homes nearest the track.

Port zone

In the port zone, the main concerns reported involved dust from the plant. During consultations, dust was often mentioned by the inhabitants of both central and outlying districts. The main impacts concerned deterioration of houses' tin roofs as the tin is attacked by the toxic (acidic) dust from the plant.

7.4.9.3 *Sources of impacts*

In the mine zone, the main sources of impacts will be:

- opening of new pits and mine roads;
- construction and operation of the future sorting yard and stockpile in Parawi;
- extension of the railroad track into the Hamdallaye area;
- construction of the future siding at KP 118; and
- for the 27.5 MTPA scenario in 2022, double the number of trains, longer trains and train traffic increasing from 12 to 24 trains every 24 hours;
- in Sangarédi, construction of the construction camp and worker housing.

In the railroad zone, the main sources of impacts will be:

- in the 27.5 MTPA scenario in 2022, double the number of trains, longer trains and train traffic increasing from from 12 to 24 trains every 24 hours; and
- construction of the siding at KP 14.

In the port zone, the main sources of impacts will be:

- train frequency will increase gradually according to the production scenarios: 18.5 MTPA, then 22.5 MTPA and finally 27.5 MTPA in 2022 (double the number of trains from 12 now to 24 every 24 hours);
- increased volume of bauxite processed in the plant;
- plant infrastructure upgrades and expansion (replacement of the ore crusher, change in the unloading system and optimization of drying operations);
- construction of the construction camp and worker housing;
- extension of the loading pier; and
- sediment removal from the Rio Nuñez estuary (storage area yet to be determined).

7.4.9.4 Impact assessment

Table 7-15 Assessment of the impacts on lifestyle and landscape

Level of impact						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Increased noise levels	High	High	Medium	Medium	Medium	Medium
Impact 2 – Increased dust and mud	High	High	Medium	Medium	Medium	Medium
Impact 3 – Increase in vibrations	High	High	Low	Low	Low	Low
Impact 4 – Visual impacts: landscape degradation	High	High	Medium	Medium	Medium	Medium

Description of impacts for sub-component

Impact 1 - Increased noise levels

The noise generated by the project will mainly impact the quality of life of the affected population. During construction, noise from the construction sites (equipment noise, often 24 hours a day), noise from pit mining, the future sorting yard and construction of the siding may cause a lot of unpleasantness for the inhabitants of nearby villages, including Hamdallaye, Fassaly Foutabhé and Horé Lafou. Most of the villages that are not in the lowlands will also suffer major impacts from noise generated by opening and operating pits near inhabited areas.

During the operation phase, blasting noise will also deteriorate living conditions in the villages and cause stress.

The impact assessment of noise levels shows that villages in the mine zone will be subjected to noise levels during operations that are far higher than the levels set by IFC (see Chapter 2).

Noise from repeated train traffic (on average 24 trains per day during the 27.5 MTPA operation phase in 2022) will not generate a higher noise level, but the people living along the railroad will suffer from the noise frequency (even more unpleasant at night).

Impact 2 – Increased dust

The mining project will use a lot of surface area in the mine zone so a lot of land will be cleared. The cleared areas will generate dust without any vegetation to anchor the soil.

The general dust emissions level should not increase significantly for the entire mine zone. If CBG operates several pits (and mine roads) simultaneously, prepares future pits to operate and does not rehabilitate all the sites, even those temporarily closed, the surfaces that may generate dust will increase accordingly. Dust levels will be high during the seven-month dry season, from November to May each year. This phenomenon will have substantial repercussions for the people living near roads and pits in operation as their living conditions will deteriorate (dust deposits on trees and plants, in streams, in villages).

Photo 7-15 Loading railcars at the N'Dangara sorting yard, pit after operation, Sangarédi mine



Dust turns into mud during the rainy season. Mud will also affect the public's lifestyle (muddy roads, mudslides in the lowlands, etc.). As in the dry season, clearing will result in soil erosion. The people living, farming, and using springs in the lowlands may see their lifestyle deteriorate significantly.

In the railroad zone, it appears that the main impacts in terms of dust and mud are limited to the KP 14 siding construction site and the construction phase. Some people interviewed said that dust escaping from railcars full of bauxite was a major impact. Dust emissions from trains should be measured to check this statement.

In the port zone, construction will generate minimal amounts of dust and it will be localized. The higher volume of bauxite processed at the Kamsar plant will not increase dust because of the modifications in the plant.

Dredging in the estuary to allow loading two ore carriers per day (27.5 scenario MTPA in 2022) will move a large volume of sediment. Depending on the place where this mud will be dumped (in the estuary or at sea), the impacts on lifestyle will be more or less significant.

Impact 3 – Increase in vibrations

Lifestyle deterioration from vibrations may be limited as far as the number of trains is concerned. Only the frequency of the vibrations will increase, not their level. Vibration-level measurements will be required to determine the trains' impacts on future deterioration of local living conditions.

However, the high-level vibrations from blasting may cause substantial stress in people living near the mine sites. The psychological impact of vibrations from mine blasting must not be neglected. Anxiety is often caused by the surprise and by fear of damaging buildings. People are able to feel vibrations when they occur, even at levels so low they will not cause any material damage.

Reactions are stronger when people are in a building than when they are outdoors. Nighttime blasting is an additional stress factor to be avoided and CBG stops blasting at 6:30 p.m. Vibrations from blasting will be high-level and the impacts on stress are likely to be high also, though of short duration (depending on the distance and blast frequency).

As for vibrations from equipment traffic, they will be a fairly low level but will be felt all day and at night because operations are 24 hours a day. For people living near open-pit mines, this type of vibration can be a major stress factor, especially when the equipment is traveling on the surface.

Impact 4 – Visual impacts: landscape degradation

The project's visual impacts will be greatest in the mine zone. Clearing future pits, operating them and their temporary closure, if managed without a systematic rehabilitation policy, will have a major, long-term impact on landscape degradation in the zone. The future sorting yard and stockpile in Parawi will also be a large cleared area. Since many pits are located near villages, the visual impact of the Expansion Project will be very high in both the construction and operation phases.

In the railroad and port zones, the project's visual impact will be much less because although the infrastructures will be modified, their footprints and configuration will remain much the same, except for the loading pier extension.

7.4.9.5 Mitigation measures

Development planning / preservation of the environment

- Comply with the Guinean Environment Code (1989);
- Comply with the Mining Code (2011), including the provisions on mitigating environmental and lifestyle impacts (noise, site rehabilitation) in Chapter VII, Environment and Health;

- Comply with IFC Performance Standards 3, Resource Efficiency and Pollution Prevention, and 6, Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- Implement the mitigation measures recommended in the environmental impact assessment;
- Operate by zones, with a site rehabilitation strategy for sites that are even temporarily out of operation, and with prior consultation of the communities whose village land is involved; recap the pits when operation is finished and add topsoil so the impact area can be replanted;
- Plant and secure the edges of the pits (and all jobsites) near villages (100-meter buffer zone, construction of berms) to limit noise, dust and mud impacts, etc. on inhabited areas and springs, rivers and streams;
- During the dry season, spray water on roads made during construction and located near inhabited areas;

Information / communication

- Develop a formal mechanism for informing neighboring populations when blasting will occur, and have evacuation measures;
- Introduce a transparent, efficient grievance/complaint mechanism.

7.4.9.6 *Residual impacts*

The Expansion Project impacts were re-assessed in this section to incorporate the implementation of the mitigation measures discussed in the previous section and summarized in the ESMP (see Chapter 10) in accordance with an aggressive and sustained schedule and appropriate resources. The residual impacts determined under these conditions are as described below.

Table 7-16 Assessment of impacts on lifestyle and landscape

Level of residual impacts						
Project zone	Zone 1 (mine)		Zone 2 (port)		Zone 3 (railroad)	
Phase	Construction	Operation	Construction	Operation	Construction	Operation
Impact 1 – Increased noise levels	High	High	Medium	Medium	Medium	Medium
Impact 2 – Increased dust and mud	Medium	Medium	Low	Low	Low	Low
Impact 3 – Increase in vibrations	Medium	Medium	Low	Low	Low	Low
Impact 4 – Visual impacts: landscape degradation	Medium	Medium	Medium	Medium	Medium	Medium

7.5 Mitigation measures

7.5.1 General considerations

Guinean laws including the Mining Code, Environment Code, Land and Domain Code and Local Government Code, along with the international IFC Guidance Notes (SFI, 2012a) and the ICMM standards provide a normative environmental and social framework for mining projects. Many measures set out in national legislation and international standards are designed to prevent and mitigate real or perceived potential impacts of mining projects.

Figure 7-1 Legislative framework and international standards



There is always a large gap between directions set in various normative frameworks and the realities on the ground, essentially in terms of the history of various projects and their specific features. Multinational mining companies today however are required to comply with national legislation as well as the highest international standards governing its field of activities.

The mitigation measures proposed herein represent the main measures set out in the individual sections of the report. The purpose of these mitigation measures is to enhance positive impacts, and prevent, mitigate and compensate for negative impacts of the Expansion Project. They are set out in the Environmental and Social Management Plan (ESMP) (see Chapter 10).

According to the Mining Code (2011), mining projects, including the Expansion Project, are required to have an ESMP in place (Article 30) that includes:

- an emergency plan;
- a risk management plan;
- a hygiene, health and safety plan;
- a resettlement plan for the affected population; and
- a rehabilitation plan.

In addition, the following plans must also be developed for the mining project (i.e., the current project as well as the Expansion Project):

- a plan for supporting Guinean companies, i.e., creating or strengthening SMEs and SMIs;
- a plan to promote the employment of Guinean nationals;
- a community development plan annexed to the local development agreement; and
- a closure plan.

Article 155 of the Mining Code requires that mining companies submit an anti-corruption monitoring plan along with a code of good conduct confirming their commitment to fight corruption and ensure transparency.

7.5.2 Main prevention and mitigation measures as regards demographics and social dynamics

- Using business revenue taxes and equity funding, support income-generating initiatives to limit the impoverishment of villages and hence prevent a rural exodus.
- Plan urban and rural development in the Project Area, creating a master plan through a process of reflection with local prefecture and commune authorities.

7.5.3 Main mitigation measures related to health and safety

- Address the safety of the local population by developing CBG quality, safety and environmental policy documents, along with a specific plan as part of the ESMP.
- Secure the mining areas throughout the various phases of the Project.
- Limit and control sources of pollution that impact human health and set up a monitoring program in areas with the greatest health risks along with appropriate remedial measures (i.e., regular epidemiological studies in Mine Zone).
- Build infrastructure (as specified by local population) and set up projects to ensure public safety:
 - On the railroad: install level crossings, track lighting, and roads beside railroad tracks; set up awareness programs and strengthen the “Gare au train” track safety initiative throughout the Project Area.
- Implement mitigation measures proposed in environmental impact assessment.
- Enforce a minimum 500-m evacuation area around pits and project facilities during blasting and establish 100-m protected areas around inhabited areas (Mining Code, Article 111).
- Put in place protection measures around pits to preserve the integrity of ecosystems and safety of local people, including berms around pits and reforestation of protected areas;
- Establish alternate routes for mine roads and provide training for CBG and subcontractor employees on road safety.
- Strengthen safety measures on active mine roads and near pits.
- In the ports, keep fishermen informed, improve signage, and strengthen accident-prevention measures in the estuary during the construction phase;
- Put in place HIV/AIDS awareness programs for workers and the local population (distribute condoms to workers and subcontractors, and provide free, anonymous screening tests).

- Conduct regular campaigns to raise awareness and prevent health issues in the N'Dangara and Kamsar construction camps specifically regarding nutrition, HIV/AIDS and other STDs.

7.5.4 Main prevention and mitigation measures concerning infrastructure and basic services

- Sign a local development agreement as prescribed in the Mining Code (Article 130, 2011) for planning social projects (including the development of services and infrastructure), in collaboration with the communities involved.
- Take local development plans established by communes into account in selecting actions to be financed (with business revenue taxes and equity funding).
- Establish a community relations department (with appropriate staff and funding) to oversee the operation of social facilities CBG has funded (via CBG equity funding and business revenue taxes).
- Clearly identify the water and electricity services provided by CBG throughout the Project Area and ensure transparent communications in that regard.
- Support sanitation-related projects in collaboration with very small businesses and local associations in Sangarédi and Kamsar (i.e., awareness campaigns, waste management, and so forth).
- Protect springs and watercourses used by rural populations.
- Consider applying social tariffs for those who are not entitled to services at CBG-managed health centers and hospitals.
- Promote the expedient opening of the Boundou Wandé health center by guaranteeing the supply of equipment and negotiating with the government for the transfer of qualified staff.
- Initiate a dialogue with local authorities and youth representatives in Kamsar and Sangarédi on needs for and access to recreational and cultural facilities;
- Engage in discussions with the government to promote better State involvement in supplying the basic services under its jurisdiction.
- In collaboration with prefecture, subprefecture and commune authorities, commit to developing a master plan incorporating a migration management plan to ensure the coherent development of the project's urban and rural areas, including public infrastructure funding and service delivery.

7.5.5 Main prevention and mitigation measures concerning flow and circulation

- Introduce a traffic code for the entire Project Area with special focus on the concession zone;
- Develop a plan to end village isolation in the concession and railroad zones;
- Consult the affected communities to make sure that the solutions chosen are known and accepted by the people concerned;
- Develop a communication and information strategy and plan for the entire Expansion Project: in advance, inform the authorities and people concerned about work to be done by CBG that will have impacts on their village territory (land and sea);
- Develop a transparent, efficient grievance mechanism to deal with complaints regarding potential isolation of some villages (IFC Performance Standards 1 and 5);
- Add and improve level crossings near villages located along the railroad track (safe level crossings);
- Build overpasses near the villages so the tracks can be crossed while the train is going by or is stopped on the track;
- Maintain conditions for passenger trains while waiting for a study of the number of passengers who use the train and the needs expressed by the local public;
- Comply with the marine traffic code specifically for construction, with reinforced safety measures to protect passenger and fishing boats; and
- Cooperatively develop a navigation plan that involves fishermen's and passenger transportation organizations to find suitable, safe routes in the Rio Nuñez estuary where they can continue their activities.

7.5.6 Main prevention and mitigation measures concerning land

- Whenever possible, avoid or minimize involuntary resettlement and land acquisition by studying all viable alternatives in the project design and transportation infrastructure zones necessary for the project;

- Create buffer zones between pits and project facilities (500 to 100 meters from inhabited areas and civil engineering structures (see Article 111 of the Mining Code);
- Develop and implement a RAP based on sound planning. Ensure that the RAP complies with IFC standards (SFI, 2012);
- Adapt to the situation of each village and household by involving them in development of the RAP;
- Preserve sacred and archeological sites;
- Suggest compensation that benefits the entire community and enables it to maintain its standard of living by securing existing sources of income and diversifying them;
- Support job creation and initiatives that generate income as compensation measures;
- Develop an institutional structure that enables each body to play its own role (State, devolvement, decentralization, CBG, providers, public, PAP – see Governance measures);
- Rehabilitate pits that are not in operation (temporarily or permanently shut down) using a collaborative strategy (CBG/affected public) so that rehabilitated spaces will match the people’s real needs and ensure that their access to these areas is formally acknowledged as being encouraged by CBG.

7.5.7 Main economic prevention and mitigation measures

- Ensure that communities’ income sources are preserved: limit sources of water and soil pollution, maximize protection of cropland, carefully preserve water resources (springs, streams, rivers, sea), protect cattle in the mine concession and near railroad tracks;
- Support entrepreneurial initiatives that generate income in diversified fields (agriculture, livestock herding, services, etc.);
- Before the construction phase, support initiatives that foster agricultural cooperatives in the affected villages in the concession;
- Provide a compensation system (individual and collective) for loss of land (see Land measures);
- Adopt a transparent recruitment policy that is open to everyone and give priority to local recruitment when a jobsite is on village land; and

- As part of the Expansion Project, reinforce CBG's employment policy, including subcontractors and the business revenue tax, and include the standards to be met in the Terms of Reference (wages, safety conditions, provision of equipment, schedules for labor, etc.). Conduct unexpected and regular inspections of contractor jobsites and provide retaliation measures if commitments are not met.

7.5.8 Main prevention and mitigation measures concerning community development

- Build up CBG's Community Relations team by adding people and equipment and locating a team in the concession zone;
- Introduce a communication policy and plan for the entire Project Area and promote consultations and regular information on progress at the various jobsites;

As part of the ESMP, CBG should build up its community development team (see the Governance measures) and:

- Begin discussions with the government regarding the supply of basic services (health, water, electricity) in the Project's two main towns;
- Maintain the equity funds allocated or increase them if the business revenue tax is not increased in the coming years, plan development activities in accordance with the local development and annual investment plans in the communes concerned;
- Review the amounts allocated to Sangarédi commune (concession zone) where the Expansion Project impacts are greater (business revenue tax and equity funds);

Projects funded by the business revenue tax and equity funds should:

- Improve access to basic infrastructure in the villages most affected;
- Provide satisfactory quantitative and qualitative access to health care (e.g., implementation of an HIV/AIDS prevention program, contribution to construction, updating and operation of health centers, etc.);
- Provide satisfactory quantitative and qualitative access to education and training;

- Establish a partnership with the communities concerned and a Community Development Plan to support the communes' local development and annual investment plans;
- Distribute funding between the communes on the basis of anticipated and observed impacts;
- Determine management methods for project selection, budgeting, terms of implementation;
- Define control methods (regular assessment) for fund management and project execution with simple, measurable indicators;
- Begin discussions with local authorities (devolved, decentralized and technical services) to plan development (master plan) of the two main urban centers in the Project Area (Sangarédi and Kamsar) and the rural mine zone; and
- Consider creating a framework for organization and planning of community development in the Project Area. A development fund that can occasionally support larger projects could be a great asset for the region. The structure could take the form of an independent foundation where communities would be represented. An independent agency could run the foundation and oversee projects.

7.5.9 Main prevention and mitigation measures concerning governance

- Strengthen CBG's community team with a stronger presence in the concession;
- Set up a transparent, accessible grievance management system administered by CBG;
- Develop a true communication and information strategy for the Project: communications offices in Kamsar and Sangarédi, community communications team at CBG, facilitators in the field, radio broadcasts;
- Create a discussion forum with quarterly meetings in Project zone (subprefecture, commune and district authorities, CBG and contractor representatives);
- Organize regular consultations with the people affected as part of RAP development (IFC Performance Standard 1);
- At the national level and with the State's devolved departments, begin a dialog (ideally open) on the following items:

- Strengthen ties with BGÉÉE for studies and implementation of an ESMP and a RAP;
- Begin discussions to render CBG's contributions compliant with the Mining Code (see the Measures related to community development);
- Restore a social services role to the State for supplying water and electricity and provide nation-wide public information about CBG's real contribution in this regard.

7.5.10 Main prevention and mitigation measures concerning cultural and archeological heritage

- To manage cultural heritage sites, CBG should ensure that the community consultation process complies with IFC Performance Standard 1 and that site treatment complies with IFC Standard 8, Cultural Heritage (SFI, 2012);
- Organize a further examination of the two Stone Age sites (open air and in a cave). According to the first survey, the open-air site on the Gany bowal contains important evidence of Middle Stone Age use that is unique in Guinea. A second survey of this site is recommended, to be conducted by an archeologist, a geologist who has experience with cave archeology, and two dig assistants;
- Before planning any work in the mine zone, refer to the Cultural Heritage section of the Socioeconomic Baseline Study in Chapter 5 that georeferences all the sacred sites in Zone 1. The site descriptions in the annex to Chapter 5 include information about whether or not the sites can be displaced or destroyed;
- If the sites are not directly affected and practices are not disturbed, the sites' existence and location should still be recorded so that operations or workers will not accidentally disturb the sites;
- If the sites and practices will be disturbed, a number of procedures must be followed. All sacred sites mentioned by people are important simply because they were mentioned and therefore require special treatment. Nothing must be destroyed before completing the proper procedure which can include one or more of the following steps, depending on the particular case:
 1. Negotiate displacement, destruction or replacement with the people concerned and especially with the people responsible for the sites (they are identified in the site descriptions);

2. Consultation genie specialists to determine what sacrifices to make;
 3. Identify a replacement site where the genies who ask to be rehoused by humans can be placed or where dead genies can be buried;
- In the railroad and port zones where heritage studies were not conducted, check for the potential existence of sacred sites in the areas that will be affected by the Project. The same treatment recommendations apply.

7.5.11 Main prevention and mitigation measures concerning lifestyle and landscape

- Comply with the Guinean Environment Code (1989);
- Comply with the Mining Code (2011), including the provisions regarding mitigation of impacts on the environment and lifestyle (noise, site rehabilitation) in Chapter VII, Environment and Health;
- Comply with IFC Performance Standards 3, Resource Efficiency and Pollution Prevention, and 6, Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- Implement the mitigation measures proposed in the environmental impact assessment;
- In the concession zone, operate by zones, with a strategy of rehabilitating sites that are not being mined (even temporarily) after prior consultations with the communities whose village land is involved; recap pits when mining is finished and add top soil so vegetation will grow again in the affected zone;
- Plant and secure the edges of pits (and all jobsites) bordering on villages (100-meter buffer zone, build berms) to limit noise, dust and mud impacts on inhabited areas and on springs, rivers and streams;
- In the dry season, spray water on open roads used for construction and located near inhabited areas; and
- Implement a transparent, efficient grievance/complaints mechanism.

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