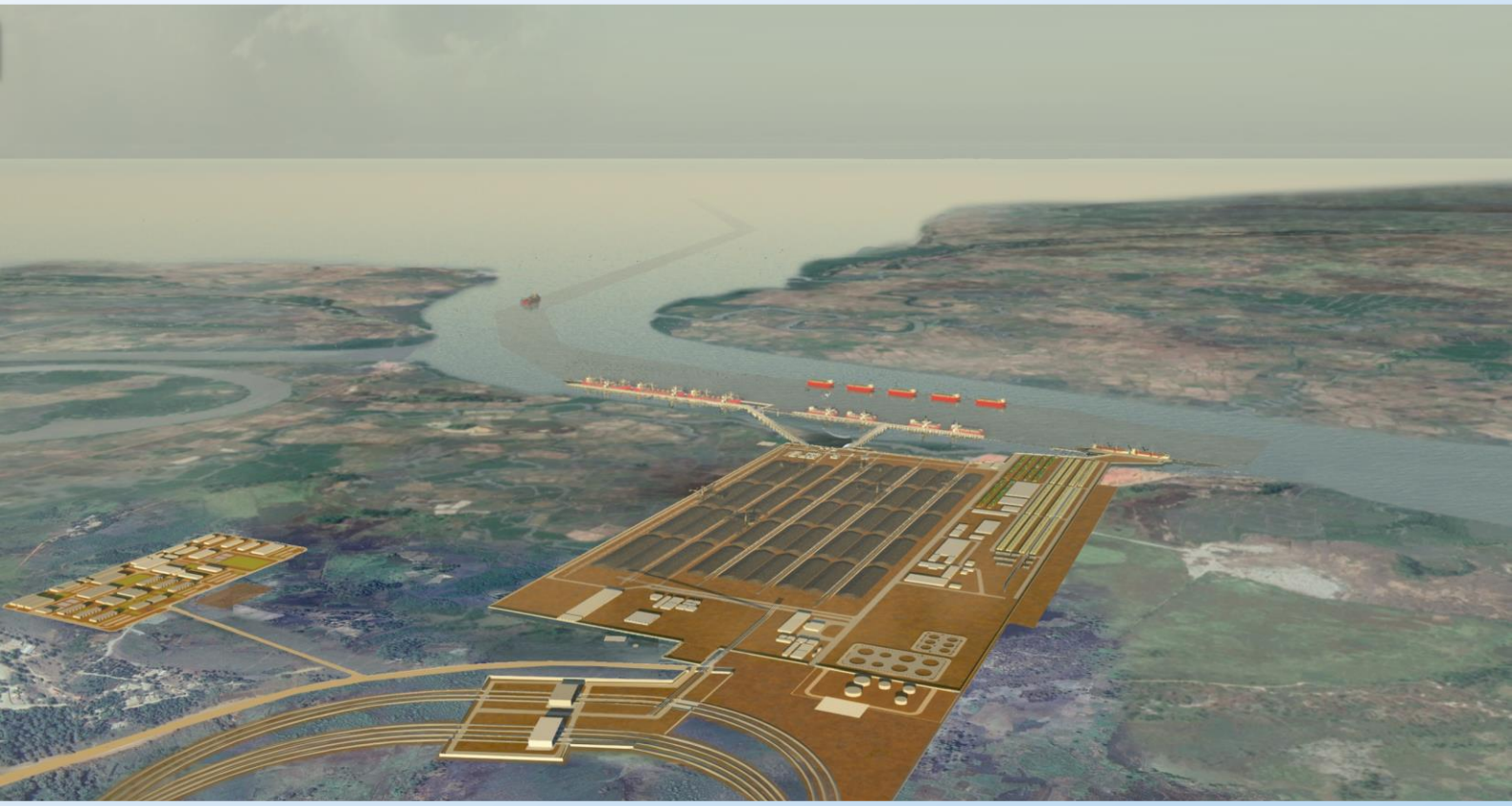
Simfer Infraco Guinée S. A

IRON ORE HANDLING AND EXPORT PORT FACILITIES

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT



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AUGUST 2024

Simfer Infraco Guinée S. A

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REPORT (VERSION 1)

PROJECT NO. 70109824

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PROJECT OVERVIEW

Simfer Infraco Guinée S.A's (SIGSA) Simandou Iron Ore Handling and Export Facilities Project (the Project) will expand the Proposed Winning Consortium Simandou (WCS) Port located on the east bank of the Morebaya River, about 5 km from the river mouth. The location is south of Conakry, Republic of Guinea, within the Maferinyah sub-prefecture of Forécariah Prefecture and Kindia Region (Figure 0-1).

Expanding the WCS port is needed to export iron ore mined by Rio Tinto Simfer in the Simandou Range, which will be transported by rail to the port (Figure 0-1). The Project will increase the iron ore export capacity of the Port by 60 megatons per annum by adding a rail loop, rail car dumpers, new conveyors and stockpiling operations, an additional export wharf, a worker camp, and expanding the power station and fuel depot.

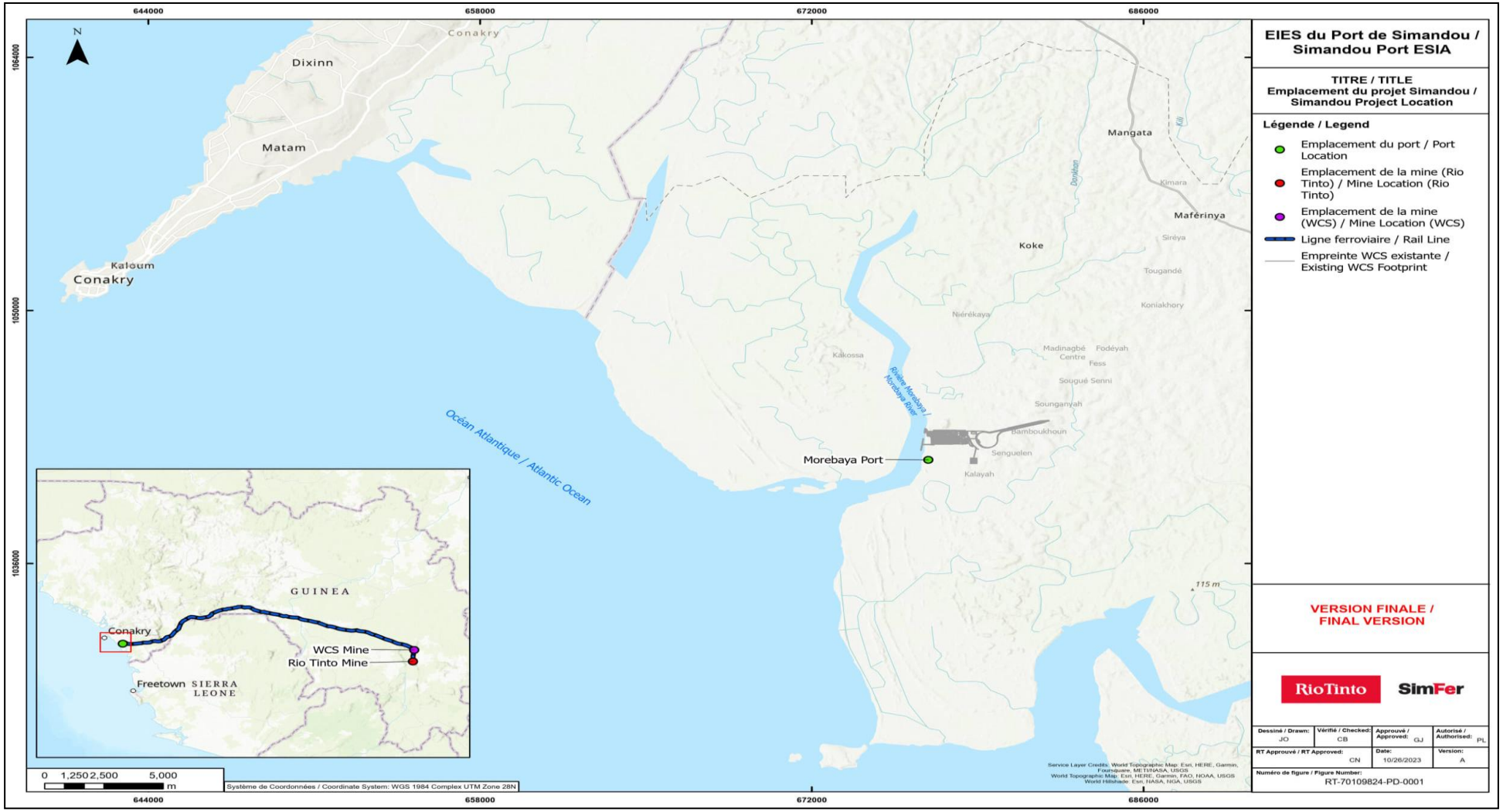

Figure 0-1 Simandou Project Location

The Project will include the following components (Figure 0-2):

- a segment of rail line to link to new tandem car dumpers
- three additional tandem car dumpers (each with a capacity of 6,400 t/h)
- three new streams of conveyors, transfer stations and sample stations, each with a capacity of 6,400 or 7,660 t/h
- a new area to be used for stockpiling operations, with four stacker-reclaimers (each with a capacity of 7,660 t/h), and with an area sufficient in size for stockpiling 3 million tonnes of material
- an additional export wharf, 810 m in length, with three berths for transfer shuttle vessels. Each berth will have a ship loader with a capacity of 7,660 t/h
- an ancillary worker camp with an area of about 24,000 m^2
- an incremental expansion to the existing heavy oil power station and
- an expansion to the capacity of the existing fuel camp

The Project construction schedule is expected to run from January 2024 to February 2027. Construction of the wharf components is planned to occur from January 2024 to March 2026 and construction for onshore buildings will extend to February 2027. Once constructed, the Port will operate until approximately 2051, subject to the life of the Simandou mine.

It is anticipated that full ownership of the port will transfer firstly to the CTG, and then secondly to the State after a period of 45 years. For the time in between mining completion and transfer to the Republic of Guinea, the port components comprising the Project will be owned by CTG, which is jointly owned by Simfer Infraco Limited, WCS Infraco, and the State.

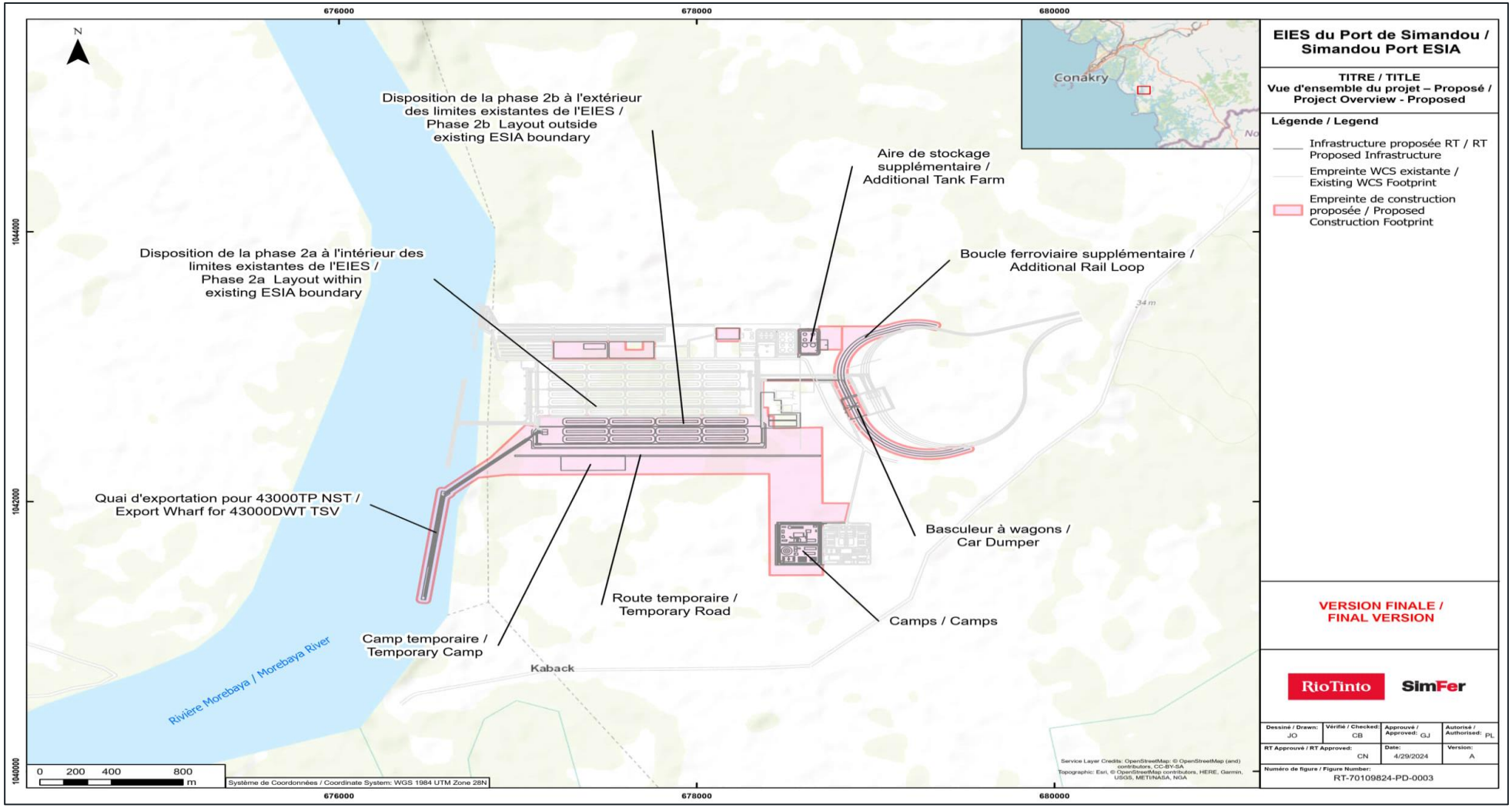

Figure 0-2 Project Components

PROJECT CONTEXT

Rio Tinto Simfer will develop Blocks 3 and 4 of the mining concession in the southern part of the Simandou mountain range. In parallel, WCS are developing Blocks 1 and 2 in the northern part of the mountain range as well as the 536-kilometre main rail line. SIGSA are developing the rail line (approximately 70 km) from the Blocks 3 and 4 mining concession areas to the main rail line. The mining developments and railway have been the subject to previous and separate Environmental and Social Impact Assessment (ESIA) reports which have been approved or are under review. The WCS Port ESIA was approved in 2022.

PROJECT NEED

The Project is essential for economic mining of blocks 3 and 4 in the Simandou range. Potential impacts of the Project must be considered alongside the benefits the Project holds for the people of Guinea and for other stakeholders. These include:

- **Economic Growth**: The Project has the potential to contribute to Guinea's economic growth. Since it is an integral part of the infrastructure to make the mine economic, the overall extraction and export of iron ore will generate substantial revenue for the country, allowing for investments in infrastructure, education, healthcare, and other sectors.
- **Job Creation**: The Project will create job opportunities, both directly and indirectly. From construction and operation of the port to the associated infrastructure at the mine and rail spur, the Project will boost employment rates, reduce poverty, and enhance standards of living in the region.
- **Infrastructure Development**: The Project and the Project-related power supply are themselves infrastructure which will not only support the mining operations but also improve the overall transportation and logistics network in Guinea, benefitting other industries and communities in the future.
- **Revenue for Stakeholders**: Apart from Guinea, the Project will benefit other stakeholders, such as its shareholders (Rio Tinto and its partners, including the Republic of Guinea), investors, and international buyers. The high-quality iron ore from Simandou will attract global demand, providing a stable supply of raw materials for the steel industry and contributing to economic development worldwide.
- **Green Steel**: The premium-grade iron ore from Simandou will be a vital part of the energy transition, as steelmakers seek to reduce their carbon emissions.

Combined with the development of the mine and rail line, the Project represents a transformative opportunity for Guinea and other stakeholders. It has the potential to spur economic growth, create jobs, develop infrastructure, generate revenue, and promote social and environmental responsibility. With careful planning and implementation, the Project can bring long-term benefits to Guinea while meeting international standards for sustainability and corporate responsibility.

ANALYSIS OF ALTERNATIVES CONSIDERED

Prior to finalising the Project design, several alternatives were evaluated based on their technical feasibility, environmental and social impacts, and profitability. These were:

- **No Simfer Port:** This alternative considered having only the WCS port, and no port expansion by SIGSA. This alternative was rejected because, without the Project, the port would not have sufficient capacity to export all the iron ore from the Simandou blocks 3 and 4 effectively, resulting in a negative impact to the social and profitability benefits of mining.
- **Port Location:** Several port locations were assessed in 2012 and 2022, ranging from the far north to the south of the Morebaya River location. The preferred option was the Morebaya River location. For the Project, this location is especially advantageous because it permits integration with WCS infrastructure and avoids developing a second port infrastructure.
- **Port Layout:** A series of feasibility and optimisation studies between 2012 and 2022 were used to locate the various facilities at the port. The facility locations were further modified after the development of the WCS port to maximize efficiency and minimize additional footprint.
- **Source of Water:** Water sources including the Morebaya River (requiring desalination), groundwater, the Forécariah River, and exiting reservoirs were considered for the Project. The Forécariah River was found to be the most reliable source of water, and has been selected as the Project water source, pending ongoing design studies.
- **Source of Power:** The Project requires power to be generated, in addition to power that will be generated by WCS. The WCS port will generate power using heavy oil. The expansion of the existing oil power plant is the most technically feasible for the Project at the current time and has been selected as the source of power. It should be noted that other options (for example, renewable power options) will continue to be evaluated as ways to mitigate greenhouse gas emissions as the port continues to operate into the future.
- **Shipping Approach:** Only shallow draft ships can access the port location due to the presence of a shallow continental shelf extending about 20km out to sea. Significant dredging would be needed for the large ocean-going ships needed for export to reach the port location. Other options considered included building a long jetty to extend past the continental shelf and the use of smaller ships (transhipment vessels or barges) that require less dredging to move the iron ore from the port location to the large ocean-going ships. The use of smaller ships was selected as less dredging will be required. Transhipment Vessels were chosen as fewer of these ships are needed than if using barges, resulting in less traffic and greater throughput capacity. The wharf for the Project has been designed to accommodate three of these transhipment vessels at one time.

The selected Project design works to achieve beneficial outcomes while minimising potential impacts.

PROJECT STANDARDS

INTERNATIONAL STANDARDS AND REGULATORY FRAMEWORK

SIGSA has committed to comply with Guinean legislation and regulatory requirements, along with other international standards and good practices. The Project (and other related operations) will be designed and operated to meet these standards and regulations to protect the environment and society from adverse impacts and maximise benefits. Standards and regulations will apply through design, construction, operation and transition to other ownership.

The Environmental Code (Act No. L/2019/0034/AN of 4 July 2019; Republic of Guinea 2019) promulgated by Decree D/2019/221/PRG/SGG of 26 July 2019, promotes the sustainable development, management and protection of the environment and natural capital against all forms of degradation (Article 1). It establishes the administrative and legal framework that enables the Guinean State to fulfil its constitutional obligation to provide a clean and healthy environment for everyone in Guinea.

Title II of Order Amending the Procedure for Environmental Assessments (Bylaw/2023/1595/MEDD/CAB/SGG) defines the procedural steps for environmental studies. This assessment follows these procedures. The Project has been identified as Category A and is subject to a detailed ESIA.

Other key legislation that relates to the construction and operation of the Project includes Guinea's Water Code, Land Law, Forest Code, Agriculture Code, Local Authorities Code, Labor Code, Maritime Code and Maritime Fishing Code.

Among the key Project Standards, the Project will adhere to are the principles listed below:

- Equator Principles
- International Finance Corporation's 'Performance Standards on Social & Environmental Sustainability
- Voluntary Principles on Security & Human Rights'
- World Economic Forum's 'Partnering Against Corruption Principles for Countering Bribery'
- Transparency International's 'Business Principles for Countering Bribery'
- principles and criteria of the Extractive Industries Transparency Initiative
- framework of the International Council on Mining and Minerals

BROAD AGREEMENTS

Two key agreements have been put in place within the Investment Framework that will support the development of the Project:

- The Amended and Consolidated Basic Agreement (the Basic Agreement) – an agreement between Simfer SA, Rio Tinto Mining and Exploration LTD and the Republic of Guinea governing the conditions for the development and implementation of the mining project.
- The BOT Agreement (the BOT Agreement) – This is an agreement between the State, various entities of the Rio Tinto Group (including SIGSA, which acceded to the BOT Convention under the terms of an accession agreement signed on July 24, 2023) and other

parties, for the construction and operation of the rail and port infrastructure necessary for the transportation of the iron ore of the Project.

These two agreements, referred to as the Project Agreements, were signed on May 26, 2014 and entered into force on August 18, 2014. The agreements describe the standards of the Project that will be met during the implementation of the Project.

On 25 March 2022, Simfer SA, the State, Winning Consortium Simandou Railway (WCS RailCo), Winning Consortium Simandou Ports (WCS PortCo) and Winning Consortium Simandou SAU (WCS MineCo) entered into a framework agreement for the co-development of rail and port infrastructure for the Simandou project (the Framework Agreement).

On this basis, CTG was incorporated in Guinea on July 29, 2022.

Following negotiations on a list of non-binding terms on 23 December 2022, the parties have negotiated and concluded, or are in the process of concluding, several different agreements that are all part of the Investment Framework for Co-Development, the following of which are particularly relevant to the Project:

- Co-Development Agreement (CDA) (signed on 10 August 2023): this agreement sets out the conditions relating to the co-development of the Simandou infrastructure and in particular the issues relating to:
  - during the construction period, the execution (including planning) of the continuation of the construction works by each of the Project Companies (SIGSA, WCS RailCo and WCS PortCo) on the basis of their respective existing infrastructure agreements
  - during the period of operation, the transfer to and operation of the Simandou Infrastructure by CTG based on the WCS Rail Convention and the WCS Port Convention which together will then become the CTG Conventions
  - the local content regime applicable to the infrastructure project
  - adjustments to the tax regime applicable to CTG and the project companies
  - in general, the management of the environmental and social impact of the construction and operating activities related to the Simandou Infrastructure
- Adjustments to the Simfer Basic Agreement (signed on 10 August 2023): concluded by the State, Simfer SA and RTME, this document presents the relevant clarifications and adjustments to the Basic Agreement taking into account the implications of co-development, including but not limited to adjustments to ensure that the Basic Agreement that referred to the BOT Convention can continue to operate and be read in light of the new arrangements resulting from the Investment Framework for Co-Development.
- Implementation and Cooperation Agreement (ICA) (signed on September 29, 2023): the Implementation and Cooperation Agreement, and other ancillary agreements to manage interfaces in the execution of construction, co-realization, and access between Simfer SA, WCS MineCo, and the infrastructure project companies. Pending the entry into force of the ICA, similar interfacing and access principles are governed by an Interim Access Agreement (also signed on 29 September 2023).

RIO TINTO POLICIES

The framework for Rio Tinto's corporate policies is provided by Rio Tinto's global code of conduct, The Way We Work (2023), which is available online at https://www.riotinto.com/en/sustainability/policies. This framework sets out Rio Tinto's strong commitment to undertaking its business with integrity. It requires the company to follow rigorous standards of corporate governance and contribute to sustainable development. Rio Tinto's focus on sustainable development provides the framework in which the business operates.

STAKEHOLDER CONSULTATION

LEGAL FRAMEWORK AND INTERNATIONAL STANDARDS

Public consultation requirements during the ESIA are set out in the Environmental Code and Decree A/2023/1595/MEDD/CAB/SGG modifying Decree A/2022/1646/MEDD/CAB/SGG of 25 July 2022 on the environmental assessment administrative procedure. According to these requirements, public consultation and stakeholder engagement are intrinsic and continuous elements of the ESIA process and a prerequisite to ESIA approval. The responsibility for stakeholder engagement rests with the Project Proponent. At the international level, the ESIA is developed in consideration of Equator Principles (iteration no.4) and other international standards and good practices including IFC PS 1.

PAST CONSULTATION

Since the early 2010's, the Simandou Project has been committed to undertaking a process of stakeholder engagement. Three key consultation moments have occurred over the past decade within the port extension project area:

- the consultation conducted by Rio Tinto as part of an ESIA for the Simandou project in 2011-2012
- the consultation conducted by WCS as part of the 2022 ESIA for their port Project
- the consultation conducted by Insuco for Rio Tinto in 2023 as part of the Resettlement and Compensation Action Plan (PARC) for the current port extension Project

STAKEHOLDER CONSULTATION METHODOLOGY

The Project consultation process commenced at the start of the ESIA process, building on previous consultations and existing plans and has been an ongoing process as the Project develops. The public consultations were conducted in 2 rounds with all project stakeholders. The first round of consultations was conducted from 9 to 11 October 2023 and the second round was conducted from 25 to 27 October 2023.

CONSULTATION RESULTS

More than 192 people attended the first round of public consultation, which included four meetings at the following locations: Senguelen Centre, Kaback, Sangbon and Kakossa. The attendees included local authorities, fishermen, women working as artisanal fish processors, women, youths, farmers neighbourhood councils or other elected representatives, local dignitaries, retirees and other citizens. Concerns raised during this meeting included the following themes:

- agricultural issues
- fishing issues
- community development issues
- employment and training issues
- population displacement and loss of ancestral lands
- health and quality of life

The results from the second round of consultation will be used by the Project proponent to add or adjust, as needed, the mitigation measures presented in Chapter 9 and in the Environmental and Social Management Plan (ESMP).

SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS

ASSESSMENT APPROACH

The AGEE (Guinean Agency for Environmental Assessments) determined that the Project qualified as a Category A project, requiring a detailed ESIA. The overall approach to the ESIA is illustrated in the flow diagram in Figure 0-3. This approach aligns with the ToR (terms of reference) for the Project and is described briefly below.

Spatial and temporal boundaries of the Project were established for the assessment. The Project's Area of Influence (AoI) was defined to broadly assess potential impacts on the social and biophysical environments. The AoI for the physical disciplines (or PAoI) was defined based on an approximate 2.5 km buffer around the Project components. The AoI for the social disciplines (SAoI) is consistent with the AoI used for the social components in the WCS ESIA (WCS, 2022). The AoI for the biodiversity disciplines (BAoI) was defined by combining PAoI and SAoI.

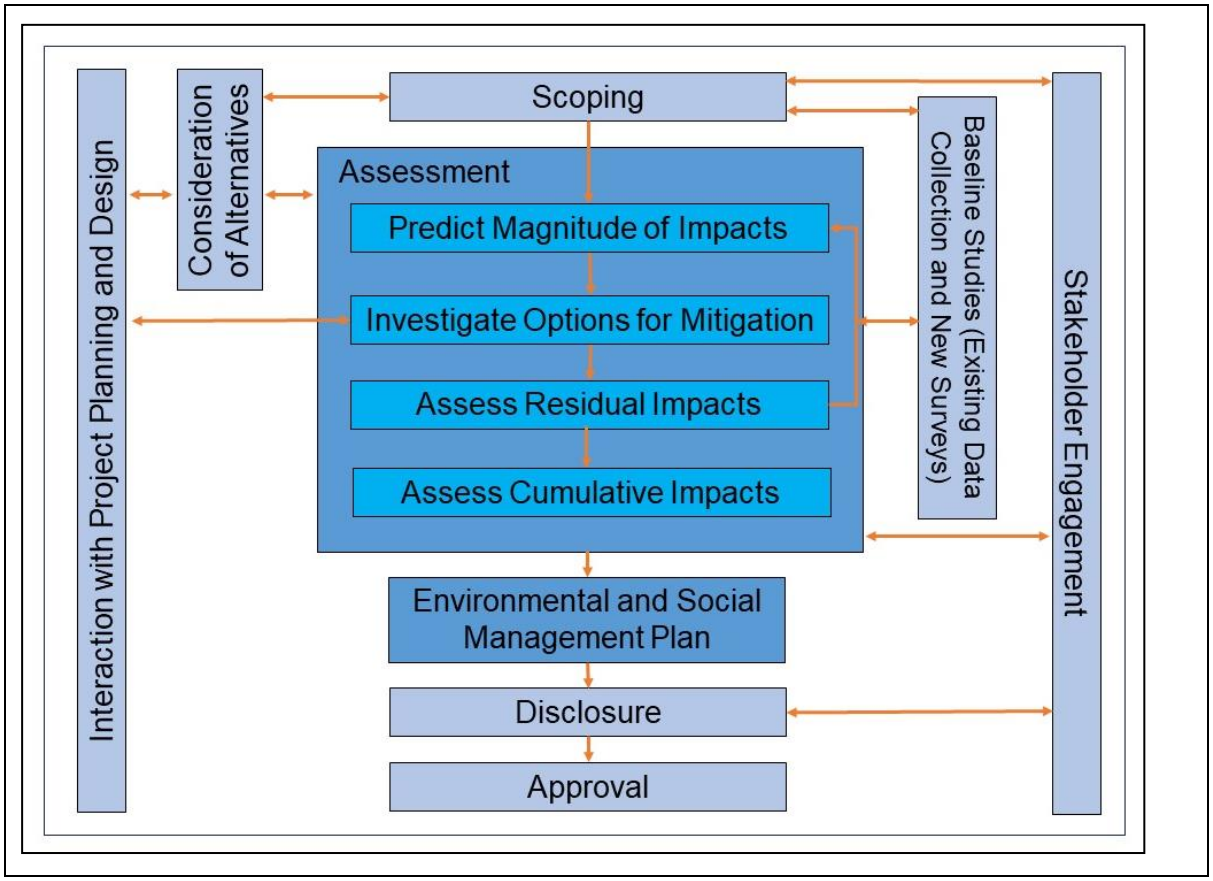

Figure 0-3 Assessment Approach

The temporal boundaries of the assessment were defined to reflect the construction (January 2024 to February 2027) and operation (approximately 25 years) phases of the Project. Following operations, the Project will transfer to the Republic of Guinea. Therefore, a decommissioning phase was not evaluated because there is no plan to remove the port infrastructure.

Baseline characterisation provides context for understanding the Project's potential impacts the surrounding environment and identifying appropriate mitigation. Considerable work has been invested in studying the Project's AoI between 2012-2023. Much of this work has previously been summarised in the following documents:

- Rio Tinto Simfer 2012 ESIA
- WCS 2022 ESIA

These documents were relied upon to support the characterisation of the existing conditions. Important context for existing conditions in the Project's AoI is that construction of the approved WCS port is currently underway. The purpose of this impact assessment was to evaluate the incremental increase in impacts associated with the Project compared to the WCS approved project.

The impact assessment first considered the potential impacts in a scenario that considers mitigation embedded in the Project description but does not consider additional mitigation that could be added to further reduce impacts. Embedded mitigation refers to the avoidance and minimisation measures that are inherent within the Project design and summarised in the project description (Chapter 3). It includes for example, SIGSA's effort to integrate the Project with the approved WCS port to minimise cumulative impacts to coastal habitat in Guinea.

Next, mitigation was applied before estimating residual impacts, which were classified using a pre-defined set of criteria such as the degree of change, the extent, and duration. Prediction confidence was characterized and where uncertainty was present, impacts were overestimated rather than underestimated. Unproven or undefined mitigation, including rehabilitating complex habitat such as mangroves or offsetting, was not considered as part of the residual impact classification and was instead presented in the impact assessment as a follow-up action.

The impact assessment focused on "receptors", which were defined as aspects of scientific, economic, social or cultural value that may be affected by the Project. Specifically, social and biophysical receptors deemed to be moderately or highly sensitive to changes caused by the Project under existing conditions were evaluated in the impact assessment. The impact assessment results for each receptor are summarised in the following three subsections.

PHYSICAL IMPACTS

AIR QUALITY

Existing air quality was established through field monitoring surveys completed in 2021 during both the wet and dry seasons. Guinea's guidelines for air emissions obtained from the Guinean Institute of Normalisation and Metrology as well as the World Health Organization (WHO) and European standards were used for comparison of results. The results show that air pollutants are lower than the Guinean, the WHO and the European standards. However, particulate matter associated with dust generation exceeds WHO and Guinean Standards.

During construction, impacts on air quality are associated with the use of equipment and machinery that burn fuel for operation, emissions from the power plant, and dust generation through exposed soils and movement of vehicles and machines. Dust may affect communities located downwind during construction. When the Project is in operation, air quality impacts are associated with power plant emissions and dust from sources such as stockpiling and transferring of the iron ore and wind erosion.

The main proposed mitigation measures for air and dust emissions include avoid burning waste, operate and maintain the power plant and equipment to minimise emissions, select low sulphur content fuel, and use dust abatement methods over work areas and ore storage sites. Considering these proposed mitigation measures, residual impact magnitude and significance would be respectively small and minor during construction and moderate during operation.

GREENHOUSE GAS EMISSIONS

The most recent and reliable set of data for greenhouse gas (GHG) emissions date from 2019, as these are not impacted by the Covid 19 pandemic. This data reports that the Republic of Guinea was responsible for GHG emissions of 47,520,000 tCO_2e[1], resulting from land use changes and forestry. Of this value, 9% is carbon dioxide, 43% is methane, and 14% is nitrous oxide.

During construction and operation of the Project, GHG emissions are associated with the use of equipment and machinery that burn fuel. Proposed mitigations measures include reduction in the use of carbon-based fuels where possible (decarbonization strategy), increase efficiency of equipment and machinery with regards to fuel consumption, maintenance of all equipment and machinery for operational efficiency, minimise waste production to reduce methane gas emissions and consider offsets to favour decarbonisation. The overall impact of the Project to GHG emissions is estimated to be moderate with a potential to be reduced to minor if the long-term effect mitigation measures, such as the decarbonization strategy, are applied.

TOPOGRAPHY

The Project area is characterized by low elevations and flat land and is 0 m to 5 m above sea level. The area is part of the coastal plain that is generally bordered by mangroves with sandy ridges beyond the high tide zone.

Impacts on topography are essentially associated with the construction phase where the local land level will be increased to avoid flood problems during operation. Proposed mitigation measures include blending the edges of elevated areas with the surrounding topography and to return areas to original elevations. Considering these proposed mitigation measures, residual impact magnitude and significance would be small and minor during construction.

GEOLOGY, SOILS AND SEISMICITY

At the regional level, the Project is located geologically at the western edge of the West-African Craton in an area covered with sediments from the Cenozoic era which overlie older metamorphic rocks of the craton dating back to the Archean era. At the local level, it is located on a granite-gneiss type rock formation which is altered and fractured. This formation is covered by granular material originating either from the alteration of the rock layer or from the deposition of Tertiary deposits (Cenozoic sediments).

Soils are characterized to be of recent development with a ferruginous lateritic cover. These laterite mineral formations are iron and nickel rich materials descended from basalt. Field investigations completed in 2021 by WCS showed three categories of soils to be present at

[1] These are production-based national emissions which includes all emissions from activities within the country's border and excludes land use change and emissions related to the production of imported goods and services.

the Project location, vertisols (rich in clay and generally fertile), ferralitic soils (rich in iron oxides and alumina) and hydromorphic saline soils (continuously changing due to addition of sediment and with high salt content). Some organic soils are present in the mangroves and the rice fields.

Soil samples were collected for the Rio Tinto Simfer project in 2012 and for the WCS Port Project in 2022 to determine baseline soil quality. In the absence of Guinean or international regulations on polluted soils, the results were compared to the Canadian regulations established by the Canadian Council of Ministers of the Environment (CCME) and the Dutch intervention guidelines. Most metals in the soil samples had concentrations below both CCME and Dutch intervention thresholds (WCS, 2022) except for Arsenic (above the CCME guidelines for almost all samples) and total chromium (above the CCME recommendations for residential use but below that for industrial use). Presence of petroleum hydrocarbons were found in most samples but in low concentrations. Finally, salinity concentrations are disparate and were found to be higher in the samples taken in the area dominated by hydromorphic saline soils.

Many coastal areas in the region have soils that contain a large amount of iron sulphide minerals. These soils are referred to as acid sulphate soils. Their presence is associated with leaching of heavy metals and acidity levels which may affect aquatic fauna, agricultural yield and increase corrosion risk of metallic, concrete or masonry components. The assessment for the presence of these soils in the Project area shows that it is possible to almost certain to encounter them.

The risk of a destructive earthquake (seismicity) was considered low with only a 2% chance of a destructive earthquake occurring within the next 50 years.

Impacts on soils are mainly associated with construction activities which may result in the loss of soil quantity (removal of topsoil, erosion increase), change in soil quality (compaction, accidental contamination, dust deposition) and exposure of acid sulphate soils. Only a limited risk of accidental contamination through spillage or leaks is associated with the operation phase activities. The main proposed mitigation measures include adequate management and maintenance of contaminant storage areas, keeping spill prevention kits on site, limiting land take and soil exposure, keeping topsoil for on-site use or to be offered to local cultivators, implement and monitor erosion control measures (stabilise exposed surface, divert surface run-offs, etc.) and conduct surveys to detect presence of acid sulphate soil. Considering these proposed mitigation measures, residual impact magnitude and significance would be small and minor, respectively, during construction. No residual impacts are anticipated for the operation phase after mitigation.

HYDROGEOLOGY

Conceptually, the groundwater regime underlying the Project consists of a thin shallow primary aquifer and a slightly deeper fractured aquifer which are in hydraulic connection. These aquifers are influenced by the Atlantic Ocean near the coast. Aquifers under the Project site are considered altered from natural conditions through the agricultural practise of growing rice in paddies which involved clearing mangroves and coastal forests.

In the coastal areas, including the Project area, groundwater is close to the surface and is used by local communities for water supply. In the Project area, groundwater is obtained from shallow wells, deep water wells and springs and is mainly use for domestic purposes. Between the villages of Senguelen and Koniakhori, 53 shallow wells, 17 deeper equipped boreholes and two springs have been recorded.

As these aquifers can be brackish or salty, they are sometimes not used for human consumption. Aquifers are accessed for human use through hand-dug groundwater sumps and wells. Groundwater is the main year-round potable water source in the area to the east of the Project. However, during the dry season water quality and availability forces communities to travel further inland for fresher groundwater or purchase bottled water for drinking. Surveys conducted in 2021-2022 found salinity levels in groundwater decreases with increasing distance from the coastline.

The baseline studies for the WCS port commenced in 2021 and were completed in 2022. These studies indicate that the overall regional groundwater flow is from the higher lying hinterland towards the port site in a south-westerly direction, draining into coastal creeks and rivers. Groundwater studies at the Project site are reported to reflect a vertically downward gradient, implying that groundwater from the shallow aquifer recharges the deeper aquifer which is unusual. However, it seems there is considerable damping of the tidal variability by clogging layers at the base of the Morebaya River that limit the tidal influences transmitted into the porous shallow and unconsolidated aquifer material underlying the Project area.

Different studies found that that several village wells (groundwater) exceeded WHO domestic water quality limits for the following some parameters (manganese, lead, nickel, arsenic, chromium, pH, nitrogen and phosphorus).

Impacts on groundwater during the construction phase are mainly associated with the dewatering requirements of some activities, such as the construction of the car dumper station, which may result in water level reductions in local wells (mainly wells in the shallow aquifer) and an increase in salinity level of the water. Some groundwater withdrawal will occur during the operation phase of the Project, although no noteworthy effects are anticipated with this activity as it is a small amount. The proposed mitigation measures will include monitoring effective groundwater level drawdown during dewatering activities, monitoring groundwater quality, providing alternative sources of water to potentially affected populations, and to direct dewatering effluent away from medium of high ecological value catchment areas. Considering these proposed mitigation measures, residual impact magnitude and significance would be respectively small and moderate during construction and small and minor during operation.

SURFACE WATER AND SEDIMENT

The Project is located close to the mouth of the Morebaya River, which has a relatively small catchment area and mainly includes the marshy lowlands within 25 km of the coast. The river is comprised of a network of braided channels extending approximately 20 km in land from the coast. The presence of mud flats and mangroves on these channels indicates that they are influenced by the tide. Water level monitoring was undertaken in 2019 to establish the tidal range on the Morebaya River adjacent to the port location. This showed that there is a distinct

neap (lowest) and spring (highest) tide cycle with the tidal range during a spring tide being around 3.5 m and for a neap tide around 1.5 m. The Project site is susceptible to flooding with water levels reaching 1.3 to 1.7 m above land.

The other surface water bodies in the Project area consist of a network of artificial drainage channels managed to flood and drain a patchwork of 'bogoni' rice fields. These water bodies may be seasonal in nature, only being present during the wet season. The largest body of freshwater in the vicinity of the Project is a private reservoir south of the town of Maferinyah, around 12 km northeast of the Project site.

Water quality results for the Morebaya River show that the pH to ranges between 7 and 8 with a mean temperature of 30°C. High levels of pathogenic faecal bacteria and of some heavy metals (High levels of copper, cadmium, zinc, arsenic, silver and chromium; Lesser levels of mercury, lead, nickel and selenium) have been found during dry season. Heavy metals were in lower concentrations during wet seasons except for aluminium and iron. The river's sediment is typically fine grained and with copper, mercury, lead and zinc concentrations below the CCME threshold effect level and above for cadmium. Arsenic and chromium were found to be above the probable effect level of the CCME criteria.

Other surface water bodies in the area of the Project showed that no WHO health-based chemical guideline values were exceeded, and metal concentrations were generally below detection limits, except for aluminium, manganese, iron and zinc (which were found at low levels and were higher in the wet season than in the dry). However, widespread contamination by faecal coliforms was found during the surveys in 2011.

Impacts on surface water during construction are associated with increased areas of exposed soil, general construction work and associated sources of temporary effluent (sanitary and wash water) which will result in increased localised quantity and speed of water runoffs, disruption of existing drainage paths and the potential introduction of contaminants. Operation-related impacts are generally associated with stormwater runoffs and effluent, with a noted increase in effluent produced during the wet season due to stormwater runoff from the large area of stockpiled ore.

The main proposed mitigation measures will include the sound operation and maintenance of water treatment equipment to meet the applicable wastewater and overall effluent discharge standards. Other mitigation measures include installing adequate structures to achieve efficient water flow, confine and develop the capacity to intercept contaminants, favour the Morebaya estuary for effluent discharge and conduct a quantitative water balance (water coming into the site and water leaving the site) to better size water management infrastructure. Considering these proposed mitigation measures, residual impact magnitude and significance would respectively be small and minor at both construction and operation phase.

Impacts on sediment during construction are associated with removal of vegetation, exposing soils to erosion and runoff, which would increase the sediment content of the local water bodies. During the operational phase the main source of sediment runoff will change from the exposed soils and earthworks prevalent during the construction stage, to the iron ore stockpiled at the site. The main proposed mitigation measures proposed are associated with pollution prevention and control systems that will avoid exceeding the total suspended solids thresholds. These measures may include, amongst others, reducing exposed soil surfaces,

control and prevent erosion, use of attenuation ponds and silt curtains, regular inspection and cleaning of drainage structure. Considering these proposed mitigation measures, residual impact magnitude and significance would be negligible during construction and respectively small and minor during operation.

AMBIENT NOISE

The Ambient noise baseline was established through a field survey completed in 2021 at two monitoring locations associated with local villages. Ambient noise levels were found to be within normal levels for daytime and slightly above expectations during nighttime, although noise sources during the night were generally from natural sources (wind, insects and other animals).

Ambient noise impacts are associated with the use of equipment and machinery during construction and operation and during operational activities (loading, unloading and transfer of ore). For both the construction and operation phases, these sources have been estimated to generate a moderate (daytime) to high (nighttime) changes in the local ambient noise levels. The main proposed mitigation measures include applying all actions that will help reduce construction and operation noise (selection and location of equipment, maintenance of motorized machinery, monitoring, adding noise abatement fittings, etc.) and through conveyor system design. Considering these proposed mitigation measures, residual impact magnitude and significance would respectively be small and moderate during both construction and operation phase.

UNDERWATER NOISE

Existing underwater noise was established for the Rio Tinto ESIA project in 2012 and for the WCS Port in 2021. Results of field measurements and simulations show that the underwater coastal study area is quiet. The Morebaya River is relatively free from commercial shipping noise. The continental shelf that extends from the port site, acts as a barrier to offshore noise travelling into the river, in particular for noise generated by maritime traffic. In addition, the soft bottom and sandy banks of the river help to reduce underwater noise propagation. The sensitivity of the site to underwater noise is therefore considered low.

During construction of the Project, underwater noise impacts are associated with noise generated when driving piles for the wharf. Pile driving noise in the Morebaya River may result in a risk of behavioural disturbances for aquatic life, impaired hearing in marine mammals, and fatal injury in fish and turtles. Cetaceans are considered to be the most sensitive to noise, but these species are unlikely to be exposed to noise within the river. However, the river and its estuary correspond to the preferred habitat of manatees, which are potentially the category of species most affected by the pile driving noise.

Proposed mitigation measures include actions to optimize the pile driving activities to reduce underwater noise, to implement noise reduction solutions such as bubble curtains, to monitor the presence of manatee and crocodile reactions to pile driving within a 500 m buffer zone. If aquatic animals are spotted at a certain distance (500 m) from the work site, actions will be

taken to reduce noise generating work until the animals move to a predetermined safe distance. Considering the proposed mitigation measures, residual impact magnitude and significance would be respectively small and minor.

BIODIVERSITY

Potential impacts to biodiversity have been substantially reduced by developing the Project at the site of the approved WCS port. Substantial additional mitigation for both the physical (e.g., mitigation for dust, air quality, water quality) and social components (e.g., Project Induced Immigration Management Plan) further benefits biodiversity by reducing potential impacts. Targeted mitigation for individual biodiversity receptors also has been committed to by SIGSA. Such mitigation includes:

- avoiding induced impacts to important receptors (e.g., avoiding physical disturbance and degradation of granite inselbergs by sourcing gravel and stone materials from quarries located outside the Moofanyi and Tonkoyah Inselbergs).
- surveys to avoid / mitigate impacts to individual species (e.g., threatened and endemic flora, aquatic mammals, crocodiles)
- managing invasive species
- managing bushmeat hunting
- managing Project induced in-migration to minimise the degradation of natural habitats (particularly mangroves, the Kakiwondi forest other relic forest patches, and the estuary) and the harvest of flora (e.g., wood for fuel) and fauna (e.g., threatened terrestrial and aquatic species) for local use, trade and consumption

The impacts summarised in the following sections do not consider additional biodiversity actions that SIGSA has committed to undertake. Specifically, Rio Tinto is committed to developing a Biodiversity Action Plan (BAP) and Biodiversity Offset Strategy to achieve a net gain for critical habitat and no net loss for natural habitats in accordance with IFC PS6. Feasibility studies are currently ongoing, in order to meet the requirements of IFC PS6. Should the BAP be successfully executed, an overall benefit will be achieved for biodiversity relative to its condition in the absence of the Project. Careful monitoring and adaptive management will be required to confirm a positive biodiversity outcome for the Project.

NATURAL AND CRITICAL HABITATS

The BAoI consists of a matrix of natural (40%) and modified habitats (60%) existing along a continuum ranging from functional natural habitats to intensely managed or converted modified habitats. Modified habitats are areas that have been substantially altered by human activity and/or where a large proportion of the plant and/or animal species are non-native (e.g., rice cultivation). Natural habitats retain viable native plant and animal communities. Natural habitats near the Project include granite inselbergs, relic patches of lowland maritime forest, mangroves, and estuarine habitat. Humans have been present in the BAoI for many centuries and communities rely heavily on natural resources for their livelihoods. In this context, none

of the natural habitats in the BAoI can be considered pristine because they are all influenced by human activities, to varying degrees.

Critical Habitat (CH) refers to areas of especially high biodiversity value and can be either natural or, in some cases, modified. Three natural ecosystems in the BAoI trigger critical habitat: granite inselbergs, relic forest (including the Kakiwondi relic forest) and mangroves. Twenty species also trigger critical habitat, and these species are all associated with granite inselbergs and relic forest.

Although CH is present, the Project and its BAoI do not overlap with any protected areas with national or international legal status.

Granite Inselbergs

Granite inselbergs in the BAoI corresponds to the Moofanyi Inselbergs. Only a portion of one of these inselbergs remains, covering an area of approximately 9.3 ha, which is about 40% of its historical extent in the BAoI. Granite Inselberg habitat has been lost due to their permanent removal from ongoing quarrying activities linked to the port's development. Granite inselbergs in the BAoI are designated as a Tropical Important Plant Area (TIPA) and are considered critical habitat under International Finance Corporation (IFC) Performance Standard 6 (PS6) criteria 1a[2] and 4b; they have a high degree of sensitivity to changes from the Project.

The Project footprint does not overlap with granite inselbergs, and therefore will not directly remove this habitat type. However, Rio Tinto has contributed to legacy disturbance of about 5.3 ha of granite inselberg between 2012 and 2016. Since then, an additional 7.9 ha have been removed due to the WCS port facilities that are currently under development. The Project has the potential to indirectly affect granite inselbergs during construction and operation through changes in air quality (e.g., dust emissions) and introduction and spread of invasive species. Finally, the demand for workers is expected to induce a population influx in the region. Population influx is likely to increase human use in granite inselbergs, resulting in potential habitat degradation, the extent of which might be substantial but has not yet been quantified.

Relic Forests

Relic lowland maritime forest in the BAoI is limited in its distribution to four patches totalling 78.3 ha. One of these patches is the Kakiwondi relic forest patch (1.2 ha), which is within the Moofanyi Inselberg TIPA and represents a type of maritime forest that is limited at the national and regional level. The Kakiwondi forest is degraded under existing conditions due in part to the ritualistic change in its sacred status in 2012 to support the Project. However, it continues to support species of conservation value. Relic forest was defined as critical habitat under

[2] Criterion 1a includes habitat supporting important concentrations of species with a global status assigned by the IUCN of Critically Endangered (CR) or Endangered (EN). Criterion 4b is criteria used to determine whether ecosystems not yet assessed by the IUCN are of high priority for conservation by regional or national systematic conservation planning. This was done by considering expert reports.

critical habitat criteria 1a[2] and 4b[2]; it has a high sensitivity to potential changes from the Project.

The Project footprint does not overlap with relic forest and therefore the Project will not directly remove this habitat type. However, Rio Tinto has contributed to legacy degradation of the 1.2 ha of Kakiwondi forest through its instigation of the change in its sacred status. In addition, the Project has the potential to indirectly affect relic forest during construction and operations through changes in air quality (e.g., dust emissions) and introduction and spread of invasive species. Finally, the demand for workers is expected to induce a population influx in the region. Population influx is most likely to increase human use of relic forest, resulting in increased pressure on this resource including its conversion for other land uses such as agriculture. The extent of this loss or degradation can't be quantified at this time.

Mangrove

Estuarine mangroves and cover approximately 12.4% of the BAoI. They support unique species assemblages, key life stages for a variety of aquatic species and provide important ecosystem services. Mangroves in the BAoI are considered critical habitat under critical habitat criterion 4b[2].

Mangrove quality in the BAoI is variable, and includes patches that are slightly degraded, degraded, and in some places highly degraded (Sylvatrop, 2023). Mangroves in the BAoI are considered to have a high degree of sensitivity due to its vulnerability and uniqueness.

Proposed project activities have the potential to reduce the amount of mangrove habitat in the BAoI, degrade the quality of mangroves, and introduce fragmentation of remaining mangrove patches. The Project will directly remove 9.2 ha (0.6%) of mangroves in the BAoI. The most important residual impacts to mangrove are expected from induced loss and degradation associated with the influx of people seeking opportunities associated with the Project. The magnitude of effects is categorized as moderate with key uncertainty attributed to the level of population influx and how a change in population will alter mangroves in the BAoI. The residual impact significance is assigned as major.

Estuarine Habitats

Estuarine habitats are defined as the Morebaya River estuary and its interconnected network of channels. This habitat covers approximately 9.7% of the BAoI. Estuarine habitat is not identified as critical habitat. However, this natural habitat provides key ecological functions for many aquatic species (e.g., breeding and nursery grounds), including threatened aquatic mammals, reptiles, and fish.

Given the close hydrologic association with the ocean, and existing level of anthropogenic influence, estuarine habitat in the BAoI is likely have some capacity to absorb changes to water quality and quantity. Therefore, this habitat type is considered moderately sensitive to changes due to Project impacts.

Proposed Project activities have the potential to reduce the amount and quality of estuarine habitat in the BAoI. The Project will directly remove 11.9 ha (1.0%) of estuarine habitat in the BAoI. The most important residual impacts to estuarine habitat are predicted from induced degradation associated from the influx of people to the area induced by the Project (e.g., increased water pollution, degradation to riverbanks, and potential to introduce invasive species. The magnitude of effects is categorized as small during construction and moderate during operations. Uncertainty is mainly attributed to the level of population influx and how population change will degradation estuarine habitat in the BAoI. The residual impact significance is assigned as minor during construction and moderate during operation.

THREATENED AND ENDEMIC FLORA

This receptor includes three groups of plants associated with specific habitats in the terrestrial ecologically appropriate area of analusis. Group 1 includes three threatened species associated with both the Kakiwondi relic forest patch and the granite inselberg habitats, including: *Keetia susu* (EN), *Marsdenia exellii* (EN), *Tarenna hutchinsonii* (CR). Group 2 is associated with the Kakiwondi relic forest patch and includes one threatened species: *Stylochaeton pilosus* (EN). Lastly, Group 3 includes two threatened species associated with granite inselbergs: *Raphionacme caerulea* (EN), and *Xysmalobium* sp. (treated as potentially new to science and endemic). All species in Groups 1, 2 and 3 have critical habitat in the BAoI.

Threatened and endemic flora are highly sensitive due to their rarity, vulnerability and uniqueness. Their critical habitat is associated with granite inselbergs and the Kakiwondi relic forest, which are rare and irreplaceable. Threatened and endemic flora in the BAoI have a high sensitivity to potential Project impacts.

Although the Project footprint does not overlap with critical habitat for threatened and endemic flora in the BAoI, the Project has the potential to reduce the amount and quality of critical habitat through indirect and induced impacts. Legacy activities associated with the port's development have also contributed to loss of granite inselbergs or the Kakiwondi relic forest patch since 2012. Potential impacts would incrementally add to legacy effects of the port's development.

The most important residual impacts to threatened and endemic flora are expected from the influx of people induced by the Project. The magnitude of effects is categorized as moderate with key uncertainty attributed to the level of population influx and how this population change will affect the availability and condition of critical habitat for threatened and endemic flora. The residual impact significance is assigned as major.

MAMMALS

Terrestrial Forest Mammals

This receptor includes three threatened species, two which are classified as Vulnerable: the Sooty Mangabey (*Cercocebus atys*) and African Golden Cat (*Profelis aurata*). Both species have been observed infrequently during surveys and are expected to be highly uncommon in the BAoI. Temminck's red colobus (*Piliocolobus Badius ssp. Temminckii*) is listed as Endangered by the IUCN and is precautionarily assumed present in the BAoI based on reports from local hunters most recently in 2012 but is expected to be rare, if present.

Habitat for threatened forest mammals in the BAoI are defined as relic forest and mangrove. Many of these habitats have been degraded from human-use and are not expected to provide critical habitat for threatened forest mammals in the BAoI. Threatened forest mammals are considered to have a moderate sensitivity to changes due to Project impacts. If Temminck's red colobus occurs in the BAoI, it is expected to have a lower tolerance to Project impacts due to its higher threat status.

Proposed Project activities have the potential to reduce the amount and quality of habitat for threatened forest mammals, expose individuals to sensory disturbances (e.g., ambient noise, light, dust deposition), and cause mortality (e.g., collision with Project vehicles, induced hunter harvest, potential disease transmission). The Project will directly remove 9.2 ha (0.6%) of habitat for threatened forest mammals during construction.

The most important residual impacts to threatened forest mammals are expected from habitat loss and induced mortality risks from hunter harvest. The magnitude of effects is categorized as moderate for Endangered Forest mammals that may occur in the BAoI (Temminck’s Red Colobus). However, magnitude of effects for the remaining species are categorized as small (habitat loss, degradation, and fragmentation) to moderate (induced mortality). Uncertainty is mostly attributed to the level of population influx and how population change will affect hunting pressure and habitat degradation in the BAoI. The residual impact significance is assigned as minor for most species but moderate for the Endangered Temminck’s Red Colobus.

Aquatic Mammals

Aquatic mammals include the West African Manatee (*Trichechus Senegalensis*) which is listed as Vulnerable by the IUCN. Manatees are found in coastal marine waters, brackish estuaries, and adjacent rivers. Habitat for manatees in the BAoI was mapped as water-estuary and adjacent mangrove habitat.

Manatees have been confirmed present in the BAoI during both the rainy season and dry season. They appear to occupy the Morebaya estuary and connected watercourses only in the rainy season and have been frequently observed feeding in mangrove channels connected to the Morebaya River. Aquatic mammals have limited ability to absorb changes due to the Project and are considered moderately sensitive to Project impacts.

Proposed project activities have the potential to affect population abundance and distribution of aquatic mammals in the BAoI from habitat loss, degradation of habitats, sensory disturbances (e.g., underwater noise and vibrations), and increased mortality risk from collision or entanglement with Project vessels/equipment, hunting and bi-catch. The Project will directly remove 20.1 ha of potential manatee habitat. Potential impacts could combine with similar adverse effects associated with the construction and operation of the adjacent WCS port facilities to create a larger adverse cumulative effect.

The most important residual impacts to aquatic mammals are habitat degradation and increased mortality risks (bycatch, hunting pressure) associated with population influx. The magnitude of effects is categorized as moderate with key uncertainty attributed to the level of habitat loss, degradation, and mortalities that may occur due to population influx. Residual impact significance was assigned as moderate.

BIRDS

Hooded Vulture

This receptor includes the Hooded Vulture (*Necrosyrtes monachus*), which is a bird of prey listed as Critically Endangered on the IUCN Red List. It is associated with human settlements, open grassland, forest edge, wooded savanna, desert, and coastal ecosystems. Hooded vulture is an arboreal nester with a preference for nesting in *Ceiba pentandra* trees, which occur in the BAoI. It has the potential to occur in any ecosystem within the BAoI and was observed in flight over mangrove habitat in the BAoI. It was assumed that most habitat types in the BAoI could be used by hooded vulture, including community woodland, flooded grassland, mangrove, mudflat, palm plantation, rice fields, granite inselbergs, salt pan, sandy habitat, savanna, and young fallow.

Although the species is listed as Critically Endangered, its association with human modified landscapes suggests it is somewhat adaptable to disturbance. Threatened birds of prey are considered to have moderate sensitivity to potential Project impacts.

The Project will directly remove 114.7 ha of potential Hooded Vulture habitat in the BAoI, mostly corresponding to rice fields (28.6 ha), young fallow (27.6 ha), and flooded grassland (25.3 ha). The most important residual impacts to threatened birds of prey are expected from a low potential to increase mortality risk. The magnitude of effects is moderate, because the hooded vulture is Critically Endangered, thus mortality of individuals could affect the broader population. There is a high degree of uncertainty around the level of use and importance of the BAoI for Hooded Vulture, and whether there are any breeding sites within the BAoI. Residual impact significance is assigned as moderate. Follow-up actions are required to address the uncertainty in prediction confidence, and to minimize the risk of hooded vulture mortality.

Threatened Forest Species

Threatened forest birds include the Timneh Parrot (*Psittacus timneh*) and the Yellow-Casqued Hornbill (*Ceratogymna elata*), which are bird species globally listed as Endangered and Vulnerable, respectively. Potential habitat in the BAoI was defined as relic forest, mangrove, savanna – treed, and community woodland. Their presence in the BAoI is uncertain. Both species are threatened by habitat loss, as well as trapping for the wild bird trade (Timneh Parrot) and hunter harvest (Yellow-Casqued Hornbill). Threatened forest birds have limited ability to absorb change and were considered moderately sensitivity to Project impacts.

Proposed Project activities have the potential to reduce the amount and quality of habitat for threatened forest bird habitat in the BAoI, fragment habitats, expose individuals to sensory disturbance, and cause mortality. The Project will directly remove 22.3 ha of potential threatened forest bird habitat in the BAoI.

There is high degree of uncertainty in the level of use, importance, and presence of breeding sites in the BAoI for threatened forest birds. Residual impact significance is assigned as moderate. Follow-up actions are required to address uncertainty in assessment conclusions.

AQUATIC REPTILES

Aquatic reptiles include three species of threatened crocodiles, two of which have been confirmed in the BAoI and are considered Vulnerable: the African Dwarf Crocodile (*Osteolaemus sp. nov.* cf. *tetraspis)* and the West African Crocodile (*Crocodylus suchus*). The third species is the West African Slender-snouted Crocodile (*Mecistops cataphractus*), which is Critically Endangered. This species appears unlikely to occur in the BAoI because it has not been detected during surveys. Potential habitat for threatened crocodiles in the BAoI was defined as all water-estuarine habitats, as well as natural habitats located adjacent to water up to 200 m.

Proposed Project activities have the potential to reduce the amount of habitat for threatened crocodile in the BAoI, degrade and fragment habitats, expose individuals to sensory disturbance (e.g., noises, light, human presence), and increase mortality risk. The Project will directly remove 36.6 ha of potential habitat for threatened crocodiles in the BAoI. Land clearing could remove or trample crocodile eggs and nest sites, which has the potential to affect reproduction and the broader populations, especially for the Endangered Slender-Snouted Crocodile. Population influx is expected to raise mortality risks due to greater harvest pressures and human-crocodile conflicts.

The most important residual impacts to threatened crocodiles is increased mortality risks associated with population influx (conflict, hunting pressure). The magnitude of effects is categorized as moderate with key uncertainty attributed to the level population influx and its and effects on threatened crocodiles. Significance of residual impacts were assigned as moderate for most species but would be major if the Endangered Slender-Snouted Crocodile is present.

FISH

The estuarine habitats of the Morebaya River provide key ecological function for threatened species of fish. One Vulnerable species of fish, Daisy Whipray (*Dasyatis margarita*), was confirmed present in the BAoI. Four additional Endangered and Critically Endangered species have the potential to occur in the Morebaya River estuary, but their presence in the BAoI is currently unconfirmed, including the critically endangered Thorny Whipray (*Fontitrygon ukpam*), Largetooth Sawfish (*Pristis pristis*) and Blackchin Guitarfish (*Rhinobatos cemiculus*), and the endangered *Chrysichthys levequei*. None of these species are range-restricted, except *Chrysichthys levequei* which is currently only known from the Konkoure watershed north of the BAoI.

Proposed Project activities have the potential to reduce the amount and quality of fish habitat, introduce sensory disturbance during construction of the wharf, and increased mortality risk. The Project will directly remove 21 ha of potential habitat for fish in the BAoI. Mortality of fish are expected to increase from targeted harvest by artisanal and industrial fishing activity and from capture as bi-catch because of Project-induced in-migration. These impacts may incrementally contribute to the impacts already occurring in the BAoI due to the construction of the WCS port.

The most important residual impacts to fish are expected from increased harvest pressure associated with population influx, which could have detrimental effects on the broader populations of endangered or critically endangered species if they are present in the BAoI. There is high certainty that harvest pressure will increase but low certainty in how and which species will be most adversely affected. Significance of residual impacts was assigned as moderate for non-threatened fish species but major for endangered and critically endangered species, if present.

ECOSYSTEM SERVICES

Ecosystem services in the BAoI provide important services to local populations, including provisioning, regulating, cultural, and supporting services. Ecosystem services were to identify Priority Ecosystem Services (PES) in compliance with IFC's PS6. Four ecosystem services were assessed as PES: fishing and fishery resources (rivers and affluents), water resources, water regulation and erosion control, and sacred components. As PES, these receptors are considered to have high sensitivity to changes from the Project.

Project impacts on fishing and fisheries resources (rivers and affluents) water resources, and sacred components were evaluated in other sections of the ESIA (Sections 9.2.5, 9.2.6, 9.3.12, 9.4.6) and therefore not repeated under the ecosystem services receptor.

Water regulation and erosion control services are provided by mangrove habitats covering 1,494 ha (12.4%) of the BAoI. Project related activities are expected to remove 9.2 ha of mangrove causing a loss and fragmentation of habitat, reducing its capacity to regulate water and control erosion. Though 7.6 ha are associated with temporary disturbances during

construction and may be rehabilitated, there will be a time lag to before the return of habitat and their quality is uncertain. Additionally, mangrove degradation could result from a combination of impact factors, including changes to groundwater, surface water, sediments, air quality as well as population influx and the potential for introduction and spread of invasive species. This may result in a limited capacity for mangroves to prevent flood and coastal erosion. The residual impacts on water regulation and erosion control during both the construction and operation phases are expected to be of moderate significance.

SOCIAL

LAND USE AND MANAGEMENT

Subsistence agriculture is predominant in the Project's SAoI and notably in the Project's footprint.

The port extension right-of way covers an area of about 1.36 km^2. Land acquisition of this area will be required for project purposes. The main economic activities of the communities in the Project's SAoI are based on land and natural resource use. Rice-growing and vegetable gardening is the main source of livelihood and revenues for local families. While both men and women are involved in rice production, vegetable gardening is conducted by women exclusively. However, men usually own the land, including the parcels on which women grow vegetables.

The land acquisition by the Project will result in losses for the persons and/or communities who own the agricultural land and other land-based assets. The preliminary results of the census indicate that about 150 people own these agricultural parcels, these parcels, small shelters, and fruit trees. The acquisition will permanently deprive these landowners and their families of these assets.

The potentially affected people have limited ability to adapt to their eventual loss of assets and resettlement. The level of sensitivity to change for land use management is considered moderate.

The impacts on land use and management are mainly associated with the construction activities and will be localised due to the relatively small size of the land that will be acquired for the port expansion. However, effects will be felt directly by those who own the agricultural land and other land-based assets in this area, by their families and communities. Once land acquisition is completed during the construction phase, no further land acquisition is planned during the operation phase and no potential impacts are anticipated during this phase.

The main proposed mitigation measures include developing a PARC consistent with IFC Performance Standard 5 - Land Acquisition and Involuntary Resettlement, as already committed by the Project proponent, as well as implementing the PARC to resettle and/or compensate the affected persons before the construction work starts to improve, or restore, their livelihoods and standards of living. Considering these proposed mitigation measures, residual impact magnitude and significance for land use and management would respectively be small and minor at construction phase.

The main follow-up requirement is to fully implement the PARC, such that the affected persons have been provided suitable agricultural lands within a reasonable walking distance and/or other compensations to improve, or restore, their land-based livelihood.

POPULATION AND SOCIAL ORGANIZATION

The project's SAoI covers three sub-prefectures: Maférinyah, Kaback and Kakossa, all part of the Forécariah prefecture located in the Kindia region.

The coastal area of the prefecture of Forécariah is one of the most populated in Guinea, with an average population density of about 260 inhabitants / km². This density is high compared to other areas in Guinea. There is no significant in-migration in the area, and the Soussous constitute 83.6% of households. Other ethnic groups are well integrated and assimilated by the Soussou population.

Rural district is made of three villages: Bamboukhoun, Senguelen centre, and Touguiryiré. The total population of the Senguelen district is 1600 inhabitants (394 households) distributed as following: Bamboukhoun: 594 inhabitants (90 households); Senguelen centre: 1478 inhabitants (224 households); Touguiryiré: 528 inhabitants (80 households).

A direct impact is anticipated for the local population in relation to all project activities that will result in an influx of population into the project area.

Project activities will require direct employment of workers who will be housed in a temporary camp located near the Morebaya River, south of the existing WCS port area in the Senguelen district. A total of 3,200 workers are expected to be employed during the construction phase and housed in the temporary camp. These workers are expected to include non-local Guinean nationals and foreigners. It is also expected that most of the workers will be male, as is usually the case for construction work.

Due to the proximity of the Project to Conakry, where unemployment is high, there could be numerous economic opportunities seekers attracted by the construction site. It is expected that most of these job and business opportunities seekers will be young unemployed males, and that they will tend to locate as close as possible to the construction site. Both the non-local labour and the job and business opportunities seekers will entail a population influx in the Forécariah prefecture, more specifically in the Senguelen district. Due to the small size of the district's rural population, the population influx of 3,200 project workers along with job and business opportunities seekers could be overwhelming for the local villagers.

Interactions between the small local rural population and the numerous non-local newcomers could potentially be conflictual. Interactions with the Project workers housed at the temporary worker camp could be conflictual if these workers are disrespectful of local customs. While the economic opportunities seekers could also be disrespectful, their arrival could be even more disruptive than the Project workers. The economic opportunities seekers will face housing challenges which could result in the development of slums in the area.

The population influx, mostly male, will also change the men / women ratio in the prefecture of Forécariah, more specifically in the Senguelen district. The presence of 3,200 mostly male workers in the district, along with the arrival of numerous male job and business opportunities

seekers, will be an important addition of male population in a district counting less than 800 men.

The increase in the men/women ratio will also generate an imbalance that can have social consequences. In the SAoI, single adult women are very rare. Girls marry at a very young age, with many marrying at ages as young as 13 or 14. Relationships outside of marriage are subject to severe repression. Polygamy is common. The change in men/women ratio with the arrival of single men or men without their families could lead for instance to marital problems in local households, pregnancies out of wedlock, girls marrying at an even younger age, etc.

Incidentally, the influx of population can also lead to an increase in transmitted diseases including sexually transmitted diseases. Based on similar projects, the presence of non-local workers, most of them male, in an area counting vulnerable groups could lead to an increase in prostitution and of sexually transmitted diseases.

While not related to the presence of workers, the Project activities could also lead to an increase in malaria cases. The site preparation and the construction of site infrastructure could be the source for stagnant water ponds on the construction site. Such ponds are a vector for many parasites including malaria parasites.

In addition to a potential increase of transmissible diseases and malaria cases, the local communities' health and safety could be impacted by an increase in road traffic.

It should be noted that population influx will have potential effects on fishing and hunting resources which could decrease the availability of these resources for local population.

Ultimately, the villagers could feel a sense of exclusion from the Project's benefits while suffering from its negative impacts. The Project activities will entail job and business opportunities along with revenues at a national level. While these benefits might be relatively important for Guinea, they might not flow to the local communities hosting the Project.

The number of workers required for operation will be lower than for construction: 1,300 workers will be required during operation instead of 3,200 during construction. Therefore, any potential impacts related to population influx, men / women ratio, transmissible disease, road traffic accidents, work accidents along with conflicts between villagers and workers are likely to be less important during the operation phase than during the construction phase.

The main proposed mitigation measures include developing and implementing a general code of conduct for all Project workers, especially those at the temporary worker camp, and for subcontractors to achieve respectful behaviour of local customs and avoid inappropriate interactions with local population; developing and including in employment and subcontracting contracts specific clauses of the code of conduct for workers stipulating zero tolerance towards employees who are guilty of verbal, physical or sexual abuse of local people, notably women; prohibiting any hiring at the Project site to discourage population influx of job seekers; prohibiting any hunting and fishing in the prefecture of Forécariah by the Project workers lodging at the workers camp to prevent Project related pressure on fishery and hunting resources; implementing the Project Induced In-Migration Plan to mitigate the impacts of uncontrolled in-migration in the prefecture of Forécariah; implementing the Community Health and Safety Management Plan to reduce risks of transmitted diseases in local communities;

implementing the Community Safety and Security Management Plan to reduce risks of road accidents in local communities; implementing the Community Safety and Security Management Plan to prevent road transportation accidents from the Project vehicles; implementing the Occupational Health and Safety Management Plan for workers in relation with specific project activities and machinery, along with transmitted diseases; implementing the Local Content Plan for Port work to favour recruitment of local community members, notably youth, when their profile meets the job requirements

Other mitigation measures include developing and implementing a social investments program to enhance project benefits for affected local communities. implementing a Grievance Mechanism easily accessible to local communities' members, especially women, that includes monitoring of claims and the resolution thereof; ensuring continuous stakeholder engagement throughout the Project in consistency with the Project Stakeholder Engagement Plan; engaging, as needed, in an in-going dialogue with authorities and/or a community council of formally nominated representatives to review local communities' concerns and grievances related to the Project.

Considering these proposed mitigation measures, residual impact magnitude and significance would be respectively moderate during construction and small and minor during operation.

ECONOMIC ACTIVITIES AND LIVELIHOODS

The main economic activities of the communities in the Project's SAoI are based on land and natural resource use. A total of 87% of economic activities concern mainly the primary sector, and three stand out: rice-growing, carried out in all SAoI villages; vegetable gardening, practiced by women in 97% of villages; and fishing, conducted in 74% of villages. Outside the fishing villages, rice-growing predominates, employing 44.3% of farmers and 21.2% of the workforce. The majority of the population depends on rice as a main source of staple food.

Unlike rice-growing, the vast majority of vegetable growing production is destined for the market. As a result, women who practise market gardening have the opportunity to generate significant sources of income.

With the exception of the fishing villages, the area around the villages is also a production area where villagers cultivate fruit trees, food crops and ornamental plants. More than 40 species have been identified, including 18 species of fruit trees.

11% of farmers own small livestock or poultry. This secondary activity corresponds to small family farms where the animals are used for self-consumption and sacrifice during rituals and ceremonies. Hunting and gathering are supplementary activities but relatively underdeveloped. Salt farming is practised by 10.6% of working people.

The traditional small-scale family self-consumption fishing is practiced either in the Morebaya estuary, or in the immediate vicinity of the coast, whose banks are home to mangrove swamps. Fishermen use small monoxyle sail-powered pirogue and nets.

The traditional sea fishery, practiced by men, includes inshore fishing with nets as well as offshore fishing with sailing or motorized pirogues. Fish stocks are traded by fishermen or commercial companies. Trading is very well developed in the area of influence. Important traders sell fresh and smoked fish stocks, vegetables, palm oil, etc. originating from the project's area of influence. An increase in cash income is therefore directly linked to the development of trade.

A direct impact is anticipated for economic activities and livelihood in relation with several Project activities. The Project activities will require the direct hiring of workers. It is expected that 3,200 workers will be hired. Some of the workers will come from abroad but it is expected that many workers will be National.

The Project activities will also entail business opportunities. Some of these opportunities will likely be for foreign companies if some of the equipment or services required is not available in-country. However, it is reasonable to assume that some Guinean companies can provide the services required for the construction work along with associated services, for instance catering for the temporary work camp. It is expected that these Guinean companies will mostly originate from Conakry unless formal construction work companies or formal service providers are available in the prefecture of Forécariah.

The Project activities will provide employment and business opportunities. This will be a beneficial impact; it will result in a positive effect on the country's national economy. In parallel to this beneficial impact on the national economy, one of the Project activities will have indirect negative impacts on the local economy. Precisely, land acquisition will result in agricultural land losses. It will also result in the loss of other land-based assets including small shelters on agricultural parcels and fruit trees.

The losses of agricultural land will entail the loss of agricultural revenues and/or source of livelihood for the people losing their land. Loss of revenues from vegetable gardening will specifically affect women. As previously mentioned, vegetable gardening is exclusively conducted by women. While households eat part of the vegetables that are grown, women sell most of the vegetables production. Additionally, the loss of fruit trees will entail the loss of revenues and/or source of livelihood for the people losing the trees. According to the preliminary results of the census, about 150 people and their families will be affected by this loss of revenues and/or source of livelihood. Since no land acquisition is required after the construction phase, no loss of agricultural revenues nor loss of other land-based revenues are anticipated during the operation phase.

The main proposed mitigation measures include developing a PARC consistent with IFC Performance Standard 5 - Land Acquisition and Involuntary Resettlement, as already committed by the Project proponent; implementing the PARC to resettle and/or compensate the affected persons before the construction work starts to improve, or restore, their livelihoods and standards of living; monitoring price trends and the availability of basic products in the prefecture of Forécariah.

Considering these proposed mitigation measures, residual impact magnitude and significance for economic activities and livelihoods would respectively be small and minor at both construction and operation phase.

SOCIAL INFRASTRUCTURE AND PUBLIC SERVICES

Based on the cumulated information of WCS 2022 in the SAoI there are only seven health facilities: four health posts, two health centres and one private clinic. A private clinic is located in Senguelen, less than 5 km from the planned temporary work camp. These health facilities have limited equipment and resources, which affects the quality of healthcare services that they provide. In total, the inhabitants of the Project's SAoI have theoretically one doctor for every 28,000 inhabitants, one qualified nurse for every 2,800 inhabitants, one health worker (technical and community worker) for every 1,550 inhabitants, and one midwife or matron for every 715 women of reproductive age. These numbers are lower than the WHO standard. Malaria is the most common disease in the SAoI, with a prevalence of 528/‰, followed by digestive and respiratory diseases. Sexually transmitted diseases and deficiency diseases occur in small numbers.

Senguelen is connected to Maférinyah with a newly renovated road. Apart from this road, villages are interconnected mainly by dirt roads which are in very poor condition and often inaccessible during the rainy season. People commute mainly by walking or, more rarely, by motorbike or bicycle. On average, there is one water point for every 225 inhabitants. The quality of the water is generally poor, and unsafe for consumption according to WHO standards, particularly the water collected from traditional wells.

The social infrastructures and public services in the Project's SAoI are deficient, notably the schools, the healthcare services, the law enforcement services, the roads, the water access, sanitation, waste, etc. They have a limited ability to absorb any additional demand that may come with the Project notably the project workers. The level of sensitivity to change for social infrastructures and public services is considered moderate.

A direct impact associated with the construction and operation activities is anticipated on health facilities in relation with the presence of workers and job and opportunities seekers. These people might seek health services at the local health facilities. The Project activities could also lead to an increase in malaria cases, transmissible diseases, and road accidents. A rise of malaria, transmitted diseases cases, and road accidents would increase the demand on existing health facilities. This would add a pressure on the local health resources already stretched, affecting the quality of health care services.

The main proposed mitigation measures include providing high quality medical services for the Project workers on site such that they have no need to use the community health facilities; informing the Project workers that for any health issue, they should use the Project provided medical services, not the community health facilities.

In addition to these two measures, the measures listed above under the heading "Population and Social Organisation" would also reduce the likelihood of indirect impacts on healthcare facilities.

Considering these proposed mitigation measures, residual impact magnitude and significance for social infrastructures and public services would respectively be small and minor at both construction and operation phase.

WOMEN AND VULNERABLE GROUPS

Women living in the SAoI, particularly in fishing communities, are more economically empowered relative to women in other rural areas of Guinea. Their role in fish trading allows women in fishing villages to take a more participatory role in the monetary economy than their counterparts in agricultural villages and has helped give them a level of economic independence. However, there are several factors that clearly demonstrate the vulnerable status of women such as: traditionally women do not inherit or own land although the national Guinean legislation promotes equality and allows for land ownership by women. Women are entitled to hold land only on a usufruct basis, which authorizes them to work family-owned land and draw a wage. Women often play a limited role in decision-making at household, community and national levels. Although sometimes participating in village councils and other traditional forums, women's position and power in village affairs and decision-making is still generally limited. Women generally have low levels of social development when measured in terms of literacy, educational attainment, or general health conditions. The HIV/AIDS rate is higher amongst women than men. In Guinea, 17% of rural households are headed by women, of which nearly 55% are living below the poverty line. Access to education is highly unequal, with only 44% of children attending school being girls in the SAoI. The primary school completion rate for girls is also significantly lower (45.7%) compared to boys (62.7%). Additionally, the proportion of women with access to secondary education is notably low (5.4%) compared to men (24%). Gender-based disparities in education can limit opportunities for women and contribute to early marriages and motherhood.

The elderly are also recognised as being vulnerable access to modern healthcare for this group of population being an important factor in terms of their vulnerability. The customary right to land is also a vulnerability factor for ethnic minority groups, who often have much less access to land or mutual aid structures.

The notion of "youth" in Guinea encompasses not only age but also social status and autonomy. A young person's social status and independence are closely tied to specific milestones, such as reaching adulthood (around 20-25 years), inheriting land, and marriage. Until these milestones are achieved, young individuals typically remain dependent on their parents. The period between the end of childhood and the ability to set up their own households can be characterized by personal and social instability. During this phase, young individuals may lack access to resources and face uncertainties about their future.

Engaging in economic activities during this transitional period can be challenging. The primary option for many young people may be rice-growing, which may not provide sufficient income or opportunities for economic independence.

The arrival of 3,200 Project workers, mostly male, in the Senguelen district currently counting about 800 women will change the current men / women ratio in the area. Men could account

for up to 83% of the district's population while the proportion of women could decrease to 17%. The arrival of job and business opportunities seekers, it not mitigated, would further increase the proportion of men in the district. The rise in the men/women ratio will generate an imbalance that can have social consequences, mostly for women and girls: inappropriate behaviour of workers (and job and business opportunities seekers) towards women and girls, marital problems in local households including domestic violence, teenage pregnancies, girls being forced into marriage, and increase in gender-based violence.

In addition, a direct impact is anticipated for women and vulnerable groups in relation to the loss of agricultural revenues and other land-based revenues in the Project footprint. The loss of livelihoods and independent sources of income for women can push women into situations of greater poverty, vulnerability, and financial dependence. Ultimately, this could lead to some women leaving the area or taking low-wage, menial, and insecure jobs, or even prostitution, to survive.

In addition to this impact, a direct impact of the Project activities on women and vulnerable groups is also anticipated in relation to potential tensions arising from cultural differences and the presence of workers or job seekers in the Project Area. Interactions between incoming workers and women have the potential to increase the incidence of communicable diseases, raise tensions and increase the prevalence of gender-based violence. This is a particular risk in relation to communities located close to worker camps where the potential for interaction is highest.

The young (youth) are increasingly likely to temporarily or permanently drop-out of school in search of opportunities where they can generate additional income for themselves and/or their families. Among youth, girls are more exposed to sex harassment and gender-based violence. With the presence of the Project workers, these young people are at risk of prostitution, teenage and/or unwanted pregnancies, higher morbidity because of both STD's and abortion, and stigma.

Although the required workforce during the operational phase will be less important than during construction, some gender-based violence, STDs, and sexual exploitation may be experienced during this phase, due to the presence of Project workers. During this period, women and children within the Project area will still be vulnerable to gender-based violence, STDs and sexual exploitation.

The main proposed mitigation measures include developing a PARC consistent with IFC Performance Standard 5 - Land Acquisition and Involuntary Resettlement, as already committed by the Project proponent; ensuring that land for land compensation is prioritized to compensate land losses, and that cash compensations are excluded unless fully justified; ensuring that the PARC fully covers gender aspects and the needs of vulnerable groups of communities; implementing the PARC to resettle and/or compensate the affected persons before the construction work starts to improve, or restore, their livelihoods and standards of living; implementing the Grievance Mechanism easily accessible to local communities' members, especially women, that includes monitoring of claims and the resolution thereof; including in the Grievance Mechanism an effective sexual harassment complaints procedure considering details of the way in which a Sexual Exploitation, Abuse and sexual Harassment

(SEAH) and Gender-Based Violence (GBV) will be handled seriously and in an impartial and confidential way.

In addition, the proposed mitigation measures include developing and including in employment and subcontracting contracts a code of conduct for workers stipulating zero tolerance towards employees who are guilty of verbal, physical or sexual abuse of local people, notably women; developing and implementing gender sensitivity training for the Project personnel and gender sensitive guidelines to support the equitable representation of women in stakeholder meetings and other key Project-related decision-making processes; working in partnership with relevant organisations where available and appropriate (e.g., donors, civil society and NGOs) to strengthen positive gender relationships within communities through programmes supporting Project and community-identified needs (e.g., women's leadership programmes, gender violence prevention programmes).

Considering these proposed mitigation measures, residual impact magnitude and significance for social infrastructures and public services would respectively be small and minor at both construction and operation phase.

CULTURAL HERITAGE

Archaeological Cultural Heritage (ACH)

The archaeological resources identified in the SAoI are a valued component representing the historic settlement of the region, which is presently predominately unresearched and, as yet, unpublished. The recorded archaeological artefacts, including pottery and glass fragments, are representative of historic human settlement of the region and are a physical representative of human habitation.

The concentrations of surface artefacts, despite being in poor condition, are suggestive of larger settlements and likely indicate that more substantial, sub-surface remains are present. In particular, the ancient village site of Ta Fori likely represents a multi-phase occupation, and there is a potential that more substantial remains, such as structural evidence (e.g., houses) or domestic occupational evidence (e.g., subsistence, trading, ritual) either exist or did exist prior to the recent disturbance.

During the Construction phase, Project activities include the development of both temporary infrastructure (Simfer employee camp, access roads, etc.) and permanent infrastructure (ore stockyard, rail loop, conveyors, stacker/reclaimers, expansion to existing facilities, development of the TSV wharf etc.) on the east bank of the Morebaya River. Initial land clearance activities, including vegetation / scrub clearance, grading and the removal of any existing infrastructure, will result in a permanent alteration of the existing land surface. Furthermore, the introduction of heavy machinery and associated excavations for building, service installations and piled foundations could result in discrete subsurface excavations. The transportation of heavy machinery (e.g., cranes, drilling rigs, loaders, excavators, rollers and dump trucks etc.) could result in ground surface modification in the form of ground compaction or vibration.

No additional Operation phase impacts are predicted to occur upon ACH resources. It is anticipated that impacts on these resources will only occur during the direct, ground intrusive

activities associated with the Construction phase of the Project by proportionately offsetting the direct, negative impact of construction phase activities.

The main proposed construction phase mitigation measures applicable to ACH include the implementation of the Cultural Heritage Management Plan (CHMP) specific to the proposed Project, which will include a Chance Finds Procedure (CFP) for previously unidentified ACH as well as a Cultural heritage awareness training programme – to include applicable staff and contractor training regarding the requirements of the CHMP (and CFP).

Considering these proposed mitigation measures, residual impact magnitude and significance for the ACH would respectively be small and minor at construction phase.

Living Cultural Heritage (LCH)

A total of 179 LCH receptors have been identified within the wider SAoI, including cemeteries, places of Islamic worship, dedicated prayer spaces (salikènè), and sacred sites that are the location of specific cultural initiation ceremonies and genie residences.

Construction phase activities that result in either the temporary or permanent alteration of the existing land surface and/or wider environmental conditions, as well as those which compromise accessibility (e.g. access routes, moveability), or instigate a change to the dynamics of local populations (e.g. population influx), all have the potential to indirectly affect LCH sites within the SAoI. This impact could be defined through either a change in the existing land surface, a change in the environmental conditions of a site, a change in the accessibility or useability of a site, and/or whole or partial loss of the site's material and cultural value.

Regular operational activities in the vicinity of the Port, such as use of machinery (e.g., conveyors, wharf loading and off-loading) and the transportation of people and goods (by road, rail, and ships) have the potential to indirectly alter the wider landscape and environmental setting, through increased noise, dust and vibration etc., prior to any mitigation. As local access is limited for health and safety reasons, the normal access routes to cultural sites may continue to be restricted.

During the operation phase of the Project, the 179 previously identified LCH resources may potentially be impacted (i.e., the same receptors discussed in the construction phase impacts section above). These constitute indirect impacts through the potential loss of safe local access and alterations to the wider environmental setting of sites (particularly through noise, dust, and water fluctuations).

The main proposed construction phase mitigation measures applicable to LCH include the implementation of the CHMP including Cultural Heritage Awareness training, LCH avoidance scheme and associated constraints (sensitivity) mapping, ongoing consultation and engagement programme (with local communities) regarding measures to move individual resources where applicable, site specific mitigation and management measures (applicable to individual sites, prepared in consultation with site guardians and stakeholders).

Considering these proposed mitigation measures, residual impact magnitude and significance for the LCH would respectively be small and minor at both construction and operation phase.

Intangible Cultural Heritage (ICH)

Five types of Intangible Cultural Heritage (ICH) were identified as being applicable to the vicinity of the port Project namely: tribal affiliation and ethnicity (kinship); religion and traditional belief (witchcraft / animism / taboo / ancestor worship); legend and oral tradition; traditional medicine; agriculture and cultivation (crops / ancestors / fishing).

Although several common themes reoccur throughout the SAoI, such as sacrificial practices and village foundation myths, much of the identified ICH is unique and tied to the village settings, foundation myths and oral histories in relation to ancestors.

Construction activity is predicted to instigate demographic change through the provision of improved employment (e.g., improved income, education, healthcare). In-migration / influx is anticipated to be greater during construction than operation. The combination of these factors could result in changes to usual cultural behaviours and intangible heritage practice over the operation phase. It is probable that the opportunities provided by the Project may continue to drive a wage-based, cash economy and a shift away from a traditional subsistence-based economy, in the villages more local to the Project in particular.

During construction, the combined impacts of influx plus resultant pressures on cultural resources is likely to be felt most intensely by those village communities in relatively close proximity to the Project and more likely to experience a combination of vibration, noise, dust and visual effects due to construction activities.

The main proposed construction phase mitigation measure applicable to ICH is the implementation of a Cultural Heritage Management Plan (CHMP), including a Cultural Heritage awareness programme; LCH avoidance plans / site specific mitigation; Ongoing consultation programme; Grievance Mechanism; Resettlement and Compensation Action Plan (PARC).

Considering these proposed mitigation measures, residual impact magnitude and significance for the ICH would respectively be moderate and minor during construction and small and minor during operation phase.

LANDSCAPE AND VIEWS

The landscape is mainly composed of topography, geology, hydrology, vegetation and human activities which contribute to the character of the visual environment. The Project takes place in a predominantly flat coastal land used for agriculture (rice fields and oil palm plantation further inland). The sinuous course of the Morebaya River broadens to form the estuary at the coast. Mangroves line the banks of different watercourses. The random pattern of the numerous rice fields is relatively strong and has a dominant land cover. Mangroves and rice culture cover more than 50% of the area. The port is more specifically located in an area of marshy meadows with some mangroves. Villages are located close to the project: Touguiyiré, just south of the port location and Senguelen, Bamboukhoun, Soungaya and Madinagbé along a main road. Smaller hamlets are scattered throughout the area.

During construction, landscape and visual impacts will occur due to the use of construction machinery, construction works, transportation on the public road, using heavy vehicles and truck. This entails increased road traffic and dust dispersion near dwellings. The inhabited

landscape character and visual amenity can be impacted by the additional transportation activities on the public road.

Impact factors anticipated for the landscape and views during the operation phase are the same as for the construction phase (loss of landscape character and visual amenity). Transportation activities on the main road will impact landscape and views in the same small extents as in the construction phase and affect the inhabited landscape character and visual amenity. Stockpiles and associated equipment will be present, and maintenance of infrastructure and equipment will be performed - all with negligible effects on landscape and views.

The key mitigation measure proposed includes managing the landscape through the Land Disturbance and Rehabilitation (LD&R), which will be updated and refined prior to construction of the Project. Specifically, in consistency with the Project's LD&R, the following proposed mitigation measures to limit the Project impact on landscape and views during construction and operation include: keep the area of vegetation cleared during construction to the minimum area necessary for the works; prevent encroachment into areas outside designated work areas to avoid damage to landscape resources; minimise visual intrusion by sensitive design of structures, including choice of colour schemes to key buildings; use low level bollard lighting on roads and conveyors where possible; use fencing, earthworks, and screen planting (trees and shrubs) to reduce visual intrusion at nearby settlements; design waste emplacements as a safe and stable landform and considering the surrounding landscape; maintain construction work areas in a clean and tidy condition by good housekeeping; rehabilitate areas used only temporarily during construction as soon as possible after completion of the works; truck transport on the main road and related dust dispersion will be managed to limit their visual intrusion in sensitive inhabited areas; keep the lighting of construction and operational sites to the minimum necessary for safety and security and minimise light spill outside of the immediate works area, and particularly into the night sky; the design will employ lighting only where it is required for safety or operational reasons; the design will incorporate motion sensors and timers to control lighting in areas that do not need to be permanently illuminated; all area lighting, roadway lighting and wharf lighting should be mounted on masts or other elevated structures; where design of the infrastructure cannot prevent light spill, the design will provide specifications for erecting screens to shield villages and areas of high biodiversity value habitat such as the river, the shoreline, and mangrove channels.

Considering these proposed mitigation measures, residual impact magnitude and significance for landscape would respectively be small and moderate at both construction and operation phase.

CLIMATE CHANGE RESILIENCE

A Preliminary Climate Change Risk Assessment (PCCRA) has been conducted for the Project, as required by Equator Principles 4, to better understand the anticipated consequences of climate change on the people, the economy, and the environment associated with this Project. The general process followed for the PCCRA is based on the ISO 31000 Risk Management Standards which are used worldwide and are well recognized in the scientific community. The

PCCRA adopts a phased approach to establish the climate context, identify analysis and evaluate the Project's key climate and weather-related vulnerabilities and risk. Recommendations are made to develop any further control and adaptation measures that may reduce those risks.

The Project's level of exposure to the climate hazard (i.e., the likelihood of change) was determined based on historical weather data where available, a literature review of climate hazards, and an analysis of scenarios for projected future climates. Results of the analysis indicate that there is an increase in temperatures expected, as well as an increase in extreme rainfall events, a decrease in annual precipitation, an increase in drought, and an increase in coastal hazards (due to an increase in sea surface temperatures and sea level rise).

Potential impacts were identified for the Project and then mapped to climate hazards to determine initial risk to the Project. The following potential impacts were determined to have 'high' risk to the Project:

- soil movement resulting in reduced stability of structures
- overheating of components leading to increased risk of faults and fatigue of machinery and potential risk of fire
- changes in thermal conditions resulting in increased need for cooling for buildings and power plants and potential shutdown
- increased use and maintenance of cooling systems

For the 'high' risk potential impacts identified above, areas of improvement have been suggested in the form of structural measures, regular maintenance regimes and passive cooling techniques alongside severe weather and business continuity planning and relying on the existing climate risk team to manage climate-related impacts and training for workers. These control measures will be incorporated into the Environmental and Social Management Plan (ESMP) for the Project for a sufficient level of resilience. Risk assessment will be considered as an ongoing process and the vulnerability and risk assessments, and the control measures noted in this assessment, will be periodically revisited as new information becomes available.

CUMULATIVE IMPACTS

Cumulative effects will occur between the Project and several other foreseeable projects and activities that affect the same physical, biological and social aspects that the Project does. Other Projects in the same area include Simandou related development like the WCS Port, the development of the railway to the Simandou mine, the marine side development for the SIGSA port which will be subject of a separate assessment, the planned borrow pit sites near the port, and the planned water intake for the port. Other projects also include unrelated development such as an agro-industrial project northeast of the port and a new oil depot planned east of the port.

All of these projects will contribute to cumulative effects on air emissions and noise. The Project, in combination with the WCS Port in particular, will have increased noise and

emissions affecting settlements such as Senguelen, Bamboukhoun and Sounganyah. The additive effect of emissions from the power facility for both parts of the port will result in a substantial point source for greenhouse gases.

Topography, soils, vegetation, wildlife habitat, and physical cultural resources are all affected by cumulative footprint effects from all projects. In particular, the Project along with the WCS Port, the rail line, the planned borrow pits, and the oil depot are close together and represent a substantial footprint in the local area. This footprint will reduce the area of land available for housing and agriculture, as well as affecting vegetation and wildlife. Additive losses are anticipated for granite inselbergs, relic forests, mangroves, and estuarine habitats in the absence of effective biodiversity management and offsets.

Cumulative effects on surface water and groundwater flows and quality will occur as both the Project and the WCS Port pump down water to build and operate the train car dumpers, as runoff changes around the site with changes to land cover and water management, and as water is pumped from the Forécariah River for use by both WCS and SIGSA. Water effects may also occur around borrow pits and around new agricultural developments. Some of the natural regulating services such as water regulation and erosion control will be lost additively in the local area.

Social effects of the Project that will be further increased by the other projects in the area include population changes from in-migration; land use changes; economic and livelihood changes; effects on infrastructure; effects on vulnerable groups; effects on cultural heritage; and effects on views. The WCS and SIGSA ports will collectively require the direct hiring of workers, some of which will likely be housed at worker camps. Most of the workers will be male, especially during construction work. The port projects and other associated activities in the area will also attract job and business opportunities seekers from other areas of Guinea. It is expected that they will mostly be young males, and they will try to locate as close as possible to the project sites. This could result in a population influx of several thousand people, mostly men, in the area. All communities near the Project would be affected. The workers employed by the projects will constitute a population with relatively high revenues and purchasing power. Their needs can have the positive effect of developing existing business, of creating new demands for goods and services, and of creating indirect jobs. However, they will also change local ways of life, with negative effects potentially being felt by vulnerable groups. Local infrastructure will be strained and there will be added pressures on the local natural environment.

Impacts to population and social organisation are predicted to be synergistic and therefore additional mitigation and a more regional approach for this cumulative effect will be important. SIGSA is committed to working with other operators, local and regional authorities, communities and other relevant stakeholders to manage the adverse effects of cumulative population influx in vicinity of the Project AoI.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Through the ESIA, SIGSA has identified and committed itself to several environmental and social measures designed to mitigate adverse impacts maximise benefits.

These will be compiled in the Environmental and Social Management Plan (ESMP) presented in Chapter 12 of the ESIA. It is organised by topic and defines a clear statement of the actions that will be taken for each phase of the project (design, construction, operation, closure [3]), and for each component of the overall project (mine, rail, port). It also includes commitments to further studies to refine mitigation plans and to monitoring and contingency arrangements, should monitoring reveal that impacts are more significant than expected.

The ESMP will be delivered through the Project's Environmental and Social Management System (ESMS) that will operate under the overarching framework of Rio Tinto's Management System (MS) Standard and Communities and Social Performance (CSP) Standard. These standards reflect international good practice and are consistent with the requirements of ISO 14001:2015 [1].

NEXT STEPS

PHYSICAL FOLLOW-UP REQUIREMENTS

Key next steps for the physical receptors include:

Air quality:

- Installation of monitoring ports on exhaust stacks at a height and location that allows for accurate monitoring of air contaminants mentioned in Section 3.2 of E&S Design Criteria document I-SZ-0720-H-DCR-00001 for compliance with stated guideline values and emissions standards. Access ports will be accessible and of a sufficient size.

GHG Emissions:

- Monitoring of the implementation of the PAS 2080 framework and of the SIGSA Decarbonisation strategy.

Soils:

- The development and implementation of management plans for land clearing/disturbance and rehabilitation activities, and erosion and sediment control should be established prior to the initiation of Project construction.
- Additional surveys should be carried out to confirm the presence and delineate the distribution of acid sulphate soils within the area of construction.

[1] International Standardisation Organisation ISO 14001:2015; Environmental management systems standard. Requirements with guidance for use.

[3] Only the mine will be subject to closure. The rail and the port will be transferred to the Republic of Guinea for continuing operation after mining operations cease.

- A management plan should be developed and implemented for construction and operation in areas of acid sulphate soils.

Groundwater:

- Additional groundwater modelling of the dewatering the shallow aquifer zone in order to install the combined Rio Tinto and WCS train wagon tipper basements and conveyor corridors are currently underway and will better inform the placement of groundwater quality and level monitoring boreholes.
- Additional monitoring boreholes if recommended by these investigations will need to be installed and monitoring programme implemented that by regular review of quality and groundwater level data will convey a better understanding of the seasonal variability of the groundwater system as well as long-term negative impacts, attributable in part or entirely to the port construction and/or operation.

Surface Water and Sediment:

- A site climate station is to be installed to provide a continuous record of site precipitation and the collection of suitable data to estimate daily evaporation. This will allow the key climate variables driving rainfall runoff and pond levels to be monitored during the construction and operational stages of the port.
- Continuous flow monitoring is to be undertaken at critical points on the port water supply, water reticulation and effluent streams, along with monitoring of pond and storage tank levels. Combined with climate data this will allow for the calibration and optimisation of the site water use and water management.
- A water quality monitoring programme is to be undertaken during the construction and operational phases of the port. Water quality samples are to be taken from treated effluent streams to meet the quality parameters in the IFC EHS Guidelines for Mining and General Guidelines for sanitary wastewater at point of discharge. Water quality monitoring is also to be undertaken within the Morebaya River estuary and in freshwater bodies receiving runoff from the Project to record changes from baseline levels. In the event that any of the parameters exceed the guideline values, an inspection will be made to confirm the nature and cause of the problem, remedial measures will be put in place as required, and continued monitoring will be carried out to achieve effective remedial measures.
- Regular consultation will also be carried out with nearby communities to facilitate the early identification of any water quality problems and if necessary, additional monitoring will be carried out to confirm and remediate any problems that may arise.

Ambient noise:

- Implement monitoring of noise levels during construction in relation with key sensitive dwellings and communities
- Conduct noise monitoring of noise generating activities (car dumper and conveyors) during the operation phase.

Underwater noise:

- A monitoring program of marine mammals and reptiles should be undertaken during the construction phase of the port. This measure must prevent permanent physiological damage (for the species) and temporary (for the mammal species) by operational management of risk distances around pile driving activities.
- A monitoring of the underwater noise produced during the construction phase should also be implemented to validate the results of the simulations and the effectiveness of the mitigation measures. If necessary, mitigation measures and work processes can be adjusted to minimize noise.
- Given the lack of knowledge on the thresholds applicable to crocodiles, visual monitoring should also be carried out to observe a possible behavioural change during construction noisy activities.

BIODIVERSITY FOLLOW-UP REQUIREMENTS

SIGSA will develop a Biodiversity Action Plan (BAP) designed to achieve a net gain for critical habitat and no net loss of natural habitat in accordance with IFC PS6. The BAP will summarize all onsite and offsite measures to avoid, minimize and, where appropriate, progressively rehabilitate and offset residual impacts of the Project on priority biodiversity. The most important measures that Rio Tinto will implement as part of the BAP include:

- Outlining a strategy to achieve a net gain for receptors with critical habitat (granite inselbergs, relic forests, mangrove, and net gain for threatened and endemic flora). The BAP should reflect the feasibility of offset options to protect and improve the quality of existing critical habitat using measures like fire management, excluding grazing pressure, rehabilitating impacted mangrove sites (not associated with Project disturbance), and leading awareness campaigns on sustainable use and conservation of natural resources.
- Monitoring the extent and quality of critical habitats, as well as the presence and population abundance of threatened flora and fauna in the BAoI over the life of the Project. The intent of monitoring is to verify that the amount of critical habitat and abundance of threatened species have not declined in the BAoI, and update mitigation measures as needed.
- Developing and implementing management plans aimed at minimizing specific impacts to biodiversity, including:
    - Project Induced Migration Management Plan
    - invasive Species Management Plan
    - mangrove Management Plan
    - bushmeat Management Plan and the Bushmeat and Wildlife Trade Strategy with partners/stakeholders (*e.g.,* government agencies, communities).
    - non-Mineral Waste Management Plan (to minimise the risk of impacts from waste, including discharges, and will be established for the construction and operation of the port).

- Design and implement an information and awareness programme regarding sustainable harvesting, grazing, and conservation of natural resources in partnership with relevant organisations.

Because the BAP has not yet been developed and specific actions to achieve a net gain for receptors with critical habitat have not been defined, there is uncertainty about the extent to which SIGSA will be able to meet the requirements of IFC PS6. Should the BAP successfully result in a net gain for critical habitats (i.e., granite inselberg, threatened and endemic flora), and no net loss for natural habitats (i.e., estuarine habitats of the Morebaya), the predicted residual impacts on receptors that rely on these habitats (i.e., aquatic mammals) will be further reduced, relative to the predictions presented. Careful monitoring and adaptive management will be required to confirm a positive outcome for the Project.

SOCIAL FOLLOW-UP REQUIREMENTS

The key social follow up requirement for social component is to fully implement the PARC so that affected persons have been provided suitable agricultural lands within a reasonable distance and/or other compensations to improve, or restore, their land-based livelihood.

In addition, the following social management plans need to be fully implemented and monitored:

- Project-Induced In-Migration Plan
- Community Health and Safety Management Plan
- Community Safety and Security Management Plan
- Occupational Health and Safety Management Plan
- Local Content Plan
- Human Rights Management Plan
- Stakeholder Engagement Plan
- Cultural Heritage Management Plan
- Landscape Management managed through the Land Disturbance & Rehabilitation (LD&R) Management Plan

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