Société d'Investissement et de Promotion de l'Industrie du Benin

Scoping Report

Textile Unit Park - Glo-Djibé Industrial Zone, Benin

Final Report

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The business of sustainability

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Acronyms and Abbreviations

Name	Description
ABE	Beninese Environment Agency (Agence Béninoise pour l'environnement)
AJASDM	Ananvie Youth Association concerned about a better tomorrow
ANDF	National Agency for Property and Land
AoI	Area of Influence
Arise IIP	Arise Integrated Industrial Platforms Ltd
CA	Chef d'Arrondissement (District Chief)
CCF	Conseil consultatif sur les régimes fonciers (Consultative Council on Land Tenure)
CETP	Central Effluent Treatment Plant
CFD	Code Foncier et Domanial (Land and State Land Code)
CNLS-TP	Conseil national de lutte contre le VIH/Sida, la Tuberculose, le Paludisme, les Infections sexuellement transmissibles et les épidémies
CPVA	Village pineapple producer cooperative
CSOs	Civil Society Organizations
CSP	Centres for Social Promotion
CV	Chef de Village (Village Chief)
DHC	District Health Centre
E&S	Environmental and Social
ECC	Environmental Compliance Certificate
EPs	Equator Principles
ERM	Environmental Resources Management
ESG	Environmental and Social Governance
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management System
ESP	Environmental Sustainability Policy
ETP	Effluent Treatment Plant
FDF	Land Compensation Fund
FGM/C	Female Genital Mutilation/Cutting
FSEP	Framework Stakeholder Engagement Plan
GAP	Government Action Plan
GDIZ	Glo-Djigbé Industrial Zone
GM	Grievance Mechanism
HSP	Health and Safety Policy (HSP)
IBA	Important Bird and Biodiversity Area
IFC	International Finance Corporation
INSAE	Institut National de la Statistique et de l'analyse Economique (National Institute of Statistics and Economic Analysis)
IsDB	Islamic Development Bank
LGBTI	Lesbian, gay, bisexual, transgender and intersex

Name	Description
LINER	LINER Consulting SARL
OAPI	African Intellectual Property Organisation
OECD	Organisation for Economic Co-operation and Development
ORTB	National Radio and Television Office
PAP	Project-Affected People
PDC	Communal Development Plan
PEB	Pre-Engineered Building
PGI	Protected Geographical Indication
PS	Perfeormance Standards
PWDs	Persons with physical or mental disabilities
RAP	Resettlement Action Plan
RGPH	Recensement général de la Population et de l'Habitat (General Population and Housing Census)
RSF	Reporters sans frontières (Reporters Without Frontiers)
SBEE	Société Béninoise d'Énergie Électrique (Beninese Electric Power Company)
SDAC	Municipal Development Master Plan of the municipality of Zè
SDGs	Sustainable Development Goals
SEP	Stakeholder Engagement Plan
SEZ	Special Economic Zones
SIGI	Social Institutions and Gender Index
SIPI	Société d'Investissement et de Promotion de l'Industrie du Benin
SITEX	International Textile Society
ToR	Terms of Reference
TVPA	Victims of Trafficking and Violence Protection Act of 2000
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
WBG	World Bank Group
ZLD	Zero Liquid Discharge Technology

1. INTRODUCTION

1.1 Purpose of this Document

This document is the Scoping Report for the Environmental and Social Impact Assessment (ESIA) for the proposed establishment of a Textile Unit Park ("The Project") within the Glo-Djibé Industrial Zone, located in the municipalities of Tori-Bossito and Zé, both in Benin.

The Report has been prepared by Environmental Resources Management France ("ERM"), supported by Liner Environment ("LINER") and on behalf of the *Société d'Investissement et de Promotion de l'Industrie du Benin* ("SIPI Benin" or " Proponent").

The impact assessment process predicts and evaluates potential impacts the Project is likely to have on key aspects of the receiving physical, biological and socioeconomic environment. Thus, this process enables the identification of appropriate measures to mitigate and manage any impacts the Project may generate and is a requirement of the project planning system of Benin.

The purpose of this Scoping Report is to identify the physical, environmental and social aspects that will require a detailed analysis during the impact assessment phase. The outcomes of this assessment will be used to scope and plan the preparation of the ESIA report for local permitting (lead by *Agence Béninoise Pour L'Environnement* - ABE) as well as to inform the potential Lenders.

This report presents an early understanding of the Project and its environmental and social setting, which has been informed by a site visit undertaken in November and early December 2021 by ERM and LINER. The Report also summarizes potential impacts that may arise from the construction and operation[1] of the Project and identifies those impacts, both negative and positive, on the receiving physical, biological, socioeconomic and cultural heritage environment that are likely to be most significant, and therefore, will need to be assessed in more detail through the ESIA process. In addition, this Scoping Report also defines the next steps for the development of a robust and comprehensive ESIA report, which describes appropriate and efficient impact mitigation measures, in accordance with Beninese regulations and international standards.

In summary, this Report will:

- establish the institutional and regulatory context for the ESIA including the international standards and guidelines that the ESIA will adhere to;
- provide a description of the Project, including alternatives in project design;
- define the area of influence of the Project;
- describe the existing environmental and socioeconomic conditions;
- identify the potential environmental and socioeconomic impacts associated with the Project;
- identify key data gaps that need to be filled for the ESIA;
- identify key stakeholders and an engagement programme; and
- define a proposed Terms of Reference (ToR) for the ESIA.

In addition, stakeholder consultation and engagement is a fundamental aspect of both scoping and subsequent ESIA process in order to gather stakeholders' opinion on the Project and to identify any concerns that need to be addressed in the ESIA, and/or which can inform the ongoing design of Project components. Stakeholder engagement was performed during this scoping phase and described in the current Report. Physical and/or economic displacement are not part of the scope of this ESIA, as these topics were considered by GDIZ as a different work stream (Phase 1 ESIA) and are currently being addressed by a different team.

[1] Note that impacts during decommissioning of the Project components - at some stage many decades in the future - are considered outside the scope of ESIA, as it is expected that completely different (and more stringent) regulations will apply and technologies for re-use or disposal of materials will have improved.

As further detailed in Section 3, the primary environmental legislation applicable is the Environment Framework Law No. 98-030 of 12 February 1999, which includes provisions on the clarification of concepts, penalties, protection and development of receiving environments, protection and development of the natural and human environment, pollution and nuisances, impact studies, public hearings, emergency plans and incentives. This law constitutes the basic text of the national environmental policy, in that it covers all aspects from the identification of sources of pollution to their control and repression, including environmental assessments. Article 88 of the Law states the need to perform environmental impact assessments for anyone undertaking developments, operations, installations, plans, projects and programs or construction works in Benin.

In addition to meeting the applicable Beninese permitting requirements, the ESIA will also meet relevant international standards and good practices including the International Finance Corporation (IFC) Performance Standards (PS), the Equator Principles (EPs) and the World Bank Group's (WBG) Environmental and Social Guidelines and other applicable standards (refer to Section 3).

1.2 Background

The Textile Park is an industrial complex to be constructed within the Glo-Djigbe Industrial Zone (GDIZ), currently under development in the South of Benin by SIPI-Benin (a joint venture between the Government of Benin and Arise Integrated Industrial Platforms Ltd – ARISE IIP).

ARISE IIP is an industrial area project developer and manager, owned by Olam (49.5%) and Africa Finance Corporation (50.5%). ARISE IIP seeks to establish Special Economic Zones (SEZ) with connectivity, shared infrastructure, utilities and amenities in order to attract agro- and industrial tenants/customers and link them to international supply chains.

The GDIZ Industrial Park is being developed in three phases and the overall development is planned to be finished in eight years. The GDIZ Textile Unit is located in the area developed for the Phase 1 GDIZ Industrial Park, the construction of which started in December 2020 and is expected to be completed in December 2022. Construction works have not yet started in Phase 2 and 3 areas.

The GDIZ area offers a large number of plots with all the necessary services and favorable economic and financial conditions for private companies to set up in the industrial zone once it is operational.

Further detail on the Textile Park (Subject of this report) and the services delivered by the GDIZ Phase 1 Industrial Park is provided in Section 2 on the Project Description.

2. PROJECT DESCRIPTION

This section provides a description of the proposed Project, summarizing Project components, alternatives and activities during the construction and operation phases. This is based on current available information, therefore is considered as possible the inclusion of additional information during the subsequent ESIA phase.

2.1 Project Purpose

The majority of the cotton produced in West-Africa is currently being exported to South and East Asian countries for processing and manufacturing before reaching consumer markets in other geographies. This represents a significant lost opportunity for adding value through processing and manufacturing in Benin.

The planned Project will help significantly to transform this value chain model and increase the export of cotton textile and finished garments. This way, transportation costs and impacts are lowered, and real value is created locally.

2.2 Project Proponents and Relevant Parties

The ARISE Group is a pan-African industrial developer, specialist in designing, building, and executing large scale infrastructure and logistics projects in Africa. ARISE Integrated Industrial Platform (ARISE IIP) has entered a partnership with the Republic of Benin to develop the Glo-Djigbe Industrial Zone ('GDIZ'). ARISE and the Republic of Benin formed an equally shared joint venture, the SIPI Benin, that will be in charge of constructing and managing the industrial zone.

Besides SIPI Benin, other Parties will have a role in the Project – these are summarized in Table 2.1.

Table 2.1 Project Parties

Responsible Party	Role	Responsibilities
Arise IIP	Project Owner Textile Park Project	■ Procurement of EPC Contractor. ■ Supervision of the construction works carried out by EPC Contractor ■ Monitoring the construction progress, and approving the Interim Payment Certificates of the Project ■ Procurement of operator for the Textile Park
SIPI Benin (Société d'Investissement et de Promotion de l'Industrie Benin)	Project Owner GDIZ Industrial Park	■ Responsible for the development of the GDIZ Industrial Park that will host the Textile Project. ■ Development of Project Design. ■ Responsible for construction and operation of the Industrial Park, including: - EPC Contractor selection - Approval of the design documents prepared by EPC Contractor. - Supervision of the construction works carried out by EPC Contractor - Monitoring the construction progress, and approving the Interim Payment Certificates of the Project - Management of the Industrial Park - Provision of services to the Textile project such as electricity, water, waste management (eg effluent treatment), etc.

Responsible Party	Role	Responsibilities
Environmental Agency of Benin (Agence Béninoise pour l'Environnement - ABE)	E&S Regulator	■ Review and approval of key Project's Environmental & Social (E&S) related documentation. ■ Issuing of Environmental Permits and Licenses.
TBD (Procurement by Arise IIP ongoing)	EPC Contractor	■ Development of Project design ■ Procurement of Project components ■ Construction of the Project

2.3 Project Location

The Textile Park will be constructed within the GDIZ Industrial Park, which is being developed 25 km north of Cotonou and Ouidah in the Atlantic Department of Benin, within the municipalities of Tori-Bossito and Ze, as shown on the Project location map (Figure 2.1). The GDIZ is situated adjacent to the northern boundary of the land secured by the Government for the planned Cotonou airport which has not yet been constructed. Closest villages are:

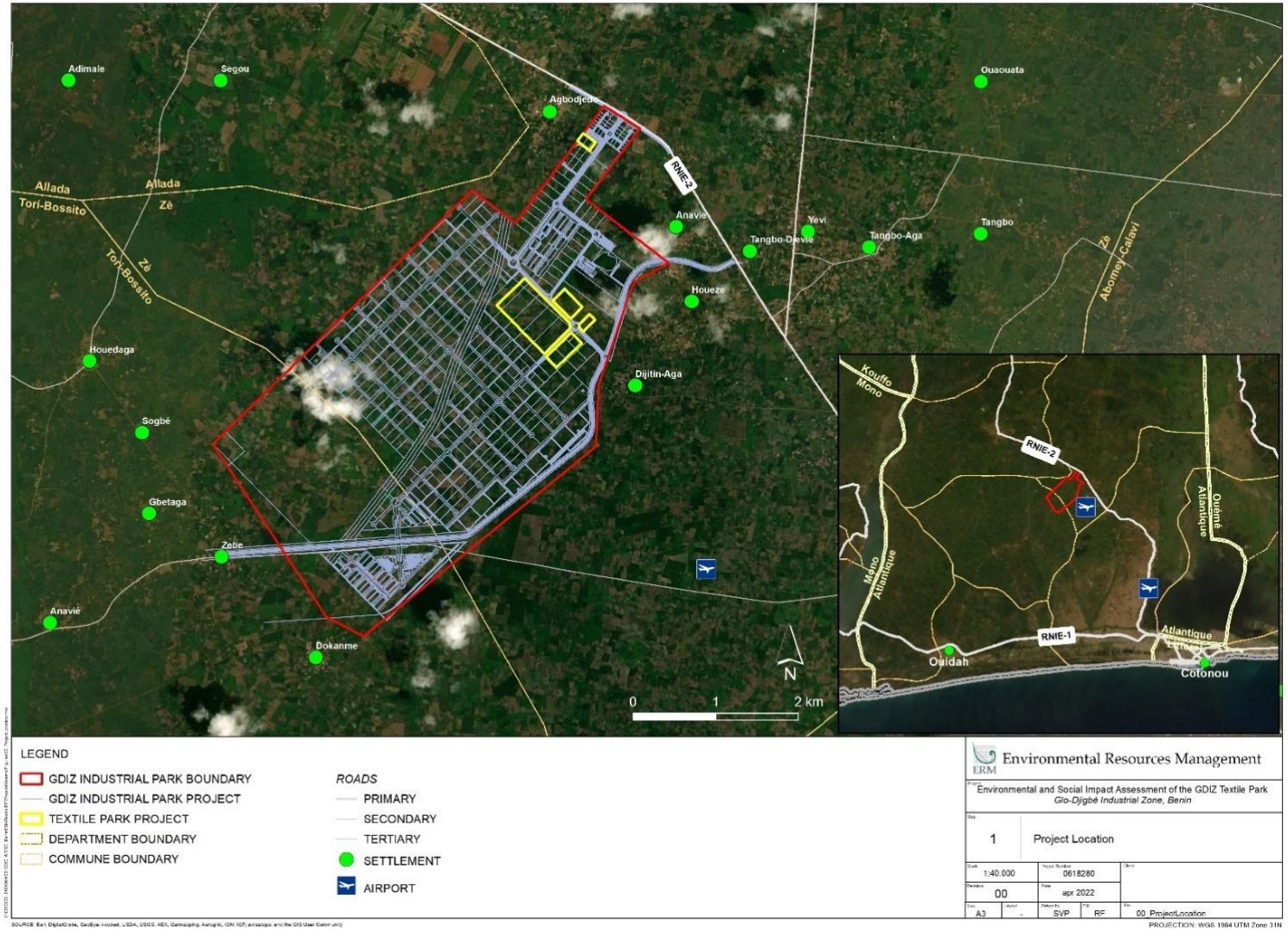
- Agbodjedo, 1.5km to the north;
- Anavie, 1.5km the northeast;
- Houeze, 1.4km to the east; and
- Djitin-Aga, 750m to the southeast.

The GDIZ will cover an area of 1,640 ha, to be developed in three phases (Figure 2.2). The Textile Park itself (a component of the GDIZ) will be developed on 50 ha plot within the 333 ha Phase I area (see Figure 2.3).

Currently, several construction activities are happening within Phase 1 area – mostly access roads and common infrastructure. No construction happened so far within the Textile Park Area.

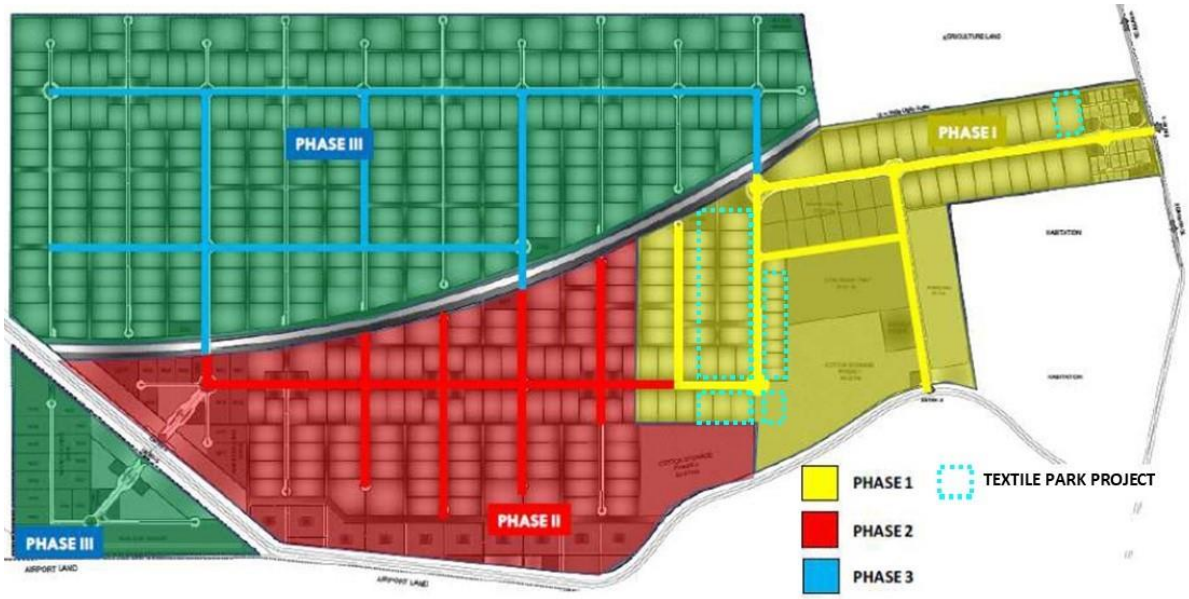
Table 2.2 describes the industries planned to settle within Phase 1 in the overall Industrial Park.

Figure 2.1 Textile Park Project Location



Source: ERM, 2022

Figure 2.2 GDIZ Phases 1-3



Source: Antea ESIA 2021.

Table 2.2 Industries to settle in GDIZ Industrial Park

Company name	Infrastructure	Field of activities	Area booked (m^2)
Atlantic Moulin Benin	Flour Mill	Agri-Process- Flour mill	50059
ORYX	Fuel Station-1	Petrol Station	3294.26
SYRRIUS	Computer Assembly	Assembly of computers,phones,etc	50000
SIBP	Concrete Works	Concrete and Prefabrication	10787.38
M. AUTO	E-Bikes assembly	Electric Bikes	51424.24
FHC Medica	Pharma-1	Pharmaceuticals-	12490.50
JNP Fuel Station	Fuel Station-2	Petrol Station	3294.26
Aigle Group	Textile-1	Textile and Garmenting	40000
Porteo SA	Steel Works	Steel Factory	238700
Pierre NAT	Ornemental stones plant	Precious stones and granite cutting/ processing	22591
NKS: Nand Kishore & Sons	Cashew processing	Cashew processing	40000
Société NAP SARL	Shea, Cotton, Soya Processing	Shea, Cotton, Soya Processing	30000
SIBP	Business Center1	Construction of building where premises will be rent	12000
HAZIRA SARL	Business Center2	Construction of building where premises will be rent	6456
CONFORT MEUBLE SA	Wood fiber panel assembly	Wood fiber panel assembly in Medium Density	10414.4

Company name	Infrastructure	Field of activities	Area booked (m^2)
LORELA GROUP INDUSTRIES	Palm OIL Processing	Palm OIL Processing and soap manufacturing	10518.34

Source: Arise IIP, December 2021

2.4 Area of Influence

The Area of Influence (AoI) of the Textile Park Project as given in IFC Performance Standard (PS) 1 is used during the impact assessment. The AoI encompasses:

- The area likely to be affected by:
  - the Project area and any activities and facilities that are directly owned, operated or managed (including by subcontractors) and that are a component of the Project;
  - impacts from unplanned but predictable developments caused by the Project that may occur later or at a different location; or,
  - indirect Project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the Project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

The Textile Park Project AoI includes the footprint of the Project, the larger GDIZ Industrial Park as well as a buffer area of several kilometers around, especially access roads to the Textile Park. This area is considered sufficient to allow the scoping exercise and cover the areas where direct or indirect impacts on the physical, biological, social or cultural environment might occur. However, it should be noted that different disciplines will focus the detailed investigations on specific areas.

2.5 Project Design

2.5.1 Textile Park Core Components

The Textile Park will cover an area of approximately 50 ha and will include the following components:

- 4 Textile factories:
  - Benin Textile SA (Btex): (17ha) (Home textile)
  - Benin Textile Corporation (BTC) - Knitting Unit 1 (11.5ha)
  - Société des Textiles du Bénin (STB) - Knitting Unit 2 (11.5ha)
  - Spinning and Knitting Unit (4ha); (Eagle Group)
- 2 Garmenting training centers (GTC 1&2); and
- 4 standalone Garmenting Units. (GM1, GM2, GM3, GM4).

Table 2.3: Overview of the GDIZ and Textile Park Plans

Textile Park Project Units	Number of Units	Area per unit / Total Area
GDIZ complex	**-**	**16 400 000 m²**
Phase I GDIZ	**-**	**3 330 000 m²**
Textile factories	4	440.000 m² or 44 ha in total: Factory 1: Home textile (17 ha) Factory 2: Knitting (11.5 ha) Factory 3: Knitting (11.5 ha) Factory 4: Weaving and knitting only (4 ha)
Garmenting units	4	1 ha each
Garmenting training centre	2	1 ha each
Total Textile Park Project	**-**	**50 ha in total**

Source: Arise IIP, 2021.

The Home Textile factory (17ha) will include spinning, weaving, processing, and garmenting activities. The layout of this factory is shown in Figure 2.4.

Knitting Factories I and II are both 11.5ha; and will include infrastructure for spinning, knitting, processing and garmenting activities. The layout of both factories is shown in Figure 2.5. Knitting Factory III is planned to cover only 4ha. Infrastructure will be limited to spinning and knitting activities. The layout of this factory is displayed in Figure 2.6.

Garmenting training centres (GTC1 and GTC2) and garmenting units (GM1-4) are planned to cover an area of approximately 1ha each. They will include infrastructure for cutting and sewing activities. The layout of the garmenting training centres and standalone units will be similar, an example is shown in Figure 2.6.

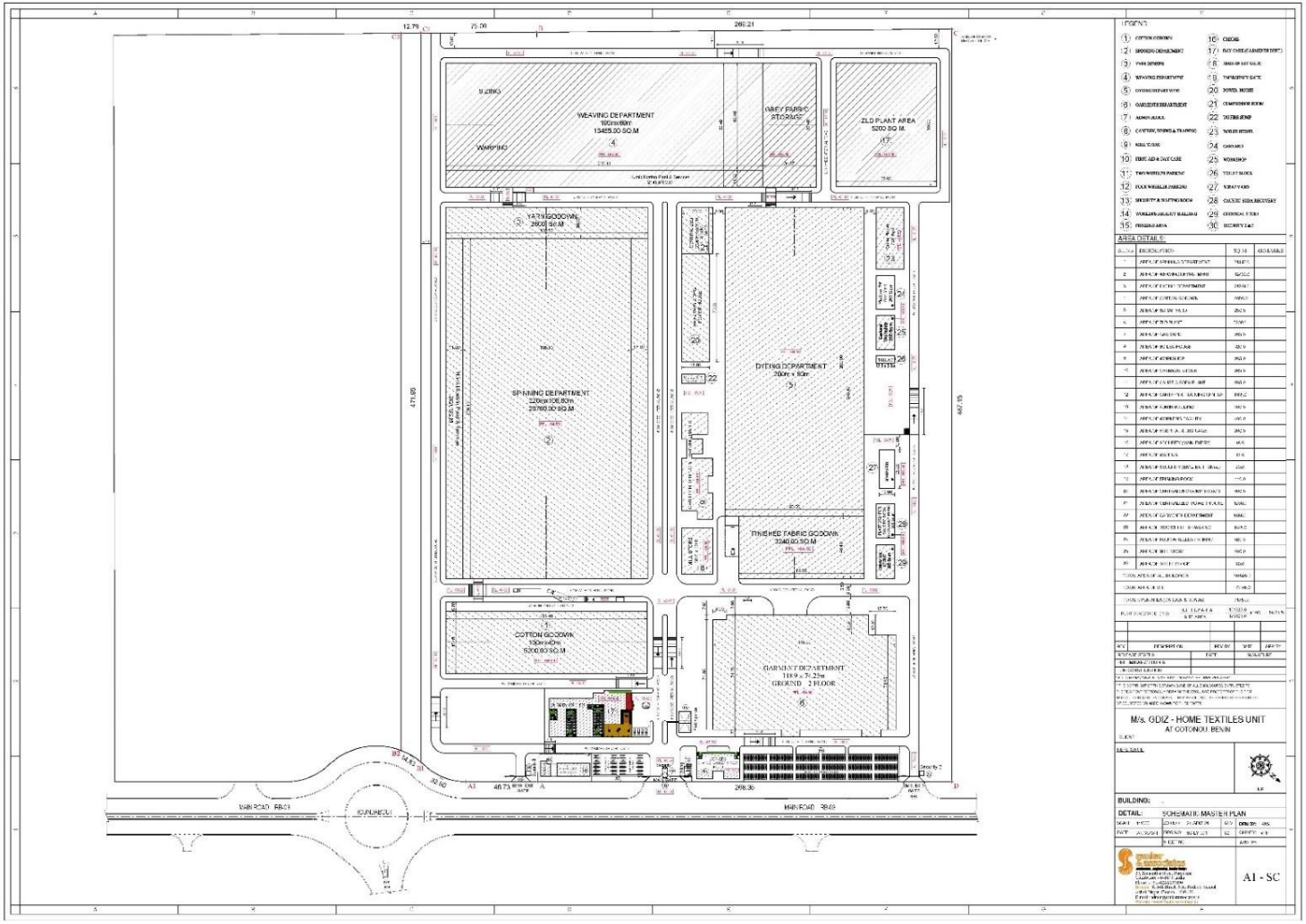
The Home Textile factory (17ha) as well as Knitting factories I and II (11.5ha each) will include infrastructure for dyeing and finishing technological processes and therefore include an effluent treatment plant (ETP). The third Knitting Textile factory (4ha) will not include processing infrastructure and therefore does not have ZLD treatment unit. The Effluent Treatment Plants (ETP) foreseen in 3 out of 4 factories will work in line with Zero Liquid Discharge Technology (ZLD) with a processing capacity of approximately 6 million litres per day. Using ZLD technology, approximately 95% of the effluent can be recycled, with the remaining 5% evaporated and replenished (top-up) from groundwater sources (wells).

No industrial wastewater is expected to be produced in Knitting Factory III (4ha), the garmenting units (GM1-GM4) or the garmenting training centres (GTC1-2). Domestic water generated across the Textile Park will be treated in a common GDIZ Central Effluent Treatment Plant, also to be developed.

Figure 2.3 Plan of Textile Parks (red), Garmenting Units (yellow) and Training Centre (blue)

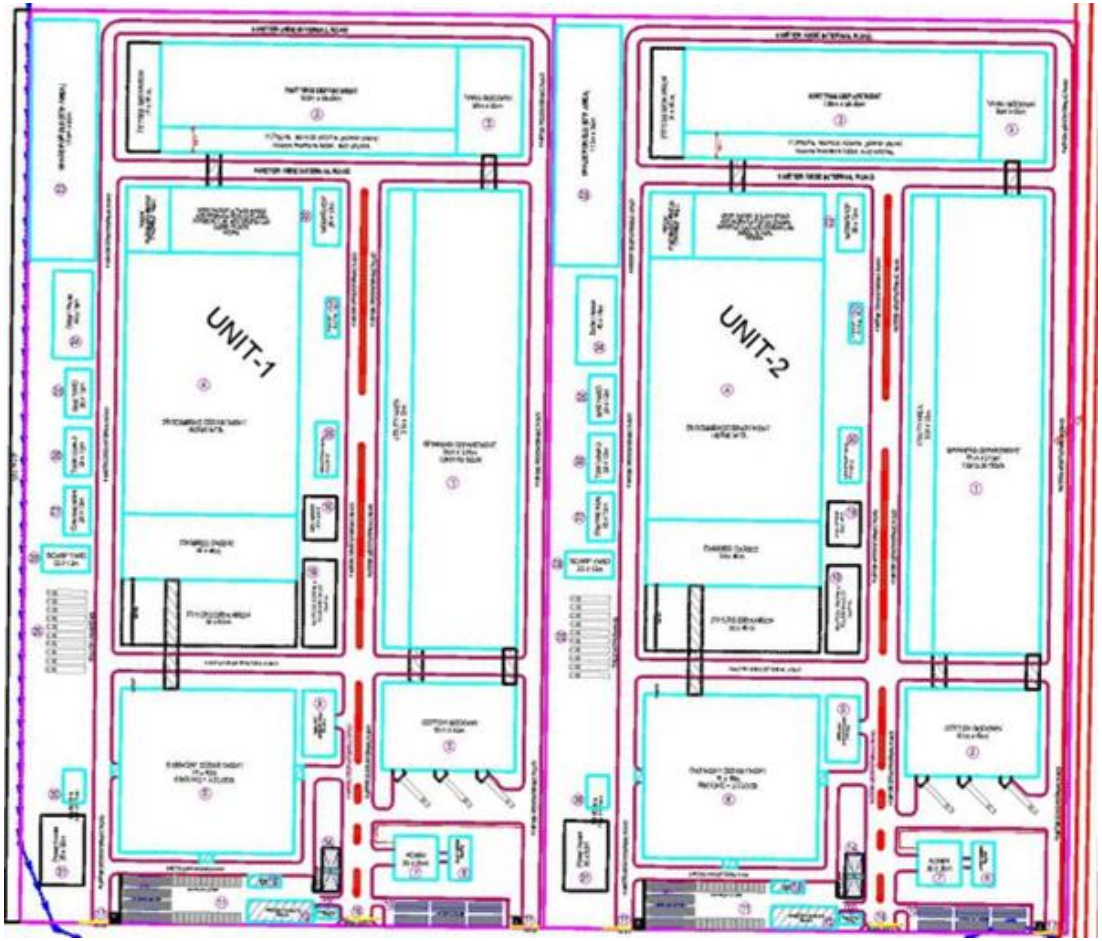
Source: 'GDIZ Benin Factory 1 Master Plan', ARISE IIP, November 2021

Figure 2.4 Home Textile Factory Layout



Source: 'GDIZ Benin Factory 1 Master Plan', ARISE IIP, November 2021

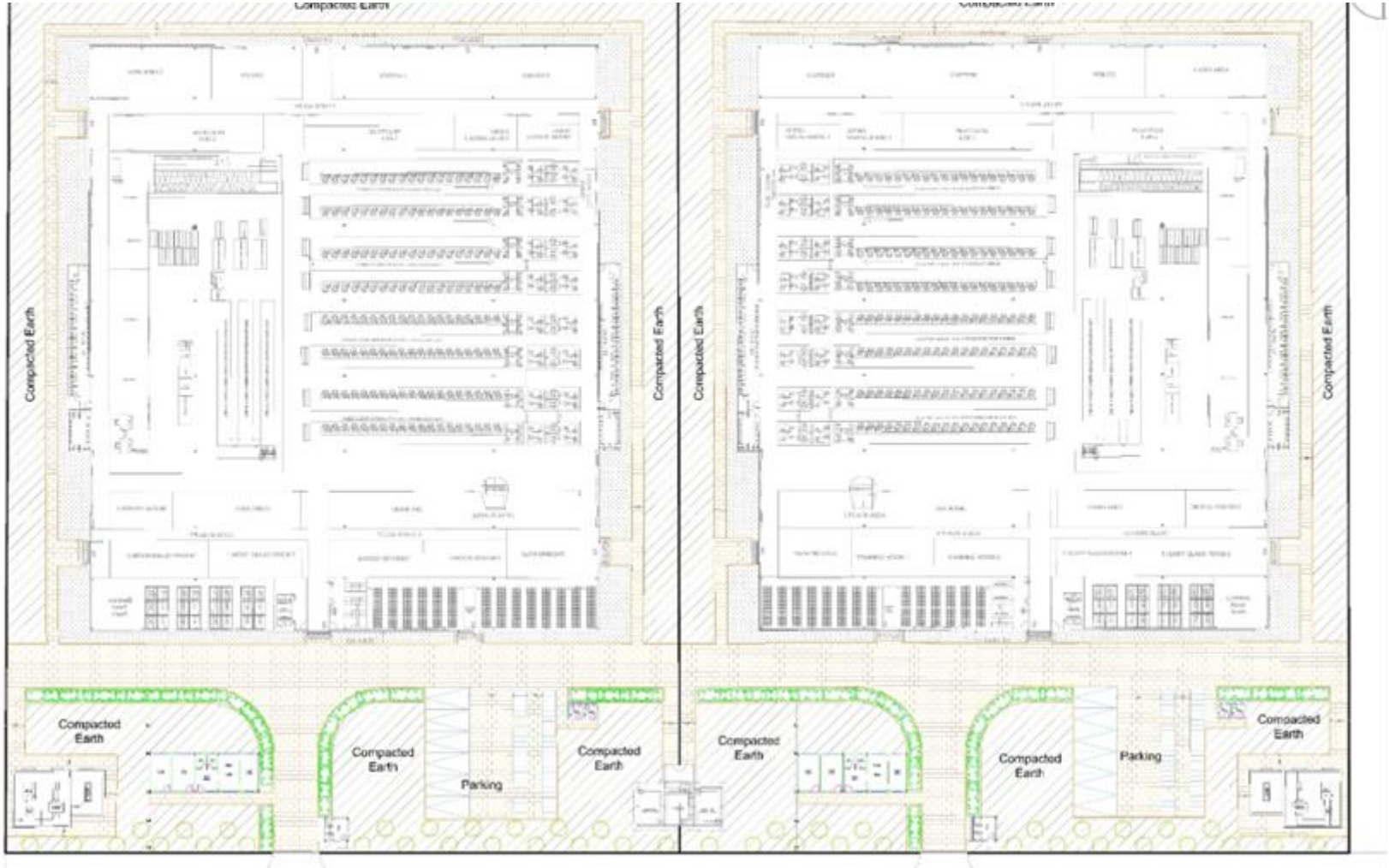
Figure 2.5 Knitting Factories I and II



Source: 'GDIZ Benin Textile Plant Layout', ARISE IIP, March 2022

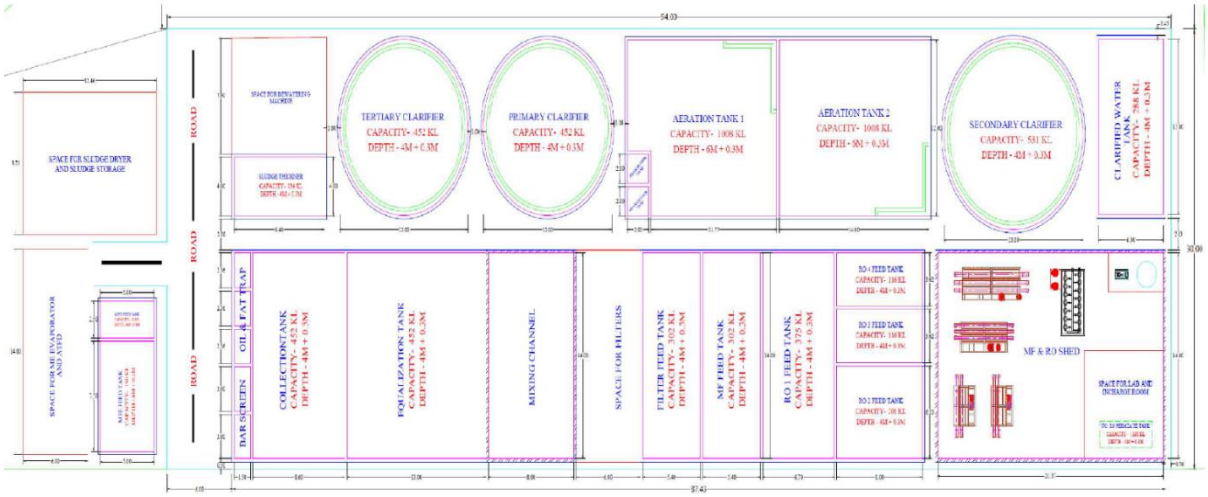
Figure 2.6 Layout Knitting Factory III

Figure 2.7 Garmenting Unit layout



Source: ARISE IIP, March 2022

Figure 2.8 Schematic view of a Zero Liquid Discharge Effluent Treatment Plant



Source: ARISE IIP Benin, 2021

2.5.2 Construction Phase Project Components

It is currently unclear whether the Civil contractor will need to construct a construction camp. It is likely that a site base, providing sanitary facilities, changing rooms, offices, warehouses and workshops will be needed. As the EPC contractor is under procurement, there is no clarity on the scope and location of this base.

The selected Civil contractor will be allowed to install a temporary construction camp, within the Project's Direct Area on Influence, to provide support to workers during construction activities (e.g. sanitary services, shelter, changing room, etc.). However, temporary/permanent accommodation facilities (in case needed) will need to be installed outside the Project's Direct Area on Influence and will be the responsibility of the Civil contractor.

2.5.3 Associated Facilities and Supply Chain

The associated facilities are the project components (often third party) which are not funded as part of the Project and that would not have been constructed or expanded if the Project did not exist and without which the Project would not be viable.

Activities associated with constructing and operating these facilities are also considered associated components of the Project for the purpose of the ESIA and therefore are taken into account in the scoping phase.

As the associated facilities are dependent on the Project, and vice versa, the Project owner is expected to have a high level of control on the environmental and social performances of the associated facilities.

Facilities associated to the Project, will be:

- Solar electricity production park and associated power distribution network system (This option is currently still under evaluation);
- Water management system (including GDIZ CETP and storm water management and solid waste management related infrastructures); and
- Worker housing.

These associated facilities are either included in the GDIZ Phase 1 ESIA or are to be covered in an independent ESIA (Solar Park and Worker Housing) and will not be assessed during the current impact

assessment process. Some of these infrastructures will however be assessed in the cumulative assessment.

The main elements of the supply chain to be considered during construction include the following:

- Quarries and borrow pits – GDIZ intends to source aggregates from existing quarries in the region. This will be explored further in the ESIA phase; and
- PEB suppliers – GDIZ intends to source Pre-Engineered Building elements for the PEB construction works from a supplier outside of Benin (Dubai).
- Cement – GDIZ intends to source cement from an external contractor. No cement plant will be established on the Project site. Further details to be included in the ESIA report.

During operation the following elements of the supply chain are considered relevant:

- Cotton: Raw cotton will be sourced from SODECO. Arise IIP is committed to using 100% Sustainably sourced cotton under the Cotton Made in Africa (CMiA) initiative and GOTS (organic cotton).

2.5.3.1 Effluent Treatment Plant

The Central Effluent Treatment Plant (CETP) established within the GDIZ area will process sewage and lightly contaminated effluents generated by various industries (not only from the Textile Park) complying with the national discharge requirements as well as GIIP. The effluent treated in the CETP would be a mixture of industrial effluent (85%) and domestic sewage (15%), the Textile Park will only contribute domestic sewage.

This facility will include a Primary treatment (Clarifier), Secondary and Tertiary processing units both using Membrane Bioreactor (MBR), along with necessary civil works, piping, pumping station, electro-mechanical works, automation, storage, admin building, laboratory, segregation of solid waste for safe disposal, complete on Turnkey basis. The facility will have a capacity of 100 KLD (Kilo Litres per Day).

2.6 Project Schedule

As mentioned earlier, the GDIZ Industrial Park is being developed in three phases. The overall development is planned to be completed in eight years (Table 2.4). Construction works have started for Phase 1 (December 2020), the works are estimated to be completed in two years (December 2022). Construction works have not yet started in Phase 2 and 3 areas.

The Textile Park is framed within the Phase 1 of the GDIZ development. A detailed view of the construction phases of the Textile Park can be seen in Table 2.5.

Table 2.4 GDIZ Industrial Park Development schedule

Phase	Area (Ha)	Timeline
Phase 1	313.97	2 years (year 1-2) - Start Construction: December 2020 - Completion Construction: December 2022 - Commissioning: First quarter of 2023 - Operation: First quarter of 2023
Phase 2	374.38	3 years (year 3-5)
Phase 3	773.59	3 years (year 5-8)
Total	1,461.94	All construction works are estimated to be completed in 8 years.

Source: Antea ESIA, 2020

Table 2.5 Tentative Textile Park Design & Construction Schedule

	2022				2023				2024			
Project Phases	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Home Textile (17ha)	■	■	■	■	■	■						
Knitting Factory I (11.5ha)		■	■	■	■	■	■					
Knitting Factory II (11.5ha)			■	■	■	■	■	■				
Knitting Factory III (4ha)				■	■	■	■	■	■			
Garment Training Centre-GTC 1&2	■	■										
Garmenting Unit (GM1-GM4)			■	■								

Source : Adapted from 'Updated Construction Schedule', ARISE IIP, February 2022

2.7 Project Standards

SIPI Benin as owners of the GDIZ industrial area is developing several governance and management tools aligned with the International Finance Corporation (IFC) Performance Standards.

The suite of governance and management tools comprise the following:

- Arise General Operating Guidance;
- HSE Construction Management Plan;
- Overarching Arise IIP Sustainability Charter: Sets sustainability policies and targets for the design and management of industrial zones developed by Arise;
- Environmental and Social Governance Framework: how businesses that construct and operate within the zone will be approved and monitored by the SIPI (as the owner / operator of the zone) and by government;
- Strategic Environmental and Social Assessment: Builds upon the existing GDIZ ESIA and aiming to evaluate key operational E&S risks / potential issues associated with the various industries hosted within GDIZ that will require management; and
- Environmental and Social Management Plan: Contains a series of specific environmental and social management measures that will be applicable to the industrial zone and its operators.

2.8 Construction Phase

The Civil Contractor for the Textile Park is currently being procured.

During the construction phase, the HSE component of will be aligned with international standards, particularly IFC PS01, and a dedicated Management System will be developed and implemented by the Civil Contractor.

In addition to the set of governance and management tools developed by SIPI, mentioned previously (2.7), the following procedures will apply to the Project, as per ARISE Management System:

- Arise/GDIZ Health and Safety Policy: The Company's commitment to managing business activities to provide a safe workplace;
- H&S guide for quarries;
- H&S guide for subcontractors;
- Traffic management plans; and
- GDIZ Emergency response plan.

2.8.1 Construction Activities

It is foreseen that 80% of the buildings of the Textile Park will be Pre-Engineered Building (PEB) structures, meaning that the structures are designed and manufactured in the factory and then shipped to the site for jointing / fixing. The remaining 20% of the buildings to be constructed will be Reinforced Cement Concrete structures (RCC). The main frame of RCC buildings is made of cement concrete reinforced with steel bars, the frame is constructed on site.

The standard construction phases for the Textile Park construction involve the following steps:

- Removal of the topsoil;
- Stockpiling;
- Excavation;
- Foundation placement;
- Construction of the main frame;
- Building finalisation; and
- Machine installation

Preparatory works on access roads, energy supply and common infrastructure have started in the Phase 1 area of the industrial park. No construction works have started in the Textile Park construction area.

A construction camp will be installed on site by civil contractor for daily work needs like sanitary services, offices nursery, changing rooms but not for accommodation.

Accommodation for construction workforce is under civil contractor responsibility, and it is located outside the GDIZ area.

2.8.2 Construction Workforce

An overview of the workforce planned for construction of the Textile Park is given in Table 2.6.

Table 2.6 Workforce for Construction Phase

Category	Home Textile	Knitting Factory I	Knitting Factory II	Knitting Factory III	GTC1&2	GM1-GM4
PEB Contractor						
Fabrication Team	18	14	14	5	4	8
Erection Team	46	26	26	10	8	16
Painting Team	10	6	6	2	4	8
Operators	8	4	4	1	6	12
Supervisor/Foreman	4	3	3	1	2	4
Subtotal	**86**	**54**	**54**	**20**	**24**	**48**
Civil Contractor						
Carpenter	100	68	68	26	13	26
Helper	100	68	68	26	13	26
Fitters	70	42	42	16	8	16
Helper	70	42	42	16	8	16
Mason	46	26	26	10	5	10
Helper/Unskilled	39	23	23	9	4	9
Unskilled Worker	39	23	23	9	4	9
Supervisor/Foreman	10	6	6	2	1	2
Plant & Machinery	20	13	13	5	2	5
Engineers/Staff/HSE	20	13	13	5	2	5
Project Manager/DPM	1	1	1	0	0	0
Others/Security	18	10	10	4	2	4
Subtotal	**533**	**335**	**335**	**127**	**63**	**132**
Total	**619**	**389**	**389**	**147**	**87**	**180**

Source: Construction data, SIPI, February 2022

Regarding medical assistance, currently the GDIZ onsite clinic is under construction and it will be available only during operation phase. Therefore, medical assistance to workers during construction will fall under the civil contractor responsibility. Support from the local hospital is also envisaged when/if needed.

As stated in paragraph 2.5.2, it is currently unclear whether the EPC contractor will need to construct a construction camp.

2.8.3 Construction Equipment and Materials

As the majority of the buildings will be Pre Engineered Building (PEB) structures, truck traffic delivering containers of structure elements will be an important part of the construction activities.

For each of the 4 Textile Factories (17, 11.5, 11.5 and 4ha) it is estimated that at least 500 containers will be required for importing machineries, spare parts, civil items and PEB items. For every Garmenting Units it is estimated that at least 30 containers will be required for importing machineries, spare parts, civil items and PEB items. For 4 Textile Factories and 6 Garmenting Units this would sum up to an expected 2,180 containers during the construction works.

Aside this truck traffic, the typical civil works machinery required during construction is presented in Table 2.7 below.

Table 2.7 Construction Equipment (Preliminary)

Civil works *Main buildings, utilities and ancillary buildings*	**PEB works**
Excavator/ Poclain	High Quality Crane Machine
Trucks/Dumper Truck	Hydra Mobile Crane Machine
Transit Mixer	Telescopic Boom Lift Machine
Hydraulic Loader/JCB	
Concrete Boom Pumps	
Tractor Trolly	
Utility Van	
Cars / vans (Light weight)	

Source: SIPI, February 2022

Significant quantities of various types of construction materials will be needed such as concrete, prefabricated segments, aggregates, asphalt, together with construction plant components. The following main materials and equipment will be used during construction works (Table 2.8).

Table 2.8 Raw Material Requirement for Construction

Material	Unit	Total for the complete Textile Park
Cement	Bags	1.088.286
Reinforcement steel	MT	7.481
Structural steel elements	MT	6.341
Water	L	160.915
Diesel	L	292.563
Petrol	L	28.488
Electricity	kWH	32.426

Source: SIPI, February 2022

Water will be used for dust suppression, construction (batch preparation, cleaning activities, etc.) and for civil use. Water supply to the construction site will be arranged by Civil contractor, and can be potentially from the GDIZ water supply network connected to the government managed boreholes. It is currently assumed that the water needs for construction will be met by using the GDIZ water supply, obtained from 7 groundwater wells. If the selected EPC contractor will opt for an alternative water source, this should be captured under the Change Management Procedure and the ESMP.

Raw materials will be procured from regional service providers located in the relative vicinity of the Textile Park site. Specifically, for the case of sand and aggregates already licensed quarries will be

used. These quarries have been opened to support the construction of the GDIZ industrial site and are subject to the national and international standards for operation.

Fuel will be used during construction for both all construction vehicles/machinery as well as by generators to supply electricity to the construction site. For this purpose, fuel will be stored in specific tanks including secondary containment. Total fuel consumption is estimated at 24.488L of Petrol and 292.563L of Diesel over a period of 25 months. Fuel will be required for the operation of the camps as well as all construction and logistics that involve use of machinery or generators to produce electricity.

It is currently unclear whether the electricity need will be met by generators (and thus translates into an extra fuel need) or by a connection to the electricity network provided by GDIZ. This will be clarified upon the selection of the civil contractor.

2.8.4 Construction Emissions and Noise

During construction works emissions and noise will be generated by the operation of machinery (Table 2.7), circulation of trucks supplying construction materials, cars and buses transporting workers and by compressors and generators on site.

2.8.5 Construction Waste Production

Tentative list of wastes during construction are summarized in Table 2.9. Quantity estimation will be provided in the ESIA.

Table 2.9 Waste Types to be Produced during Construction Phase

Waste type
Inert industrial waste
• Concrete, curbs, bricks, tiles and ceramics • Mixture of concrete, bricks, tiles and ceramics • Bituminous mixtures not containing tar • Earth and pebbles, dredging sludge and track ballast • Mixed construction and demolition waste containing only mineral waste
Ordinary Construction Waste (non-hazardous):
• Wood (untreated) • Plastics: plumbing, floor coverings, PVC pipes and non-soiled packaging, expanded polystyrene, polyurethane • Metals (and their alloys): copper, bronze, brass, aluminium, lead, zinc, iron, steel, tin, mixed metals and cables • Newspapers, office supplies, unsolicited printed matter • Packaging: in paper, cardboard, plastics, wood, metal, • composites, glass and textiles
Special Industrial Waste (hazardous):
• Treated wood • Tars and tarred products • Soiled metal waste • Earth and pebbles, dredging sludge, track ballast (polluted earth) • Coating products: paints, varnishes • Soiled packaging • Absorbents, filter materials, wiping cloths and contaminated protective clothing • Waste from electrical or electronic equipment • Lead-acid accumulators • Ni-Cd batteries and accumulators

Waste type
• Waste assimilated to municipal waste: fluorescent tubes and others wastes containing mercury • Waste from Healthcare Activities with Infectious Risks • Waste of any chemical
Liquid waste:
• Sewage • Wastewater from washing vehicles and machinery • Concrete mixer wash water and concrete laitance • Used oils and liquid fuels: used engine, gearbox and lubrication, hydraulic and insulating

Source: SIPI, February 2022

2.8.6 Septic tanks:

In each textile unit site during construction, one septic tank will we installed and managed by Civil contractor with a capacity of 20KL. The Civil contractor will be responsible for the development of a waste management plan, and for the temporary storage and transport to licensed treatment or disposal facilities.

2.8.7 Traffic Management

Outside the GDIZ Industrial Park, SIPI plans to use existing roads during construction (e.g., NR1 & RNIE2). In addition an internal access network is being constructed within the GDIZ Industrial Park.

In alignment with International Standards, SIPI is applying best practices to avoid and minimize the potential E&S impacts caused by these access roads. Among the set of control measures, a Traffic Management Plan focused on the construction and operation phases will be developed, taking the following key issues in consideration:

- Arrangements and routes for unusual/ wide loads (if required) to be agreed in advance with the relevant authorities, and the appropriate permit to be obtained for the use of public roads.
- Consultation with relevant authorities to agree on specific routes for use by construction traffic to avoid any sensitive residential areas and unsuitable parts of the road network.
- Communication with authorities and affected communities (including emergency services and public transport providers) about road closures, diversions.
- Establishment of site speed limits, vehicle inspection requirements, operating rules and procedures.
- Development of a plan for checking and training truck drivers regarding speed limits routing rules, duration of driving.
- Improvement of local traffic signage (where necessary). Usage of signs (reflective signs and/or flashing lights for night) and traffic cones and positioning of flag persons to indicate road work in progress and to inform and warn equipment operators and workers.
- Training of pedestrian workers to work safely around trucks and operating equipment and provide constant warnings to each other in the event of being in risky locations or conditions.
- Training of drivers and operators to obey signals, be aware about blind spots and other pedestrian workers while sharing the same working site, and check their vehicles or equipment whenever needed.
- Informing drivers (and any site visitors) about the site traffic rules including speed limits, approved access routes, etc. A map showing all the access roads that exist or to be constructed for the project will be prepared and distributed to relevant drivers.
- Restricting the circulation of delivery and private vehicles to defined routes and areas, giving preference to ‘one-way’ circulation, where appropriate.

- Implementation of Community Traffic Safety Awareness Campaign during the construction period, particularly in those communities where construction vehicles will be most active. The awareness training will be repeated in villages as construction moves into their areas.
- Prevention and control of construction traffic related injuries and fatalities by adoption of safety measures that are protective of project workers and of road users, including those who are most vulnerable to road traffic accidents, as required by the IFC General EHS Guidelines: Community Health and safety.
- Collaboration with local communities and responsible authorities to improve signage, visibility, and overall safety of roads, particularly along stretches located near schools or other locations where children may be present.

2.9 Operation Phase

SIPI Benin as owners of the GDIZ is developing several governance and management tools aligned with the International Finance Corporation (IFC) Performance Standards – refer to Section 2.7.

In addition to these tools developed for the full GDIZ Industrial Park, a Sustainability Policy Statement has been developed for the Textile Park. The operation of the Textile Park will be the responsibility of a dedicated operator, the procurement process for this party in currently ongoing.

In the following sub-sections, the regular processes involved in the production of textile, resources used, and waste produced are detailed.

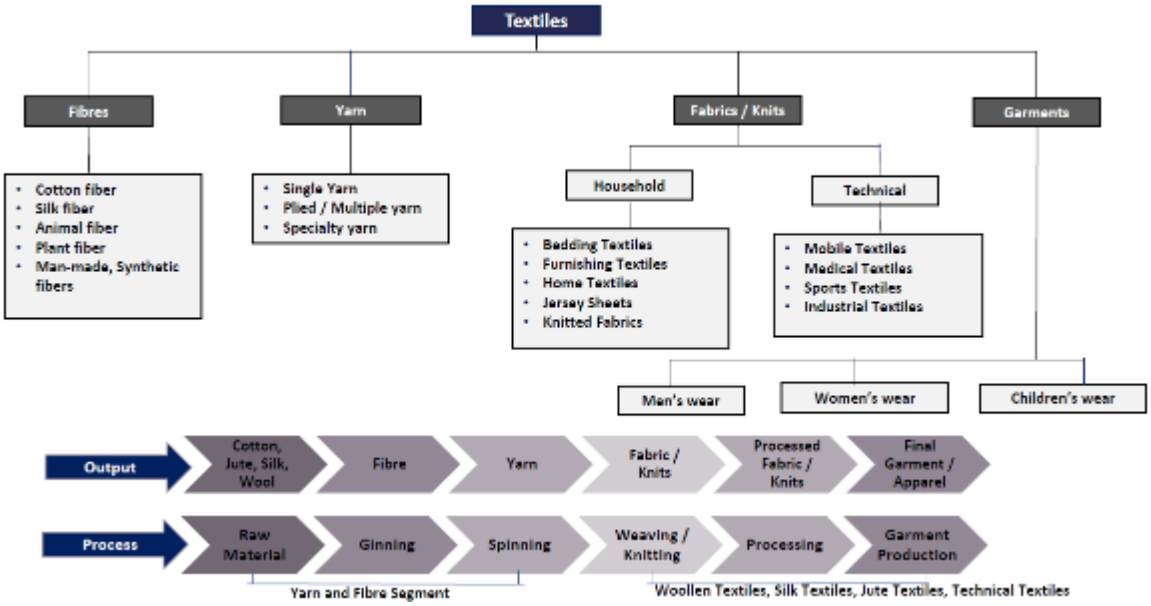
2.9.1 Textile Park Processes

The main processes involved in the operation of the Textile Park are expected to be:

- Spinning: Conversion of fibre into yarn;
- Weaving: Woven fabrics are produced in basic weaves, such as plain, twill, satin. Fabrics produced in more advanced weaves include pile, jacquard, dobby, and gauze;
- Knitting: Forming a fabric by looping a continuous yarn;
- Processing: Any finishing treatment of the fabric (e.g. singeing, desizing, bleaching, mercerizing, dyeing, printing, calendaring); and
- Garmenting: Garment production is an organized activity consisting of sequential processes such as laying, marking, cutting, stitching, checking, finishing, pressing and packaging. The results are finished products.

These processes and inherent inputs and outputs for every step of the process are summarized in the diagram below.

Figure 2.9 Textile Park Processes and Outputs



Source: 'Textile production process', ARISE IIP, October 2021

The processes with respective in and outputs for every step, foreseen in the Home Textile factory are summarized in the table below:

Table 2.10 Home Textile Factory Processes, Inputs and Outputs

Process	Process steps	Inputs	Outputs
Spinning	Blow room	Cotton	Cleaned cotton
	Carding	Cleaned cotton	Sliver
	Draw frame	Carded sliver	Drawn sliver
	Speed frame	Drawn sliver	Roving
	Ring frame with winding	Roving	Yarn package
	Open End Spinning	Drawn sliver	Yarn package
	Yarn packing	Yarn package	Yarn pallet
Weaving	Warping	Yarn on pallet	Warper beam
	Sizing	Warper beam	Sized beam
	Weaving	Sized beam and yarn cone	Greige fabric
Processing	Desizing	Greige fabric	Desized fabric
	Continuous Scouring and bleaching	Desized fabric	Scoured and bleached fab
	Cold pad batch dyeing	Scoured and bleached fab	Dyed fabric
	Rotation	Dyed fabric	Dyed batch
	Washing (on CBR)	Dyed fabric	Washed fabric
	Drying in a continuous tumbler	Washed fabric	Dried fabric
	Stenter	Dried fabric	Strentered fabric
	Pile polishing	Dried fabric	Polished fabric

Garmenting	Length slitting and hemming	Towels sewing thread	Stitched fabric
	Cross slitting and hemming	Towels, sewing thread, labels	Stitched fabric
	Checking of towels	Towel	Towel
	Packing of towels	Towel	Packed boxes

Source: ARISE IIP, Project description February 2022

The processes with respective in and outputs for every step, foreseen in the Knitting factories (I and II) are summarized in the table below.

Table 2.11 Knitting Factory (I and II) Processes, Inputs and Outputs

Process	Process steps	Inputs	Outputs
Spinning	Blow room	Cotton	Cleaned cotton
	Carding	Cleaned cotton	Sliver
	Draw frame	Carded sliver	Drawn sliver
	Lap former	Drawn sliver	Lap
	Comber	Lap	Combed sliver
	F.Drawframe	Combed sliver	Drawn sliver
	Speed frame	Drawn sliver	Roving
	Ring frame with winding	Roving	Yarn package
	Yarn packing	Yarn package	Yarn pallet
Knitting	Knitting	Yarn on pallet	Greige fabric
Processing	Blow room	Greige fabric	Batched greige fabric
	Scouring & Bleaching& Dyeing	Batched greige fabric	Dyed fabric
	De-watering / Slitting	Dyed fabric	Dyed fabric
	Drying in Drier	Dyed fabric	Dried dyed fabric
	Drying in Stenter	Dyed fabric	
	Compacting	Dried dyed fabric	Finished dyed fabric
	Inspection & Packing in rolls	Finished dyed fabric	Finished dyed fabric
Garmenting	Cutting Room	Fabric	Fabric cut component
	Sewing	Fabric cut component	Ready garment
	Finishing	Ready garments	Ready cleaned garments

Source: ARISE IIP, Project description February 2022

2.9.2 Water and Energy Use

Table 2.122 summarizes the water and power needs for each textile factory and for each garmenting unit, and for the entire Textile Park.

Table 2.12 Water and Energy Use

	Power supply capacity (MW)	Power consumption (MWh/day)	Steam (7.5 bar, for dyeing processes)	Natural gas (for finishing processes)	Total process water (m3/day)	Process wastewater top-up (m3/day)	Domestic water consumption (m3/day)
Home Textile	23	359	600	40000	3000	150	100
Knitting Factory I	12	187	200	16000	1500	75	100
Knitting Factory II	12	187	200	16000	1500	75	100
Knitting Factory III (4ha, no processing)	12	187					100
Garmenting units (GM1-GM4)	4*0.5=2	4*8=32					400
Garmenting training centres GTC1 and GTC2	2*0.5=1	2*8=16					200
Total					6000	300	1.000

Based on: 'Project description', GDIZ, February 2022

The water needs of the GDIZ industrial Park will be met by groundwater wells, installed by the Beninese National Agency for Drinking Water Supply in Rural Environments (L'Agence Nationale d'Approvisionnement en Eau Potable en Milieu Rural). The wells, fully dedicated to the Project, have estimated yields of 100-150m^3/hour or 2.400-3.600m^3/day. In the Textile Park 95% of process water will be recycled in the Zero-Liquid Discharge facility (Section 2.9.4), with the remaining 5% being topped up from the wells.

A chemical and physical water analysis for well $S24F_7$ was carried out in November 30th 2020. Well water was found suitable for industrial processes (see below test results) although not for human consumption, which is aligned with the water purpose (Table 2.13).

Table 2.13 Water Quality of Well Water Samples

Parameters	Units	Results (S24 F7)	Limit values	
			WHO (2007)[2]	National Law[3]
Turbidity	NTU	0.57	5	5
Temperature	°C	28.4	-	-
pH	-	5.1	-	6.5 <X< 8.5
Electrical conductivity	µS/cm	57.1	-	-
Total alkalinity	°F	0.8	-	-
Chloride (Cl^-)	mg/L	14.2	900	250
Sulphate (SO_4^{2-})	mg/L	<3	250	500
Calcium (Ca^{2+})	mg/L	3.57	100	100
Magnesium (Mg^{2+})	mg/L	0.86	-	50
Carbonates (CO_3^{2-})	mg/L	Traces	-	-
Bicarbonates (HCO^{3-})	mg/L	9.76	-	-
Total hardness	mg/L of $CaCO_3$	12.46	-	200
Dissolved Oxygen	mg/L	2.7	-	-
Free carbon dioxide	mg/L	184.8	-	-
Aggressive carbon dioxide	mg/L	128.48	-	-
$CaCO_3$ balance	-	Aggressive	-	-
Nitrates NO^{3-}	mg/L	5	50	45
Nitrites NO^{2-}	mg/L	<0.046	3	3.2

Source: ARISE IIP, 2021

To meet the power needs of the Industrial Park, a solar farm will be developed outside the GDIZ. Until the solar farm is operational, electricity supply will be from the national grid (*Société Béninoise d'énergie Électrique, SBEE*). In addition, natural gas will be used for steam generation. Diesel generators will be used as a backup during power cuts (Section 2.9.6).

A number of process design measures are taken into account in order to maximize energy efficiency, as follows:

- Energy from hot wastewater is to be recovered by a heat recovery system to preheat machines by means of heat exchanger (shell, tube or plate type heat exchanger). Water can thus be preheated from 30 to about 55°C, reducing energy consumption.
- Condensate water is to be reused on the same machine where it is generated to avoid loss of heat during transfer and to better control its use; and
- Energy from the hot flue gases/exhaust air at stenter is to be recovered to reduce thermic heat requirement.

2 Guidelines for drinking water

3 Decree No. 2001-094 of 20 February 2001 setting the standards for drinking water quality, article 17

2.9.3 Waste Management

A preliminary study of expected wastes is being developed by Arise IIP, including the waste types, quantities, and opportunities to reuse or recycle. The current understanding of expected waste streams is summarized in the table below.

In addition to the industrial waste streams mentioned in the table below domestic wastes from the offices, canteens etc. is to be expected. ARISE IIP has made an agreement with Africa Global Recycling as an approved waste collector.

Table 2.14 Waste Streams during Operation Activities

	Process waste			Maintenance/Periodic waste	
Process	Waste type	Management	Opportunity to recover	Waste type	Current plan to handle waste
Zero Liquid Discharge Treatment Plants	Sludge dryer: 1.1 ton/day Bio-sludge Crystallizer: Salt: 10 ton/day/unit		Cement industry Reused in textile dyeing process for medium and dark shades.		
Blow room	Blow room dropping	To be recycled and reused		Metal wires	Scrap sales
	Bale wrapping cloth	To be sold	Cotton cloth possible?	Plastic materials	
	Bale wrap plastic strips	To be sold	Metal strips possible?	Used oil	
	Dust from rotary filters	Bricket as fuel	Confirm		
	Reusable soft waste	Use without recycling			
Carding	Licker-in dropping	To be sold		Metal wires	
	Flat strips	To be recycled and reused		Used oil	
	Dust from rotary filters	Brickets as fuel	Confirm	Belts	
	Reusable soft waste	Use without recycling		Bearings/flat wires	
Waste Recycling plant	Cotton waste	To be sold		Metal wire	
Draw frame	Exhaust fan waste	To be sold		Rubber cots	
	Reusable soft waste	Use without recycling			
Comber	Comber oil	Use		Rubber Cots,Top comb,old oil	
Speed Frame	Exhaust fan waste	To be sold		Cots Apron	
	Reusable soft waste	Use without recycling		Clearer cloth/plastic cones	
Ring Frame	Pneumafil waste	Use without recycling		Cots Apron,Gripper membrane	
	Reusable soft waste	Use without recycling		Iron Scrap Spare parts/spindle tape	
				Old Oil/spindle Pumps	
Winding	Yarn hard waste	To be sold	Garneting plant	Plastic cones/Paper cones	
OE Spinning	OR trash waste	To be sold			
	Yarn hard waste	To be sold	Garneting plant	NOT APPLICABLE	
	Reusable soft waste	Use without recycling			
Warping	Yarn hard waste	To be sold	Garneting plant		
	Yarn bottoms	To be sold			
Sizing	Yarn hard waste greige	To be sold	Garneting plant		
	Yarn hard waste -sized	To be sold			
	Chemical plastic drums	To be sold	Recycle?		
	Chemical metal drums	To be sold	Reuse		
	Chemical plastic bags	To be sold	Recycle?		
Weaving	Warp sheet waste	To be sold	Garneting plant		
	Catch cord waste	To be sold			
	Weft yarn bottoms	To be sold	Garneting plant		
Yarn dyeing	Yarn hard waste	To be sold	Garneting plant		
	Chemical plastic drums	To be sold	Recycle?		
	Chemical metal drums	To be sold	Reuse		
	Chemical plastic bags	To be sold	Recycle?		
KNITTING	Fluffs	To be sold		Fluff Soaked With Oil	Scrap sales
	Waste fabric	To be Sold		Fabric soaked with Oil	
				Broken Needles/Sinkers	
				Bearings/Belts/Replaced parts	

Process	Process waste Waste type	Management	Opportunity to recover	Maintenance/Periodic waste Waste type	Current plan to handle waste
				Waste Oil	
Dyeing	Chemical plastic drums	To be sold		Worn out bearings	Scrap sales
	Chemical metal drums	To be sold		worn out oil seals	
	Chemical plastic bags	To be sold		O rings & Gas cuts	
	Dyes Cotton box	To be sold		Mechanical seals	
	Salt & Soda plastic bags	To be sold		Waste oil from Pumps	
	Fabric cutting pieces	To be sold		E waste	
Dyeing Lab	Fabric sample pieces	To be sold			
Testing Lab	Fabric waste after testing	To be sold		Water filters	
Slit open	Enzyme fluffs	To be disposed		worn out bearings	Scrap sales
	Stitching waste	To be disposed		worn out oil seals	
Relaxed Dryer	Lint filter dust	To be disposed		V belts	Scrap sales
	Dry fluff at Exhaust duct	To be disposed		Pin Bars	
Stenter	Lint filter dust	To be disposed		Oil seals & Bearings	Scrap sales
	Wax oil	To be disposed		Pin Bars	
	GSM cutting waste	To be sold		V belts & toothed belts	
	Fabric stitching waste	To be sold		Piston O rings	
	Gum cutting waste	To be sold		Gaskets	
	Shrinkage fabrics	To be sold		Chain Links	
Compacting	Stitching waste	To be sold		Waste Teflon sheet	Scrap sales
	Fabric dust at flets	To be disposed		Felt belt	
	Shrinkage fabrics	To be sold			
Cutting	Fabric bits	To be sold	Garneting plant		
	Marker paper	To be disposed	Check recycling		
Sewing	Fabric bits	To be sold	Garneting plant		
	Yarn waste	To be sold	Garneting plant		
Boiler	NIL			Filters	
Zero Liquid Discharge Treatment Unit	Sludge	To be disposed	Fertilizer?		
	Recovered Salts	To be used			
	Unrecovered salts	To be disposed			
	Plastic Containers/PP bags	To be disposed			
	Used cartridge filters	To be disposed			
Compressor				Air filters	Scrap sales
				Oil filters	
				Oil	
H Plants	Floating fluff	To be sold		Eliminator plates	
	Dust	to be sold		Cleaning sludge	
	Reusable soft waste	Use without recycling		Oil	
	Comber noil	Use without recycling			
Office/ canteen/all sites waste	Electrical and electronic waste				
	Printer cartridge waste				
	Cardboard and paper waste				
	Plastic waste				

Process	Process waste Waste type	Management	Opportunity to recover	Maintenance/Periodic waste Waste type	Current plan to handle waste
	Neon tube waste				
	Contaminated glove waste				
	Contaminated mask waste				
	Food waste				
	domestic waste				

Based on: 'Project queries', GDIZ, October 2021, and 'Waste Management Textiles', GDIZ, February 2022

2.9.4 Chemical Use and Management

Chemical use in the Textile Park will be managed in line with a Chemical Management System. The system is based on the Zero Discharge of Hazardous Chemicals (ZDHC) principle. All chemical products used for the operation of the Textile Park will be included in a chemical inventory. Chemical product suppliers will be screened according to the ZDHC Manufacturing Restricted Substances List certifications. Chemical spills and emergencies responses will be included in the Emergency Response Plan. Chemicals will be stored in designated storage areas, employees working with them will be trained on proper handling, hazards and emergency responses and chemical signage and appropriate safety equipment will be provided for.

Products to be used include antifoam, hydrogen peroxide, stabiliser, peroxide killer, neutralising agent, sodium sulphate, soda ash, dispersing agent, core neutraliser, detergent (chemical and biological enzymes), silicone softener and reactive dyes, among others.

2.9.5 Wastewater Management

The textile industry inherent processes uses large amounts of chemicals and dyes. Industrial wastewater generated as the result of the production processes in the Home Textile Factory as well as in Knitting Factories I and II, will be treated in an effluent treatment plant using Zero Liquid Discharge technology.

Zero Liquid Discharge stands for 100% recycling of process effluent (estimated 95% recycled, 5% evaporated). The system is a combination of pre-treatment to remove organic loads and post treatment with Micro Filtration, Reverse Osmosis plant, Multi effect evaporator to remove inorganic loads, which may result good water with drinking water quality. The process is shown below with simple flow diagram.

A Central Effluent Treatment Plant (CETP) is constructed in the industrial park for the processing of domestic and pre-treated industrial wastewaters from the entire industrial area. Domestic wastewater from the Textile park will be discharged into this CETP, whereas industrial wastewater will be processed and recycled in the ZLD treatment units incorporated within the factories with processing activities (refer to Section 2.9.6).

Each industry within the GDIZ industrial Park (including the Textile Park) will be required to collect the necessary number of samples of wastewater from the available sources at site, and to analyse its composition to meet the allowable input parameters and concentrations for the CETP. If any industry expects to discharge higher levels of pollutants, then this industry shall undergo necessary pre-treatment to achieve pollutant levels below the prescribed thresholds. The standard input parameters for water treatment are summarized in Table 2.15. The CETP has been included in the Phase 1 ESIA.

Table 2.15 CETP Wastewater Input-output Parameters

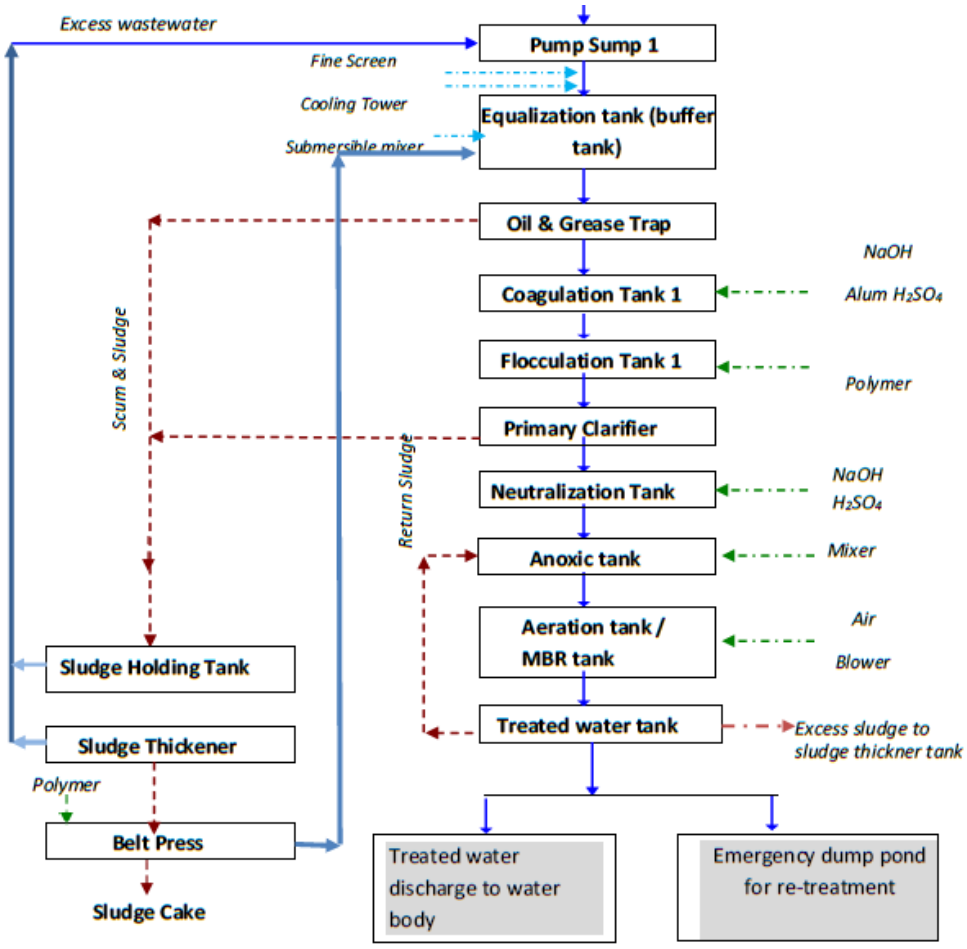
Parameter	Unit	Inlet Thresholds for CETP	CETP Outlet Thresholds (discharge into the environment)
Temperature	°C	10 – 40	40
pH	-	4.0 – 10	6.0 – 9.0
BOD_5	mg/l	4500	27
COD	mg/l	5500	67.5
TDS	mg/l	<1200	<1200
TSS (TSS incl. sand)	mg/l	1200	45
Colour	Pt-Co	50	50
T-N	mg/l	60	18
T-P	mg/l	75	3.6

Parameter	Unit	Inlet Thresholds for CETP	CETP Outlet Thresholds (discharge into the environment)
O&G	mg/l	300	4.5
Coliform	MPN/100ml	10000	3,000
Ammonium (as N)	mg/l	60	4.5
Chloride (Cl^-)	mg/l	600	450
Residual Chlorine	mg/l	Not applicable	0.9

Source: ARISE IIP, 2021

A flow diagram of the treatment process in the CETP is presented in **Error! Reference source not found.**.

Figure 2.10 CETP Wastewater Processing Diagram



Source: ARISE IIP, October 2021

Approximate volumes of wastewater generated per facility of the Project are listed in Table 2.16. No other significant sources of wastewater are envisaged during the operational phase.

Table 2.16 Wastewater Generation

	Home Textile	Knitting I	Knitting II	Knitting II	Garmenting Units (GM1-GM4)	Garmenting Training Centres (GTC1-GTC2)
Process wastewater generation (m^3/day)	3.000	1.500	1.500	NA	NA	NA
Process wastewater recovery (ZLD) (m^3/day)	2.850	1.425	1.425	NA	NA	NA
Domestic wastewater (sewage) generation (m^3/day)	100	100	100	100	100	100

Source: ARISE IIP, October 2021 and February 2022

2.9.6 Sludge Management from ZLD plant

During wastewater treatment, ZLD will be generating important quantities of sludge (see table below). As sludge management initiative, a sludge dryer is installed to reduce sludge weigh by 80%. Several methods of waste valorisation are being considered depending on the chemical composition of this sludge (*e.g*. raw material for cement industry, production of bricks, among others).

Table 2.17 Sludge Quantities in Textile Unit Equipped by ZLD Technology to Treat industrial Wastewater

Textile unit with ZLD	ZLD capacity (KL/Day)	Sludge quantities (Kg/Day)	Sludge quantities after sludge dryer
Benin Textile SA (Btex) (Home textile)	3000	6000	1200
Benin Textile Corporation (BTC) - Knitting Unit 1	1500	3000	600
Société des Textiles du Bénin (STB) - Knitting Unit 2	1500	3000	600

Source: ARISE IIP, October 2021 and February 2022

2.9.7 Air Emissions and Noise Generation

The main sources of air emissions will come from boilers, thermo fluid heaters and diesel generators, which generate gaseous pollutants such as CO2, Suspended Particulate Matter (SPM), SO2 and NOx. In addition, air emissions will also be coming from the humidification plant used in spinning and weaving/knitting departments. Sources of emissions are summarized per type and per location within the Textile Park in Table 2.18.

Table 2.18 Sources of air Emissions

	Home textile unit	UNIT-1 knit	Unit-2 knit	GTC (1 unit)	GM unit (1 unit)
Boiler (Steam Generation)					
Capacity	14 TPH	8 Tonnes /H	8 Tonnes /H	40Kg /Hour	40Kg/Hour
Quantity	2	2 Nos	2 Nos	2 Nos	2Nos
Fuel	Propane	Propane Gas	Propane Gas	Electric Heater	Electric Heater
propane quantity/day	35 Ton	12500Nm3	12500Nm3	NA	NA
steam generated/day	663 Ton	160Tons /Day	160Tons /Day	1280Kgs/Day	1280Kgs/Day
Hours of Operation	24	22 Hours	22 Hours	16 Hours	16 Hours
Diesel Generator					
Capacity	500 Kva X 2	250KVA	250KVA	40kva	40kva
tanks capacity	5000 Liter	1KL	1KL	0,2KL	0,2KL
Quantity	1	1 No	1 No	1 No	1 No
tanks location	near Boiler area	uitlity area next to power house	uitlity area next to power house	uitlity area next to power house	uitlity area next to power house
Hours of Operation	in emergency power failure	During power cut	During power cut	During Power Cut	During Power Cut
Humidification Plant					
Water Cooled chiller	865 TR X 2 & 650 TR X 1	5000Kw	5000Kw	NA	NA
Air Cooled chiller		800Kw	800Kw	NA	NA
Air handling Unit	10	NA	NA	36000 CFM	36000 CFM
ZLD					
Effluent water	3 MLD	1500KLD	1500KLD	NA	NA
Total Recovery from RO 1- RO 4	95%	95%	95%	NA	NA
ETP Sludge	6000 Kg/day	3000Kgs /Day	3000Kgs /Day	NA	NA
Evaporator feed	300 KLD	150KLD	150KLD	NA	NA
Crystallizer feed after MEE	60000 Kg	50 KLD	50 KLD	NA	NA
Crystallizer Reject to ATFD	10000 Kg	25KLD	25KLD	NA	NA
ATFD Reject	3000 Kg	6000Kgs / Day	6000Kgs / Day	NA	NA

	Home textile unit	UNIT-1 knit	Unit-2 knit	GTC (1 unit)	GM unit (1 unit)
Salt Recover from Crystallizer	18000 Kg	9000Kgs /Day	9000Kgs /Day	NA	NA
Type of Noisy Equipment Level					
Generator		250KVA	250KVA	40KVA	40KVA
Decibel Level	60 to 75 DB	80nB	80nB	70nB	70nB
Air Compressors					
Capacity	6000 CFM X 03, 2500 CFM X 02	300 CFM	300 CFM	300 CFM	300 CFM
Quantity	5	7	7	2	2
Decibel Level	60 to 90 DB	65nB	65nB	65nb	65nb

In addition to the sources of emissions linked to the processes in the different production buildings, emissions are also expected from truck transport for the delivery of raw materials and the collection of products for export and distribution.

General control measures to be considered during design:

- Height of chimneys: Boiler and Thermic fluid Heaters Chimney's height planned should not be less than 30 meters, Diesel Generator Exhaust Pipe should not be less than 8 meters and releasing the pollutants should not be in the vicinity of living organisms;
- Gravitational and inertial separator: These are working on the gravitational and inertial concepts of collecting, filtering etc. of a particulate matter. *E.g.*, settling chambers, dynamic separator and wet cyclones and multiple cyclones; and
- Filters: Boilers are equipped with bed filter, paper filters and fabric bag filters, which are used for the filtration of particulate matter like dust, lint and fumes and also for the multi filtration method which is followed for Humidification outlet air.

Sources of noise emissions and expected levels are summarized in Table 2.19.

Table 2.19 Expected Noise Sources and Noise Levels

Section / Department	Noise level, dBA
Blowroom	80 - 83
Carding	84 - 89
Drawframe	84 - 88
Speedframe	82 - 86
Ringframe	86 - 90
Winding	82 - 86
Warping	80 - 86
Sizing	73 - 86
Loom Shed (Non-Auto)	94 - 99
Loom Shed (Auto)	95 - 97

Source: 'Project Queries', ARISE IIP, October 2021

Project design management measures to mitigate impacts from the air quality and noise impacts include:

- Wall cladding with insulation; and
- Use of appropriate PPE: hearing protection, respiratory protection for machine operators / workers and visitors when needed.

2.9.8 Workforce

In the Home Textile factory 5000 jobs are expected to be created, 4.000 jobs are expected in each of both Knitting Units I and II. Different types of profiles will be attracted, the majority of the openings is expected to be filled locally:

- Grade 4: Senior managers;
- Grade 5: Staff, assistant mangers;
- Grade 6: Supervisors, technicians, operators;
- Grade 7 Mechanics, electricians (all local);
- Grade 8: Operators (all local); and
- Grade 9: Helpers, trainees (all local).

Facilities to be provided near the Staff Accommodation (within GDIZ but outside the Textile Unit Park) include:

- Community Hall;
- Jogging Track; and
- Recreational Amenities such as, Gym, Indoor Clubhouse, etc.

2.10 Project Alternatives

2.10.1 No Project Scenario

Should the No Project Option be considered, the cotton produced in Benin would continue to be exported, without being processed, thereby missing the opportunity to add value locally. In addition, the job creation in the textile factories and garmenting units would not be realised.

In conclusion, the “do nothing” scenario is not considered a socially and economically viable option.

2.10.2 Project Development Related Alternatives

From a geographical point of view, alternative options for the Textile Park have been evaluated in the context of the ESIA developed for the GDIZ Industrial zone as a whole. The following options have been considered:

- Initial option: Project site located south-west of the aiport;
- Option 1: Project site Located West Of The Glo-Djigbe Airport Site (Municipality Of Tori-Bossito);
- Option 2: Project site located south-east of the Glo-Djigbe airport site (municipality of Abomey-calavi);
- Option 3: Project site located to the north-west of the airport (district of tori- cada);
- Option 4: project site located north of the airport (district of sekou); and
- Option 5: project site located northeast of the airport (districts of tori- cada in tori-bossito and tangbo-djevie in Ze).

The comparative analysis of the different options focused on the avoidance of displacing villages, avoidance of encroachment of the Lama depression (wetland) and the aim to connect the site directly to the RNIE 2 road. **Based on this analysis option 5 was selected as the best choice**.

From a technological point of view, a number of technological alternatives are currently under evaluation by the design team. These will be further explored during the ESIA stage.

3. LEGISLATION AND STANDARDS

The implementation of any project, program or plan in Benin follows a well-defined process, which is based on the application of national and international regulatory texts and laws with the involvement of a certain number of actors defined according to each project, program or plan. This section presents the different institutions that must intervene in this Project. It will also present the regulatory framework applicable to this Project.

3.1 Constitution of the Republic of Benin

The Constitution of Benin gives a prominent place to the environment, through article 27, which states "everyone has the right to a healthy, satisfactory and sustainable environment and has the duty to defend it. The State shall ensure the protection of the environment". Law No. 90-032 of 11 December 1990 on the Constitution of the Republic of Benin, as amended by Law No. 2019-40 of 7 November 2019, lays down other principles relating to the environment and the living conditions of citizens. These principles are set out in the following articles:

- Art.8: The State shall ensure that these citizens have equal access to health, education, culture, information, vocational training and employment;
- Art.22: Everyone has the right to property. No one may be deprived of his property except in the public interest and in return for fair and prior compensation;
- Art.98: Rules concerning the protection of the environment and the conservation of natural resources fall within the scope of the law.

3.2 Benin's environmental policy

Following the 1990 National Conference, a clear orientation in environmental management was adopted, as follows:

- the enshrinement of the principle of environmental protection and management in constitutional law;
- the institutionalisation of a Ministry of the Environment (since 1990) and its technical structures;
- the adoption of the Environmental Action Plan (1993);
- the creation of the Benin Environment Agency (1995); and
- the adoption of the National Agenda 21 (1997).

The Environmental Action Plan (EAP) is the framework document for environmental management in the Republic of Benin. It comprises seven sub-programs planned over an initial horizon of 15 years and whose global objectives concern:

- national capacity building;
- conservation and sustainable use of biological diversity and natural resources;
- improvement of the living environment of populations in both rural and urban areas; and
- improved environmental decision-making and good governance.

The EAP was revised in 2001 after 5 years of implementation, to take into account new issues such as air pollution from transport in urban areas. The various objectives of the EAP remain the environmental benchmarks for any sectoral policy, program or environmental support program at national and local levels. Moreover, the Growth Strategy Paper for Poverty Reduction and the Government Action Program (GAP) incorporates the goal and all the specific objectives of the National Environmental Management Program, thus demonstrating Benin's political will to make the environment one of the pillars of sustainable development entails the direct or indirect responsibility of its author, who must ensure its reparation".

Several other actions complement the political efforts mentioned and make systematic consideration of the environment in development actions. Among others:

- adoption of the National Biodiversity Management Strategy and Action Plan;
- adoption of the National Action Plan to Combat Desertification;
- adoption of the National Strategy to Combat Air Pollution;
- preparation of the Integrated Water Resources Management (IWRM) strategy;
- preparation of the National Wetland Management Strategy; and
- elaboration of a National Plan for Pollution Control.

3.3 Framework Law on the Environment

The Environment Framework Law No. 98-030 of 12 February 1999 includes provisions on the clarification of concepts, penalties, protection and development of receiving environments, protection and development of the natural and human environment, pollution and nuisances, impact studies, public hearings on the environment, emergency plans and incentives. This law constitutes the basic text of the national environmental policy, in that it covers all aspects from the identification of sources of pollution to their control and repression, including environmental assessments. The main principles of environmental consideration are defined in the Act through the following articles:

- Article 3-c "The protection and development of the environment must be an integral part of the economic and social development plan and the strategy for its implementation. This principle requires that environmental issues be taken into account in the implementation of development activities";
- Article 3-d. "The various social groups must be involved at all levels in the formulation and implementation of national environmental policy; this principle is crucial in the fight against poverty and promotes the country's development";
- Article 3-f. "any act prejudicial to the protection of the environment

These three principles refer respectively to:

- the taking into account of environmental concerns during the implementation of projects through environmental assessment tools;
- (ii) public participation during the environmental assessment process; and
- (iii) the Polluter Pays Principle "aiming at the assumption of the costs/costs that result from measures to prevent, reduce and control pollution by the polluter". It is a principle derived from the ethics of responsibility, which consists in making each economic actor take into account the negative externalities of his activity.

Two key provisions of this law make environmental impact assessments mandatory in Benin:

- Article 88: "No one may undertake developments, operations, installations, plans, projects and programs or the construction of works without following the environmental impact study procedure when the latter is required by laws and regulations". This article therefore makes environmental impact assessment (EIA) mandatory; and
- Article 89: «any person who intends to undertake the carrying out of one of the activities referred to in Article 88 must file a written notice with the Minister requesting the issuance of an Environmental Compliance Certificate (ECC) and describing the general nature of the activity». An ESIA must be submitted to the Authorities in charge of the environment (ABE), who will evaluate the nature of the activity, and its potential impacts. If the Authorities deem the proposed development acceptable, an ECC will be issued by the corresponding Ministry.

3.4 Decrees Relating to the Environmental Assessment Procedure

In 2017, a new Order in Council was issued to replace the Environmental Assessment Orders dating from 2001. It is Decree No. 2017-332 of 6 July 2017 on the organization of environmental assessment procedures in the Republic of Benin (refer to Figure 3.1). This decree brings together most of the information contained in the previous decrees and thus confirms the robustness of the environmental

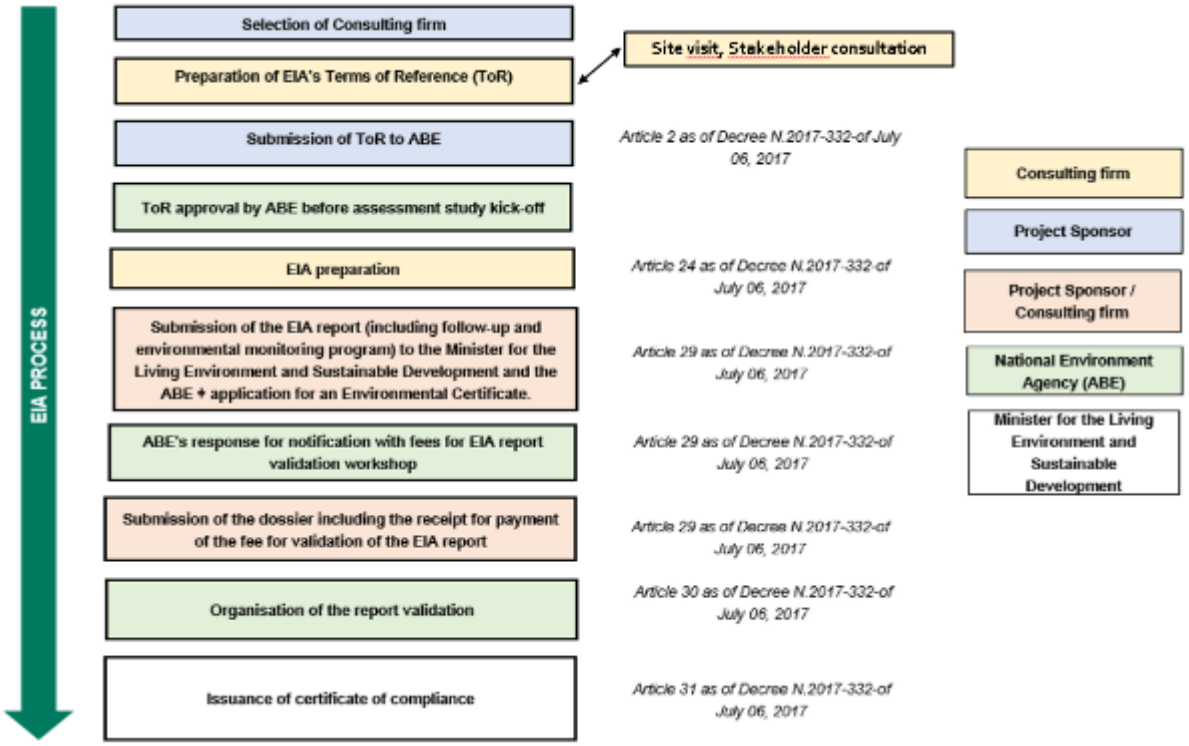
assessment procedure in Benin. To this decree were added decrees organizing the environmental control by the administration:

- decree n°2001-096 of 20 February 2001 on the creation, powers, organization and operation of the environmental police; and
- decree n°2001-095 of 20 February 2001 on the creation, powers, organization and operation of environmental units in the Republic of Benin.

These decrees were supplemented in 2005 by Decree n°2005-437 on the organization of the environmental inspection procedure in the Republic of Benin. The diagram below shows how the ESIA process unfolds in Benin (Figure 3.1).

Recently, 2017-2018 the process was simplified and the submission of Scoping Report is no longer required.

Figure 3.1 Administrative ESIA process in the the Republic of Benin



Source: ERM, 2021, based on Decree N°2017- 332 of 06 July 2017

In addition to the decrees governing environmental assessment and the monitoring of its proper implementation, Benin has gradually acquired tools to regulate the management of certain sources of pollution, improve safety conditions in establishments at risk and set normative thresholds to ensure the maintenance of a healthy environment for the population. These decrees are presented below and their content is detailed in the section on standards applicable to the Project:

- Decree n°2001-094 of 20 February 2001 (drinking water quality);
- Decree n°2001-109 of 4 April 2001 (wastewater quality standards);
- Decree n°2001-110 of 4 April 2001 (air quality standards);
- Decree n°2001-294 of 8 August 2001 (noise regulation);
- Decree n°2003-330 of 27 August 2003 (waste oil management);
- Decree n°2003-332 of 27 August 2003 (solid waste management); and

- Decree n°2006-775 of 31 December 2006 (general safety rules in establishments potentially at risk).

3.4.1 Regulations Concerning Protected Areas

Decree n°2017- 331 of 06 July 2017 defines the categories of the Protected Areas of the Republic of Benin following to the nomenclature of the International Union for the Conservation of Nature (IUCN). According to this decree, the categorization of the Protected Areas of the Republic of Benin makes it possible to integrate areas other than classified forests and national parks, into the national system of protected area, and allows the evaluation of commitments and progress according to international standards.

3.4.2 Protection of Fauna and Flora and List of Protected Species

Benin ensures the protection of the most endangered species of fauna and flora through Law n°93-009 of 2 July 1993 on the forestry regime, and law n°2002-16 of 18 October 2004 on the wildlife regime. The management, protection and exploitation of forest and related products are subject to Law n°93-009 of 2 July 1993 on the forest regime in the Republic of Benin. Article 36 of this Act refers to the protected plant species in the following terms: slow-growing forest species for scientific or medicinal purposes; all tree species planted by man; and any forest species classified as such by decree issued by the Council of Ministers.

Decree n°96-271 of 2 July 1996 implementing the forestry regime in Benin thus presents the complete list of protected flora species.

Article 2 of Law n°2002-16 of 18 October 2004 on the regime of fauna in the Republic of Benin stipulates that fauna constitutes an essential element of the nation's biological heritage whose conservation is guaranteed by the State. Every citizen has the duty to respect and ensure its protection. Article 31 of the same Act classifies wild animals in three categories: fully protected species (category A); partially protected species (category B); and other non-protected species (category C).

Decree n°2011-394 of 28 May 2011 establishing the modalities of conservation, development and sustainable management of wildlife and its habitats in the Republic of Benin presents the species of category A in Annex I, category B in Annex II and category C in Annex III.

3.4.3 Water Management

Law n°2010-44 of 21 October 2010 on water management in the Republic of Benin advocates Integrated Water Resources Management (IWRM) as the basic principle for water management in

Benin. All developments, works, installations and activities carried out in inland waters by a natural or legal person, public or private, and which may cause water abstraction or chronic or episodic discharge or dumping, must ensure "a balanced use, equitable distribution and sustainable exploitation of the available resource (art. 3). Article 14 prohibits the pollution of water resources and stipulates that "when the activities of natural or legal persons are likely to cause or aggravate water pollution or the degradation of the aquatic environment, they shall contribute to the financing of the measures that the State and local authorities must take to combat such pollution, to compensate for its effects and to ensure the conservation of aquatic ecosystems".

Article 40 makes installations and works that would result in the abstraction of surface or ground water or in discharges or deposits in nature subject to authorisation or declaration.

Section 48 states that "in the case of groundwater withdrawals, protective measures...shall include the establishment of an immediate protective perimeter around the point of withdrawal". Within this perimeter, any activity that could lead to pollution of the groundwater is prohibited (deposits of waste, oil and substances presenting toxic risks, in particular chemicals).

Finally, Article 72 provides a framework for the punishment of offenders who throw, dump or allow substances that have harmful effects on human health or ecological biodiversity to flow into surface or ground water. If convicted, offenders are liable to fines and imprisonment

3.4.4 Regulations on Social Context

Hygiene, Health and Safety at Work

The law n°87-015 of 21 September 1987 regulates housing, noise, water, pollution of the natural environment, industrial installations, beaches, classified establishments and sanitary regulations. To implement this law, Decree No. 97-616 of December 18, 1997 was adopted. Its article 11 recalls the criteria for assessing the property referred to in article 56 of the Public Hygiene Code in classified establishments, markets and open-air commercial activities. These criteria are related to the working clothes, to the personal hygiene of the staff, to the cutlery and to the premises. This law is concerned in this project because during the works, the problems of hygiene can occur.

In addition, the Labour Code in force in Benin (law n°98-004 of 27 January 1998 on the Labour Code) includes a chapter on occupational safety and health (chapter 4).

Article 182 of this law stipulates that "to protect the life and health of workers, the employer is required to take all useful measures that are adapted to the operating conditions of the company".

Similarly, according to article 183 of the same law, "every employer is obliged to organize practical and appropriate training in hygiene and safety for newly hired employees, for those who change their workstation or technique and for those who resume their activity after a break of more than six months. This training must be updated for the benefit of all personnel in the event of changes in legislation, regulations or work processes, etc.

The provisions relating to the protection and healthiness of the workplace (in particular with regard to temperature, lighting, ventilation or airing, drinking water, changing rooms, toilets, evacuation of dust, gases and vapours, precautions to be taken against fire, radiation, noise and vibration) and which are applicable to all establishments and enterprises subject to the code are made by ministerial order. These measures cover the workplace, staff training, first aid, alcohol consumption or the existence of a right of withdrawal in the event of imminent danger to staff.

Article 187 requires that a Health and Safety Committee be mandatorily established in every establishment subject to this Code. Chapter 6 governs the creation of commissaries in the workplace. Finally, provisions for the settlement of individual and collective labour disputes are set out in Title 6 of the law. The Labour Code is supplemented by a text on the protection of the health and safety of workers: Order n°022/MFPTRA/DC/SGM/DT/SST on general occupational health and safety measures. This order thus specifies which devices or arrangements must be made to ensure that workplaces comply with the standards set out. The topics of ventilation, lighting, cleanliness, toilets, etc. are addressed.

This text was supplemented in 2006 by Order n°126/MFPTRA/DC/SGM/DGT/DST of 27 March 2006 regulating noise in the workplace. The implementation of the Project works will require the use of labour, which will have to be managed in accordance with the Public Health Code, the Labour Code and the above-mentioned texts.

Labour Code

The Labour Code of Benin (Act n°98-004 of 27 January 1998 on the Labour Code) contains a set of provisions governing labour law in the country. Among these provisions, the most important are those related to:

- form of employment contract;
- trade unions;
- collective agreements and establishment agreements;

- working hours and rest periods;
- health and safety at work; and
- settlement of workplace disputes.

In accordance with the law in the Republic of Benin, any person who has undertaken to place his or her professional activity, in return for remuneration, under the direction and authority of a natural or legal person, public or private, is considered to be a worker within the meaning of the Labour Code, regardless of sex or nationality. The legal working time may not exceed 40 hours per week. The actual daily working time per worker may not exceed 8 hours, unless an exception is laid down by a decree issued by the Council of Ministers or by collective agreements.

Overtime shall be paid at an increased rate fixed by means of a collective agreement or convention, which may not be less than the specific percentages already presented in the Labour Code

The Labour Code also includes provisions on the employment of disabled persons (arts. 31, 32 and 33). These provisions prohibit discrimination against such persons in hiring and offer tax benefits to companies offering them jobs. The Code also regulates child labour in its chapter 2 on special provisions for the employment of women and children. Thus, the minimum age for work is 14 in a context where compulsory education is limited to primary school. The minimum age for hazardous work is 18. Decree n°2011-029 of January 2011 sets out the various hazardous activities and includes 22 occupations (including in mines and quarries, domestic services and agriculture) and 74 hazardous activities. The decree also prohibits workers under 16 years of age from performing certain types of work, including transporting heavy loads, working in slaughterhouses, and operating certain types of machinery. Night work is prohibited for young workers under 18 years of age, however, derogations are granted by decree of the Council of Ministers, after consultation with the National Labour Council. The daily rest period for young workers under the age of 18 must be at least 12 consecutive hours, including the night period. Any discrimination against the young worker (14 years and over) is prohibited. The law n°2006-04 on conditions for the movement of minors and the suppression of child trafficking in the Republic of Benin criminalizes all forms of child trafficking and provides for penalties of 10 to 20 years' imprisonment. However, for the exploitation of child labour, penalties are provided for by law.

The exploitation of children includes all forms of slavery and similar practices, including debt bondage, serfdom and forced or compulsory labour to employ children in work, which, by its nature or the conditions under which it is carried out, is likely to harm the health, safety and morals of the child.

Abuse includes the weight of the work in relation to the child's age, the total number of hours of work, the insufficiency or absence of remuneration or the hindrance of work in relation to the child's access to education, physical, mental, moral, social and spiritual development.

General Collective Labour Agreement

Another important text provides a framework for labour law. This is the General Collective Labour Agreement applicable to companies in the private and parapublic sectors. The convention in force dates from 30 December 2005. It covers issues relating to:

- the form of the employment contract;
- compensation for the sick worker;
- termination of the employment contract, dismissal;
- the exercise of trade union rights;
- working hours and paid holidays;
- remuneration;
- health and safety at work.

This convention lays down the principles of equal pay in its article 61: "For work of equal value, pay shall be equal for all workers, whatever their origin, sex, age, status or religion, under the conditions laid down in this convention". This Convention also stipulates that "no wage may be lower than the

guaranteed minimum wage (SMIG) set by decree". The last decree published, Decree n°2014-292 of 24 April 2014 raising the guaranteed minimum interprofessional wage (SMIG), raised the SMIG by 26.48%, i.e. from 31,625 CFA francs to 40,000 CFA francs with effect from 1 May 2014. Since that date, no new increase in the SMIG has been made. Article 72 stipulates that employees must take various medical check-ups, including a check-up at the time of hiring and a periodic check-up.

Mention should also be made of law n°2017-05 of 29 August 2017, establishing the conditions and procedure for recruitment, placement of labour and termination of employment contracts in the Republic of Benin. This law lays down the conditions and procedure for recruitment, placement of labour and termination of employment contracts. It regulates relations between employers and workers carrying out their professional activities in the Republic of Benin.

Cultural Heritage

The Republic of Benin has put in place multiple legal and institutional tools to protect its environment and natural and cultural resources. This part presents the different tools applicable to the project concerning cultural heritage.

National legislation for the protection and enhancement of heritage includes two laws fundamental to local communities. The constitution of March 1st, 1990, which protects cultural heritage. Article 10 of the constitution stipulates that “Everyone has the right to culture. The state has the duty to safeguard and promote the national values of civilization, both material and spiritual, as well as cultural traditions”.

Law 91-006 of February 25, 1991, on the Cultural Charter in the Republic of Benin bases its policy on respect for national cultural differences and origins, the decentralization of cultural life, in particular the installation of efficient cultural infrastructure and equipment. The cultural charter also emphasizes the need to conserve, protect and enhance the physical and intangible heritage, which forms the basis of national cultural identity.

Law 2007-20 of 23 August 2007 on the protection of cultural heritage and natural heritage of a cultural nature constitutes a significant step forward for the protection of heritage. It also reflects the State’s will to protect everything that the Beninese people hold dearest through the expression of its creative genius, values of civilization, artistic and cultural manifestations, and movable and immovable property (law 2007-20, preface). Moreover, it legislates on matters relating to the protection of cultural heritage, including the following topics:

- The inventory and classification of elements of tangible and intangible cultural heritage;
- The right of pre-emption and export of cultural goods;
- The protection of cultural property in the event of armed conflict;
- The preservation and enhancement of habitats and traditional architecture; and
- Archaeological excavations and discoveries as well as the penalties related to offenses committed in violation of the provisions of this law.

Law 97-029 of January 15, 1997 concerns the organization of municipalities in the Republic of Benin. This law of decentralization specifies the areas “of the management of the patrimony of the Municipality.” Article 109 clearly states that “the management of the Municipality covers the area municipal, property, donations and bequests, municipal works and all other activities patrimonial under the competence of the Municipality.” Thus, the communities are founded, with regard to this law, to manage their cultural heritage within limits set by the 2007-20 law.

HIV-AIDS and General Health

Benin has three instruments at its disposal to combat HIV/AIDS: law on the prevention, care and control of HIV/AIDS (law n°2005-31 of 5 April 2006); a policy, standards and procedures for the care of persons living with HIV in Benin (2012); and a national council to combat AIDS, tuberculosis, malaria, hepatitis, sexually transmitted infections and epidemics (CNLS-TP) was set up in 2019 and given responsibility for combating these diseases.

Law nº 2020-37 of 3 February 2021 on health protection of the people of Benin sets a policy to protect health and regulates individual obligations concerning transmissible, non-transmissible, contagious diseases and epidemics. This is the main law in force concerning the COVID-19 pandemic.

Gender Equality

Violence against women is a crucial development issue that affects women's dignity. Women, being part of vulnerable groups, are subject to frequent violations of their rights in Benin as in other countries. Faced with this situation, the Government of the Republic of Benin has promulgated the Act n°2011-26 of 9 January 2012 on the prevention and punishment of violence against women.

This law constitutes a mechanism for the development of women, a significant step forward in the legal protection of Beninese women and a better appreciation of the principle of gender equality. It also makes it possible to punish violations of women's rights and to combat discrimination, except positive discrimination. Article 5 of the Act stipulates that «the fight for equality between men and women is a national priority».

The article 17 of this law confers on women « the enjoyment of their rights to physical and moral integrity, liberty, security, equality and non-discrimination on the grounds of sex».

In 2008, the Government of Benin also adopted a National Gender Promotion Policy to correct gender imbalances. This will serve as a reference framework for strategies or actions aimed at reducing or even eliminating disparities between men and women by 2025. The Project will therefore have to comply with these objectives of non-discrimination of women and equal treatment of women.

3.4.5 Land Management

Constitutional Provisions

Article 22 of the Constitution of 11 December 1990 states that "everyone has the right to property. No one may be deprived of his or her property except in the public interest and in return for fair and prior compensation". This article of the Constitution, which affirms the right to land ownership, has enabled the Government to embark on a wide-ranging land reform program.

Although today, title deeds duly registered by the competent services are required for the acquisition and possession of land, in rural areas most land is governed by the customary law regime. The cohabitation of customary law with modern law is a source of conflict. In urban areas with housing estates, most individuals hold, in addition to private agreements for the sale of land, a precarious and revocable "residence permit" within the meaning of Act n°60-20 of 13 July 1960 establishing the system of residence permits in Benin.

Land Rights

The new land tenure system elevates rights held on land under customary status to the status of "presumed rights". In particular, Article 112 of Law n°2017-15 amending and supplementing Law n°2013-01 of 14 August 2013 on the Land and State Land Code (CFD) in the Republic of Benin explains that « only the land title confers full ownership in the Republic of Benin. All the attributes of the right of ownership are attached to it. All land not covered by a land title is under presumed rights. The State issues land titles to holders of a permit to live in a building belonging to it under the conditions laid down by decree of the Council of Ministers ». According to article 4 of the CFD, the system of confirmation of land rights "governs all rural, periurban and urban land and is based on a contradictory procedure for the confirmation of land rights".

The contradictory nature of this confirmation is based on the summoning of neighbours, neighbours and any other rightful claimant or successor in title for the disclosure of their rights, claims or the formation of opposition. Article 39 of the CFD defines the various property rights, including property, usufruct,

right of use, dwelling and surface area, easements, mortgages, privileges and leases entailing rights in immovable property.

Requirements for Land Acquisition

Any project requiring land acquisition must be carried out in accordance with Law No. 2017-15 amending and supplementing Law No. 2013-01 of August 14, 2013 on the Land Tenure Code in the Republic of Benin.

These laws define the legal provisions regulating access to property, the timeframes applicable to operations related to land and state-owned land, the stages in the procedure for confirming land rights, and expropriation for public utility purposes.

The expropriation process is triggered by the declaration of public utility by the competent authority. For projects of a national or regional scope, the competent authority to make the declaration is the President of the Republic; for those of a local scope, the competent authority is the commune. The declaration act of the public utility indicates the geographical area concerned by the construction work and the period during which the expropriation must be executed.

Following the declaration act, an enquiry is launched under the authority of a commission of enquiry, and within a month a report is prepared determining the land parcels and assets to be expropriated, their owners and any person who may claim compensation is filed. Also, a preliminary plan of the properties likely to be affected by the planned works is prepared. The report is then published and disclosed, and notified to the affected owners.

A commission subsequently assesses the expropriation compensation, which is submitted to the local council or the minister in charge of finance for approval, depending on the works to be executed.

The relevant decrees on acquisitions that require consideration are:

- Decree N°2015-007 of January 29, 2015 on the responsibilities, structure and functioning of the Consultative Council on Land Tenure (CCF);
- Decree N°2015-008 of January 29, 2015 on the responsibilities, structure and functioning of the Land Compensation Fund (FDF). The FDF is notably responsible for funding expropriation procedures for public utility purposes and related compensation;
- Decree No. 2015-010 of January 29, 2015 on the responsibilities, structure and functioning of the National Agency for Property and Land (ANDF);
- Decree N°2015-011 of January 29, 2015 on the terms and conditions for the transfer for valuable consideration, free disposal and rental of land and real estate in the private domain of the State and local authorities;
- Decree N°2015-012 of January 29, 2015 setting the terms and conditions for the grant, improvement and takeover of private state-owned concessions in rural areas;
- Decree N°2015-013 of January 29, 2015 on the composition and modus operandi of the commissions of enquiry of commodo and incommodo and on compensation in the case of expropriation for public utility purposes;
- Decree N°2015-016 of 29 January 2015 on the terms and conditions of occupation of the public property;
- Decree N°2015-29 of 29 January 2015 setting the terms and conditions for the acquisition of rural land in the Republic of Benin.

Expropriation in the Public Interest and Resettlement

Expropriation is the procedure by which a legal entity under public law (State, local authority) can oblige a private person, individual or company, to cede its real estate rights to it in return for "fair and prior" compensation.

The Land and State Land Code appears to be the legal framework of reference for expropriation in the public interest, an administrative procedure organised by Articles 211 and following of the Code.

In accordance with the provisions of article 211 of the said code, « the expropriation of buildings, in whole or in part, or of real property rights for reasons of public utility shall be carried out, failing an amicable agreement, by a court decision and against payment of fair and prior compensation ». Nevertheless, no compensation is provided for persons who settle less than 100 metres from the sea shore, nor at the edge of watercourses between 0 and 25 metres from them. These areas are in the natural public domain of the State.

In the Land and State Code (article 215), the cases in which expropriation for public utility is used or pronounced are specified. These include, among others, the construction of roads, railways, ports, airports, schools and universities, urban and rural planning and development works, research or mining works, works for the protection of the environment, hygiene and public health, and the development and distribution of water and energy, the installation of utilities, the creation or maintenance.

As the Project falls under the Government Action Program (GAP), it is part of general investment works and therefore falls under the regime of expropriation in the public interest.

Details of the expropriation procedure are set out in the Code in Articles 217 to 237. The provisions relating to expropriation have also been clarified by Decree n°2015-013 of 29 January 2015 on the composition and standard operation of the commodo and incommodo commissions of inquiry and compensation in matters of expropriation in the public interest.

Decree Nº 2017-332 on the Organisation of Environmental Assessment Procedures establishes resettlement policies such that any project that results in the involuntary physical or economic displacement of more than one hundred (100) people is subject to a Resettlement Action Plan (RAP).

According to Article 38 of Decree nº2017-332, the RAP shall include the following sections:

- a non-technical summary including a compensation identification sheet specifying the number of beneficiaries, the categories of assets to be compensated and the overall cost;
- a project description, highlighting the activities that may cause involuntary displacements;
- a presentation of the applicable legislation/regulations on expropriation for public utility, land tenure, social protection and specific compensation relating to the project sector;
- resettlement socio-economic assessment;
- the comprehensive inventory of negatively affected assets, persons and activities, highlighting the vulnerable affected persons;
- methodology and evaluation of compensation measures, their nature and costs;
- the summary of public consultation including information periods,
- information of schedules and deadline for resettlement survey and eligibility lists;
- the organisational framework of the resettlement with identification of the different stakeholders and their respective roles;
- grievance mechanism;
- resettlement surveillance mechanism and monitoring and evaluation of its outcomes;
- minutes of information and negotiation meetings and confirmation of rights and beneficiaries, and the list of names of beneficiaries.

3.4.6 Industry and Trade Sector Specifics

Two laws also apply to the Project in its industrial context:

- Law n°2017-07 of 19 June 2017 establishing the regime of Special Economic Zones in the Republic of Benin: it governs the creation, promotion, operation, administration, maintenance and development of Special Economic Zones (SEZ) in Benin.

- Ordinance n°2008-06 of 05 November 2008 amending Articles 11 new, 33 new, 47-1 and 47-2 of Law n°90-002 of 09 May 1990 on the Investment Code, as amended by Ordinance n°2008-04 of 28 July 2008. This order offers national and foreign companies customs and tax advantages.

3.4.7 Environmental and Social National Standards Applicable to the Project

Standards for Drinking Water Quality

Decree n°2001-094 of 20 February 2001 setting the quality standards for drinking water in the Republic of Benin lays down the standards for drinking water (Table 3.1).

Table 3.1 Drinking Water Standards (Decree n°2001-094)

Parameters	Unit	Values
Turbidity	UTB	5
pH	-	6.<pH<8.5
Colour	UcV	15
Taste	-	Harmless
Hardness	mg/l	200
Conductivity	µS/cm	-
Iron	mg/l	
Magnesium	mg/l	50
Manganese	mg/l	0.1
Zinc	mg/l	3
Chloride	mg/l	250
Calcium	mg/l	100
Cyanide	mg/l	0.2
Fluorides	mg/l	1,5
Nitrates	mg/l	45
Nitrites	mg/l	3.2
Sulphates	mg/l	500
Arsenic	mg/l	0.05
Barium	mg/l	1
Boron	mg/l	5
Cadmium	mg/l	0.005
Chromium	mg/l	0.05
Copper	mg/l	2
Mercury	mg/l	0.001
Nickel	mg/l	0.02
Lead	mg/l	0.05
Selenium	mg/l	0.01
Benzene	mg/l	0.01
Phenolic compounds	mg/l	0.002
E.coli	Nb/100mL	0
Faecal streptococci	Nb/100mL	0
Total coliform	Nb/100mL	0

Source: Decree n°2001-094 of the Republic of Benin

Standards for Wastewater Quality

Decree n°2001-109 of 4 April 2001 sets the quality standards for wastewater in the Republic of Benin, including industrial wastewater and domestic wastewater. According to Article 4 of this decree, "the discharge of industrial wastewater into storm water drainage channels is prohibited". Any discharge of wastewater into a receiving environment is subject to a discharge permit, issued upon written request to the Minister in charge of the environment. The permit issued contains the following information:

- average and maximum allowable flows;
- average and maximum allowable contaminant concentrations and loadings; and
- discharge compliance self-monitoring requirements.

Article 9 further requires that the points of release into the receiving environment be "as few as possible" and that each point be arranged to provide access to a point for sampling and measurement. Standards are then set by industry type, and standards for conventional and non-conventional contaminants are also set. Finally, the release of toxic substances into the environment must not exceed concentrations established.

With regard to domestic waters, these "may be discharged into the natural environment only after having undergone appropriate treatment so as to avoid pollution of groundwater tables" (art. 18).
Domestic water discharged must satisfy the following quality criteria:

- DB05 less than or equal to A 25 mg/l for a minimum percentage reduction of 70 to 90%;
- COD less than or equal to 125 mg/l for a minimum percentage reduction of 75%;
- TSS less than or equal to 35 mg/l for a minimum percentage of reduction of 90% in the case of an equivalent population greater than 100 and TSS less than or equal to 60 mg/l for a minimum percentage of reduction of 70%;
- a pH between 6 and 9; and
- a maximum temperature 1°C higher than the temperature of the receiving waters.

The implementation of an individual domestic wastewater treatment system requires a permit from the Ministry of Health.

Industrial wastewater discharge parameters as per Decree nº2001-109 are listed in Table 3.2.

Table 3.2 Industrial Wastewater Standards (Decree nº2001-109)

Physic-chemical parameters	Units	(A) Permitted daily average concentration		(B) Quantity of contaminant
		If quantity released <B	If quantity released >B	
DBO_5	mg/l	100	30	30 kg/day
MES	mg/l	100	35	15 kg/day
DCO	mg/l	100	125	100 kg/day
Total oils and fats	mg/l	100	30	1 kg/day
pH		6<pH<9 anytime		n/a
Temperature	°C	Up to 5°C higher than the temperature of the receiving waters		n/a
Phosphor	mg/l	100	10	15 kg/day
Total Nitrogen (NTK)	mg/l	200	30	50 kg/day
Sulphides	mg/l	2.5		50 g/day
Fluorides	mg/l	4		150 g/day
cyanides	mg/l	1.0		1 g/day
arsenic	mg/l	0.5		1 g/day
cadmium	mg/l	1.0		5 g/day
hexavalent chromium	mg/l	0.1		1 g/day
full chromium	mg/l	2.5		5 g/day
copper	mg/l	2.5		5 g/day
mercury	mg/l	0.03		0.1 g/day
nickel	mg/l	2.5		5 g/day
lead	mg/l	1.0		5 g/day
zinc	mg/l	5.0		20 g/day
Phenolic compounds	mg/l	1.0		3 g/day
Total hydrocarbons	mg/l	10		100 g/day
Aromatic hydrocarbons	mg/l	0.5		1 g/day
Monocyclic (HAM)	mg/l	0.5		1 g/day
Total halogenated hydrocarbons	mg/l	0.5		1 g/day
Polycyclic aromatic hydrocarbons	mg/l	0.5		1 g/day
Polychlorinated biphenyls (PCBs)	mg/l	0.15		0.5 g/day
Other contaminants	mg/l	5.0		10 g/day
Inorganic (each)	mg/l	5.0		1 g/day

Source: Decree nº2001-109 of the Republic of Benin.

Air Quality

Air quality in Benin is governed by Decree n°2001-110 of 4 April 2001 setting air quality standards. The decree includes ambient air quality standards applicable throughout the national territory (art. 3). It also sets standards for emissions from new or used light vehicles and trucks (art. 7), new or used heavy vehicles (art. 8), new or used motorcycles (art. 9) and establishments (stationary sources) (art. 17). The Project, both in the construction and operational phases, will result in air emissions from diffuse sources (light vehicles and construction machinery). It will therefore have to comply with this decree (Table 3.3 and Table 3.4).

Table 3.3 Air Quality Standards (Decree n°2001-110)

Pollutant	Duration of measurement period average	value
Ozone (O3)	Average over 8 hours	0.08 ppm
Carbon monoxide (CO)	average over 1 hour	40 mg/m3
Carbon monoxide (CO)	average over 8 hours	10 mg/m3
Sulphur Dioxide (SO2)	average over 1 hour	300 µg/m3
Sulphur Dioxide (SO2)	24-hour average	200 µg/m3
Sulphur Dioxide (SO2)	Annual average	80 µg/m3
Suspended particles (<10 microns)	24-hour average	230 µg/m3
Suspended particles (<10 microns)	Annual average	50 µg/m3
Nitrogen Dioxide (NO2)	24-hour average	150 µg/m3
Nitrogen Dioxide (NO2)	Annual average	100 µg/m3
Lead (Pb)	Annual average	2 µg/m3

Source: Decree nº2001-110 of the Republic of Benin.

Table 3.4 Emission Limits for Vehicles (Decree n°2001-110)

	Standard in force since	Total distance travelled (or years of use)	CO (g/km)	CO (%)	NOx (g/km)	COV (g/km)	Particles (g/km)
Light-duty vehicles	2004 and subsequent years	< 80 000 km (<5 ans)	1.1	1.5	0.13	0.08	0.08
		> 80 000 km (> 5 ans)	1.1	1.5	0.13	0.08	0.08
	2004 and subsequent years	< 80 000 km (<5 ans)	1.1	1.5	0.13	0.08	0.08
		> 80 000 km (> 5 ans)	1.1	1.5	0.13	0.08	0.08
			Parameters (g/kwh)				
			CO	**NOx**	**COV**	**Particles**	
Heavy-duty vehicles	Until 2010		20.8	6.7	1.7	0.34	
	2011 and subsequent years		20.8	5.4	1.7	0.13	

Source: Decree nº2001-110 of the Republic of Benin.

Noise

The control of noise pollution is carried by Decree n°2001-294 of 5 August 2001 regulating noise. This decree governs the permissible noise levels. This decree aims to ensure the control of the intensity of noise levels with the exception of noise from air and rail traffic, which are governed by specific provisions relating to these sectors. The limit values authorized by the decree vary according to the type of zone and the time of day. As specified in Article 7 of the Decree, these noise levels must be measured outside the enclosures housing the emission sources. For an Industrial Zone (Class 3 Environment) the Decree allows sound levels of no more than 70dB at any given time. International Standards applicable to the project

3.4.7.1 Cultural Heritage

National Legislation

The Republic of Benin has put in place multiple legal and institutional tools to protect its environment and natural and cultural resources. This part presents the different tools applicable to the project concerning cultural heritage.

National legislation for the protection and enhancement of heritage includes two laws fundamental to local communities. First is the constitution of March 1st, 1990, which protects cultural heritage. Article 10 of the constitution stipulates that “Everyone has the right to culture. The state has the duty to safeguard and promote the national values of civilization, both material and spiritual, as well as cultural traditions”.

Law 91-006

Law 91-006 of February 25, 1991, on the Cultural Charter in the Republic of Benin bases its policy on respect for national cultural differences and origins, the decentralization of cultural life, in particular the installation of efficient cultural infrastructure and equipment. The cultural charter also emphasizes the need to conserve, protect and enhance the physical and intangible heritage, which forms the basis of national cultural identity.

Law 2007-20

Law 2007-20 of 23 August 2007 on the protection of cultural heritage and natural heritage of a cultural nature constitutes a significant step forward for the protection of heritage. It also reflects the State’s will to protect everything that the Beninese people hold dearest through the expression of its creative genius, values of civilization, artistic and cultural manifestations, and movable and immovable property (law 2007-20, preface). Moreover, it legislates on matters relating to the protection of cultural heritage, including the following topics:

- The inventory and classification of elements of tangible and intangible cultural heritage.
- The right of pre-emption and export of cultural goods.
- The protection of cultural property in the event of armed conflict.
- The preservation and enhancement of habitats and traditional architecture.
- Archaeological excavations and discoveries as well as the penalties related to offenses committed in violation of the provisions of this law.

Law 97-029

Law 97-029 of January 15, 1997 concerns the organization of municipalities in the Republic of Benin. This law of decentralization specifies the areas “of the management of the patrimony of the Municipality.” Article 109 clearly states that “the management of the Municipality covers the area municipal, property, donations and bequests, municipal works and all other activities patrimonial under the competence of the Municipality.” Thus, the communities are founded, with regard to this law, to manage their cultural heritage within limits set by the 2007-20 law.

Regulators and Institutions with a heritage role

Ministry of Tourism, Culture and the Arts (MTCA)

The Ministry of Tourism, Culture and the Arts (MTCA) is the apex state body in the management of culture at the national level.

The Directorate of Cultural Heritage (DPC)

The Directorate of Cultural Heritage is a technical structure of the “culture” portfolio of the Ministry of Tourism, Culture and the Arts (MTCA). It was created by Order No. 037 of March 21, 2007, which

determines its mission, attributions, organization and operation. Under the terms of this decree, the DPC has for mission “the implementation of the policy of the State in material and intangible cultural heritage.” From this mission, the implementation is the responsibility of the five technical services and national and regional museums.

The mission of regional and national museums is to:

- collect, process, conserve and ensure the dissemination of heritage objects and the management of sites with a heritage character;
- enrich the collections with new pieces of cultural or aesthetic value; and
- carry out an information campaign with schools and learning centres to develop museum culture.

The Departmental Directorate of Tourism, Culture and the Arts (DDTCA)

The CCTCA is responsible for the implementation of the tourism policy at the departmental level. Within the framework of present sub-project, the National Agency for the Promotion of Heritage and Tourism (ANPT) will be supported by the DDTCA to promote its tourism activities at the Zou level.

The Tourist Development Department (DDT)

The Tourist Development Department plans and assesses the tourism sector, responsible for the identification and realization of investments and assistance to private promoters. Under its control, studies of development and layout will be carried out and can also be used for advisory assistance during project implementation. DDT will assist the National Heritage Promotion and Tourism Development (ANPT) in planning and evaluating tourism activities and identifying and realizing public investments.

Local authorities

The laws on decentralization (Law No. 97-029 of January 15, 1999) grant the Municipalities competencies as decentralized territorial collectives in environmental matters. They work together with the State and other communities in the administration and development of the territory, economic, social, health, cultural and scientific development as well as environmental protection and improvement of the living environment. According to the provisions of articles 84 to 86 of section 1 and of chapter III, the Municipality draws up and adopts its development plan. It ensures its execution in harmony with the national guidelines to ensure the best living conditions for the entire population. In this context, it develops and delivers, among other things:

- the economic and social development plan;
- the rules relating to the use and allocation of land;
- the detailed urban development and subdivision plan;
- permits to live and to build;
- and also ensures the permanent control of the conformity of the achievements and constructions with the regulations in force.

In accordance with the provisions of articles 94 and 96 of section 3, chapter III, the Municipality ensures the protection of natural resources, in particular forests, soils, fauna, hydraulic resources, groundwater and contributes to their better use. It implements its own policy for the management of the environment and natural resources but in accordance with national laws and guidelines. It regulates, authorizes and controls temporary occupation of its public domain.

It is consulted beforehand on all work on its public domain in order to ensure coordination of interventions. Law No 2007-20 of 23 August 2007 on the protection of cultural heritage and heritage

nature of a cultural nature in the Republic of Benin specifies the responsibility of local authorities and local communities to participate in grassroots heritage management.

Article 7 specifies that “the management, protection and safeguarding of local cultural property is the responsibility of the Municipality and regularly constituted local communities “. The Ministry through its decentralized structures directly or indirectly provide support to the Communes or to local communities. It gives its opinion each time the creation of any project in its territory is considered likely to harm the environment.

National Agency for the Promotion of Heritage and Development of Tourism (ANPT)

In terms of heritage promotion are to:

- identify and support the creation of infrastructures, developments, construction, renovation, rehabilitation of heritage;
- identify and support the implementation of initial and continuing training, design and limplementation of innovative projects, support for the management of sites and funding for innovative initiatives and projects;
- initiate, invent and create heritage projects of a tourist nature specific such as: original festivals, heritage buildings, tours, innovative tourism;

In terms of tourism development to:

- identify the sites and elements that create tourist wealth that are likely to create sustainable economic exploitation;
- to identify and secure areas throughout the national territory and sites offering tourist potential and wealth;
- to develop and enhance the sites and potential tourist attractions;
- develop partnerships for the development and development of different sites.

In terms of promotion and communication to:

- mobilize the necessary funding for the promotion of the sites;
- carry out marketing and communication actions at national ,underregional and international levels;
- promote artistic, cultural, tourist, socio-economic exchanges and trade between Benin and the countries of Afro-descendants.

The National Agency for the Promotion of Heritage and Tourism Development is administered by a Board of Directors composed of seven (7) members. It is chaired by the Special Advisor to the President of the Republic (CS / PR).The management of the Agency is ensured by a Director General appointed by Decree taken in Council of Ministers, on the proposal of the President of the Republic.

The Managing Director is responsible for the execution, coordination and management of the activities and assets of the Agency in accordance with the guidelines given by the Board of Directors.

3.4.8 International Conventions, Agreements and Treaties Signed or Ratified by Benin

Benin, as part of its policy of protecting the environment and promoting human rights, has acceded to several international conventions, the most directly related to the implementation of the Project are presented in the tables below with environmental, cultural and labour conventions.

In addition to the multilateral conventions and agreements ratified by Benin in its environmental protection policy, there are other agreements, treaties and conventions that are also applicable to the

Textile Unit Project. These conventions and agreements are summarized in **Error! Reference source not found.**.

Ratification of the listed international conventions provides Benin with the legal and political means to achieve its environmental conservation objectives and contributes to the conservation of the global environment.

Table 3.5 Summary of the Main Conventions Signed by Benin

Convention/Protocol	Ratification / Accession Date
Environmental	
Paris Climate Agreement to avoid climate change above a dangerous threshold of 1.5 degrees on December, 2015	31/10/2016
African Convention for the Conservation of Nature and Natural Resources of September 16, 1968 (Alger)	05/11/998
Ramsar Convention on Wetlands of International Importance of February 02,1971	20/01/2000
Convention on International Trade in Endangered Species of Wild Fauna and Flora of March 03, 1979 (CITES, Washington)	28/05/1984
Convention on the Conservation of Migratory Species of Wild Animals of June 23,1979 (Bonn)	01/04/1986
Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa of January 30,1991	21/01/1998
United Nations Framework Convention on Climate Change of May 09,1992 (New York)	30/06/1994
Kyoto Protocol - United Nations Framework Convention on Climate Change December 11, 1997	25/02/2002
Convention on Biological Diversity of June 05,1992	30/06/1994
United Nations Convention to Combat Desertification of June 17, 1994	29/08/1996
Stockholm Convention on Persistent Organic Pollutants of May 22, 2001	05/01/2004
Cartagena Protocol on Biosafety, 16/05/2002.	16/05/2002
Montreal Protocol on Substances that Deplete the Ozone Layer of March 22,1985	31/10/1988
Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region (Abidjan Convention)	16/01/1997
Social	
Convention 143 International Laours Organisation, concerning Migrations in Abusive Conditions and the Promotion of Equality of Opportunity and Treatment of Migrant Workers	11/06/1980
UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage	14/09/1982
Convention on the Protection and Promotion of the Diversity of Cultural Expressions (2005).	20/03/2008
Convention for the Safeguarding of the Intangible Cultural Heritage (2003)	17/07/2012
Convention concerning the measures to be taken to prohibit and prevent the importation, the illicit export and transfer of ownership of cultural property	01/03/2017

3.4.9 International Guidelines and Practices

A summary of the main environmental and social performance standards required by financial institutions being considered through the ESIA process in relation to this Project are summarized in **Error! Reference source not found.**.

Table 3.6 International Guidelines and Standards

The Equator Principles

The Equator Principles (EPs) are a risk management framework, adopted voluntarily by financial institutions, for determining, assessing and managing environmental and social risk in projects and are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

1. *Review and categorisation*
2. *Social and environmental assessment*
3. *Applicable environmental and social standards*
4. *Environmental and social management systems and equator principles action plan*
5. *Stakeholder engagement*
6. *Grievance mechanism*
7. *Independent review*
8. *Covenants*
9. *Independent monitoring and reporting*
10. *Reporting and transparency*

The ten EPs require that Projects conduct an ESIA process in compliance with the IFC Performance Standards on Environmental and Social Sustainability. The IFC Performance Standards are discussed below.

Also considered: The EP Guidance on Implementation of the Equator Principles During the Covid-19 Pandemic[4].

International Finance Corporation (IFC) Performance Standards

The IFC Performance Standards (PS) are directed towards providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate and, manage risks and impacts as a way of doing business in a sustainable way.

PS1 Assessment and management of environmental and social risks and impacts
PS2 Labor and working conditions
PS3 Resources efficiency and pollution prevention
PS4 Community, health, safety and security
PS5 Land acquisition and involuntary resettlement
PS6 Biodiversity conservation and sustainable management of living natural resources
PS7 Indigenous peoples
PS8 Cultural heritage

IFC Environmental, Health and Safety (EH) Guidelines

The Environmental, Health and Safety (EHS) Guidelines are technical reference documents that address IFC's expectation regarding the industrial pollution management performance of projects. This information supports actions aimed at avoiding, minimising, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility.

In the context of the proposed Project, the World Bank Group General EHS Guidelines (2007) and the IFC General Environmental, Health, and Safety Guidelines for Textile Manufacturing (2007) are the most relevant.

In addition to the above:

- A Good Practice Handbook for Cumulative Impact Assessment and Management (2013).
- A Good Practice Handbook for Companies Doing Business in Emerging Markets[5]
- Interim advice for IFC clients on safe stakeholder engagement in the context of covid-19[6] Interim advice for IFC clients on safe stakeholder engagement in the context of covid-19[7]

[4] https://mcusercontent.com/29a35e3ae7f22268fce033de7/files/47780b41-c7e5-4319-8ac4-a4736a01ab89/1620009666_GN_in_EPA_Format_Final.pdf

[5] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_handbook_stakeholderengagement__wci__1319577185063

[6] https://www.ifc.org/wps/wcm/connect/30258731-0e7d-4cb2-863c-a6fb4c6d0d95/Tip+Sheet_Interim+Advice_StakeholderEngagement_COVID19_May2020.pdf?MOD=AJPERES&CVID=n9s.b9a

[7] https://www.ifc.org/wps/wcm/connect/30258731-0e7d-4cb2-863c-a6fb4c6d0d95/Tip+Sheet_Interim+Advice_StakeholderEngagement_COVID19_May2020.pdf?MOD=AJPERES&CVID=n9s.b9a

IFC Stakeholder Engagement Handbook
IFC Stakeholder Engagement Handbook endeavors to provide a comprehensive overview of good practice in stakeholder engagement, with a dedicated focus on stakeholder groups that are "external" to the core operation of the business, such as affected communities, local government authorities, non-governmental and other civil society organizations, local institutions and other interested or affected parties.
IFC/EBRD Workers' Accommodation Processes and Standards
This guidance note, developed jointly by IFC and the EBRD, looks at the provision of housing or accommodation for workers by employers and the issues that arise from the planning, construction and management of such facilities. This publication aims to provide practical guidance to IFC and EBRD specialists, consultants and clients on appropriate policies and standards relating to workers' accommodation.

3.5 Sustainable Development Goals and Sustainability at GDIZ

The 2030 Agenda for Sustainable Development – a collection of 17 interlinked goals to achieve a better and more sustainable future – was set by the United Nations in 2015 and recognizes the importance of inclusive and sustainable industrialization. Industrial parks, as a catalyst facilitating industrial development, can contribute to the Sustainable Development Goals (SDGs) through promoting socially and environmentally responsible industrialization within the parks, setting an example for the rest of the country. Especially in developing countries, sustainable industrialization plays an important role in their progress on the SDGs.

The largest impact potential for industrial parks is on six of the 17 SDGs: namely goals number 6, 8, 9; 11, 12 and 13. The Project will seek to integrate strategies, planning and management measures into construction and operation activities that assist in Benin's commitment to achieving the SDG's:

- Goal 6: Ensure availability and sustainable management of water and sanitation for all;
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable;
- Goal 12: Ensure sustainable consumption and production patterns; and
- Goal 13: Take urgent action to combat climate change and its impacts.

At the same time, the future of industrial parks is being shaped by a number of trends:

- Increased number of industrial parks, leading to increased competition for investment, and increased pressure to improve the services offered;
- Increased urbanisation, leading to increasing pressure to better integrate industrial parks in residential and mixed use areas
- Better management of environmental externalities, increased awareness of climate change (green growth, circular economy)
- Digital transformation: opportunities and challenges for enterprises

In order to develop competitive, inclusive and sustainable industrial parks, adaptations to these trends need to be taken into account during all stages of the development, from planning to performance evaluation. These will be further discussed in the ESIA.

3.6 Environmental and Social Responsibility of the Promoter

SIPI Benin as owners of the GDIZ believes that maintaining high environmental, social and governance (ESG) standards is the best method to mitigate risks and will help to generate value sustainably through better governance, socially positive outcomes and reducing SIPI Benin's environmental impact. SIPI Benin is therefore committed to respect the International Finance Corporation (IFC) Performance Standards for Environmental and Social Sustainability across its corporate and project level practices. It also has a clear and well-structured set of environmental and social policies and standards to which

it abides by, which are gathered in the company Environmental and Social Management System (ESMS) Manual (cf. § 10.2.1).

SIPI Benin ESG performance objectives are supported by several associated corporate policies, which are, but not limited to the following:

- Ethical Recruitment Policy;
- Code of Conduct;
- Environmental Sustainability Policy (ESP); and
- Health and Safety Policy (HSP).

In addition SIPI is developing several governance and management tools aligned with the International Finance Corporation (IFC) Performance Standards. (See Section 2.9)

In addition to these tools developed for the full GDIZ Industrial Park, a Sustainability Policy Statement has been developed for the Textile Park.

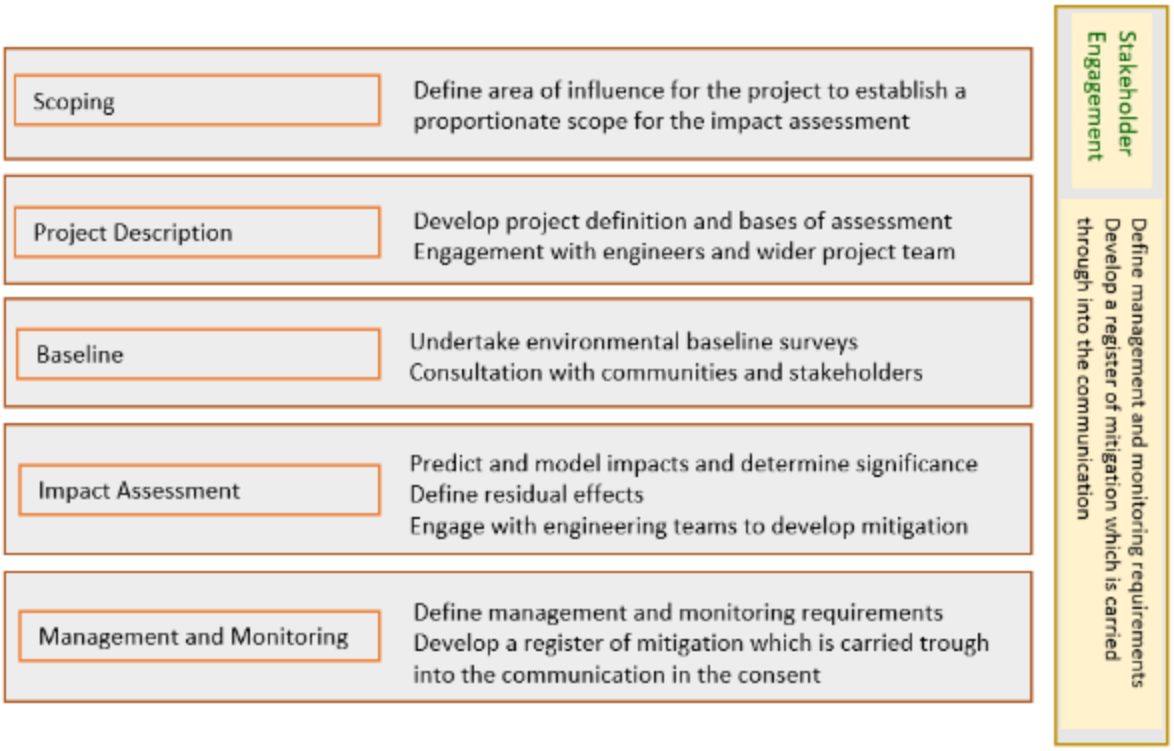
4. ESIA PROCESS AND METHODOLOGY

4.1 Overview

ESIA is a systematic process that predicts and evaluates the impacts a project is likely to have on key aspects of the receiving physical, biological and socioeconomic environment. The ESIA process identifies measures that a project will take to avoid, reduce, remedy, offset or compensate for adverse impacts, and also to provide benefits, to the extent these are reasonably practicable. ESIA is an iterative process in which findings are regularly fed back into the assessment process.

The ESIA process to be implemented for this Project will be undertaken through a number of stages, as shown in Figure 4.1.

Figure 4.1 ESIA Process



Source: ERM, 2021

4.2 Scoping

The key objective of the scoping phase is to identify activities which can be 'scoped in' or 'scoped out' from the ESIA study. Activities will only be 'scoped out' for the ESIA if it is determined that there will be no significant impacts resulting from these activities. Activities will not be scoped out if it is determined that there is insufficient information to be confident that the activity will have no significant impact. The greater the level of definition that can be given to the Project description, legal scope and baseline at the scoping stage, the less 'precautionary' the process can be in scoping activities in or out of the ESIA.

The scope of the ESIA will fall under three broad categories:

- technical scope;
- spatial scope; and
- temporal scope.

The scoping process for the Project involves setting out the scope of the ESIA for these categories. Then, based on knowledge of the intended activity at the time of scoping and the Project's environmental and socioeconomic setting, identifying the key issues for the ESIA to address.

The scoping process is informed by interaction with the Project design team but can also be further refined based on consultation with a range of stakeholders during its preparation.

The Scoping Report also determines the Terms of Reference for the ESIA (refer to Section 9). However, it should be noted that scoping is effectively an ongoing aspect of ESIA, allowing the ESIA process to consider new information, respond to it and include it in the ESIA as required.

4.3 Existing Environmental and Social Baseline

Baseline conditions are defined using a combination of publicly available data and information, as well as specially commissioned surveys, specific to the Project. Each topic scoped into the impact assessment will have its relevant study area (in terms of scale and receptors) and data sources it has drawn from (including specific surveys).

A site visit was undertaken in November/December 2021 by ERM and LINER consultants to collect data to support the current scoping assessment. The site visit included a walkover on sensitive locations identified along the Project site, with primary data collection and contact with several stakeholders.

4.4 Project Description

This report includes a description of the Project as it is currently understood. However, it is important to note that the Project design process is iterative and informed by the ESIA process and other studies being undertaken in parallel that are gathering additional information/data on the proposed Project and site. The Project will include a detailed design phase, where the mitigations of the ESIA and other reviews will be taken into consideration in order to mitigate the impacts.

Certain aspects of the Project design will therefore evolve throughout the ESIA process. In order to accommodate this required flexibility, and at the same time maintain a rigorous ESIA process, the assessment will consider a Project description based on a design “envelope” using a reasonable, worst-case approach.

4.5 Impact Assessment Methodology

The assessment of impacts is an iterative process underpinned by four key questions:

1. **Prediction:** what change to the environment will occur if the Project were to happen?
2. **Evaluation**: what are the consequences of this change? How significant will its impact be on human and environmental receptors?
3. **Mitigation**: if it is significant can anything be done about it?
4. **Residual Impact**: is it still significant after mitigation?

Where significant residual impacts remain, further options for mitigation will be considered and where necessary impacts are re-assessed until they are reduced. This is part of an iterative ESIA process. The result of the process (once the proposed mitigation is incorporated into the Project design and the Project is assessed in its entirety) is reported in the ESIA.

4.6 Mitigation

One of the key objectives of an ESIA is to identify and define socially and environmentally acceptable, technically feasible and cost-effective mitigation measures. These should avoid unnecessary damage to the environment; safeguard valued or finite resources, natural areas, habitats and ecosystems; and protect humans and their associated social environments. For each significant adverse impact of the Project identified during the ESIA process, the specialists undertaking the assessments will identify mitigation measures that are consistent with statutory requirements and good practice in their respective field.

Mitigation measures are developed to avoid, minimise, reduce or remedy (*e.g.* reinstate or restore) any negative impacts identified, and to create or enhance positive impacts such as environmental and social benefits. In this context, mitigation measures may include design measures and construction practices, as well as management actions. In some instances, mitigation alone may not be sufficient to reduce an impact or effect to acceptable levels and other measure such as offsets can be considered. However, it is good practice to consider mitigation measures in the form of a hierarchy where avoidance is the primary objective and offset is a last resort. These measures are often established through industry standards and may include:

- changes to the design of the Project during the design process (e.g. location of components, size of structures);
- construction working practices (e.g. routing of construction traffic, dust suppression); and
- operational plans and procedures (e.g. Environmental Management Systems).

For impacts that are initially assessed to be of major significance, a design change is usually required to avoid, minimise or reduce these, followed by a reassessment of significance. For impacts assessed to be of moderate significance, specific mitigation measures such as engineering controls are usually required to reduce the impacts and their impacts to levels as low as reasonably practicable. This approach considers the technical and financial feasibility of mitigation measures. Impacts assessed to be of minor significance are usually managed through the implementation of management plans, good industry practice, operational plans and procedures.

5. BASELINE CONDITIONS

5.1 Physical Environment

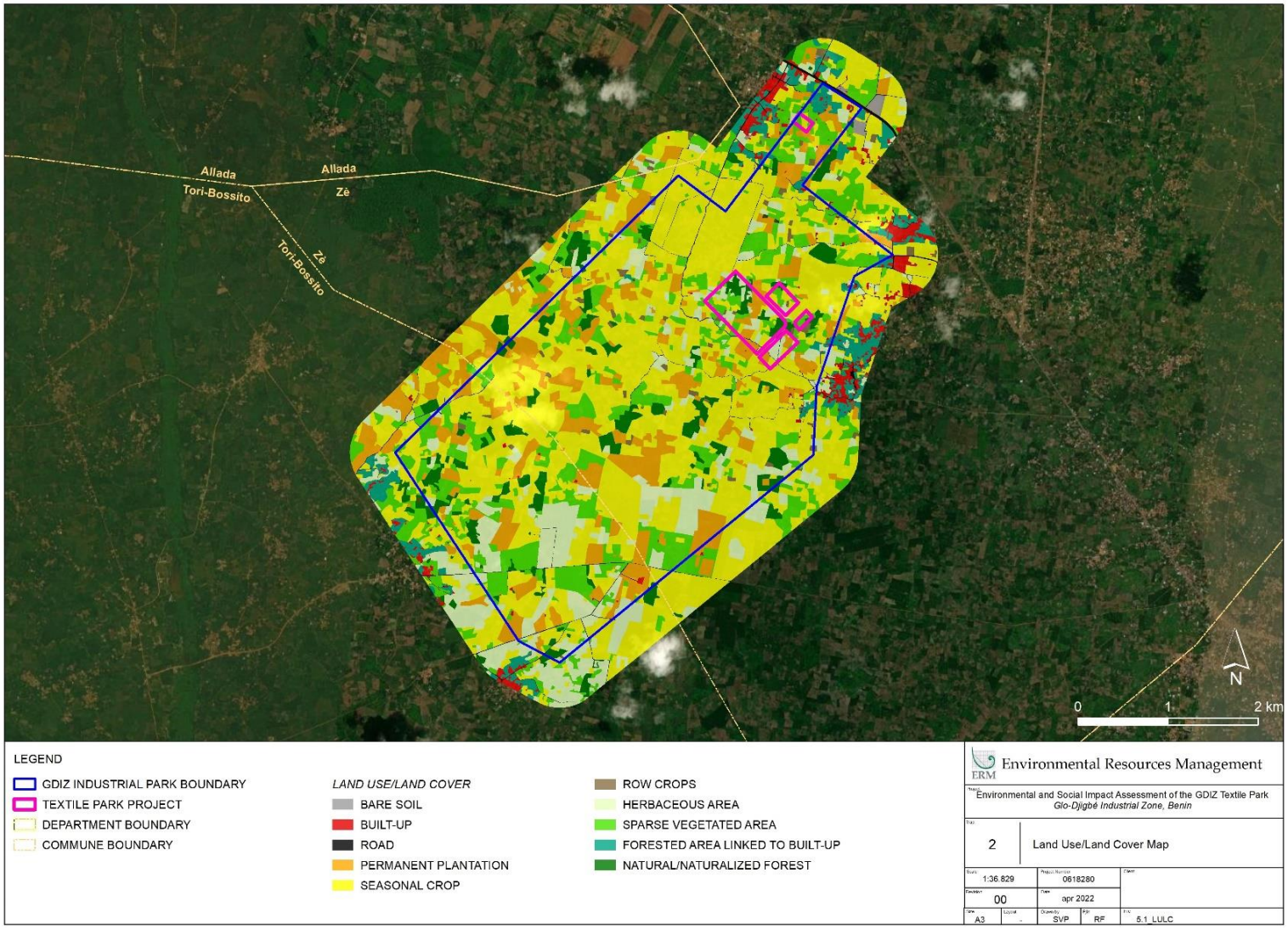
5.1.1 Land Use / Land Cover

As mentioned in the Project Description Section (Section 2), current land use within the Project Direct Area of Influence changed substantially in the last months due to the ongoing GDIZ construction works. Current land use includes industrial, logistics (near the GDIZ entry points), residential, commercial near major roads, and green spaces: to keep a more natural environment in the otherwise industrial areas. The space on which the development of Textile Park is planned is entirely on Industrial land). Completion of works for the Textile Park are expected by mid-2024.

The surrounding area is characterized by the presence of settlements and roads, in the southern, as well as the north-western portion. The remaining area is mainly covered in croplands, shrubs or sparsely vegetated areas, and open forests (Figure 5.1).

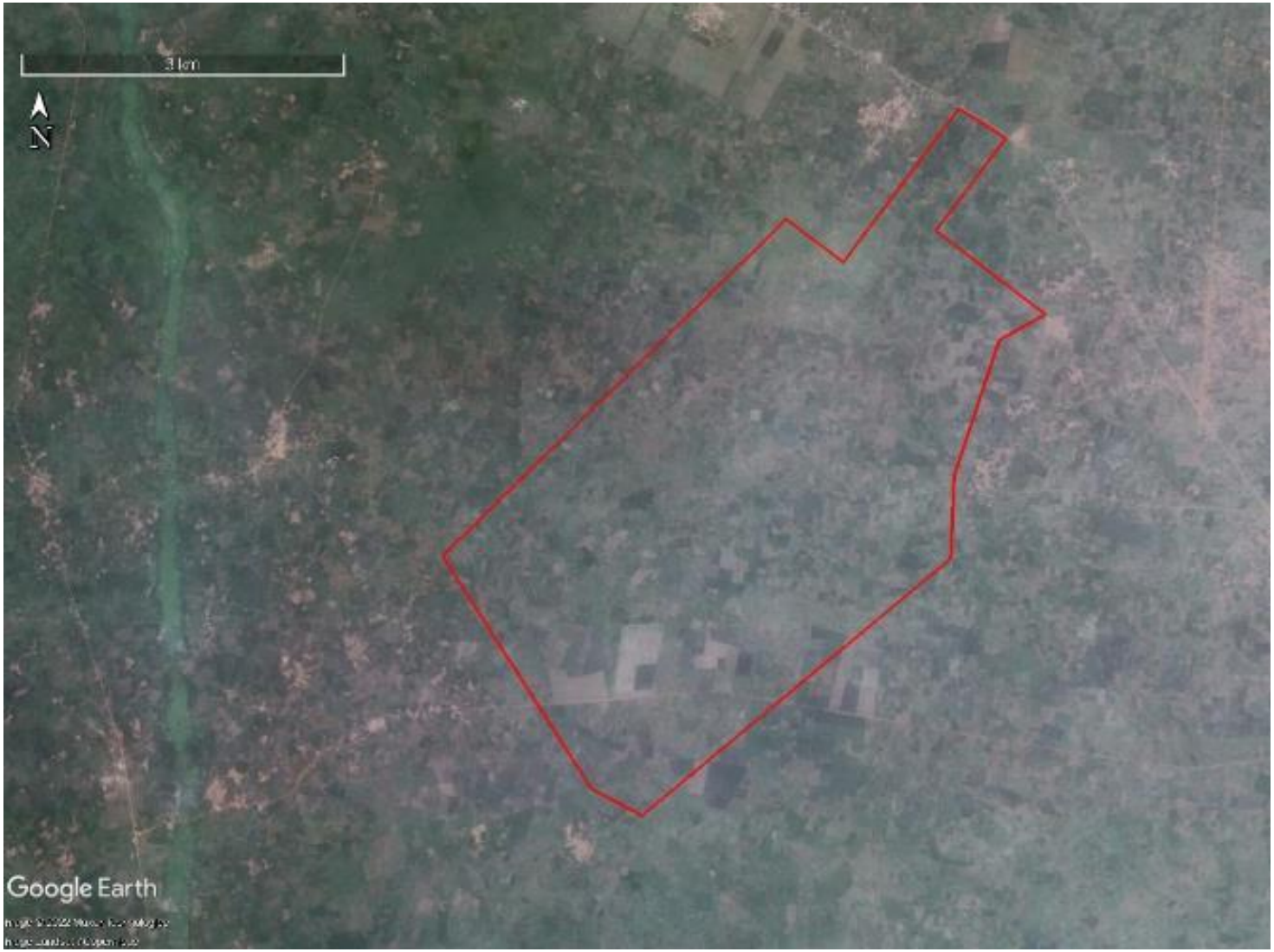
Historic aerial views retrieved through Google Earth® show that prior to the start of the works on the area, in 1985, the site was mostly undeveloped, with a high tree and shrub cover. The area underwent intense clearing, and in 2011 historic images show that it was almost entirely turned into croplands, with roads connecting them, and small, mostly isolated buildings (Figure 5.2).

Figure 5.1 Current Landcover Map



Source: ERM, 2022

Figure 5.2 Previous Land Use in the Project Area



Source: Google Earth – Landsat/Copernicus – 1/10/2011

5.1.2 Climate and Climate Change Risks

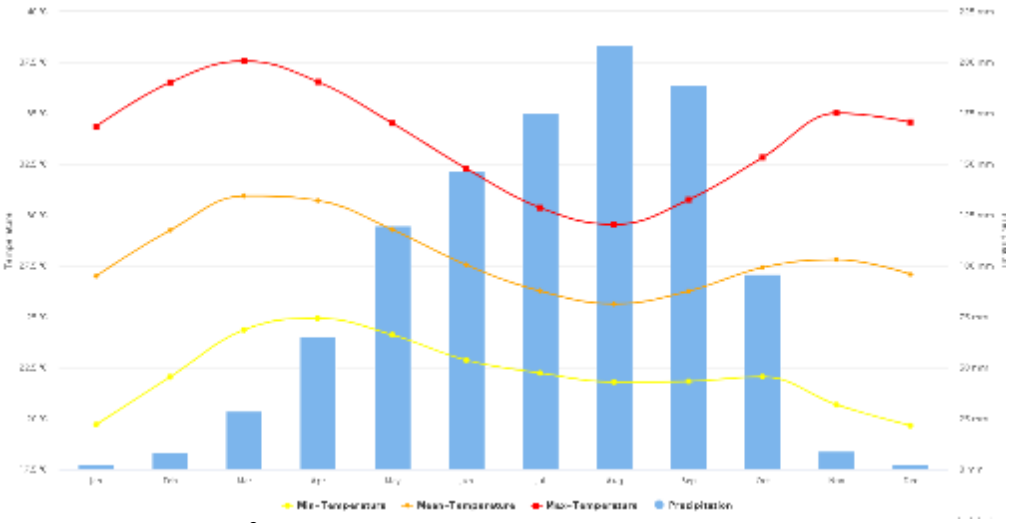
According to the Köppen-Geiger Climate-Classification measured between 1986 and 2010, the Project area can be classified as Tropical savanna climate (Aw). This hot and humid tropical climate is characterized with distinctive wet and dry seasons with a strong influence of the West African Monsoon[8].

The study area is marked by a sub-equatorial climate characterized by four seasons, including a major rainy season from April to July and a major dry season from December to March. The average annual rainfall is about 1,200 mm and average monthly temperatures vary between 27 and 31 degrees Celsius. The average sunshine is 5.14 Kw/m2/day and the winds are characterized by the occurrence of a strong wind in the dry season and at the end of the rainy season. The average precipitation and temperature in Benin are shown in Figure 5.3.

Using the town of Allada (which is the nearest town 10 km from the Project site) for reference, wind direction is predominately from the S, SSW direction. Wind speed in the Project area generally varies between 5 km/h and 19 km/h. A wind rose is presented in Figure 5.4 below.

Table 5.1 includes the climate hazards that are considered material in the Project region.

Figure 5.3 Average Precipitation and Temperature in Benin

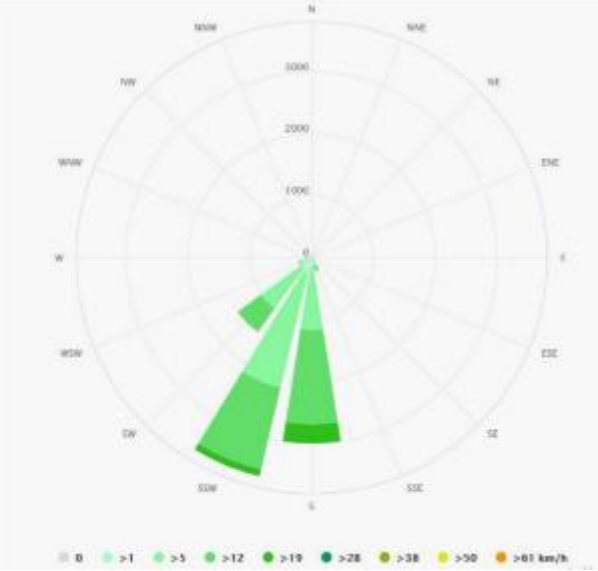


Source: World Bank 2021[9].

[8] http://koeppen-geiger.vu-wien.ac.at/present.htm

[9] World Bank Climate Change Knowledge Portal (2021). Available at: https://climateknowledgeportal.worldbank.org/country/benin/climate-data-historical

Figure 5.4 Wind Rose



Source: WorldWeatherOnline.com, 2021[10].

Table 5.1 Relevant Climate Hazards in the Project Area

Hazard	Hazard Level Valuation
River flood	High
Wildfire	High
Urban flood	High
Coastal flood	Medium
Extreme heat	Medium
Landslide	Very low
Water scarcity	Very low
Earthquake	Very low

Source: Think Hazard, 2021[11]

5.1.3 Greenhouse Gas and Emissions

The development of the Project will increase the amount of greenhouse gas (GHG) emissions contributing to climate change. Emissions will occur during the construction and operation phases. There is available information to calculate the GHG emissions during construction (eg. assumed average fuel consumption for construction equipment) and operation phase (eg. assumed average power consumption for operating equipment) of the Project. GHG emissions will be assessed using the data and energy and fuel consumption included in Section 2.

[10] https://www.worldweatheronline.com/allada-weather-averages/zou/bj.aspx

[11] The Global Facility for Disaster Reduction and Recovery (GFDRR) Think Hazard. Available at: https://thinkhazard.org/en/report/611-benin-atlantique/

World Bank Climate Change Knowledge Portal (2021). Available at: https://climateknowledgeportal.worldbank.org/country/benin

World Bank Climate Change Knowledge Portal (2021) Available at: https://climateknowledgeportal.worldbank.org/country/benin/climate-data-projections

5.1.4 Geology and Soils

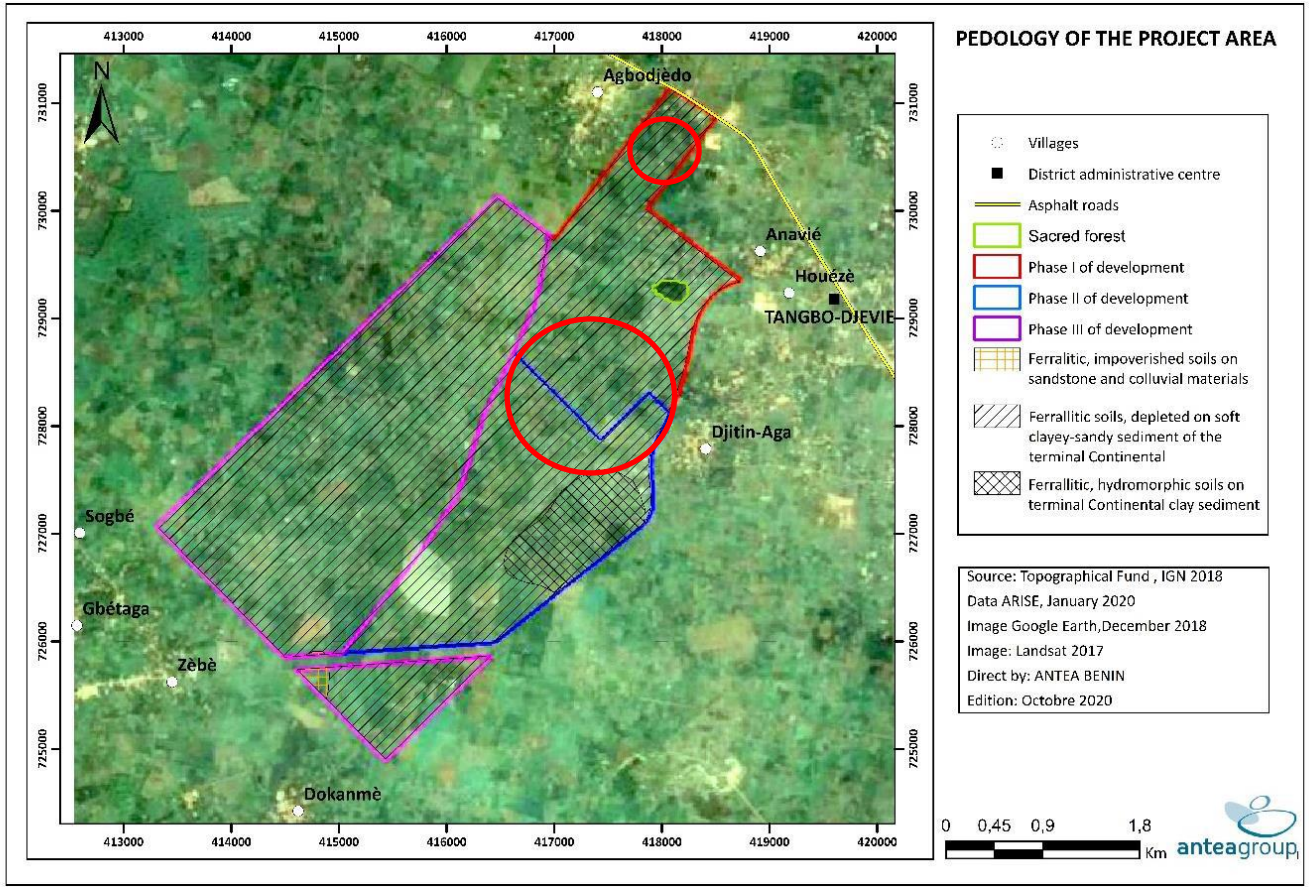
The geology of the area corresponds to that of the coastal sedimentary basin of Precambrian to Eburnian age with a sedimentary origin. The main formations encountered are Maastrichtian (Upper Cretaceous), Paleocene, Ypresian (Lower Eocene), Lutetian (Middle Eocene), Terminal Continental and Quaternary formations. The soils in the project area belong geologically to the coastal sedimentary basin plateaus. Including the barrier beach, the lagoon system and the bar land plateau, the dominant soils are ferruginous, ferralitic soils, hydromorphic soils, or poorly developed (Figure 5.5 Pedology of the Project Area).

The soil survey carried out for the ESIA of the entire GDIZ complex (Antea, 2020) examined eight soil samples. No trace of pollution (pesticides, hydrocarbons or metals) is observed. All results are above the guidelines values. In the absence of national standards, the various results obtained were compared to Dutch standards. In general, the figures obtained are within the limits of the thresholds.

In-situ non-detailed observations show no evidence of spills or persistent traces on site that would suggest targeted soil contamination within the plot boundaries.

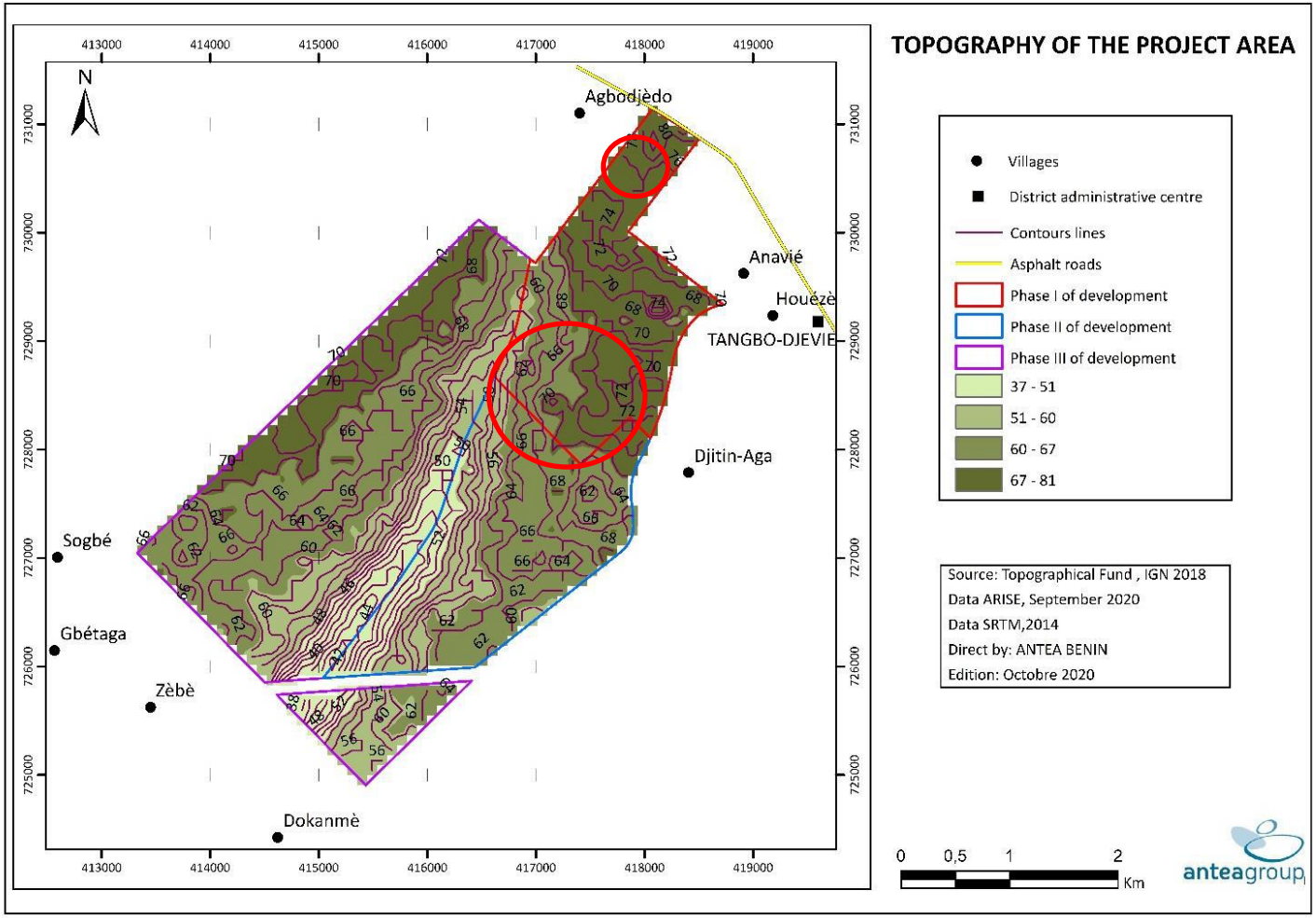
Topographically, the area is a valley with a slight east-west inclination, towards the Lama River (Figure 5.6). Depressions are observed especially in the southern part towards Tori-Bossito. Relatively flat terrain is also present, with punctual, small depressions. The soils are generally poor in organic matter with a low exchange capacity and low water retention capacity, which favours runoff rather than infiltration. The highest point is located towards the eastern part of the site, and the lowest points, towards the western.

Figure 5.5 Pedology of the Project Area



Source: ANTEA,2020
Red circles: Approximate location of Project infrastructure.

Figure 5.6 Topography of the Project Area



Source: ANTEA,2020
Red circles: Approximate location of Project infrastructure.

5.1.5 Seismicity and Volcanic Activity.

Earthquake hazard in Benin is classified as very low, according to the Think Hazard platform of the Global Facility for Disaster Reduction and Recovery (GFDRR, 2021). This means that there is less than a 2% chance of potentially damaging earthquakes shaking the Project area in the next 50 years. There are no registered volcanoes in Benin[12].

5.1.6 Hydrology and Hydrogeology

5.1.6.1 Hydrology

The Southern Atlantic Department of Benin is marked by a large number of rivers, draining the mainland and discharging into the Atlantic ocean. The Southern department is characterized by 3 main rivers:

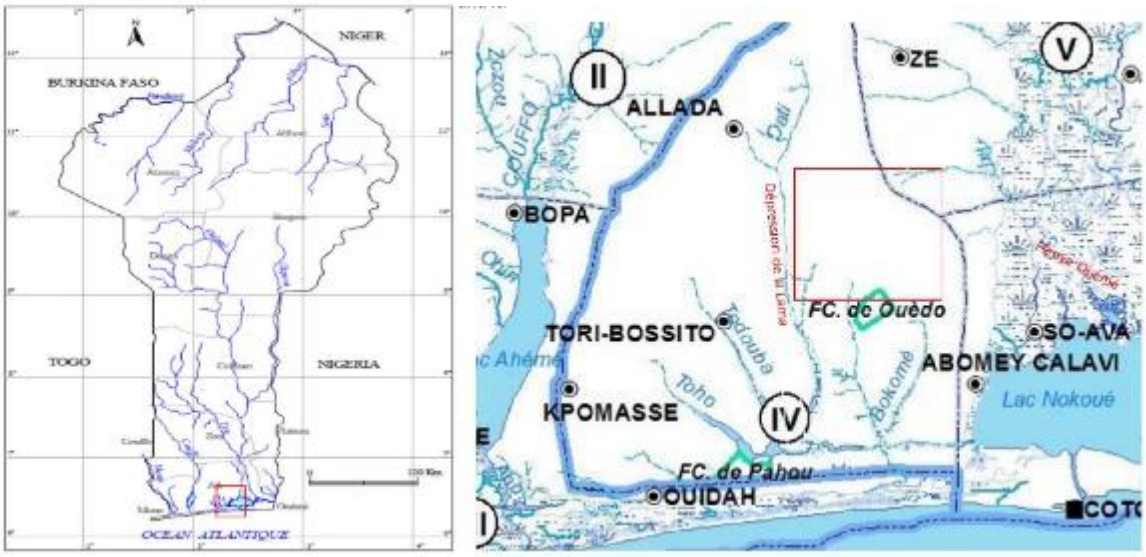
- The Mono river on the border with Togo;
- The Couffo river discharging into Lake Aheme; and
- The Oueme River discharging into Lake Nokoue.

During the rainy season; the Couffo river is prone to flooding. Lakes Aheme and Nokoue are connected and are a part of a vast lagoon system along the coastline.

The location of the Project area in the hydrographic network of southern Benin is displayed in Figure 5.7.

The Project site is located between the Oueme River in the east (about 25km from the Project site), and the Lama Depression or Lama River in the west (2-3 km from the Project site). In the Lama Depression a number of swamps are present in the dry season, which turn into actual water bodies during the rainy season.

Figure 5.7 Hydrological Map of Benin and Project Area



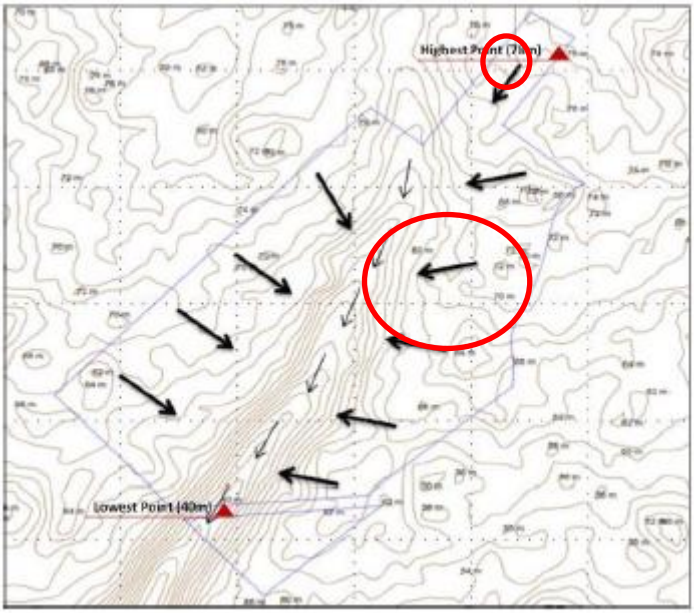
Source: ANTEA, ESIA 2020
Red square: Project site location

As mentioned before, the Project area topography has the shape of an open valley, sloping downwards from the highest point in the northeast, to the lowest point in the southwest of the Project site. Rainwater runoff follows the topographical pattern and is collected in this valley and transported offsite in the lowest point in the southeast (Figure 5.8). No permanent streams or wetlands seem to exist on the Project site

[12] https://thinkhazard.org/en/report/29-benin

however, in a couple of areas swampy conditions exist because of local depressions in the topography, or reduced runoff because of the cultivation of crops.

Figure 5.8 Topography of the Project site



Source: ANTEA, ESIA 2020
Red circles: Approximate location of Project infrastructure.

5.1.6.2 Hydrogeology

The Project site is located in the coastal water basin of Benin, which consist of four main aquifers (from bottom to top):

- The confined aquifer of the Upper Cretaceous sands, commonly known as the Maestrichtian aquifer;
- The confined aquifer of the Paleocene limestone and sand;
- The free aquifer of the sands and gravels of the Terminal Continental; and
- The free aquifer of recent littoral sands of the Quaternary aquifer.

Flows are generally between 2 and 50 l/s. The transmissivity is generally 80 to 900 m²/d. The storage coefficient is generally 10-6 to 10-5. Coastal sedimentary aquifers are generally 20 to 150 m thick, with boreholes reaching depths of 10 to 100 m. Where aquifers are unconfined, the depth of the aquifer can vary from 5 to 50 m below ground. In Southern Benin, groundwater is the main source of drinking water. In the study area, a number of groundwater extraction wells/systems have been noted:

- Traditional wells for collective use (in houses or public areas). These wells are generally shallow, not covered and therefore exposed to pollution;
- Modern wells, These wells are generally deeper than traditional wells; and
- Village water conveyances, e.g. standpipes connected to water towers installed in the districts.

During the preparation of the ESIA Phase 1 (Antea, 2020) surface water samples were taken from a number of private wells, constructed in cropland in and around the Project site. The results of these samplings are displayed in **Error! Reference source not found.**. Overall, the water remains within the quality thresholds. Only the concentration of Lead in sampling location GW_04 exceeds the WHO guideline for drinking water. The national threshold value for drinking water and the Australian threshold value for irrigation water are however not exceeded. Generally speaking, pH values are on the low side, which is not unusual for groundwater.

No hydrocarbon concentrations above detection limit were measured. Limited concentrations of Zinc were measured in GW_04 and GW_05, although no health based guideline value has been proposed.

In addition, GDIZ has planned to have at least seven borewells for to meet the water needs of the industrial zone during the construction phase. On the 30th of November 2020 a groundwater sample was collected on the Project site (drilling named S24 F7) to determine the suitability of the water quality (**Error! Reference source not found.**).

5.1.7 Air Quality and Noise

The Project is located approximately about 40 km north of Cotonou city centre. The area enjoys a sub-equatorial climate, marked by four seasons: two dry (December-March and July-August), and two rainy (April-July and September-November). Based upon previous ERM experience, professional judgement, the local climatic conditions and the nature of the study area, it is very likely that applicable air quality standards for particulate matter and dust will be exceeded during the dry months (December to March).

The current air quality in the study area will likely be influenced by potential residential combustion sources (cooking, power generation, and open fires), small to large scale agricultural activities and road traffic (especially on RN2) and industrial activities.

It is understood that vegetative clearing and construction activities relating to the development of the industrial park area (phase 1) has already commenced. It is likely that the baseline monitoring will be affected give the scale of the current operations; however, efforts have been made to keep distance from the construction areas during the installation of the baseline monitoring equipment.

Currently, the following industrial activities are expected to settle in the GDIZ area, which will likely affect air quality:

- steel and concrete factories;
- stone, plywood, and textile processing/production industries;
- shea, soya, cotton, cashew and palm oil processing industries, including a flourmill and a beverage manufactures;
- two fuel stations;
- computer and electric bike assembly facilities; and
- pharmaceutical industries.

Residential areas near the site include the villages of Agbodjedo, Anavié, Djitin-Aga and Houeze (in the municipality of Zè); and Dokanmé Gbetaga, Sogbé and Zebé in the municipality of Tori-Bossito. There are a number of schools in the districts of Tangbo-Djevie and Tori-Cada: two kindergartens, three kindergarten-primary schools, five primary schools and one secondary school.

Within the GDIZ Textile Park there will be accommodation provided for 547 staff (Grade 4A, 4B, 5A, 6A, 6B). These human receptors in the study area are considered of medium sensitivity; further details on receptors will be provided in the ESIA. Of the protected areas identified in section 5.2.2 the Ramsar site “Oumémé Valley, Porto-Novo lagoon and Nokoué Lake complex”, the Ouémé Lower Valley UNESCO Biosphere Reserve, and the Sacred Forest of Anavié fall within the study area.

Noise is expected to perceived by the receptors present in the immediate vicinity of the Project, including workers, farmers near the area and people from the closest settlements. The fauna in the Anavié forest could also be impacted by noise.

5.2 Biological Environment

According to Adomou *et al*. (2006[13]), Benin can be phytogeographically subdivided in four floristic zones or phytogeographical districts (Figure 5.9). Such The four clusters can be described as follows:

- Southern floristic zone: semi-deciduous forests on the southern part of the country. In this zone, rainfall regime is bimodal with a rainfall gradient from east to west, and the the soil is ferrallitic without concretions.
- Central-western floristic zone: dry semi-deciduous forest from the centre-western part of the country, where the rainfall regime is, the soil is ferralitic with concretions. includes dry semi-deciduous forest with the exclusive presence of Khaya grandifoliola and Aubrevillea kerstingii.
- Central-northern floristic zone: encompasses woodlands, savannah woodlands, and tree savannahs, the rainfall regime is unimodal with an annual rainfall of 1000-1200, and the soil is ferruginous. The tree layer cover ranges from 40 to 80%.
- Far north floristic zone: includes tree and shrub savannahs, rainfall regime is unimodal, and soil is ferruginous. The tree layer is very sparse (cover less than 20%) or practically absent.

Each phytogeaographic zone can be further divided in subzones. The main four zones-subzones correspond to a high degree to the classic phytogorological regions defined by White in 1983[14] (Guineao-Congolian, Guineo-Sudanian transition zone, and Sudanian region. The Project is located in the Southern floristic zone, in the subzone known as Ouémé Valley, which includes swamp forests on hydromorphic soil, and exclusive species such as *Mitragyna ledermannii, Uapaca paludosa, Syzygium owariense, Xylopia rubescens, Anthostema aubryanum*, and *Rothmannia munsae*. The annual rainfall ranges from 1100-1300 mm. The area has experienced intense human modifications in the last decades (mainly due to deforestation and cropland creation).

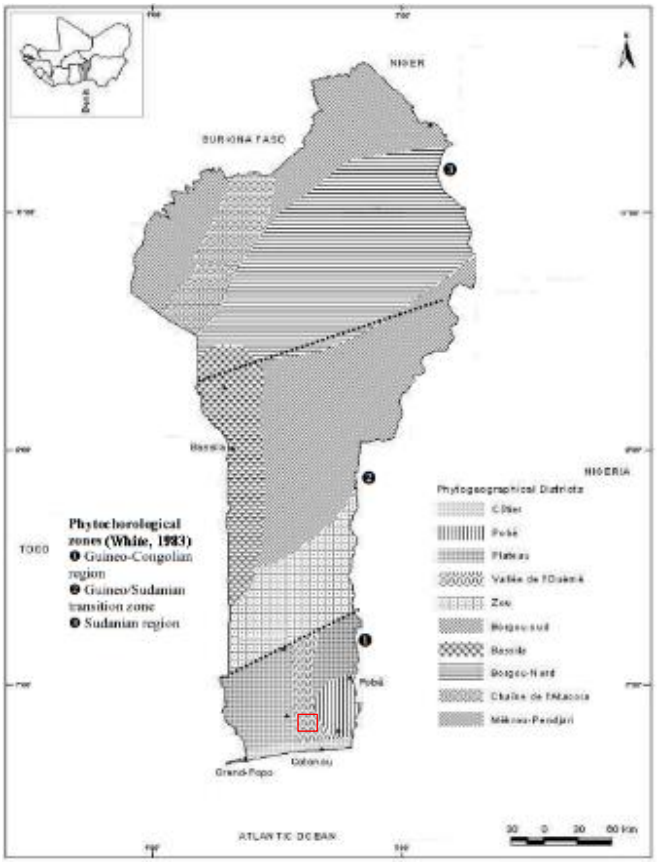
5.2.1.1 Habitats

The Project area (50 Ha) is an agricultural area characterized by pineapple plantations (dominant plantation), cassava, oil palm and tree plantations (acacia, teak and eucalyptus), as well as food crops (corn, peanuts, etc.), with a few houses, livestock farms and fallow land are found. Herbaceous and shrubby species are predominant (Figure 5.10).

[13] Adomou, A. C., Sinsin, B., & van der Maesen, L. J. G. (2006). Notulae Florae Beninensis 12: Phytosociological and Chorological Approaches to Phytogeography: A Meso-Scale Study in Benin. Systematics and Geography of Plants, 76(2), 155–178. http://www.jstor.org/stable/20649708

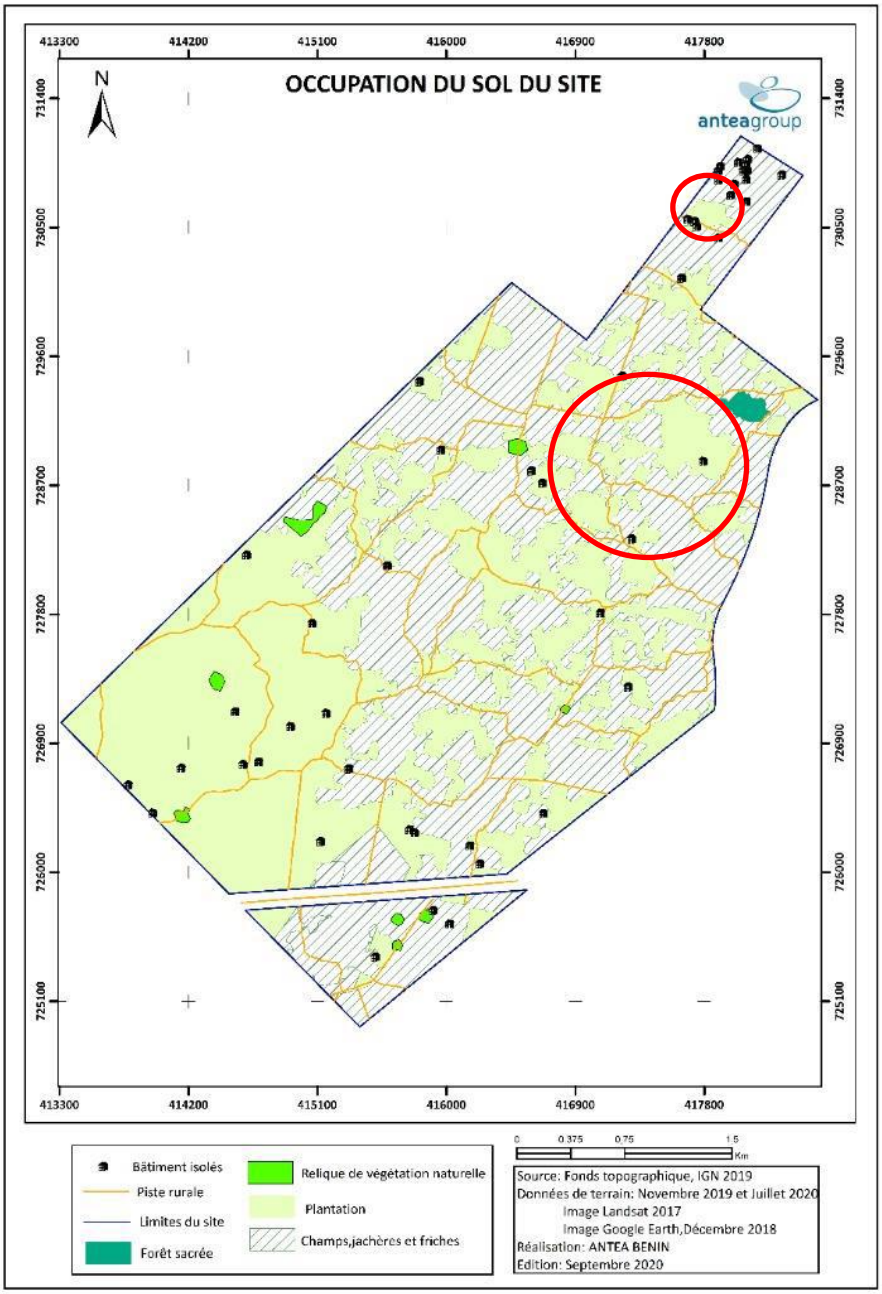
[14] White, F. (1993). The AETFAT chorological classification of Africa: history, methods and applications. Bulletin du jardin botanique national de Belgique/Bulletin van de Nationale Plantentuin van België, 225-281.

Figure 5.9 Phytogeographic Areas of Benin



Source: modified from Adomou et al., 2006.

Figure 5.10 Habitats found in the Project Site



Source: ANTEA, ESIA 2020.
Red circle: Approximate location of Project Infrastructure

Figure 5.11 Example of a Pineapple plantation near Djitin Aga

Source: ERM, 2021.

The surroundings of the Project show the same mosaic pattern. A series of more or less concentrated dwellings and exploitations can be found outside the eastern area of the Project, increasing in concentration towards the Inter-State National Road 2. A small relict forest (the sacred forest of Anavié) can be found 200m away from the northeastern edge of the Project.

5.2.2 Protected Areas

According to the African Forest Landscape Restoration Initiative, Benin has no undisturbed primary forest and has lost 29% of its forest cover since 1990. Protected areas have been developed to counter this trend.

In Benin, protected areas are defined according to Decree No. 2011-394 of 28 May 2011 establishing the modalities of conservation, development and sustainable management of wildlife and its habitats in the Republic of Benin, as “all continental or marine areas benefiting from special protection and management measures”. They include classified forests, integral nature reserves, national parks, protected marine areas, wildlife reserves, special reserves or wildlife sanctuaries and hunting areas.

- Classified Forests (*Forêts Classées*);
- A National Park (*Parc National*);
- Hunting Zones (*Réserve Cynégétique*);
- Sacred Forests (*Forêts Sacrées*);
- Communal Forests (*Forêts Communales*);
- Community Reserves (*Réserve Communautaire*); and
- Marine protected areas (*Aires Marines Protégées*).

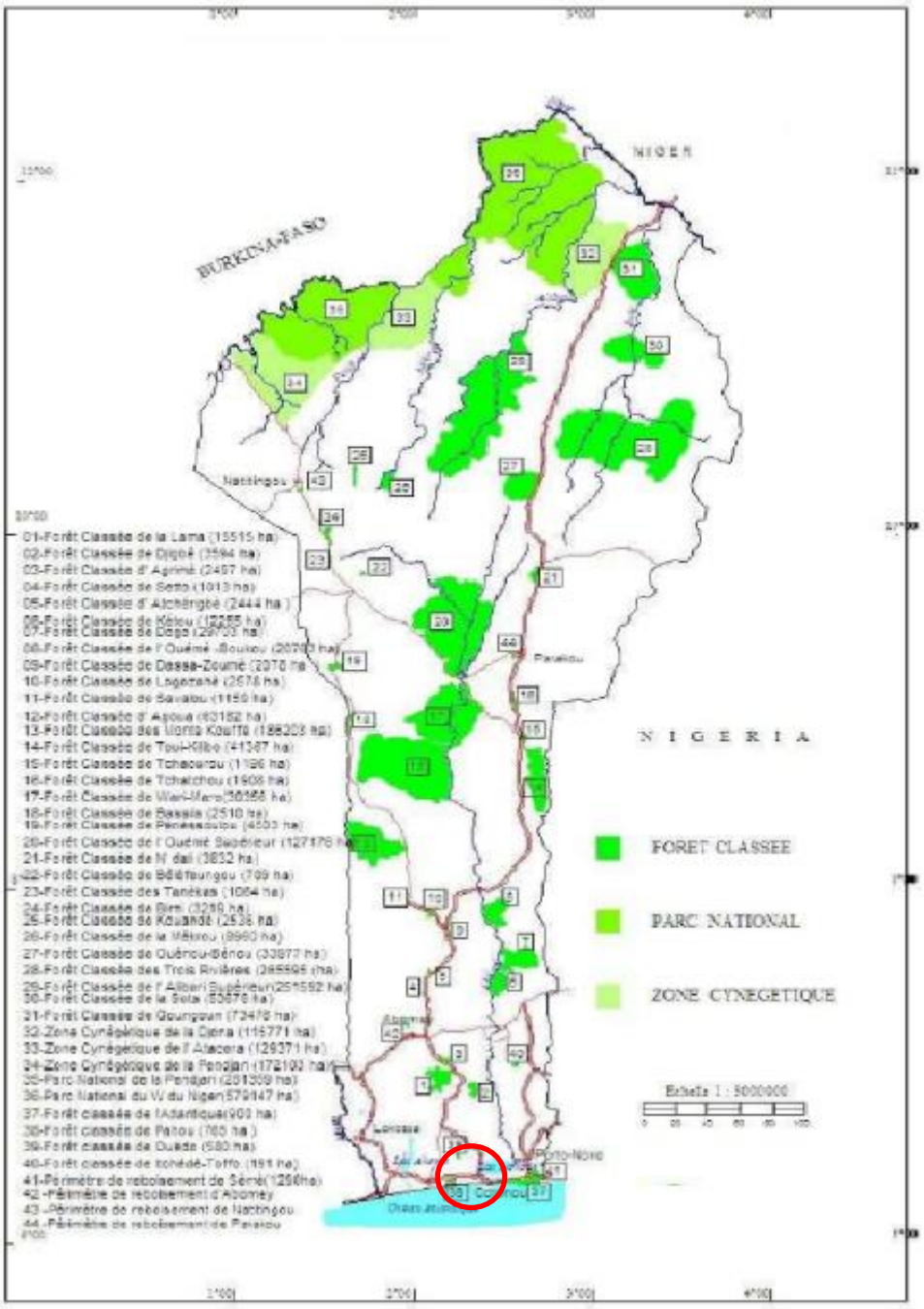
A map of protected areas in Benin can be seen on Figure 5.12 bellow.

Two Protected Areas can be found near the Project location:

- Anavié Sacred Forest: located 200m to the east of the Project, within the GDIZ Phase 1 area. It has an area of 4.26 ha; and

- Classified Forest of Ouedo: 10.5 km South of the Project. This forest was officially protected in December 1944, and has an area of 586 ha.

Figure 5.12 Protected Areas of the Republic of Benin



Source: Ministry of Environment of Benin, 2013[15]
Red circe: Project area

[15] Ministere De L'environnement, Charge De La Gestion Des Changements Climatiques,Du Reboisement Et De La Protection Des Ressources Naturelles Et Forestieres. Rapport Final. Catégorisation des Aires Protégées de la République du Bénin suivant la nomenclature de l'Union Mondiale pour la Conservation de la Nature (UICN).

5.2.2.1 Important Bird and Biodiversity Areas (IBAs)

Bird Life International defines Important Bird and Biodiversity Areas as sites of international significance for the conservation of the world's birds and other biodiversity. Globally, the IBA network has over 12,000 sites in all the world's countries and territories (Table 5.12).

Table 5.2 Important Bird Areas in Benin

IBA code	IBA name	Area (Ha)
BJ001	W du Bénin National Park	598,000
BJ002	Pendjari National Park	275,500
BJ003	Ouémé river basin	465,342
BJ004	Lower Ouémé - Lake Nokoué - Porto-Novo Lagoon	91,600
BJ005	Lake Ahémé and Aho complex	45,000
BJ006	Lama forest	16,250

Source: Bird Life International, 2021.

The Lower Ouémé - Lake Nokoué - Porto-Novo Lagoon IBA is the closes IBA to the Project, at a distance of 13 km to the East (Figure 5.13). Lake Nokoué is lagoon of 20 km wide by 11 km long (north to south), north of Cotonou. It is connected to the sea via a channel through Cotonou, through the Porto-Novo lagoon to the east and then to the coast in Nigeria. The IBA includes the lake as well as the seasonally inundated forest, swamp-forest, marshes and flood plains of rivers north of it, up the Ouémé river.

Figure 5.13 Important Bird and Biodiversity Areas near the Project

Source: BirdLife International, 2021
Note: The red square marks the Project location.

5.2.2.2 Ramsar Sites

Five Ramsar wetlands can be found in Benin, the majority of which are located in northernmost limit of the country, often being transboundary sites (Table 5.3).

The Project is included within the Ramsar site of the Oumémé Valley, Porto-Novo lagoon and Nokoué Lake complex in southern Benin. This protected area covers 652,760 ha. In addition to the lower stretch of the Ouémé valley, the site now covers a marine area, a lagoon complex, the swamp of Adjarra, and the middle Ouémé valley. Together with Ramsar site “Couffo Lower Valley, Coastal Lagoon, Aho Canal and Ahémé Lake wetland” they cover the entire coast of Benin, forming a vast and important complex of wetlands (Figure 5.13).

Table 5.3 Ramsar sites in Benin

Ramsar code	Ramsar site name	Other Protection figures	Area (Ha)
1669	Pendjari River Wetland (Burkina-Faso, Niger, Benin)	World Heritage site, UNESCO Biosphere Reserve, National Park	483,366
1073	Middle Niger River (Burkina-Faso, Niger, Benin)	UNESCO Biosphere Reserve (Niger)	52,180
1668	Complexe du W (Burkina-Faso, Niger, Benin)	World Heritage site, UNESCO Biosphere Reserve, National Park, Hunting Area	926,927
1018	Ouémé Valley, Porto-Novo lagoon and Nokoué Lake complex	Classified Forest, Sacred Forest, UNESCO Biosphere Reserve	652,760
1017	Couffo Lower Valley, Coastal Lagoon, Aho Canal and Ahémé Lake complex	UNESCO Biosphere Reserve, Communal Conservation Area	524,289

Source: Ramsar Information Site, 2021.

Figure 5.14 Ramsar Sites in Benin

Source: Source Ramsar Information Site, 2021
Note: Project location marked with a red square

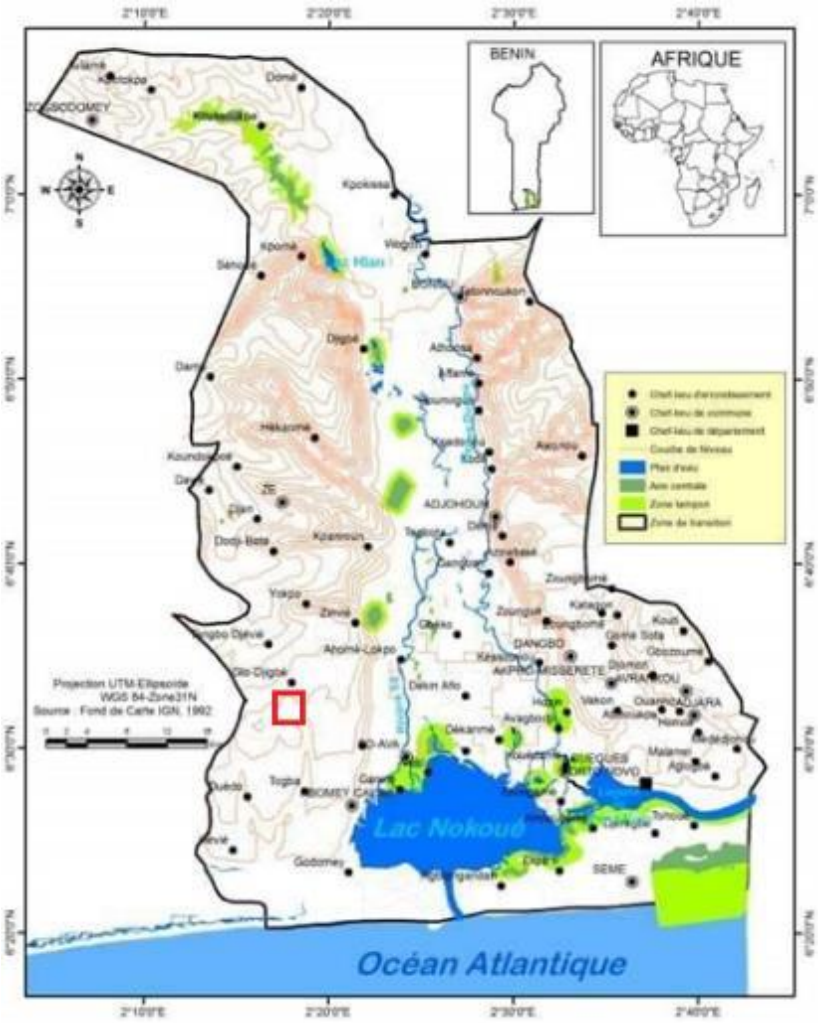
5.2.2.3 UNESCO Biosphere Reserves

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), Biosphere Reserves are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity.Four UNESCO Biosphere Reserves can be found in Benin:

- Pendjari Biosphere Reserve;
- Complex du W-Arly-Penjari;
- Mono Transboundary Biosphere Reserve (transboundary with Togo); and
- Ouémé Lower Valley Biosphere Reserve.

The Project is included within the Ouémé Lower Valley Biosphere Reserve. Created in October 2020, this Biosphere Reserve hosts a variety of hydromorphic ecosystems, meadows, marshes, gallery forests and mangroves, key to preserving the natural ecosystems of the region (Figure 5.15).

Figure 5.15 Ouémé Lower Valley Biosphere Reserve



Source: UNESCO, 2020 .
Note: project location marked with a red square

5.2.3 Flora and Fauna

5.2.3.1 Flora

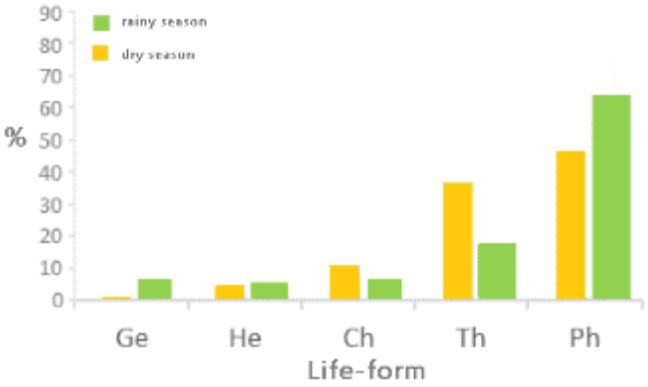
Two site visits in the rainy and dry seasons (Antea, November-December 2019; July 2020) revealed respectively 112 and 92 species in the entire GDIZ area, with 48 species in both seasons (a total of 156 species). In the Anavié forest area, 45 plant species were recorded. The Fabaceae, Euphorbiaceae and Rubiaceae families where the most abundant.

Generally, plants can be classified according to their life form (also known as Raukiaer system) in the following categories:

- phanerophytes (normally tall, woody and perennial plants; trees, shrubs or lianas);
- chamephytes (shrub and plants with reproductive structures closer to the soil);
- hemicryptophytes (perennial herbaceous plants with reproductive structures at ground level);
- geophytes (plants with tubers, rhizomes or bulbs; above-group parts disappear during the dry season); and
- therophytes (annual plants that survive part of their cycle in the form of seeds).

The percentage of each plant life form during the dry and rainy seasons is shown in Figure 5.16.

Figure 5.16 Percentage of Each Plant Life-Form in the GDIZ Area



Source: modified from Antea, 2020
Note: He = Hemicryptophyte; Ge = Geophyte; Ch = Chamephyte; Th = Therophyte; Ph = Phanerophyte.

The importance of chamephytes, hemicryptophytes and geophytes is low whatever the season. As expected, geophytes are almost absent during the dry season compared to the rainy season. The high presence of phanerophytes confirms the presence of a forest area, with subsequent fragmentation and degradation due to human activities.

Very few of the species found on the site are species of special status. In total, 45 of the species recorded on the GDIZ are named on IUCN/Beninese Red Lists, or under national regulations. The highest number of protected individual species was observed in the Sacred Forest, three of which have endangered (EN) status on the Beninese Red List. The sacred character of this forest island has probably contributed to the conservation of these species on the site. The species with a conservation status are summarized in Table 5.4. The complete list of the inventoried species can be found in Appendix C.

Table 5.4 Species with a Conservation Status in the GDIZ Area

Species	Common name	Beninese Red List	Law 93-009 of 2nd July 1993	IUCN Red List	Season
Albizia adianthifolia	Albizia	LC	P	LC	Rainy
Albizia zygia.	Albizia	LC	P	LC	Rainy, Dry
Antiaris toxicaria	Antiaris	LC	P	LC	Rainy
Ceiba pentandra	Kapok	LC	P	LC	Rainy, Dry
Dialium guineense	Black tamarind	LC	P	LC	Rainy, Dry
Khaya senegalensis	Caïlcedrat	EN	P	VU	Dry
Milicia excelsa	Loko	EN	P	NT	Dry
Pouteria alnifolia	-	-	P	VU	Rainy
Rauvolfia vomitoria	Poison devil's pepper	-	P	LC	Rainy, Dry
Spondias mombin	Prunier monbin	LC	P	LC	Rainy
Triplochiton scleroxylon	Samba	EN	P	LC	Rainy
Zanthoxylum zanthoxyloides	Fagara jaune	VU	P	LC	Rainy, Dry

Source: Antea, 2020.
*Note: EN - endangered, VU - Vulnerable, LC - Least Concern, NT - Near Threatened , P - Protected under National Regulation.Species present in the Anavié Sacred Forest are marked with a *. Species present in the Project area are marked with ***

5.2.3.2 Fauna

Due to state of degradation of the plot, large wildlife is almost entirely absent in the entire GDIZ complex area. Mammalian fauna consists mainly of small mammals, especially rodents. Observations of fauna included direct or indirect traces (tracks, nests, droppings, etc.) of mammals, reptiles, amphibians, birds, and insects. Given the type of Project and the environment in which it takes place, this approach focuses on direct observations in the field, with additions information from individual. The presence of fish species are not reported here due to the absence of suitable habitats.

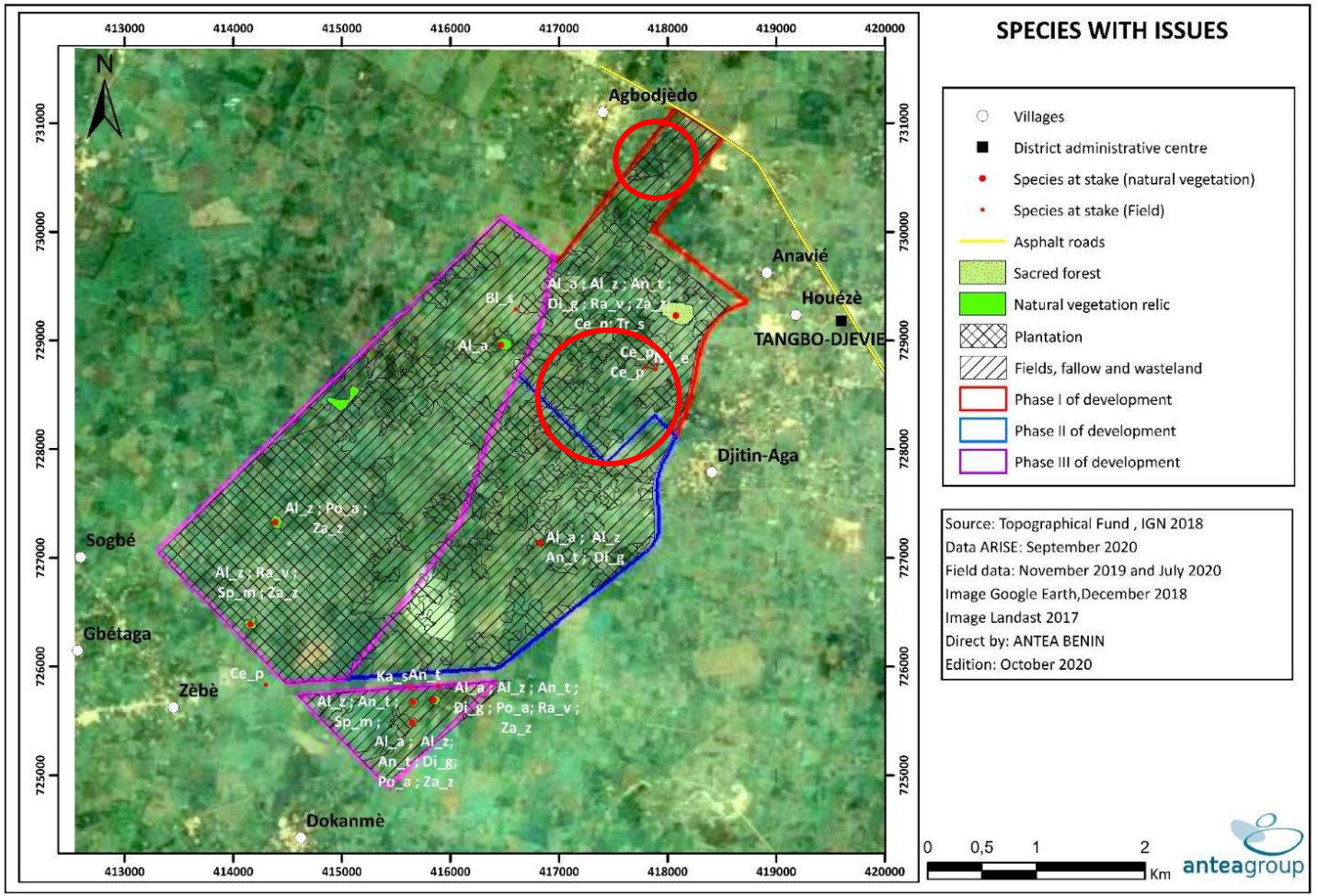
Birds

The different investigations led to observed 60 species of birds, for 1,646 individuals registered (complete list available in **Error! Reference source not found.**).

All the species observed are sedentary with Passeriformes specimens as the most abundant. No migratory species have been encountered, but since the period of the study does not coincide with the arrival of migratory species (from mid- September), their presence remains possible.

The majority of species observed on the site are common species, often encountered in studies of avian fauna in Benin. Most of them are generally found in degraded environments (fields, plantations, urban areas) and none present conservation issues. Some species of forest environments are observed thanks to the presence of forest islands and fallow land, such as the superb sunbird (*Cinnyris superbus*), the tambourine Dove (*Turtur tympanistria*). One species associated to wetlands, the Dull Lapwing (*Vanellus lugubris*), was found, although it also frequents open areas (meadow, open fields) especially during rainy season. Four species of nocturnal raptor were identified: the white-faced screech owl (*Ptilopsis leucotis*), common in forests, bordering rivers, etc.; the African screech owl (*Otus senegalensis*), a common species that frequents forest edges; the barn owl (*Tyto alba*), a species often found in in man-made structures; and the pel fishing owl (*Scotopelia peli*), a rare species that lives in forests bordering water and feeds on frogs and fish. All of them are nocturnal species that feed on small prey (birds, insects, small rodents, lizards). Indices of reproduction and observation of nesting activity were observed in the field.

Figure 5.17 Species of Conservation Concern in the Project Area



Note: the Project location is marked with a red circle.
Source: Antea, 2020. Note: Al_a: Albizia adianthifolia; An_t: Antiaris toxicaria; Al_z: Albizia zygia*; Ce_p: Ceiba pentadra; Di_g: Dialium guineense; Mi_e: Milicia excelsa; Ra_v: Rauvolfia vomitoria; Tr_s: Triplochiton scleroxylon; Za_z: Zanthoxylum zanthoxyloides. Red circles: Approximate location of Project infrastructure.*

None of the recorded species are endemic to the GDIZ area. Two species are of conservation concern: Pel's fishing owl (*Fully Protected* by National Regulations, *Vulnerable* according to the Beninese Red List); and the rose-ringed parakeet (*Partially Protected* by National Regulations, *Vulnerable* according to the Beninese Red List). All the species inventoried on-site are of Least Concern according to the IUCN Red List.

5.2.3.3 Mammals

The mammal species that have been identified include small rodents, lagomorphs and bovidae (Table 5.4). Some of these species were observed directly using fixed cameras; others, indirectly through the presence of tracks, burrows, or through testimonies of local hunters. In general, large mammals are absent.

Table 5.4 Mammals Observed

Scientific name	Common name	Family	National Regulation	Beninese Red List	IUCN Red List
Euxerus erythropus	Striped ground squirrel	Sciuridae	-	-	-
Philantomba walteri	Duiker	Bovidae	Fully Protected	NT	DD
Tragelaphus scriptus	Harnessed bushbuck	Bovidae	Partially Protected	NT	LC
Chlorocebus tantalus	Tantalus monkey	Cercopithecidae	Partially Protected	LC	LC
Cricetomys gambianus	Gambian Rat	Cricetomynae	-	-	-
Genetta tigrina	Cape genet	Viverridae	Fully Protected	NT	LC

Source: Antea, 2020.

Note: NT= Non Threatened; LC= Least Concern; DD= Data Deficient

5.2.3.4 Herpetofauna

The only reptile species directly observed during the site visits were margouillate geckos (*Agama* sp.). Local residents and hunters indicate the presence of pythons (*Python sebae*), vipers (*Bitis arietans*) and spitting cobras (*Hemachatus haemachatus*). Pythons are under full protection of Law No.2002-16 of 18 October 18 2004 and decree No.2011-394 of 28 May 2011.

No amphibians were sighted during the visits, but they are present in the area, according to local residents, often lurking in the grasses or in the soil. These are the rocket frog (*Pthychadena oxyrhynchus*), present in all savannah regions in Africa, and the toad *Bufo pentoni*, very common in fields, villages and towns (Penner *et al*., 2010). None are of conservation concern (Nago *et al*., 2010)[16].

5.2.3.5 Insects

The butterfly families encountered are mainly Pieridae (*Catopsilia florella; Eurema brigitta; Belenois aurata*); Nymphalidae (*Acraea serena*) and Papilioninae (*Graphium angolanus*). The insects present in the Project area are mainly: *Gryllus bimaculatus* (Gryllidae); *Polistes fastidiosus* (Vespidae); *Necrobia rufipes* (Cleridae); *Crocothemis erythraea* (Libellulidae). None are of conservation concern (*idem*).

[16] Nago, S.G.A. & Penner, Johannes & Sinsin, Brice & Rödel, Mark-Oliver. (2010). Diversité des amphibiens au Bénin : situation actuelle et futur. Penner, Johannes & Adeba, Patrick & Hillers, Annika & Nago, S.G.A. & Rödel, Mark-Oliver. (2010). Amphibiens de l'Afrique de l'Ouest.

5.3 Socio-Economic Conditions

The following baseline conditions have been compiled based on the ESIA for the Development and Servicing Project of the Glo-Djigbe Industrial Zone in the Municipalities of Tori-Bossito and Zè (Antea, 2020), supported by publicly available information, as well as an analysis of aerial imagery and field observations/groundtruthing of the desktop data gathered during a field mission undertaken from 30 November to 3 December 2021.

A more detailed understanding of the baseline socio-economic characteristics will be developed through the next ESIA steps.

5.3.1 Project's Study Area

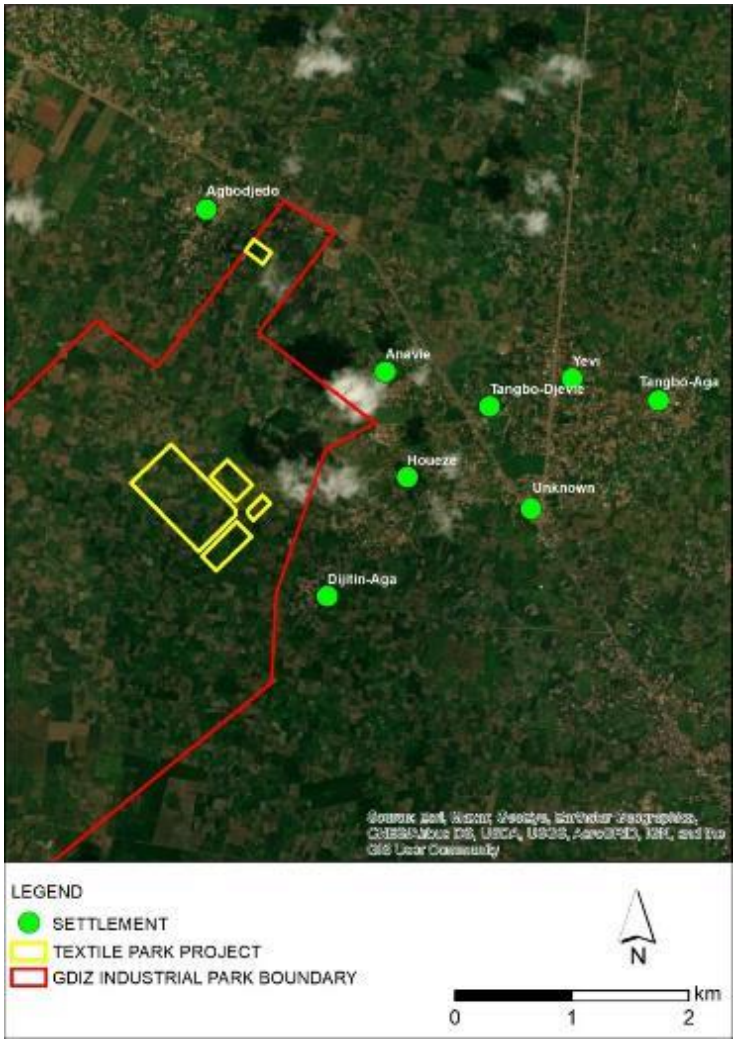
The "spatial scope", "study area" or "area of influence (AoI)" for the Project is used to describe the boundaries of the extent to which project impacts may be felt. The Social AoI encompasses:

- Textile Unit area within the GDIZ Industrial Park Phase 1;
- GDIZ Phase 1 site (refer to project description chapter); and
- Settlements adjacent to GDIZ Phase 1 site, *i.e.* Agbodjedo; Anavié; Djitin-Aga and; Houeze (Figure 5.18).

For the preliminary social baseline purposes, the surveyed area for Textile Unit entails adjacent settlements potentially affected by disturbances from Project construction works and operations, such as dust, airborne emissions, and noise.

In addition, the Project is expected to induce in-migration and increase the burden on local infrastructure provisions, such as roads, and services, affecting the villages surrounding the Project 1 site. Therefore, the Social AoI considered in this scoping assessment includes the areas in which a direct or indirect impact social or cultural environment might occur. Refinement on definitive AoI (including direct and indirect areas) should be further explored in the impact assessment stage, once the project design has been defined.

Figure 5.18 Surrounding villages



Source: EHSS Scoping Inputs Report

5.3.2 Administrative and Governance Framework

Benin is a sub-Saharan West African country that shares borders with Burkina Faso, Niger, Nigeria and Togo. The country's territory covers an area of 115,762 square kilometers and is home to 13.3 million inhabitants[17] of which about 42% live in urban areas[18]. Administratively, Benin is subdivided into twelve departments and 77 communes.

The Project is located in the Atlantique Department (*département de l'Atlantique*) in the south of Benin. The department is bordered to the north by the Zou Department, to the east by the Oueme Department; to the South-East by the Littoral Department, to the south by the Atlantic Ocean and to the West by the Mono Department. The Atlantique Department covers an area of 3,233 square kilometers and is structured into eight municipalities (*communes*), namely Abomey-Calavi, Allada, Kpomasse, Ouidah, Se-Ava, Toffo, Tori-Bossito and Zè. These municipalities are further subdivided into 74 districts (*arrondissements*) and 501 villages.

The Project is located in the Zè Municipality. The municipality covers an area of 653 square kilometers and is subdivided into eleven districts, namely Adjan, Dawe, Djigbe, Dodji-Bata, Hekanme,

[17] CIA. 2021

[18] IsDB. Republic of Benin. Available at: https://www.isdb.org/benin

Koundokpoe, Sedje-Denou, Sedje-Houegoudo, Tangbo-Djevie, Yokpo and Zè. According to the latest Census[19], the municipality had 101 villages and 106,913 inhabitants in 2013. The local administrative capital of the municipality (*chef-lieu de commune*) is Zè.

The Project is located in the district of Tangbo-Djevie. Districts are administered by a district chief called *chef d'arrondissement* (CA), who is appointed by the Municipality Council. The district had a population of 14,628 as of 2013[20].

Districts are subdivided into villages (or neighbourhoods in urban areas). These administrative units are headed by a village chief called *chef de village* (CV) who is elected by the inhabitants of the village. There are four villages adjacent to the Project site, namely Agbodjedo; Anavié; Djitin-Aga and and Houeze.

Table 5.5 summarises the administrative hierarchy related to Project site.

Table 5.5 Administrative Structure of Study Area

Department	Municipality	District	Villages	Village distance from Project site
Atlantique Department	Zè Municipality	Tangbo-Djevie	Agbodjedo	1.5 km to the north
			Anavié	1.5 km to the northeast
			Houeze	1.4 km to the east
			Djitin-Aga	750m to the southeast

Source: ERM, 2021

The villages in the AoI were historically inhabited by the Aizo and Tori communities. Villages' boundaries are nowadays mostly known by elders and sometimes marked by hyssop bushes or "Agran" trees. Some of the study area villages have suffered from a loss of territory because of the Glo-Djigbe airport project including Djitin-Aga.

Each village chief is supported by a consultative council made up of customary authorities such as elders, businessmen or wealthy individuals, dignitaries as well as religious or cult leaders.

[19] INSAE. 2015. RGPH -4 2013

[20] Ibid.

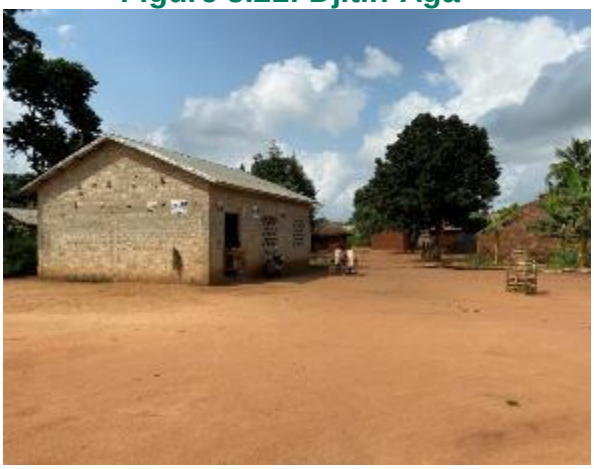
Figure 5.19: Agbodjedo

Source: ERM Site Visit, November-December 2021

Figure 5.20: Anavié

Source: ERM Site Visit, November-December 2021

Figure 5.21: Djitin-Aga



Source: ERM Site Visit, November-December 2021

Figure 5.22: Houeze

Source: ERM Site Visit, November-December 2021

5.3.3 Population, Demography and In-migration

Benin counts 13,301,694 inhabitants as of 2021 (July 2021 est.)[21] with a sex ratio of 0.97 male/female. The country has a youthful age structure with slightly over 65% of its population under the age of 25. This unbalanced population pyramid is caused by a high fertility rate (most women still have 5.47 children in 2021 against 7 in 1990) and a high population growth rate (3.36% in 2021). Life expectancy in the country is 61.82 years. Poverty and unemployment are drivers for out migrations from Benin citizens and it is estimated that 4.4 million, more than 40% of Beninese live abroad, especially in the West African region.

The population is primarily located in the south, with the highest concentration of individuals settled in and around the cities on the Atlantic coast. Most of the north remains sparsely populated with higher concentrations of residents in the west.

According to the latest Census of 2013[22], the population of the Atlantique Department is relatively young and is estimated at 1,398,229 with 686,747 males and 711,482 females. The municipality of Zè has a population of 57,632 inhabitants, with 51,704 men and 55,209 women.

[21] CIA. 2021

[22] INSAE. 2015. RGPH -4 2013

At the level of the study area and its four villages, the available population statistics are presented in Table 5.7.

Table 5.6 Demographics of Villages in the Study Area

Villages	Agbodjedo	Anavié	Houeze	Djitin-Aga	TOTAL
Households	271	140	188	-	**411**
Population	1,716	809	1,023	1,5	**5,048**
Men	830	385	503	700	**2,418**
Women	886	424	520	800	**2,63**
0-14 years old	1,431	680	945	180	**3,236**
> 60 years old	75	41	32	10	**158**
Youth population (18 years and over)	825	370	454	-	**1,649**
15-59 years old	863	387	477	-	**1,727**

Source: INSAE[23]

In Zè municipality, the villages of Houeze, Agbodjedo, Anavié and Djitin-Aga have 5,048 inhabitants and 411 households (excluding Djitin-Aga). In all the villages, women are more numerous than men.

Migration

The study area is experiencing both in and out-migratory movements:

- Urban dwellers from Benin's main cities (Cotonou, Porte-Novo, Adja) and from abroad come to purchase land in the area for speculation. Individuals from rural northern regions (Mahi region for instance, Adja or Fon) are also migrating to the area in search for more fertile land.
- Migrants are usually welcomed if they do not try to bind with women from the study area or to grab land.
- Out-migration and rural exodus result in the loss of the agricultural workforce in the Zè Municipality. This is mainly from the younger population in search of better opportunities for work or studies in town or abroad.
- The area is also crossed by nomadic Peulhs who are bringing their cattle to graze in southern Benin during the dry season when pasture and water lacks in the Sahel region where they usually spend most of the year.

5.3.4 Gender Equality and Vulnerability

Gender issues

Gender rights in Benin are defined by customary laws inherited by a patriarchal system and formal laws, including the Code of Persons and Family enacted in 2004 which contains provisions such as:

- Consent of both parties in the marriage and prohibition of forced marriage;
- Legal age of marriage at 18; and
- Equal rights to inheritance for male and female heirs.

Progress was achieved by the country in recent years and Benin received a relatively good SIGI[24] grade from the Organisation for Economic Co-operation and Development (OECD) in 2019. However, as observed in the AoI and underlined in the SIGI 2019 report for Benin, women in rural environments

[23] Ibid.

[24] Social Institutions and Gender Index

continue to be subjected to discriminatory practices and violence and suffer from exclusion from decision-making processes.

The GDIZ ESIA reported that in the AoI women have low involvement in the political life and decision-making processes but are very engaged in economic activities, especially trade and the transformation of agricultural products. They are structured into dynamic women groups for social or economic promotion (such as saving groups). However, women continue to suffer from unequal treatment in terms of inheritance, widowhood, marriage and gender-based violence.

The following findings from the GDIZ ESIA are particularly relevant:

Women's education, training and economic activities

- Women reach primary to secondary education but drop out due to early marriage, financial pressure and the need to work to sustain their families.
- They are involved in various activities from trade, hairdressing, sewing, handicraft and the transformation of farm products.
- The trade sector is dominated by women and is an important source of income for them.
- Women are less involved in farming activities than men.
- Women usually keep their incomes separately from their husbands' and can integrate local saving groups.
- They must ask their husbands' permission to spend large sums of money or for taking up loans.

Personal relationships and gender-based violence:

- Women can get married between 15 to 18 years old;
- Polygamy is widespread;
- Early forced marriage for girls was reported, especially among poor households;
- Dowry practice is still widespread; and
- Prostitution and domestic violence were reported during focus group sessions.

The Centre for Social Promotion of Zè receives and handles gender-based violence claims from women and girls. It reported 691 claims from women and girls between 2014 and 2018.

Women's place in local governance

Women are virtually absent from all the municipality's governance and decision-making bodies and the Zè municipal council only has one woman. A lack of political ambition among women was observed and is thought to be a consequence of the socio-cultural burdens excluding them from politics. Finally, women are above all expected to make an important contribution to the well-being of the family and the community.

Gender and access to land

Women are vulnerable to land eviction from their male relatives following the death of their father or husband even though they should inherit equal land shares with their brothers according to the Code of Persons and Family.

Vulnerable groups

The GDIZ ESIA identified five main vulnerable groups thanks to the information contained in the Communal Development Plan (PDC) of Zè and interviews with the personnel of Zè Municipality:

- Persons with physical or mental disabilities (PWDs): suffer from numerous forms of discrimination.
- Children under 14 years of age who are not in school or who have dropped out of school: are exposed to trafficking and economic exploitation through underage work.
- Orphans: it is noted that a significant number of orphans live in complete deprivation.

- Elderly: they are often abandoned by their relatives, suffer from malnutrition and live in squalid conditions. They suffer from the weakening of family bonds in society.
- Women-headed households and widows: young mothers are particularly exposed, and widows are at risk of losing their assets following the death of their husbands as described earlier.
- Very poor households: deschool their children due to a lack of financial resources, in particular young girls who are forced into marriage to reduce costs.

There are ethnic minorities in the villages such as Fulanis but they do not suffer from discrimination. However, their presence can generate tensions because their cattle often feed on farmers' crops.

PWDs are particularly vulnerable and suffer from social stigma and a lack of family and institutional support. Their approximate number was estimated in the villages of the AoI:

- Adgbodjedo: 30;
- Anavié: 10; and
- Djitin-Aga: 20.

In terms of support available, the Centres for Social Promotion (CSP) are grassroots community development support centres set up by the Ministry of Social Affairs and Microfinance in the various municipalities of Benin. In Zè, however, the CSP suffers from a lack of resources granted by the Ministry and a lack of capacity for action. Orphans rely on four orphanages and shelters across Zè which are run by NGOs or religious organisations. Elders and other groups do not receive any kind of support from the government.

Several NGOs have been active in the support of these groups: AIDE and ACTION (support for school enrolment), PEACE ONG, GRAIN (access to water in villages), OXFAM QUEBEC, GERME ONG, CARITAS BENIN (sanitary, nutritional and social support to vulnerable groups).

Solidarity and mutual aid

Solidarity and mutual aid systems are well-developed and very active. In almost every village, there are at least a women's savings association, a farmer's association and a pineapple growers' association.

These groups include:

- Women's association: Missimide, Mahugnon, Gbenonkpo, yelinhan, Medelinhan, WABA;
- Association of Young and Old People: AJASDM (Ananvie Youth Association concerned about a better tomorrow), Association of Young Pineapple Growers, Village pineapple producer cooperative (CVPA), Cooperatives of agricultural service providers; and
- Farmer's associations and cooperatives: AisSogbe, Alafia.

5.3.5 Ethnicity, Language, and Religion

In the Zè Municipality, the dominant ethnic groups are the Aizo and Wemenou (97.45%). The Aizo are indigenous to the area and belong to the larger Adja ethnolinguistic group, which also encompasses Fon, Ewe, Xia and other ethnic groups of southern Benin. The Goun, Fon, Nago, Toffin, Yoruba and other ethnic groups can also be found in the area. Fon, Adja, Mahi and Mina are regarded as minority groups by villagers. The Aizo groups are tolerant and open towards other ethnic groups.

In terms of cultural norms, as most of the inhabitants are Aizo they share the same moral values and customs. Many of these customs determine the position of women in society and practices such as polygamy and the levirate[25] are persistent. Women and land are highly valued in the eyes of the villages and are the main sources of conflict with outsiders.

[25] Forces a woman upon the death of her husband to marry his brother or nephew.

Although French is the official language in Benin, other languages spoken at the national level are Fon, followed by Yoruba, Bariba, Goun, Adja, Aizo, etc. In the AoI, the main languages mentioned as spoken are Aizo, Fon and Adja.

In the AoI, religious practice remains dominated by Voodoo. Other religions include Catholics, Protestants, evangelical churches, heavenly Christians, Jehovah's Witnesses and International Evangelical Mission of Faith. Islam is also present in the impacted villages of Zè.

Table 5.7 below shows the location of religious infrastructures present in each village of the AoI.

Table 5.7 Religious Infrastructures in the Villages of the Study Area

Villages	Number of infrastructures	Type of infrastructure
Agbodjedo	3	Catholic church Celestial Christianism church Evangelical church
Anavié	3	Catholic church Celestial Christianism church Evangelical church
Houeze	3	Catholic church Celestial Christianism church Evangelical church
Djitin-Aga	3	Catholic church Celestial Christianism church Evangelical church

Source: ANTEA, November 2019 and August 2020

5.3.6 Land Use and Organisation

The mode of access to land used to be customary (based on donation or inheritance) but there are now several types of access including purchase. While land purchased is generally titled, in the villages of the AoI, customary land remains largely untitled. City dwellers investing in the area tend to use purchase as the preferred method of access to land.

Zè is located within the sphere of influence of the Cotonou urban sprawl and is experiencing a "land rush" phenomenon since 2013, causing pressure on agricultural land and speculation.

Land speculation in the AoI has deeply transformed land management practices and land sales and expropriation have progressively reduced the productive assets held by local villagers, leading to an increase in land insecurity. The trend towards increased land sales had also led to an increase in land conflicts. Villagers complained about a shortage of agricultural land caused by the expropriation process for the construction of the Glo-Djigbe airport, as its construction is attracting many urban investors wishing to profit from the expected property development in the area. On the other hand, land sales have also become a significant source of income for local villages.

In summary, this "land rush" phenomenon is caused by a combination of factors, which are well-documented in the GDIZ ESIA. This has led to a steady increase in land prices which are shown in the table below. Prices of land are much higher in the Tangbo-Djevie villages compared with the other villages surrounding the GDIZ site, which is explained by their immediate proximity to the interstate national road 2 (RNIE 2) and the future airport.

Table 5.8 Various Land Prices Reported in the Villages of the AoI

Villages	Type of land	Land price (FCFA)	Price per m² (FCFA)
Agbodjedo	Building plot (per 500 m²)	5 to 7,000 000	10,000 to 14,000
	Farm land (per ha)	5 to 7,000 000	500 to 700
Anavié	Building plot (per 500 m²)	2 to 7,000,000	4,000 to 14,000
	Farm land (per ha)	10 to 50,000,000	1,000 to 5,000
Houeze	Building plot (per 500 m²)	3 to 7,000,000	6,000 to 14,000
	Farm land (per ha)	10 to 30,000,000	1,000 to 3,000
Djitin-Aga	Building plot (per 500 m²)	2 to 3,000,000	4,000 to 6,000
	Farm land (per ha)	15 to 30,000,000	1,500 to 3,000

Source: ANTEA, November 2019 and August 2020

In terms of land management and planning, each municipality is required to have a local planning tool in place called a communal development plan (PDC). The municipality of Zè adopted its latest PDC in 2019, covering the period 2019-2023.

Land use plans covering the study area were also created alongside the PDCs, in particular:

- The municipal development master plan (SDAC) of the municipality of Zè in 2006; and
- The Glo-Djigbe airport sector plan.

Land for both the Glo-Djigbe airport and the GDIZ Phase 1 area has been acquired by the state through a state-managed expropriation process. At the time of writing, the land for GDIZ Phase 1 has been enclosed and is under construction. However, it was reported by residents that the compensation process for those lands is ongoing, that the rates applied for land were below the market value, and that crops have not been compensated. It is the expressed intent of GDIZ to ensure, through the provision of supplementary compensation, that lost assets are compensated as per IFC Performance Standards, subject to agreement with the state. Discussions in this regard are ongoing.

5.3.7 Education Infrastructures and Services

Each village in the AoI has a least one school combining kindergarten and primary school. Table 5.10 below provides detailed information on these infrastructures.

Table 5.9 Primary Education Infrastructures in the Villages of the AoI

Villages	Name of school	Level	N. of students	N. of teachers	N. of classrooms	Toilets
Agbodjedo	Public primary school of Agbodjedo	Kindergarten Primary	-	-	-	Yes
Anavié	Public primary school of Anavié	Primary	431: 216 girls; 215 boys	6	3 in good condition; 3 without roof	Yes
	Public secondary school of Anavié	Secondary	1,314: 615 girls; 699 boys	57	29	Yes + 1 water point
	Kindergarten	Kindergarten	-	-	-	-
Houeze	Public primary school of Houeze	Primary	457: 208 girls; 267 boys	7	6	Yes + 1 water point

Villages	Name of school	Level	N. of students	N. of teachers	N. of classrooms	Toilets
	Private school God is good	Primary	275:127 girls; 148 boys	6	6	Yes + 1 water point
Djitin-Aga	Public primary school of Djitin-Aga	Primary	76: 28 girls; 48 boys	2	1	No

Source: ANTEA, November 2019 and August 2020

The GDIZ ESIA reported a shortage of educational staff and teaching materials, especially in kindergartens, a lack of tables and benches in classrooms (in old buildings), overcrowded classrooms, and a lack of water points. The local education system is also impacted by high drop-out rates (Figure 5-.19).

Figure 5.23 Primary Schools of Djitin-Aga (left) and Houeze (right)

Source: Antea, November 2019

Zè Municipality has ten public secondary schools along with some private schools. in Zè, the offer for vocational training centres is almost inexistent apart from the Centre for professional training set up by the Foundation Follereau Luxemburg, which aims at offering training to out-of-school children, orphans and other vulnerable children.

Sports, cultural and leisure activities are poorly developed in the Zè municipality despite the demographic weight of young people and their strong mobilization around sports activities, especially football. Tangbo-Djevie district does not have public leisure infrastructures but some villages have self-prepared pitches (Anavié, Houeze and Djitin-Aga villages).

5.3.8 Communication

In Zè Municipality, all the districts are covered by the country's two main networks, MTN and Moov. However, the coverage of the municipality by these networks is only partial.

In terms of radio communication, "Kpasse Radio" and "Alliance FM" broadcast from neighbouring municipalities, and the National Radio and Television Office (ORTB) cover the entire study area. The population of Zè manage to receive most radio stations, whether local, national or international. They also listen to a radio station called “Voice of the Lama”.

The municipality of Zè is fully covered by the national radio and television (ORTB) as well as private television channels CANAL 3, Golf TV, Iden TV and local radios (Diaspora TV, Voice of the Valley, etc.).

The information deficit of social actors is significant, and word of mouth or town criers remain an important source of information for villagers.

Internet access is widely available in the study area via wireless mobile networks such as MTN, Moov, Libercom, BBCom and GloMobile. Smartphones with internet access are prevalent in all villages in the study area, particularly among the youth.

5.3.9 Health Infrastructures and Services

Existing health infrastructures

There are no health infrastructures in the villages of the AoI. Existing health centres are located at the district and municipal level and villagers must walk around 6 km to reach these facilities. The closest health centre for the inhabitants of the villages impacted by the Project is the Tangbo-Djevie District Health Centre (DHC). It is noted that the DHC requires refurbishment. Villagers usually refer to traditional healers first and also frequently resort to medicinal plants. Traditional healers work in collaboration with the District Health Centre and can refer patients. There are also numerous illegal health practitioners.

Table 5.11 presents the main characteristics of the Tangbo-Djevie DHC:

Table 5.10 Characteristics of Tangbo-Djevie DHC

Category	
Personnel	13 3 nurses, 3 midwives, 3 pharmacists, 3 assistant nurses, 1 cashier
Number of beds	11
Type of care provided	Obstetric, malaria treatment, treatment for main diseases of the area, emergencies
Type of care NOT provided	Surgery, HIV/Aids
Access	Poor road condition, inaccessible on rainy days for some villages
Main issues	Lack of specific material
Price of consultation	400 FCFA

Source: ANTEA, August 2020

Health profile

The main diseases encountered in the Tangbo-Djevie health centre are malaria, respiratory diseases (cough), gastrointestinal diseases (parasitosis, typhoid fever), urogenital diseases, cardiovascular diseases, dermatological diseases and sickle cell disease. Bilharzia, lymphatic filariasis causing elephantiasis and Buruli ulcer (2 of the neglected tropical diseases) have also been reported by Tangbo-Djevie health centre. Tuberculosis is present but not widespread. Malaria is the most common disease in the villages of the study area and is on the rise.

Other diseases reported in the villages and the district health centres include respiratory diseases (cough and flu), intestinal parasitosis causing diarrhoea (linked to a lack of potable water and consumption of river water), hypertension (caused by excessive consumption of alcohol and drugs), dysentery and traumas (due to road accidents especially because of the presence of RNIE 2 or farm work accidents). Liver diseases, diabetes, scabies and measles are also present.

According to health authorities interviewed, the main diseases by age group are as below:

- Infants: malaria, cough, vomiting and diarrhoea.
- Children: malaria, cough, vomiting, diarrhoea, dog bites.

- Women: pelvic aches, cyst, painful menstruations. Women in focus groups also declared suffering from kidney and joint aches. They mostly give birth at the local health centre which reduces child and mother mortality.
- Youth: asthma, malaria, tension, haemorrhoids.
- Elderly: tension, diabetes, arthrosis, prostate affection, glaucoma.

Other findings include:

- Widespread dependency on alcohol consumption and consumption of tobacco and drugs among men.
- Villagers in the AoI declared they benefited from vaccination campaigns against polio as well as the distribution of impregnated mosquito nets (Agbodjedo village).
- District health centres confirmed there are regular vaccination campaigns and malaria, HIV or elephantiasis awareness-raising campaigns.
- In the study area, HIV was not mentioned as a prevalent condition.

5.3.10 Transport and Road Infrastructure

Villagers use mostly moto-taxis (called *Zemidjan*), private motorbikes, tricycles and car taxis to travel around.

The Project area is bordered by the asphalted national interstate road (RNIE 2) linking Abomey-Calavi, Zè and Allada, which runs along the eastern part of the Project site and through which access to the main industrial zone will be provided (Figure 5.19).

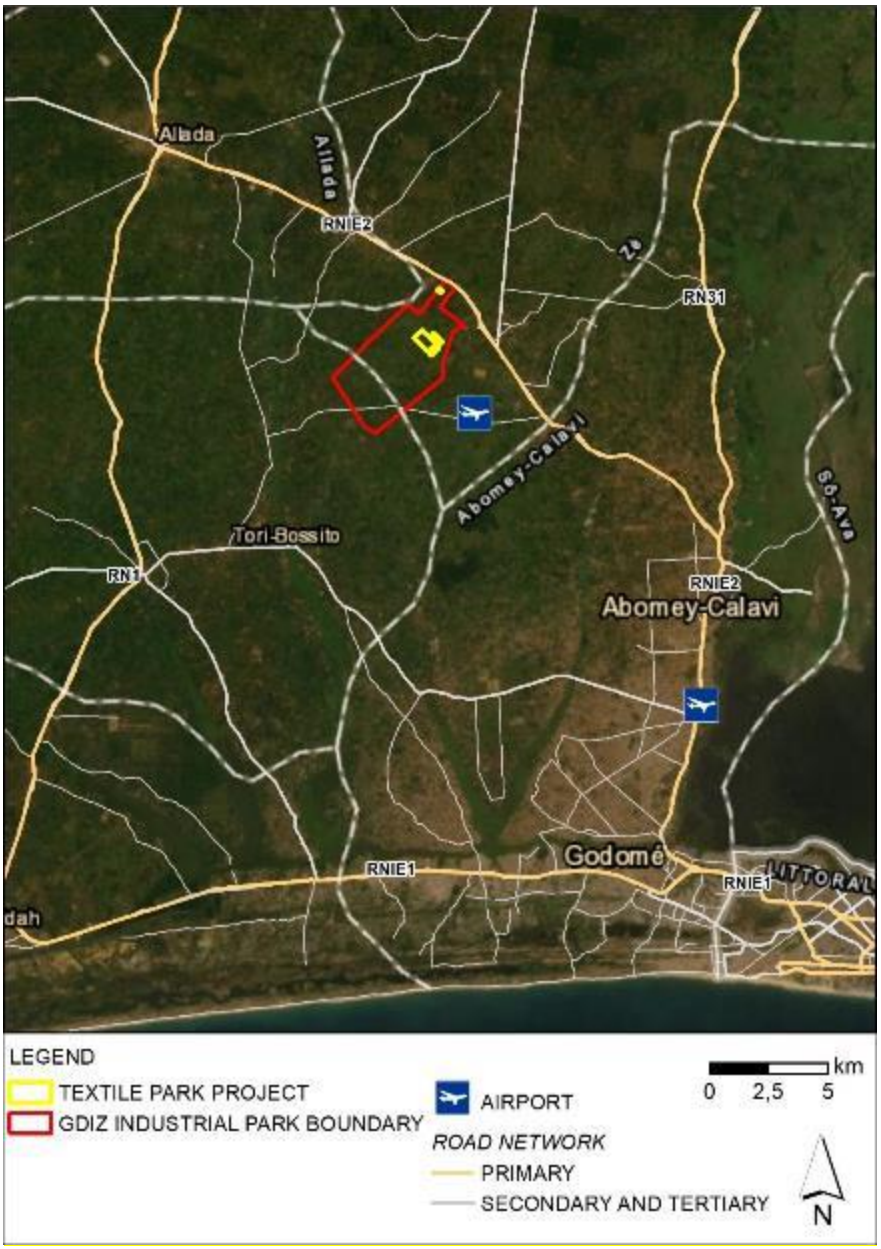
Inland, the villages are served by rural laterite feeder roads that connect the districts and villages. These tracks are numerous, but many are very narrow, sandy and strewn with crevices.

Traffic is particularly difficult during the rainy season.

The inter-municipal roads are occasionally maintained by the departmental road maintenance service.

A traffic survey at the Project entrance level was conducted for a week, from 19/08/2020 up to 25/08/2020. This survey highlighted that the traffic reached 116,640 vehicles a week, with an average of 16,663 vehicles per day, a maximum of traffic on Saturday and a minimum on Thursday. The traffic is slightly more significant in the direction Cotonou – Allada (60,345 vehicles) than in the direction Allada – Cotonou (56,295 vehicles). Vehicles passing in front of the site entrance are mainly two-wheels (54% of traffic), followed by cars (39%) and in a lesser extent by heavy trucks which represent only 6% of the traffic.

Figure 5.24 Location of Proposed GDIZ alongside the existing and planned road network



Source: Preliminary detailed Project report for Glo-Djigbe industrial zone (GDIZ), Benin, May 2020

5.3.11 Potable Water

There are several public and private water supply infrastructures in the Tangbo-Djevie District. The water supply coverage appears sufficient as villagers indicate no water access issues. Villagers rely equally on private boreholes and wells and on public infrastructures that are not always functional or under construction. Table 5.12 below provides detail on the number of public boreholes in these villages. These boreholes are also managed by the municipality and water costs 25 FCFA/20 litters.

Table 5.11 Water Infrastructures in the Villages of the Tangbo-Djevie District

Villages	Number of public boreholes	Current condition
Agbodjedo	1	Not functional
Anavié	3	2 functional all year but low flow 1 under construction
Djitin-Aga	2	1 not functional 1 working with low flow except when outbreaks occur
Houeze	3	All under construction

Source: ANTEA, November 2019 and August 2020

Figure 5.25 Water facility in the villages of the study area

Source: Antea, November 2019

Figure 5.26: Example of water facility in one of the villages of the AoI

Source: ERM Site Visit, November-December 2021

In terms of hygiene and sanitation, there are no public toilets except in schools in the villages of the AoI and the Zè Municipality does not have a solid waste management system in place. The villagers throw their waste in their surrounding environment or in unauthorized dumps.

5.3.12 Power Supply

The four villages in the study area have access to the power grid provided by the *Société Béninoise d'Énergie Électrique* (SBEE). They also use solar panels, generators or torches for their energy needs. Wood from the forest and charcoal are mainly used for cooking. In the Zè Municipality, only three chief towns are connected to the SBEE network.

5.3.13 Livelihoods and Economic Activities

Economic activities in the Atlantique Department include agriculture, fishing, hunting, trade, tourism, communication and transportation. In the Zè Municipality, agriculture, hunting and fishing account for around half of all economic activities.

The villagers of the study area rely on the exploitation of natural resources for their livelihood. Agriculture followed by domestic animal husbandry and hunting are the main sources of livelihood.

Agriculture accounts for over 95% of economic activities in the villages of the Zè Municipality. More than half of farms are between 5 and 10 ha and about 40% between 10 and 25. Large farms exceeding 50 ha account for only 5% of the total area (PDC of Zè, 2019). Pineapple farming is intensifying especially following Benin's registration of the pineapple sugar loaf variety, its first Protected Geographical Indication (PGI) registered at the African Intellectual Property Organisation (OAPI). The most widely cultivated species are pineapple, oil palm, maize and cassava. While pineapple and oil palm are cash crops, maize and cassava remain food crops used mainly to feed the population. Other products are grown such as yam, sweet potatoes, watermelon, bananas, tomatoes, and chilies. Fruit trees such as mangoes, oranges, guavas, papaya, soursop, and banana are also numerous.

Agricultural products are processed and sold at the local level, to the villagers, but also in local and communal markets. The area's high agricultural production coupled with its proximity to major urban centres facilitates the sale of processed products. Women play an important role in the processing of agricultural products.

Changes in local agricultural practices have affected crop production levels and the seasonal availability of food. Local villages did report occasional food shortages. At the time of writing, most of the Project area is cultivated or in seasonal fallow.

Small-scale animal husbandry is practiced across the population and the main animal productions are poultry, sheep, goats, pigs, cattle, and rabbits. There are also nomadic and sedentary cattle breeders, in particular the Fulani who cross the study area from February to May. Fishing is not practiced in the project area.

In terms of trade and industry, Commercial activity in the Zè Municipality organized around five local markets. The processing of agricultural products is sold in local markets, while pineapples are exported to countries bordering Benin. Industries are almost non-existent although there are a few pineapple juice production units and sawmills. The lack of industrial policy, shortage of skilled labour and raw materials are hindering the industrial sector.

5.3.14 Human Rights

This section provides an overview of the human rights situation in Benin. This includes aspects such as the level of enjoyment of human rights in the country, the existing legal frameworks that are in place (including international commitments), and the State's performance in the protection of human rights. Understanding the broader human rights context is of relevance to the Project as this can provide insights into potential human rights risk factors in the Social AoI (for instance, where the domestic law is not at par with international standards or where certain cultural practices could end up creating situations of discrimination).

As with gender and vulnerability, this socioeconomic baseline has integrated consideration of human rights throughout the study, in line with best practice. This section presents the consolidated discussion of human rights, as it relates to the Project baseline.

5.3.14.1 Human Rights Regulatory Frameworks

Benin has ratified most of the United Nations human rights treaties. A full list of the UN human rights treaties signed and/or ratified by Benin is included in Table 5.12.[26]

Table 5.12: Benin International Human Rights Conventions

Treaty Description	Treaty Name	Signature Date	Ratification Date, Accession(a), Succession(d) Date
Convention against Torture and Other Cruel Inhuman or Degrading Treatment or Punishment	CAT		12 Mar 1992 (a)
Optional Protocol of the Convention against Torture	CAT-OP	24 Feb 2005	20 Sep 2006
International Covenant on Civil and Political Rights	CCPR		12 Mar 1992 (a)
Second Optional Protocol to the International Covenant on Civil and Political Rights aiming to the abolition of the death penalty	CCPR-OP2-DP		05 Jul 2012 (a)
Convention for the Protection of All Persons from Enforced Disappearance	CED	19 Mar 2010	02 Nov 2017
Interstate communication procedure under the International Convention for the Protection of All Persons from Enforced Disappearance	CED, Art.32		
Convention on the Elimination of All Forms of Discrimination against Women	CEDAW	11 Nov 1981	12 Mar 1992
International Convention on the Elimination of All Forms of Racial Discrimination	CERD	02 Feb 1967	30 Nov 2001
International Covenant on Economic, Social and Cultural Rights	CESCR		12 Mar 1992 (a)
International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families	CMW	15 Sep 2005	06 Jul 2018
Convention on the Rights of the Child	CRC	25 Apr 1990	03 Aug 1990
Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict	CRC-OP-AC	22 Feb 2001	31 Jan 2005
Optional Protocol to the Convention on the Rights of the Child on the sale of children child prostitution and child pornography	CRC-OP-SC	22 Feb 2001	31 Jan 2005
Convention on the Rights of Persons with Disabilities	CRPD	08 Feb 2008	05 Jul 2012

Benin has also ratified all 8 fundamental ILO conventions. These include conventions No. 29 and 105 on the elimination of forced labour, conventions No. 138 and 182 on elimination of child labour,

[26] OHCHR. Benin Country Profile. Available at: https://indicators.ohchr.org/

conventions No. 100 and 111 on non-discrimination, and conventions No. 87 and 98 on freedom of association and the right to organize.[27]

Table 5.13 provides an overview of relevant national legislation.

Table 5.13: Overview of National Legislation Relevant to Human Rights

Theme	National Law
Human Rights	**Law, Act :** • Loi n° 2012-36 du 17 décembre 2012 portant création de la Commission béninoise des droits de l'Homme. • Loi n° 2003-03 du 3 mars 2003 portant répression de la pratique des mutilations génitales féminines en République du Bénin. • Loi no 90-031 du 9 novembre 1990 portant abrogation des dispositions de lois et ordonnances relatives à l'internement administratif en matière de sécurité publique. • Loi no 90/028 du 9 octobre 1990 portant amnistie des faits autres que des faits de droit commun commis du 26 octobre 1972 jusqu'à la date de promulgation de la présente loi. • Loi n° 63-5 du 26 juin 1963 sur le recrutement. **Regulation, Decree, Ordinance :** • Décret n° 98-155 du 27 avril 1998 portant création de la Commission nationale pour la mise en œuvre du droit international humanitaire (DIH). • Décret no 93-312 du 31 décembre 1993 portant conditions et modalités d'application de la loi no 90-028 du 9 octobre 1990 portant amnistie. • Décret n° 2020-187 du 11 mars 2020 portant autorisation de collecte et de traitement par la Police républicaine des données personnelles des voyageurs au niveau des frontières du Bénin.
Child labour	• Loi n° 2015-08 du 8 décembre 2015 portant Code de l'enfant en République du Bénin. • Accord de coopération entre le Gouvernement de la République du Bénin et le Gouvernement de la République du Congo sur la lutte contre la traite des enfants, signé à Pointe-Noire le 20 septembre 2011. • Décret n° 2009-695 du 31 décembre 2009 portant modalités de délivrance de l'autorisation administrative de déplacement des enfants à l'intérieur du territoire de la République du Bénin. • Décret n° 2009-694 du 31 décembre 2009 portant conditions particulières d'entrée des enfants étrangers sur le territoire de la République du Bénin. • Plan d'action national de lutte contre la traite des enfants à des fins d'exploitation de leur travail. • Loi n° 2006-04 portant conditions de déplacement des mineurs et répression de la traite d'enfants en République du Bénin.
Elimination of forced labour	• Accord multilatéral de coopération en matière de lutte contre la traite des enfants en Afrique de l'Ouest, signé à Abidjan le 27 juillet 2005. • Décret no 78-161 du 23 juin 1978 modifiant le décret no 73-293 du 15 septembre 1973, portant régime pénitentiaire. • Ordonnance n° 73-37 du 17 avril 1973 modifiant les dispositions du Code pénal en ce qui concerne la traite des personnes et les enlèvements de mineurs.
Wages	• Décret n° 2018-422 du 17 septembre 2018 portant conditions d'emploi des points focaux communication des ministères. • Arrêté n° 155/MFPTRA/DC/SGM/DGT/DNT/SRT du 12 juin 2003 fixant la contexture du bulletin de paie individuel. • Décret n° 2003-201 du 10 juin 2003 portant relèvement du salaire minimum interprofessionnel garanti (SMIG). • Arrêté n° 133/MFPTRA/DC/SGM/DT/SRT du 2 novembre 2000 portant revalorisation des salaires minima hiérarchisés du secteur privé et para-public régi par la Code du Travail.

[27] ILO Ratifications for Benin. Accessed on 09 February 2022 at:
https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103028

Theme	National Law
	• Arrêté n° 052/MFPTRA/DC/DT/SRT du 3 juin 1997 portant revalorisation des salaires hiérarchisés du secteur privé et para-public régi par le Code du Travail. • Décret no 74-129 du 9 mai 1974 fixant les zones de salaires, les salaires minima interprofessionnels garantis et les valeurs minima de remboursement de la ration journalière de vivres et du logement.
Freedom of Association/Collective Bargaining	**Law, Act :** • Loi n° 2020-24 du 2 septembre 2020 portant création de la Chambre des métiers de l'artisanat du Bénin. • Loi n° 2001-09 du 21 juin 2002 portant exercice du droit de grève (dans sa teneur modifiée par la loi n° 2018-34). • Loi n° 93-010 du 20 août 1997 portant statut spécial des personnels de la Police nationale. **Regulation, Decree, Ordinance :** • Décret n° 2018-358 du 25 juillet 2018 portant organisation de la représentation du personnel à la Police républicaine. • Décret n° 2012-018 du 19 mars 2012 portant interdiction de l'exercice du droit de grève aux agents exerçant les fonctions d'autorité au nom de l'Etat. • Arrêté n° 573/MTFP/DC/SGM/DGT/DRPSS/SRI/SA du 23 novembre 2006 portant classement des organisations syndicales issu des élections professionnelles nationales. • Arrêté n° 378/MTFP/DC/SGM/DGT/DRPSS/SA du 27 juillet 2006 portant modalités d'organisation des élections professionnelles nationales. • Décret n° 2006-132 du 29 mars 2006 portant définition des différentes formes d'organisations syndicales et critères de représentativité. • Arrêté n° 030/MFPTRA/DC/SGM/DT/SPCNT/SA du 8 mars 2002 portant classement des organisations syndicales issu des élections professionnelles nationales. • Arrêté n° 002/MFPTRA/DC/SGM/DT/SRT du 4 janvier 2000 portant application du chapitre II du Code du travail relatif aux délégués du personnel. • Décret n° 99-436 du 13 septembre 1999 portant définition des différentes formes d'organisations syndicales et critères de représentativité. • Décret n° 98-151 du 27 avril 1998 accordant des heures de liberté aux représentants syndicaux dans les entreprises privées et para-publiques. • Décret n° 97-617 du 18 décembre 1997 portant définition des différentes formes d'organisations syndicales et critères de représentativité. • Ordonnance n° 69-14 PR/MFPRAT du 19 juin 1969 relative à l'exercice du droit de grève. • Décret no 93-312 du 31 décembre 1993 portant conditions et modalités d'application de la loi no 90-028 du 9 octobre 1990 portant amnistie. **Collective agreement:** • Convention collective générale du travail applicable aux entreprises du Dahomey relevant du secteur privé.
Non-discrimination	• Plan stratégique (2013-2017). • Loi n° 2011-26 du 9 janvier 2012 portant prévention et répression des violences faites aux femmes. • Programme et Plan d'action pour la mise en oeuvre de la Politique nationale de promotion du Genre (2010-2015). • Politique nationale de promotion du genre. • Loi n° 2006-19 du 17 juillet 2006 portant répression du harcèlement sexuel et protection des victimes en République du Bénin.
Disabled worker	• Loi n° 2017-06 du 13 avril 2017 portant protection et promotion des droits des personnes handicapées en République du Bénin. • Politique nationale de protection et d'intégration des personnes handicapées (PNPIPH).

5.3.14.2 Human Rights Country Overview

This section presents an overview of the human rights context in Benin. The assessment has been done through a desktop analysis of publically available information on the situation in Benin. However limited, when available, references have been made to the human rights context in the project area.

According the US Department of State 2020 Benin Report on Human Rights Practices[28] and Amnesty International 2020 Report on Benin[29], the main human rights issues present in the country have to do with unlawful or arbitrary killings, including extrajudicial killings; the excessive use of force by the police while policing demonstrations and enforcing public health restrictions; harsh and life-threatening prison conditions; serious restrictions on press freedom and peaceful assembly and unjustified arrests and prosecutions of journalists and health workers; lack of investigation of and accountability for violence against women; discrimination against women and minorities and harassment and violence towards LGBTI people; and child labour. Impunity was described to be a problem, with some officials engaging in corrupt practices.

Most relevant to Project activities are human rights abuses related to excessive use of force by security forces, workers' rights violations, child labour, discrimination and violence against women.

Excessive use of force by security forces

According to credible reports, police and military members used disproportionate and lethal force against citizens (US Department of State, 2020). In May, someone was shot dead by a Forest Service guard in the Atlantique department while he was gathering firewood (Amnesty International, 2020). There were also reports of cruel, inhuman or degrading treatment or punishment including allegations of sexual exploitation by Beninese peacekeepers. The Republican Police Investigation Division is responsible for investigating cases including police personnel. However, authorities rarely held police accountable for misconduct and impunity remained a problem (US Department of State, 2020). The website on policing law website[30] recommended Benin amend domestic legislation on police use of firearms to comply with international law[31].

Freedom of expression and assembly

There were reports that the government inhibited freedom of the press through restrictions on and sanctioning of journalists and press outlets. Benin is ranked 114 out of 180 in the 2021 World Press Freedom Index by RSF[32]. The government also frequently restricted freedom of peaceful assembly on political grounds (US Department of State, 2020).

Workers' rights violations

Freedom association and the right to collective bargaining: The government generally respected the right to form and join independent unions and the right to collective bargaining. The government did not effectively enforce the law, particularly in the informal sector and with regard to the provisions on antiunion discrimination and reinstatement. There were reports that employers threatened individuals with dismissal for union activity (US Department of State, 2020).

Discrimination with respect to employment and occupation: The law does not explicitly prohibit discrimination based on sexual orientation, gender identity, and HIV or other communicable disease status (US Department of State, 2020). The constitution and labour code prohibit discrimination with respect to employment and occupation based on race, colour, sex, religion, political opinion, national

[28] U.S. Department of State. 2020 Country Reports on Human Rights Practices: Benin. Available at: https://www.state.gov/reports/2020-country-reports-on-human-rights-practices/benin/

[29] Amnesty International. Benin 2020. Available at: https://www.amnesty.org/en/location/africa/west-and-central-africa/benin/report-benin/

[30] This policing law website is an academic review of national regimes governing the use of force by law enforcement officials.

[31] Policing Law Website. The Law on Police Use of Force Worldwide – Benin. Available at: https://www.policinglaw.info/country/benin

[32] RSF. Benin Report. Available at: https://rsf.org/en/benin

origin or citizenship, social origin, and disability. In general, the government effectively enforced these laws and regulations in the formal sector. Women, however, experienced discrimination because of legal restrictions on working in certain occupations and societal attitudes. Women's wages consistently lagged those of men. Employment discrimination occurred in the private and public sectors. The labour code includes provisions to protect the employment rights of workers with disabilities, but many experienced discriminations in hiring and access to the worksite (US Department of State, 2020). In particular, Amnesty International (2020) reported that a government civil service recruitment competition excluded people with disabilities.

Acceptable conditions of work: The Ministry of Labour and Civil Service and the Ministry of Social Affairs and Microcredit were responsible for the enforcement of the minimum wage, workweek, and OSH standards. The ministries did not effectively enforce these standards, especially in the large informal sector. Significant parts of the workforce and foreign migrant workers working in the informal sector did not benefit from minimum wage scales. According to various sources, informal workers accounted for more than 90% of workers in the country. Informal workers faced numerous challenges and vulnerabilities, including long working hours and no social security coverage. They often endured substandard working conditions and were exposed to occupational risks (US Department of State, 2020).

Forced labour and human trafficking

The law prohibits forced or compulsory labour, with certain exceptions. However, the government did not consistently enforce the law, particularly in the large informal sector. Forced labour occurred, including domestic servitude and bonded labour by children. Forced labour was mainly found in the agricultural (e.g., cotton and palm oil), artisanal mining, quarrying, fishing, commercial, and construction sectors. In 2018 the government adopted penal code revisions that criminalized adult trafficking and provided for 10 to 20 years' imprisonment for conviction. The law was not effectively implemented due to lack of agent training on the antitrafficking provisions (US Department of State, 2020). According to the U.S. Department of State 2021 Trafficking in Persons Report for Benin[33], The Government of Benin does not fully meet the minimum standards for the elimination of trafficking but is making significant efforts to do so, which is why it remained on Tier 2[34].

Child labour

National laws prohibit child labour and set a minimum age for employment, however, the government did not effectively enforce them. Children of both sexes as young as age seven work on construction sites in urban areas to help support their families. Under a practice called "vidomegon", many rural parents sent their children to live with relatives, family friends or wealthier families to perform domestic chores. Unfortunately, these host families sometimes exploited and trafficked the children and it must be noted that child traffickers are often relatives or acquaintances of their victims (US Department of State, 2020).

Primary education is compulsory for all children between ages six and 11. The literacy rate for women is 18% compared with 50% for men. No formal education for girls in certain parts of the country (US Department of State, 2020).

[33] U.S. Department of State. 2021 Trafficking in Persons Report: Benin. Available at: https://www.state.gov/reports/2021-trafficking-in-persons-report/benin/

[34] Countries whose governments do not fully meet the minimum standards of the Victims of Trafficking and Violence Protection Act of 2000 (TVPA) but are making significant efforts to bring themselves into compliance with those standards.

Figure 5.27: GDIZ campaign poster against child labour

Source: ERM Site Visit, November-December 2021

Discrimination

Women experienced discrimination in obtaining employment, credit, equal pay and in owning and managing a business. Legal restrictions on women in employment, including limitations on the occupations in which women are allowed to work (US Department of State, 2020). In March, the UN Committee on Economic, Social and Cultural Rights raised concerns about local customs which deprived women of their inheritance and property rights (Amnesty International 2020).

Gender-based violence

Law prohibits rape but enforcement was weak, especially in rural areas. Domestic violence against women is common but women were reluctant to report cases, and judges and police were reluctant to intervene. Female Genital Mutilation/Cutting (FGM/C) is prohibited but occurs and enforcement remained rare. According to UNICEF, 7 per cent of girls and women ages 15 to 49 underwent FGM/C in 2018 (US Department of State, 2020). Widespread use of violence and sexual harassment against women and girls continues and is common in the workplace and schools (Amnesty International, 2020).

Additional considerations and gaps:

- Land expropriation: Some of the study area villages have suffered from a loss of territory because of the Glo-Djigbe airport project including Djitin-Aga. Expropriation has progressively reduced the productive assets held by local villagers, leading to an increase in land insecurity. The trend towards increased land sales had also led to an increase in land conflicts. Villagers complained about a shortage of agricultural land caused by the expropriation process for the construction of the Glo-Djigbe airport, as its construction is attracting many urban investors wishing to profit from the expected property development in the area;
- Human rights issues in the textile industry: Occupational health and safety risks (see IFC); and
- Human rights issues linked to Voodoo.

5.4 Cultural Heritage

5.4.1 Introduction

This report presents the scoping study for Cultural Heritage. A review of available literature was undertaken, along with analysis of historic and modern satellite imagery (remote sensing) specific to the Project Area of Influence (AoI) of the Textile Unit GDIZ Industrial Park, Atlantique Department in the south of Benin.

5.4.2 Geographic/ Topographic Context

Benin is a sub-Saharan West African country that shares borders with Burkina Faso, Niger, Nigeria and Togo. The Project is located in the Atlantique Department (*département de l'Atlantique*) in the south of Benin. The department is bordered to the north by the Zou Department, to the east by the Oueme Department; to the South-East by the Littoral Department, to the south by the Atlantic Ocean and to the West by the Mono Department.

The Project is located in the district of Tangbo-Djevie. Districts are administered by a district chief called *chef d'arrondissement* (CA), who is appointed by the Municipality Council. The villages in the AoI are historically inhabited by the Aizo and Tori communities. Village boundaries are nowadays mostly known by elders and sometimes marked by hyssop bushes or "Agran" trees.

The area surrounding the Project AoI is characterized by the presence of settlements and roads, in the southern, as well as the north-western portion. The remaining area is mainly covered in croplands, shrubs or sparsely vegetated areas, and open forests

5.4.3 Historic and Archaeological background

Within a regional context, the archaeological background of coastal Benin is fairly well documented, from a research point of view. Various rescue archaeology and research projects have been carried out through collaboration from Benin and Togo in 1991, as well as excavations that were undertaken by a mixed American- Benino team of archaeologists as part of the xwéda archaeological project. The findings from the excavations have resulted in several published articles, on topics covering the ancient kingdom of Sahé 1, and the construction work of the bypass of the Abomey road. In Kétou, excavated structures have been unearthed and researched through the Benino-Danish archaeology project.

In 2005, an archaeological survey was carried out on the Pobè-Kétou axis as a result of road repair work. During the works around fifty sites were discovered in the sector of Pobè-Kétou and Adja-Ouère. An iron metallurgical study was carried out in 1987 and 1990 at Lélékpota in the Agonlin region and around d'Ajaouèrè. Danish archaeologists in 2009 carried out a series of excavations on the Abomey plateau and its surroundings, researching the introduction of maize in southern Benin. Several archaeology teams in 2017 and 2019 undertook a study of structures on the plateau of Abomey and sites in the cities, Abomey and Kanna.

Oral traditions or "storytelling" is one of the most significant intangible heritage assets of Benin. The Trans-Atlantic slave trade has been incorporated into the cultural repertoires of people and has been mainly transferred via oral tradition which plays a very important role in the lives of people in the Republic of Benin. Stories, songs, folklore, proverbs, prayers and many other forms of expression provide the baseline through which events and culture are preserved and passed on from generation to generation.

5.4.4 Intangible Cultural Heritage Field Survey

A scoping visit was carried out in December 2021, which covered the Textile Unit GDIZ Industrial Park Project AoI and surrounding community area including Settlements adjacent to GDIZ Phase 1 site, i.e. Agbodjedo, Anavié, Djitin-Aga and Houeze. Stakeholder Engagement was conducted with local

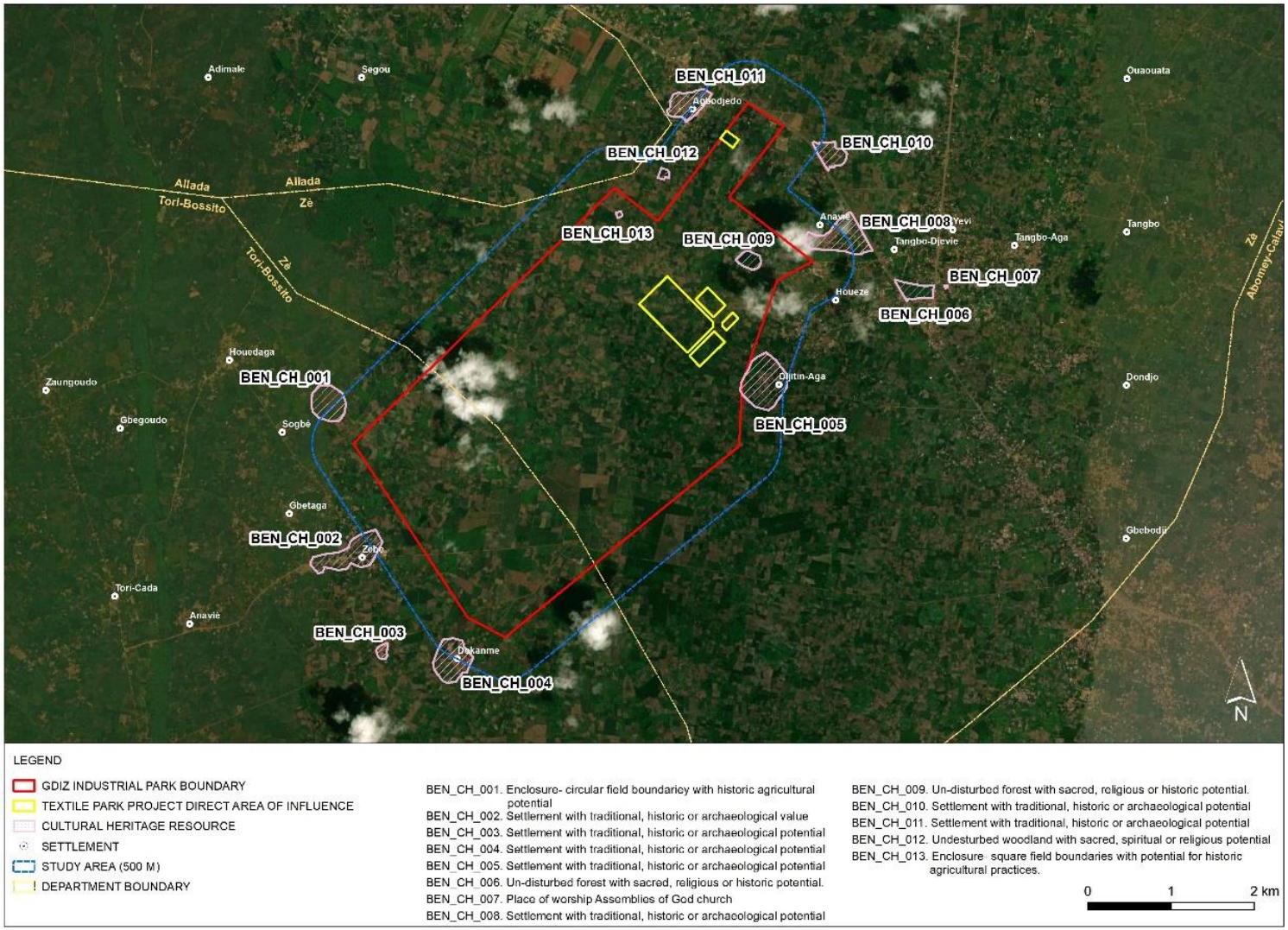
communities, which included intangible Cultural Heritage. The survey aimed to gather information for the following:

- Traditions, crafts, rituals or festivals associated with any of the land due to impacted;
- Foraging for specific food or other plants;
- Making crafts from materials sourced from a special location; using water from a special location;
- Any sacred trees, rocks, or streams/rivers;
- Local celebrations specific to a location;
- Special grave visits on a special day; Rituals associated with funerals
- Hunting/ catching animals on a special day specific to a location, etc.
- Legends or events of feats, heroes, fairies, dragons etc., attributed to a specific location;
- Historical events (locally or nationally important) associated with a specific location;
- Locations made famous through literature, etc.

5.4.5 Baseline conditions and key findings

Cultural Heritage resources identified within the Textile Unit GDIZ Industrial Park Project AoI are assigned a unique identifier (for example BEN_CH_001). 13 Cultural Heritage resources were identified in a review of satellite imagery, within the above-mentioned historic landscape that is fast disappearing as a result of rapid urbanisation. In addition to these above ground historic features, there is potential for buried archaeological remains to be present within the Project AoI. **Error! Reference source not found.** locates the Cultural Heritage resources within the Project AoI.

Figure 5.28 Identified Cultural Heritage resources within the Project AoI



Source: ERM, 2022

Enclosures

Based on review of satellite imagery, an extant historic landscape survives in the form of enclosures; circular walled features and field boundaries that hold potential Cultural Heritage value. Scoping identified two enclosures with potential historic value (BEN_CH_001 and BEN_CH_013). **Error! Reference source not found.** locates the enclosure BEN_CH_001. These Cultural Heritage resources are located outside of the GDIZ Industrial Park boundary and within the 500 meter Study area.

Figure 5.29 Enclosures identified through review of satellite imagery (BEN_CH_001)

Source: Google Earth, 2022

Place of worship

Places of worship such as the Assemblies of God church (BEN_CH_007) hold tangible and intangible Cultural Heritage value within the surrounding communities. Access to and the use of places of worship may become restricted during the construction and operation phase of the Project.This Cultural Heritage resource is located outside of the GDIZ Industrial Park boundary and within the 500 meter Study area.

Sacred forests

Un-disturbed forests may hold sacred, religious or historic tangible and intangible value. Anavié Sacred forest (BEN_CH_009, **Error! Reference source not found.**) is a good example of a Cultural Heritage resource that holds important tangible and intangible value with the local community. It is located within the GDIZ Industrial Park boundary. This scoping report identified a further two possible sacred forests (BEN_CH_006 and BEN_CH_012) located outside of the GDIZ Industrial Park boundary and within the 500 meter Study area.

Figure 5.30 Anavié Sacred forest (BEN_CH_009)

Source: Google Earth, 2022

Settlements

Settlements hold tangible and intangible value in the traditional and historic elements that are incorporate into the present existence and surrounding landscape, as seen in **Error! Reference source not found.**. A review of remote sensing identified seven settlements with traditional, historic or archaeological potential (BEN_CH_002, BEN_CH_003, BEN_CH_004, BEN_CH_005, BEN_CH_008, BEN_CH_010, BEN_CH_011) located outside of the GDIZ Industrial Park boundary and within the 500 meter Study area.

Figure 5.31 Anavié village (BEN_CH_008)

Source: Google Earth, 2022

6. IDENTIFICATION OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

Whilst the technology employed is constantly changing, individual Project activities are well established and hence key issues and impacts are generally well understood. Each project will also have its own set of unique impacts linked to the site specific social and environmental setting within which the facilities are to be constructed.

The objective of the scoping phase of the ESIA process is to identify site-specific issues and impacts that are likely to be 'significant'[35].

In undertaking the scoping process for this Project, the ESIA team has drawn upon:

- professional experience and specialist knowledge of potential impacts associated with the construction and operation of the site;
- guidance from national legislation and international standards (refer to Section 3); and
- findings and observations from the November 2021 scoping visit to the Project site.

The proposed scope of the ESIA is summarized in the Tables 6.2 - 6.5. The scope of the assessment will fall under three broad categories:

- technical scope;
- temporal scope; and
- spatial scope.

6.1.1 Technical scope

The first step of defining the scope of the ESIA is to identify where there are potential interactions between Project activities and site-specific sensitive resources and receptors. From this, we can determine which of these interactions may lead to potential significant impacts.

Potential environmental and social issues have been evaluated as part of this scoping exercise in order to determine whether they are likely to give rise to significant impacts and, therefore, the extent to which they should be included in the ESIA. Based on an understanding of the design and location of the Project and the local and regional environmental issues that are likely to be relevant, ERM has identified and reviewed those issues that may be material considerations. These have been '**scoped in**' to the ESIA.

Some topics have been '**scoped out**' of the ESIA. The remaining topics will form the technical scope of the ESIA. It should be emphasized that the scoping out of environmental and social issues is reversible. If, as the Project develops, it becomes apparent that a specific impact may arise in relation to a matter previously scoped out, the environmental or social issue in question will be readmitted to the ESIA, as appropriate.

The range of environmental and social topics to be addressed in the ESIA is generally referred to as the technical scope. An assessment will be undertaken by specialists for each of the environmental and social topics that have been '**scoped in**' to the ESIA. The environmental and social issues that comprise the technical scope of the ESIA and the reasons for their inclusion are set out in the table below.

The potential interactions between the Project and the resources and receptors were analyzed during the Scoping process using a modified Leopold matrix approach (Tables 6.2 - 6.5). The matrix displays the key Project activities (through the relevant life cycle) against resources/receptors and allows a methodical identification of the potential interactions each Project activity may have on the range of resources/receptors within the Project Area of Influence (AoI).

[35] A significant impact is one where a resource/receptor (including people) will be affected in any way by a particular activity where the predicted effect is deemed to be 'perceptible' or 'distinguishable from natural background variations.

A colour code was used to display the results of the analysis performed as indicated below (Table 6.1).

Table 6.1 Scoping Evaluation Criteria

Colour	Description	Scope in/out
(white)	No interaction is reasonably expected	Aspect "scoped out"
I	An interaction is reasonably possible but none of the resulting impacts are likely to lead to significant effects, and/or Interaction is addressed through embedded mitigation measures.	Aspect "scoped out", but rationale is provided in relevant section of current report
S	An interaction is reasonably possible and at least one of the resulting impacts is likely to lead to a (negative) effect that is significant. NB. also indicates significant data-gaps (to be identified in the comments)	"Scoped in" – subject to impact assessment.
P	Denotes a positive interaction	"Scoped in" – subject to impact assessment.

Those interactions that are coloured *white* are 'scoped out' of further consideration in the impact assessment process and no discussion is warranted in the ESIA report to support the decision (owing to the obvious basis for identifying no potential interaction).

Those interactions that are coloured *yellow* are also 'scoped out', but during the impact assessment process these potential interactions will be reviewed to confirm that resulted impacts are not significant and/or are appropriately addressed through one or more embedded controls such as obligatory air filters on equipment or bunding of liquid containers in compliance with local regulations and international good practices.

Those interactions marked with *orange* and *green* are subject to impact assessment as part of the ESIA process.

Where additional mitigation measures are required - beyond the already planned embedded controls - these are proposed at the conclusion of the impact assessment for each topic.

The scoping exercise described here is in fact an ongoing process and should go throughout the ESIA implementation. As new information becomes available (*e.g.* about the Project activities, the receptors, impact interactions, or other factors), items that were previously considered of little or no relevance and therefore scoped out may subsequently be scoped in (or also vice-versa).

Impacts during decommissioning of the Project components - at some stage many decades in the future - are considered outside the scope of ESIA, as it is expected that completely different (and more stringent) regulations will apply and technologies for re-use or disposal of materials will have improved.

The evaluation of impacts for unplanned and accidental event takes into account the likelihood of the event occurring when determining the magnitude of the impact. Likelihood is determined as unlikely, possible, or likely based on professional judgement and quantitative information (*e.g.* statistical frequency) where available.

Table 6.2 Scoping Matrix - Physical Environment

	Physical Environment								
	Air	Noise	Land and Waste				Water		CC
	Pollutants, Particulate, Odour	Noise and Vibration	Geology and Soils	Soil Contamination	Landform	Resources and Waste	Hydrogeology	Hydrology	Climate Change Resilience
Construction									
Land acquisition (temp. and perm.)									
Workers and equipment mobilisation	S	S							
Power and water supply							S	S	
Procurement of materials and services									I
Vehicle movement within and ouside Project Direct AoI									I
Installation of temporary facilites (construction camps, stockyards, access roads, excavated material yard, etc...)	S	S	I	I	I	I	I	I	
Preparatory works (topsoil removal and stockpiling, etc.)	S	S	I						
Construction of Textile Unit 1 and garmenting units 1G, GTC1, GTC2 and TCC.	S	S	I	S		S	S	S	I
Waste production and disposal/treatment (surplus material, hazardous wates, domestic wastes, wastewater, etc.). No incineration.				S		S	S	S	
Retrenchment of workforce									
Demobilisation and removal of temporary facilities (camps, borrow pits, access roads, etc.). No demolition works.	I	I	I	S		S	I	I	
Operation									
Workforce (including subcontractors)									
Power and water supply							S	S	
Vehicle Movements	S	S							
Access road maintenance									
Raw material sourcing									
Operation of the wastewater treatment plant	S	S	I	I		S	S	S	
Spinning, weaving and dyelng	I					S	S	S	I
Waste production (from the operations of the park, wastewater treatment plant, maintenance of the solar park and access roads...)	S			S		S	S	S	
Unplanned/ Accidental Events									
Generation of leaks and spills				S		S	S	S	
Natural events (fires, cyclones, storm surge)	I		I		I				
Road accidents									
Fire in elecrical installaton	I				I				
Excess wastewater in the sewage treatment plant and consequent output of poorly treated water	I					S	S	S	

Note: Refer to Table 6.1 for the colour/symbol legend.

Table 6.3 Scoping Matrix - Biological Environment and Socioeconomic Environment (1 of 3)

	Biological Environment							Social Environment					
	Habitats			Flora		Fauna		Economics					
	Relevant Habitats	Ecological Conectivity (Regional Level)	Protected Areas	Relevant *Taxa*	Invasive Sp.	Relevant *Taxa*	Feral Pests	Supply chains & Businesses	Economy (Regional, National)	Primary industry Agriculture	Recreation & Tourism	Employment & income, including Gender related opportunities	Ecosystem Services
Construction													
Land Acquisition (temp. and perm.)													S
Workers and equipment mobilisation						S		P	P			P	
Power and water supply			I					I					S
Procurement of Materials and Services					I		I	P	P	P		P	
Installation of Temporary Facilites (construction camps, stockyards, access roads, excavated material yard, etc…)			I		I		I						S
Preparatory works (Topsoil removal and stockpiling, etc.)	I	S	I	S		S	I						I
Construction of Textile Unit 1 and garmenting units 1G, GTC1, GTC2 and TCC.	I		I					P					S
Waste production and disposal/treatment (Surplus material, hazardous wates, domestic wastes, wastewater, etc.). No incineration.	I		I	I		I							S
Retrenchment of workforce								I	I			I	
Demobilisation and removal of temporary facilities (camps, borrow pits, access roads, etc.). No demolition works.					I		I						I
Operation													
Workforce (including subcontractors)	I				I			P	P	P		P	
Power and water supply													
Vehicle Movements		S	S		I	S							
Access Road Maintenance													
Raw material sourcing					I		I						
Operation of the wastewater treatment plant						I							S
Spinning, weaving and dyeIng													
Waste production (from the operations of the park, wastewater treatment plant, maintenance of the solar park and access roads...)						I							S
Unplanned/ Accidental Events													
Generation of leaks and spills	S		S	S		S							
Natural Events (fires, cyclones, storm surge)	S		S										
Road Accidents	I		I			S							
Fire in elecrical installaton	S		S										
Excess wastewater in the sewage treatment plant and consequent output of poorly treated water.	S		S	S		S							S

Note: Refer to Table 6.1 for the colour/symbol legend.

Table 6.4 Socioeconomic Environment (2 of 3)

	Social Environment											
	Community											
	Human Rights	Severance	Physical Resettlement	Economic Displacement	Housing and accommodation	Community stability & cohesion	Education levels & literacy	Migration	Increased risk on Community Health and Safety	Diseases	Increased risk of natural disasters i.e. flooding	Vulnerable Groups & Indigeneous People
Construction												
Land Acquisition (temp. and perm.)												
Workers and equipment mobilisation	S				S	S	P	S	S	S		S
Power and water supply												
Procurement of Materials and Services	S					I	P	S	S	S		S
Installation of Temporary Facilites (construction camps, stockyards, access roads, excavated material yard, etc…)												
Preparatory works (Topsoil removal and stockpiling, etc.)												
Construction of Textile Unit 1 and garmenting units 1G, GTC1, GTC2 and TCC.												
Waste production and disposal/treatment (Surplus material, hazardous wates, domestic wastes, wastewater, etc.). No incineration.												
Retrenchment of workforce					S	S		S				
Demobilisation and removal of temporary facilities (camps, borrow pits, access roads, etc.). No demolition works.												
Operation												
Workforce (including subcontractors)	S				S	S	P	S	S	S		S
Power and water supply												
Vehicle Movements						S			I			S
Access Road Maintenance									I			
Raw material sourcing	S								I			
Operation of the wastewater treatment plant									I			
Spinning, weaving and dyeIng									I			
Waste production (from the operations of the park, wastewater treatment plant, maintenance of the solar park and access roads...)									I			
Unplanned/ Accidental Events												
Generation of leaks and spills									I	I		
Natural Events (fires, cyclones, storm surge)									I			
Road Accidents								S	I			S
Fire in elecrical installaton									I			
Excess wastewater in the sewage treatment plant and consequent output of poorly treated water.									I	I		

Note: Refer to Table 6.1 for the colour/symbol legend.

Table 6.5 Socioeconomic Environment (3 of 3)

	Social Environment						
	Historical & Cultural Heritage		Workers and Labour Rights			Infrastructure	
	Tangible CH Inherited Patrimony	Intangible CH Inherited Patrimony	Child labour and forced labour in the supply chain	Capacity Building	Occupational H&S	Traffic and Transport (road)	Access to health care, power, water, sewerage / sanitation (teporary/permanent)
Construction							
Land Acquisition (temp. and perm.)		S					
Workers and equipment mobilisation		S	S	P	S	S	S
Power and water supply							S
Procurement of Materials and Services			S	P	S		
Installation of Temporary Facilites (construction camps, stockyards, access roads, excavated material yard, etc…)	O	S			S		
Preparatory works (Topsoil removal and stockpiling, etc.)	O	S			S		
Construction of Textile Unit 1 and garmenting units 1G, GTC1, GTC2 and TCC.	O	S			S		
Waste production and disposal/treatment (Surplus material, hazardous wates, domestic wastes, wastewater, etc.). No incineration.		S			S		S
Retrenchment of workforce					S		
Demobilisation and removal of temporary facilities (camps, borrow pits, access roads, etc.). No demolition works.					S		
Operation							
Workforce (including subcontractors)		S			S		S
Power and water supply		S					S
Vehicle Movements	O				S		S
Access Road Maintenance					S		
Raw material sourcing		S					
Operation of the wastewater treatment plant		S			S		
Spinning, weaving and dyeIng					S		
Waste production (from the operations of the park, wastewater treatment plant, maintenance of the solar park and access roads...)		S			S		
Unplanned/ Accidental Events							
Generation of leaks and spills		S			S		S
Natural Events (fires, cyclones, storm surge)					S		
Road Accidents					S		S
Fire in elecrical installaton					S		
Excess wastewater in the sewage treatment plant and consequent output of poorly treated water.		S			S		S

Note: Refer to Table 6.1 for the colour/symbol legend.

6.1.2 Spatial Scope

The *spatial*, or *geographical*, scope of the assessment considers the following factors:

- the physical extent of the proposed works, as defined by the Project design;
- the nature of the baseline environment and the manner in which the impacts are likely to be propagated; and
- the pattern of governmental administrative boundaries, which provide the planning and policy context for the project.

There are a number of construction and operation activities which may lead to potential impacts on sensitive receptors. As such, these impacts will need to be assessed further in the ESIA.

Where there is currently insufficient baseline data to understand the sensitivity of the receptor, detail is provided as to how additional baseline data will be collated as part of the ESIA.

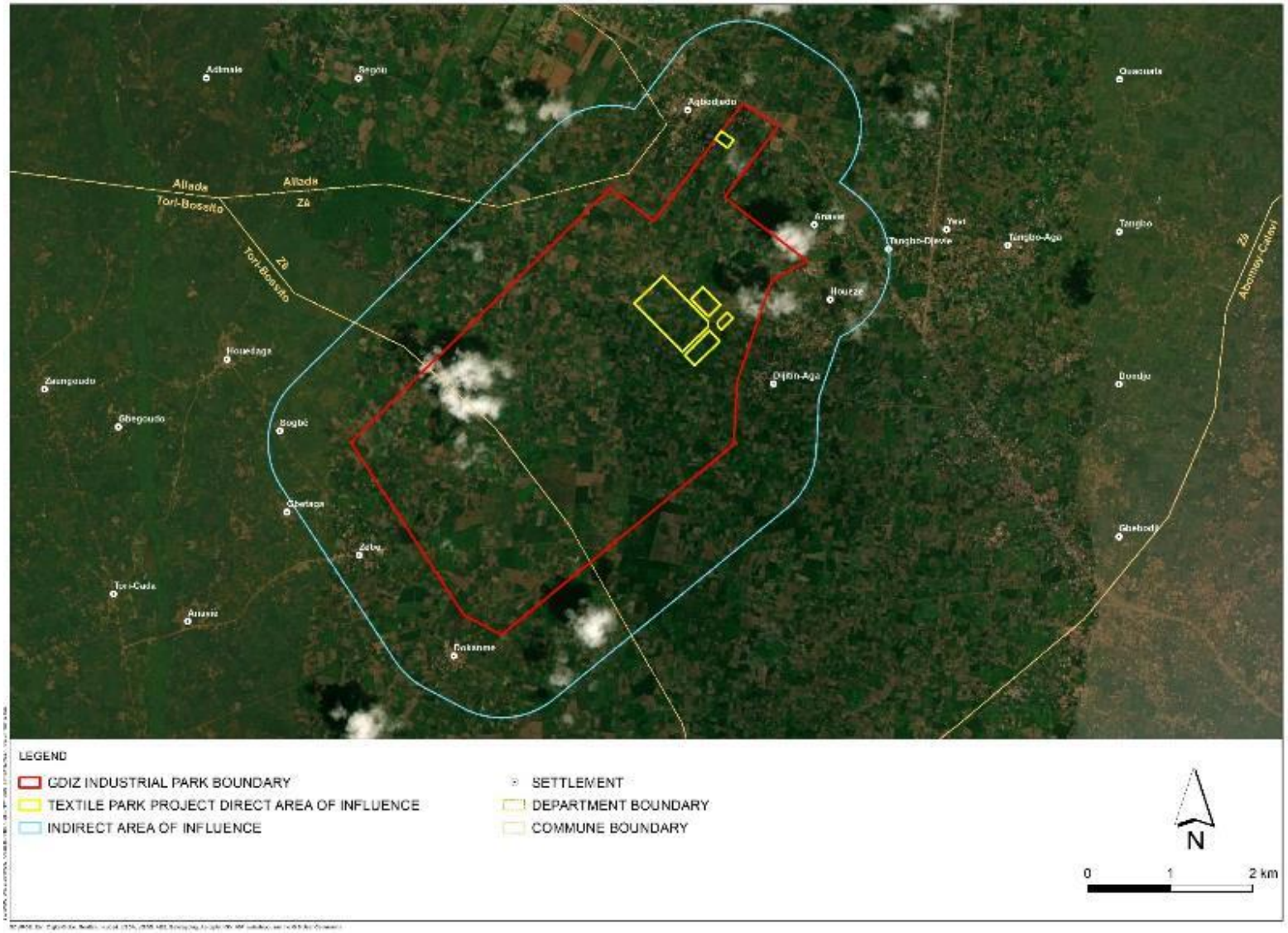
The spatial scope for each topic area has been explained as buffers around the project components, which are the potential sources of impact. A composite of these buffers then forms the overall spatial scope of the impact assessment. Appropriate study areas will be considered for each environmental and social topic based on the receptors affected.

Therefore, it is important to define the Area of Influence during this scoping process. This varies depending on the potential impact being considered. The spatial scope includes all areas within which potentially significant impacts may occur. The spatial scope for each topic area has been illustrated as buffers around the project components, which are the potential sources of impact. A combination of these buffers then forms the overall spatial scope of the impact assessment. The spatial scope around each project component can be seen on Table 6.6.

Figure 6.1 illustrate the spatial scope for the construction and operation phases of the Project[36].

[36] Note: The extent of the spatial scope for surface water and groundwater are not shown. Surface water includes the main surface water features and drainage regime; groundwater includes the underlying aquifers for Project area. The effects of project traffic (roads) are also not shown. Further information is required to determine which roads to include within the spatial scope.

Figure 6.1 Project Area of Influence (Preliminary)



Source: ERM 2021

6.1.3 Temporal scope

The *temporal* scope of the ESIA generally refers to the time periods over which impacts may be experienced. This is established for each technical topic, where appropriate through discussion with the relevant statutory consultees. In general, the following terms will be considered:

- Short-term, when the impact is temporary and lasts for up to 12 months;
- Medium-term, when the impact lasts for in the region of 2 to 3 years (*e.g.* for the whole period of construction or for the initial period of operation); and
- Long-term, when the effect remains for a substantial period of time, perhaps permanently.

For the purposes of the impact assessment the Project has been divided into three phases: construction and operation.

Construction Phase

The construction phase is expected to last 24 months in total. Impacts may potentially arise during this period from the construction activities. The assessments will also consider the time of year or day during which works are going to be undertaken, notably whether they are undertaken with seasonal focus as well as during daytime or night-time periods.

Operational Phase

For the operational phase, the temporal scope is determined by the predicted lifetime of the Project which is expected to be approximately 30 years.

Decommissioning Phase

Following the end of the Project's operational life the Project will be decommissioned. Note that over the years of the Project's operation until decommissioning, environmental and social conditions in the area will change. It is not possible therefore to precisely determine decommissioning impacts at this early stage and as such, the decommissioning phase is considered outside of the scope of the current impact assessment.. The specific impact and mitigations for the decommissioning phase will be assessed nearer the time by the Operator as part of formulating a decommissioning plan compliant with relevant regulations and standards. In many respects, decommissioning activities are similar to construction activities, hence many mitigation measures presented in the ESIA for the construction phase are likely to apply to the decommissioning phase.

Further details of the activities occurring within each phase of the Project can be found in Section 2.

Table 6.6 Scoping Critical Analysis

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
Air Quality	Construction	■ Construction dust: Construction activities such as excavations can lead to emissions of dust. ■ Construction traffic: the construction of the Project can generate traffic on nearby roads and thereby associated combustion emissions and dust raising. ■ Construction associated combustion emissions (mobile plant and on-site power generation).	Sensitive human receptors are close to the construction activities. There is relevant traffic and residential emissions in the study area, therefore air quality may currently be elevated, especially with regards to dust in the dry season(s). As complete control of dust emissions due to construction activities and construction traffic is difficult, the impact of construction is expected to be of minor significance at worst. Impacts on air quality caused by combustion emissions from construction related road and on-site traffic and onsite generators have the potential to impact human health and can be significant. On this basis, the ESIA will focus on identifying the potential for dust impacts due to the construction and on this basis make recommendations for appropriate mitigation.	-	500m from construction site	Human health, (Note: all air quality impacts to ecology receptors have been scoped out as these are situated outside the spatial scope)[37]
	Operation	■ Operational traffic: the project will attract increased traffic and generate vehicular related emissions. ■ Process emissions from the textile plant	The key aspect for the operational phase will be vehicular emissions (Particulate matter (PM_{10} and $PM_{2.5}$) and NO_2) due to increased traffic. Sensitive human receptors are close to the main road (RNIE2). Due to emissions from existing traffic baseline nitrogen dioxide and PM_{10}/$PM_{2.5}$ is expected to be elevated above the general regional baseline. Air quality impacts associated with vehicular emissions from increased traffic will need to be considered and possible mitigation options investigated if potentially significant impacts are identified. Process emissions from combustion sources and process (including the ZLD treatment units) itself will be considered. Boilers are fuelled by natural gas, and generators use diesel fuel. Electricity will ultimately be provided by solar but in the interim, power will be provided by SBEE (Société Béninoise d'énergie électrique). Key emissions are likely to be particulate matter, NO2 and potentially volatile organic compounds (VOC).	The wastewater treatment plant (CETP) will process the effluent generated by the industries in the GDIZ area (not only from the Textile Unit). The textile park is expected have a minimal contribution to the influent. The emissions from this unit has been excluded from the scope of this study. Emissions from the wastewater treatment plant (CETP) will be excluded. The due to shared usage of the facility from all the local industrial sources.	200m from access roads to textile plant and 2500m from the textile park	
Noise and Vibration	Construction	■ Noise propagation from construction equipment and construction/installation works.	Potential likely noise impacts may affect Noise Sensitive Receptors (residential properties, schools, health facilities and places of worship), as a result of the construction and operation of project..	Operational noise impacts on fauna have been scoped out on the basis that the Project is located in an area which already experiences noise disturbance from the existing operations and the incremental operation noise will be minimal. Fauna present are already tolerant of noise levels experienced. During construction, vibration may be noticeable at times when construction equipment passes close to individual receptors. Vibratory rollers, which may be required during construction, can generate significant vibration levels which may be noticeable at residential receptors within approximately 50 m. Most other equipment is likely to generate lower levels of vibration. Vibration effects from construction are expected to be short-lived at individual receptors as works progress along the route of the proposed roads and on the processing site and are therefore scoped out of assessment. However, the selected EPC will need to monitor the ground-born vibration and identify structures that are potentially vulnerable.	1000 m from construction equipment sources.	Human health, (Note: all Noise impacts to ecology receptors have been scoped out)[38]
	Operation	■ Noise propagation from the operation of the development. ■ Traffic noise will be increased due to operation.		During operation, vibration is expected to be below screening thresholds for potentially significant impacts, and this topic will not be considered in any detail.	1000 m from the project's boundaries	

[37] Due to the nature of emissions from mobile equipment and vehicles, and the relatively short stacks that they are discharged from, dispersion should be localized (i.e. within 1 km) to the site of emission. This has been scoped out on the basis that the anticipated volumes will not exceed the WHO guidelines (Air Quality Guidelines for Europe, Second Edition, World Health Organization, 2000.) for the protection of vegetation.

[38] Construction noise impacts on fauna have been scoped out on the basis that the Project is in an area which already experiences noise disturbance from the existing operations and the incremental construction noise will be minimal. Operational noise impacts on fauna have been scoped out on the basis that the Project is in an area which already experiences noise disturbance from the existing operations and the incremental operation noise will be minimal. Fauna present are already tolerant of noise levels experienced.

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
Biodiversity	Construction	■ Ecological Connectivity (Regional Level): Impact on migration routes and disturbance of fauna caused by noise and dust generation during construction works. ■ Relevant Flora Taxa: Loss of flora; Disturbance of relevant flora; Non regulated use of vegetal raw materials ■ Relevant Fauna Taxa: Loss of fauna; Disturbance of relevant fauna; Accidental loss of fauna ■ Workers and equipment mobilisation	Impacts of construction phase`s activities will come from preparatory works (topsoil removal and stockpiling, etc.) and the workers equipment and mobilization. The preparatory works (site clearance, tree felling, etc.) performed in the context of the development of the Phase 1 industrial park area and in the Textile Park Project area will be (retrospectively) evaluated for compliance with international standards. Workers equipment and mobilization produces impacts on relevant fauna, because of the danger of certain animals being run over. So this impact is scoped in.	Affecting relevant habitats, protected areas or introducing invasive species of flora and fauna for construction phase activities is excluded due to the absence of significant interaction or impact.	Direct: 1 Km buffer around Physical footprint of construction works – baseline can trigger an expansion of this area Indirect: Air Quality/Noise and Surface Water Construction Area of Influence.	Biological sensitive receptors
	Operation	■ Ecological Connectivity (Regional Level): Impact on migration routes and disturbance of fauna caused by noise and air emissions during the operation of the Textile Park ■ Relevant Fauna Taxa: Loss of fauna; Accidental loss of fauna ■ Protected Areas: Impact on Protected Areas (national and/or international status)	The effects of vehicle movement should be assessed. The project will increase traffic that can run over animals, causing a loss of fauna.	The textile industry has a great potential to damage inland waters due to the large amount of chemicals and dyes used. Given that the activity will be carried out within the industrial site with a wastewater treatment plant, it will eliminate the threat to the water bodies, so there will be no impacts caused by this source. Therefore, dyeing activities will not impact relevant habitats, protected areas, flora and fauna. The rest of the activities of the operational phase have no interaction or significant effect over the biological environment.	Direct: Operational area Indirect: Air Quality/Noise and Surface Water Construction Area of Influence.	
Geology and Soils / Soils Contamination and Landform	Construction	■ Disturbance of natural bedding of soils and modification of the relief; ■ Development and intensification of adverse exogenous processes and phenomena (erosion and waterlogging); ■ Risk of activation of seismic processes; ■ Soil fertility decrease; ■ Changes in the soil water regime; ■ Soil degradation due to pollution; ■ Changes in landform.	Based on site characteristics, the following impacts are considered plausible: impact on soil integrity and stability, erosion, loss of topsoil, compaction due to vehicle and construction equipment movement, and pollution due to poor waste management during the earthworks and construction activities involving exposed soil. In addition, soil contamination due to spillage of oil or other chemical substances, pollution by waste as a result of routine activities, can also occur. This is included in the section on unplanned events. In specific locations, due to topography, water stagnation can occur due to changes in soil profile or gradient. Stockpiling of excavated soil Washing away of soil by rainfall or storm water causing highly turbid water and siltation /sedimentation of riverbed/stream. Impacts on soils should be assessed further in the ESIA, but no additional baseline soil data will be required. Upon impact assessment, the set of proposed mitigation measures should be included in the ESMP. Remediation of any contamination is not necessarily in the responsibility of the EPC Contractor, but any contaminated materials excavated as part of construction will require environmentally appropriate and safe disposal.	-	Physical footprint of construction works and laydown area	Soil, land uses and nearest biological sensitive receptors. Also community health and safety.
	Operation	■ Soil contamination due to spillage of oil or other chemical substances, pollution by waste.	-	No earthworks are planned during operation. During routine operational activities, impacts on soils are not considered to be significant. Spills of oils, hydrocarbons and other products used during the textile units operation are of particular concern and should be assessed in the ESIA. This is covered under unplanned events.	Operational area	

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
Surface Water	Construction	■ Changes to hydrological regime of watercourses (redistribution of the surface runoff due to surface paving and construction of hydraulic structures diverting rainwater) ■ Deterioration of surface water quality due to increased turbidity in rivers ■ Deterioration of surface water quality due to run-off and erosion during construction stage	The following should be assessed in the ESIA: ■ Whether surface water sources will be used for construction purposes. ■ Discharge locations of hydraulic structure (septic tank) ■ Contamination of nearby water bodies with suspended particles (runoff/erosion during remaining earthworks), hydrocarbons (due to spills or inflow of contaminated surface water runoff and other substances (construction or household solid / liquid waste generated)	-	Physical footprint of construction works and laydown area; and the lagoon	Nearest social and biological sensitive receptors.
	Operation	■ Changes to hydrological regime of watercourses (redistribution of the surface runoff due to surface paving and construction of hydraulic structures diverting rainwater) ■ Deterioration of surface water quality due to increased turbidity in rivers ■ Deterioration of surface water quality due to run-offs during operation stage	The following should be assessed in the ESIA: ■ Discharge locations of hydraulic structure (septic tank) ■ Contamination of nearby water bodies with suspended particles (runoff/erosion during remaining earthworks), hydrocarbons (due to spills or inflow of contaminated surface water runoff and other substances (construction or household solid / liquid waste generated).	-	Operational area	
Groundwater	Construction	■ Changes in aquifer recharge/ discharge balance because of groundwater extracted for construction works. ■ Changes in groundwater quality	The following should be assessed in the ESIA: ■ Quantities of groundwater to be extracted for construction works ■ Substances used during the operational phase which could lead to leakages or spills. This is covered in the section on Unplanned events. ■ Hydrogeological study of the aquifer dynamics and well inventory need to be reviewed. Considering that changes in groundwater balance because of groundwater extraction during the construction phase and deterioration of groundwater quality as a result of pollutants movement into the deep layers of soil, or contamination of surface waters are likely to occur, hydrogeology should be considered in the ESIA.	-	Underlying aquifers for Project Area	Soil, land uses and nearest biological sensitive receptors. Also, community health and safety.
	Operation	■ Changes in aquifer recharge/ discharge balance because of groundwater extracted for textile unit operation. ■ Changes in groundwater quality	The following should be assessed in the ESIA: ■ Quantities of groundwater to be extracted for construction works ■ Substances used during the operational phase which could lead to leakages or spills. This is covered in the section on Unplanned events. ■ Hydrogeological study of the aquifer dynamics and well inventory need to be reviewed. Considering that changes in groundwater balance because of groundwater extraction during the operational phase and deterioration of groundwater quality as a result of pollutants movement into the deep layers of soil, or contamination of surface waters are likely to occur, hydrogeology should be considered in the ESIA.	-	Underlying aquifers for Project Area	
Waste Management	All phases	■ Resources and waste generation ■ Disposal of excavated waste soil ■ Pressure on Solid / Contaminated Waste facilities	Waste generation, disposal and management during construction and operation can have a significant impact on the Project area. A Waste Management Plan needs to be in place for the construction and operational phase. In addition waste management services in the Project area capable of dealing with the types of waste generated by the Project need to be specified. Information about the planned quarries for construction material, water resources to be used in both phases and source materials for the operational phase needs to be provided. Good practice waste management (according to international guidelines) will be followed for all phases of the Project. A framework of these management measures will be included in the ESMMP. These will be included in the EPC contractor commitments and detailed in full in the management plans to be developed/	-	Waste management facilities (internal and external to the Industrial Park)	Nearest social, physical and biological sensitive receptors.

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
			implemented for the Project. If correctly managed, it is not expected that waste will have any significant impact on the local natural or social environment and no detailed assessment is required in the ESIA. Nonetheless, further E&S impact assessment studies will be required once the aggregate resources and water resources and amount of demand are confirmed. Generally, it is assumed that the client will be a commercial buyer of resources with little direct "control" over the sellers (e.g. existing third party quarries). Assessment will include identification of control over resources (client leverage) on case-by-case basis once the quarries and water sources are identified.			
GHG Emissions	Construction	■ Increased GHG emissions (CO_2 equivalent) during construction, associated with fuel combustion and power consumption by machinery, equipment and vehicles in the control of the contractor.	Assessment is necessary to understand if Project related activities would have a direct effect on increased GHG levels in the atmosphere. If these emissions are significant, proportional measures will be implemented.	-	-	Increase of GHG emission levels in the atmosphere leading to climate change and global warming.
	Operation	■ Increased GHG emissions (CO2 equivalent) during operation, associated with fuel combustion, heat and steam imports and power consumption by machinery, equipment and vehicles in the control of the operating company..				
Climate Risk Assessment **Transition Risk Assessment**	Construction	■ Physical climate-related risks that might have an impact on the project during construction phase (i.e. flooding and other risks resulting from change in climate patterns)	According to the Equator Principle 4, the Climate Risk Assessment (CRA) for such a (assumed) Category A project must include (i) consideration of physical risks and (ii) – if combined Scope 1 and Scope 2 Emissions are expected to be more than 100,000 tonnes of CO2 equivalent annually – then also transition risks must be assessed as well as an evaluation of GHG-saving alternatives. The CRA must address the following questions at a high level: - Develop a concise understanding of current and anticipated climate change risk in the area ; - Conduct a risk assessment (generally involving expert judgement) to identify specific risks that may become problematic under future climate change; - Understand magnitude, frequency, likelihood and vulnerability of the Project when exposed to climate change–related hazards.	The Scope 1 and Scope 2 GHG emissions caused by the Project activities (construction and operation stages) will be calculated to the international requirements. These emissions are assumed to not exceed the annual 100,000 t of CO_2 e threshold. Transition risk are assumed not to be relevant for this Project, based on information currently available.	Physical footprint of construction works and laydown area.	Residents of nearby settlements, staff, biological environment
	Operation	■ Physical climate-related risks that might have an impact on the project during operation phase by assets damage or operation disruption of the Project (i.e. flooding and other risks resulting from change in climate patterns).			Operational area	
Landscape and Visual	Construction	■ Disturbance of human activities by the increase in illumination pollution ■ Disturbance of fauna caused by the increase in illumination pollution ■ Landscape aesthetics change due to soil and vegetation clearance ■ Change of landscape visual properties due to appearance of new infrastructure facilities; additional lighting ■ Visual impact from the operation and traffic of equipment	-	Although nearby settlements may experience a decrease in visual amenity during construction, these impacts will be short-term. The area is fenced, and the existence of the villages will absorb the visual impact.	Resident populations of the four (4) villages in the proximity of the Project Site	Residents of nearby settlements
	Operation	■ Disturbance of human activities by the increase in illumination pollution ■ Disturbance of fauna caused by the increase in illumination pollution ■ Change of landscape visual properties due to appearance of new infrastructure facilities; additional lighting ■ Visual impact from motor vehicles traffic	-	The Project will contribute to potential impacts on landscape and visual during operation. The GDIZ industrial park and the airport will have significant impacts in terms of illumination pollution, landscape modification and traffic increase. The role of this project in the cumulative impacts from the GDIZ full industrial park, and the planned airport is however expected to be limited.		
Local Employment and Supply Chain	Construction	■ Temporary direct and indirect employment opportunities (primarily unskilled) ■ Temporary economic impacts from taxes and fees, procurement and worker spending	The impact of the Project on employment and the local economy is expected to be positive. Unskilled roles will be available to local communities during construction. These will be temporary jobs and will be advertised in local communities. Other positive impacts are expected to be generated through taxes and fees as well as indirect opportunities through procurement of	-	Maritime Region	Regional / Local Economy

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
		■ Long-term benefits of capacity enhancement (on-the-job and formal training opportunities).	goods and services. Potential impacts on the local economy will be considered further through the ESIA and subsequent ESMP.			
	Operation		The operations workforce directly employed in the Textile Park is anticipated to be between 60,000 and 80,000 workers. Indirect employment within the wider cotton / textile value chain is estimated at 200,000 jobs. Induced employment will be greater than the figures for both direct and indirect jobs combined. Business and income tax opportunities will be significant. Potential impacts on the local economy will be considered further through the ESIA and subsequent ESMP.	-	Maritime Region	Regional / Local Economy
Recreation and Tourism		■ Contribution to touristic activities attractiveness.	-	Impacts to tourism are not considered significant and will not be assessed further in the ESIA.	Maritime Region	Regional / Local Economy
Vulnerable Groups and Indigenous Peoples	Construction/ Operation	■ Impacts on Vulnerable Groups or Indigenous People; ■ Impacts on gender equality.	Participants in Scoping Phase consultation reported experiencing significant land loss or landlessness, increasing the level of vulnerability. A more detailed assessment of vulnerability should be undertaken for ESIA Development, including gender inequalities.	Indigenous peoples are scoped out as there is no indigenous Population in the Project area as per the GDIZ ESIA .	Maritime Region	Resident populations of the four villages in the Project's proximity
Cultural Heritage (Tangible and Intangible)	Construction	■ Ground disturbing activities associated with construction are the most likely source of direct physical impacts to undiscovered archaeological resource, if present. ■ Built heritage and living heritage resources are susceptible to direct physical impacts if buildings, shrines, or other resources will be removed or damaged during construction. ■ Impacts could occur if resources are removed during construction or due to ancillary impacts from increased vibration and pollutants caused by increased vehicle traffic; ■ Built and living heritage resources are susceptible to indirect impacts through the introduction of intrusive visual or auditorial elements to their physical environment or "setting". These impacts could include increased noise and/or exhaust and dust during construction. ■ The influx of construction workers from outside the local area can impact on local intangible practices, such as religious rituals etc, ■ Land Acquisition can have an impact on intangible cultural heritage if access is restricted with the purchase, or if title is disputed.	Based on the information gathered to date, the impact of the project will need to be assessed for the following: ■ Tangible Cultural Heritage- the potential for identified and unknown Cultural Heritage within the Project AoI to be impacted by the Project needs to be assessed. This will require the collation of a baseline compliant to IFC Performance Standard 8 (Cultural Heritage) ■ Intangible Cultural heritage - The potential for identified and unknown Intangible Cultural Heritage within the Project AoI to be impacted by the Project needs to be assessed. This will require the collation of a baseline compliant to IFC Performance Standard 8 (Cultural Heritage)	-	Wider surrounding area	Tangible and Intangible Cultural Heritage
	Operation	■ Operation of the road and textile park can impact people's access to cultural heritage sites through increased traffic levels. ■ Pollution related to operation can have an impact on intangible cultural heritage in the surrounding areas. ■ The influx of construction workers from outside the local area can impact on local intangible practices, such as religious rituals etc, as well as spark modern development in the wider area leading to a replacement in architectural traditions and styles.	Based on the information gathered to date, the impact of the project will need to be assessed for the following: ■ Intangible Cultural heritage - The potential for identified and unknown Intangible Cultural Heritage within the Project AoI to be impacted by the Project needs to be assessed. This will require the collation of a baseline compliant to IFC Performance Standard 8 (Cultural Heritage)	-	Wider surrounding area	

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
Community Health and Safety	All phases	■ Site trespass and injury ■ Increased transmission of communicable and non-communicable diseases ■ Traffic injuries; ■ Influx and migration; ■ Community/workforce interactions. ■ Noise, dust and air emissions	The Project footprint is situated within the GDIZ, which is fenced and under security surveillance, so potential risk of trespass at work sites for the duration of construction is not significant. Traffic injuries are possible during the construction phase due to circulation of vehicles and machinery outside of the Project footprint. Young people and children are most likely at risk of getting injured. This will be a particular consideration for areas along the main access from Cotonou (RNIE2). Impacts on the health of the community may arise during construction and operations as a result of noise, dust and other emissions from construction activities. With 60,000-80,000 direct jobs within the textile park, the Project is anticipated to attract a significant amount of people seeking jobs and other economic opportunities. Based on conservative assumptions, this could amount to hundreds of thousands of persons relocating to the area surrounding the Project site. Such in-migration poses a risk of overwhelming local infrastructure and services, including ecosystem services, destabilizing social cohesion and leading to the spread of communicable diseases, as well as the spread of Sexually Transmitted Infections (STIs) and HIV.	-	Four villages in the proximity of Project Site	Local population of four villages in the proximity of Project Site
Land and Livelihoods	Construction	■ Impact to residential structures: physical displacement of individuals and households; ■ Impact to economic structures: loss of business and economic displacement; ■ Impact to crops and fields: loss of access, loss of livelihood and economic displacement; ■ Impact to business infrastructure: loss of access, loss of business and economic displacement ■ Loss of access to communal resources as well as infrastructure and social services; ■ Severance and Loss of community cohesion.	-	Physical and economic displacement are anticipated during construction or operations as land acquisition and compensation are being managed by the Beninese State for the GDIZ Phase 1 Area and will be completed in advance of construction. RAP and LRP are to be still being implemented in line with IFC requirements and are led by SIPI.	Physical footprint	Local population within and surrounding the footprint
	Operation		-		N.A.	
Access to Infrastructure and Services	All phases	■ Increased traffic disturbances due to circulation of Project vehicles and machinery in N1 road and local access roads. ■ Disruptions on water supply due to Project water consumption ■ Overflow on external waste management facilites	Disruption to infrastructure and utilities could result in impacts to livelihoods or quality of life and if unmanaged could result in health impacts (e.g. water restrictions, inability to pass roads in an emergency etc.). Any Project-specific impact on ecosystem services affecting will be assessed as Project design evolves during the ESIA development phase.	-	Four villages in proximity to the Project Site	Local population of four in the proximity of Project Site
Worker Health, Safety, Security and Labor and Working Conditions	All phases	■ Workers health and safety and security ■ Impacts to Human Rights ■ Labor and working conditions ■ Child labor in the supply chain ■ Forced labor in the supply chain	Workers' rights including occupational health and safety needs to be considered to avoid accidents and injuries, loss of person-hours, labor abuses and to ensure fair treatment, remuneration and working or living conditions. These issues should be considered not only for those who are directly employed by the Project but also its contractors (including sub-contractors) and within the supply chain. In addition, the use of child labor or use of people under 18 year of age for hazardous work within the supply chain remains a possibility. Labor and working conditions as compared to relevant in country laws and lender requirements should be assessed in the ESIA.	-	Physical footprint	Workforce
Project-induced immigration	All phases	■ Project-induced in-migration increases burden on and competition for public service provision, notably for medical and educational services. ■ Impact on property market ■ Inter-intra community tension	Local infrastructure and service capacity may not be adequate to absorb the increased demand driven by Project-induced in-migration. Project-induced in-migration may lead to an increase in local cost of living, which may be difficult to bear by vulnerable groups. Pressure on food and water prices may compromise local food security. Community tensions are likely to be increased by in-migration leading to the deterioration of social cohesion and anti-social behavior . Security (theft) and economic concerns (unaffordability of land) were reported in local consultations during the scoping phase. Monitoring management of in-migration, local prices, security issues and housing are planned in the GDIZ ESIA.	-	Commune of Ze, District of Tangbo Djeve	Local population

Topic	Temporal Scope	Potential Source(s) of Impact	*Scoped in*	*Scoped Out*	Spatial Scope	Potential affected receptors
			The Textile Park ESIA will assess impact of in-migration on infrastructure capacity, housing and local cost of living, including a focus on vulnerable groups.			
Community Cohesion	All phases	■ Inter-intra community tension ■ Unmet expectations regarding project benefits (i.e. employment opportunities)	Expectations regarding job opportunities and Project benefits among local communities (villages, district and commune levels) are considered high. For the Textile Park project, where two candidates are equally qualified, the Project will first prioritize candidates from the four villages experiencing physical and economic displacement impacts, followed by candidates from the Commune of Ze. Measures to manage community engagement and reduce the likelihood of tension between communities will be explored as part of the ESIA. Community investment offered by this Project is not known at this stage.	-	Commune of Ze, District of Tangbo Djeve	Local population
Cumulative Impacts	All phases	-	CIA is mandatory as per international guidelines and best practices[39]. The CIA should take into consideration the current and projected projects (e.g. airport extension).	-	Regional	Various
Unplanned Events	Construction	■ Generation of leaks and spills (e.g. result from resurfacing operations such as spillages of substances such as hydrocarbons), natural events (fires, cyclones, storm surge) and road accidents can trigger environmental and social impacts. ■ Localised floods, that can modify surface water runoff particularly during rainy season	Impact assessment triggered by unplanned events (hydrocarbon and other chemical leaks and spills, and untreated wastewater), the effects of localised floods and the interruption of wastewater treatment due to malfunction such be considered.	-	Physical footprint of construction works and laydown area and 500m from access road.	Various
	Operation	■ Spill of chemical compounds used in textile processing and hydrocarbons can impact both biological and social sensitive receptors. ■ Flooding and debris brought by extreme weather events could obstruct the road could interrupt normal road operation				

[39] To be developed based on IFC (2013) - Good Practice Handbook on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets.

7. STAKEHOLDER ENGAGEMENT

7.1 Introduction

This section provides an overview of the key issues raised by stakeholders during scoping as well as an outline of the grievance mechanism.

In order to support future engagement during the development of the ESIA, a Framework Stakeholder Engagement Plan (FSEP) has been developed by ERM (see Appendix D). The FSEP will be updated and expanded to include additional planned engagements as the ESIA moves forward and eventually be developed into a full Stakeholder Engagement Plan (SEP).

7.2 Objectives

Stakeholder engagement is a key component of sustainable development and the ESIA process. It involves stakeholders interested in, or affected by, a proposed development working to actively identify opportunities, risks and issues of concern.

The primary objectives of stakeholder engagement are as follows:

- To ensure regular, timely, accessible, and appropriate dissemination of information related to the Project in an appropriate manner to all external stakeholders;
- To build trusting relationships by engaging openly and honestly with communities, government authorities, and other key stakeholders;
- To ensure open channels of communication are in place between GDIZ and stakeholders that are accessible to all external stakeholders, regardless of gender, age, ethnicity, and/or social status;
- To involve relevant external stakeholders in decision-making on Project and program design elements that will impact their socio-economic wellbeing and future development; and
- To create and ensure access to an effective grievance mechanism that can facilitate early indication and prompt resolution of project-related concerns.

7.3 Stakeholder Engagement Undertaken as part of the GDIZ ESIA

7.3.1 Preliminary Consultations

Several meetings and interviews were carried out by ANTEA as part as the Phase 1 GDIZ ESIA in 2019 with populations, socioeconomic community groups, Civil Society Organizations (CSOs) and local authorities in the municipalities of Tori-Bossito and Ze and their respective districts, Tori-Cada and Tangbo-Djevie which house the Project site.

The main purpose of these meetings was to collect data on the local socio-economic context in order to complete the initial state of the human environment in this impact study. They also made it possible to inform the population about the Project (nature and description, delimitation, likely impacts for residents) and to collect their perceptions and opinions, their fears, and expectations.

There were four different types of consultation activities:

- **Preparatory meetings and site visits** with local authorities, in order to show them the limits of the future site of the industrial zone;
- **Two public consultation meetings** in the 2 districts of the Project study area;
- **22 focus groups** with different socio-professional and socio-demographic categories, which aimed both to collect socio-economic data and to exchange on the Project; and
- **Individual interviews with key stakeholders** to fully understand the functioning of the land system in the Project area and identify the constraints to land acquisition.

Due to opposition to the Project, the village of Agbodjedo was not covered by the various consultation activities.

Table 7.1 below shows the activities carried out.

Table 7.1: Summary of the Institutions and Groups Met

Nb.	Date	Location	Institution or group met	Number of participants
1	29/10/2019	Ze town hall	Preparatory meeting Mayor of Ze	3
2	30/10/2019	Tori-Bossito town hall	Preparatory meeting Mayor of Tori-Bossito	4
3	30/10/2019	Tangbo-Djevie district in Ze	Preparatory field meeting with the local authorities (CA and CV) concerned in the Arrondissement of Tangbo- Djevie in Ze	8
4	31/10/2019	Tori-Cada district	Preparatory field meeting with the local authorities (CA and CV) concerned from the District of Tori-Cada	9
5	11/11/2019	Tori-Cada district	Public consultation with local residents of the Tori-Cada District Project site	54
6	14/11/2019	Dokanme	Focus group with the village chief, councillors and religious leaders	16
7	15/11/2019	District of Tangbo-Djevie in Ze	Public consultation with the persons living in the vicinity of Tangbo-Djevie Project site.	
8	19/11/2019	Dokanme	Focus group with Dokanme youth group	36
9	19/11/2019	District of Tori-Cada	Focus group with the village chief, his councillors and the religious leaders of Zebe	11
10	20/11/2019	Zebe	Focus group with Zebe youth group	19
11	20/11/2019	Gbetaga	Focus group with the village chief, his councillors and the religious leaders of Gbetaga	15
12	21/11/2019	Dokanme	Focus group with the women of Dokanme	34
13	21/11/2019	Zebe	Focus group with Sogbe women's group	15
14	22/11/2019	Zebe	Focus group with the vulnerable groups of Zebe	11
15	22/11/2019	Sogbe	Focus group with the village chief, his councillors and the religious leaders of Sogbe	11
16	23/11/2019	District of Tori-Cada	Focus group with the craftsmen and merchants of Tori-Cada District	15
17	25/11/2019	District of Tori-Cada	Focus group with the Associations/CSOs of ToriCada District	21
18	25/11/2019	District of Tori-Cada	Focus group with farmers, stockbreeders and landowners of Tori-Cada District	14
19	30/12/2019	District of Tangbo-Djevie in Ze	Public Consultation with the residents of Tangbo-Djevie in Ze	39
20	31/12/2019	District of Tangbo-Djevie in Ze	Focus group with Operators and Owners	26
21	02/01/2020	District of Tangbo-Djevie in Ze	Focus group with Tangbo-Djevie Association/CSOs	15
22	02/01/2020	District of Tangbo-Djevie in Ze	Focus group with the Craftsmen and traders of Tangbo- Djevie	17
23	03/01/2020	Houeze	Focus group with village chief, councillors and religious leaders	12
24	03/01/2020	Houeze	Focus group with young people	19
25	04/01/2020	Djitin-Aga	Focus group with village chief, councillors and religious leaders	15
26	04/01/2020	Houeze	Focus group with vulnerable groups	11

Nb.	Date	Location	Institution or group met	Number of participants
27	06/01/2020	Anavié	Focus group with village chief, councillors and religious leaders	18
28	06/01/2020	Djitin-Aga	Focus group with the women of Djitin-Aga	22
29	07/01/2020	Anavié	Focus group with young people	18
30	14/01/2020	Cotonou	Meeting with IGN	3
31	15/01/2020	Cotonou	Meeting with ANDF	3
32	15/01/2020	Cotonou	Meeting with APIEX	5
33	15/01/2020	Cotonou	Meeting with AGETIP Benin SE	10

Source: Antea ESIA, modified by ERM 2022

The various consultation activities undertaken by ANTEA revealed fears about the Project and overall some strong opposition to the Project mostly linked with the compensation process. Those consulted have badly experienced the airport project where local residents were deprived of their land and feel they have not received fair compensation.

The main concerns and issues raised during the consultation activities were:

- Land and economic displacement: not being compensated at fair value;
- Employment: not being able to find other sources of income, not getting jobs on the Project site, and women not being able to sell their goods at the Project site;
- Social consequences: Project will severely affect village social organization and family stability; and
- Health and safety: development of diseases caused by Project activities and resulting nuisances.

The following proposals were made by the groups interviewed to minimize some of the negative impacts:

- Identify a site for the industrial zone within the future airport itself or relocate the site to another area initially planned for industrial development (in the municipality of Ze);
- Allow populations to harvest their crops before the works begin and not destroy the crops before the works start;
- Provide fair compensation before work begins;
- Give priority to offering jobs to expropriated farmers or to help them find alternative land;
- Give priority to offering jobs to young people and women from villages in the area;
- Future workers made to respect local standards; and
- Strengthen local infrastructure: health, water, education, electricity and access roads.

As a result, the following measures have been integrated into the Phase 1 ANTEA ESIA and ESMP:

- Sensitizing workers to local customs;
- Establishment of a recruitment program that prioritizes expropriated PAPs and women from villages in the area;
- Establishment of a Voluntary Community Development Program by the proponent to finance the construction of infrastructure in villages bordering the Project site;
- Provision of fair compensation corresponding to the real value of the assets;
- Alignment of the Project schedule and the work start-up period with the harvesting periods of the main crops on the site; and
- Establishment of a robust livelihood restoration program under the RAP.

7.3.2 ESIA Disclosure Consultations

Public consultations for the disclosure of the Phase 1 ESIA were organized by ANTEA from the 3rd to the 12th of November 2020. The purposes of these consultations were to present the main conclusions of the ESIA process, the major impacts of the Project and the proposed mitigation measures, and to get the feedback of project-affected communities on these measures.

Various communication tools were used, mostly a poster and a PowerPoint. The Covid-19 prevention measures applicable in Benin were applied during the meetings.

Prior to the organization of consultation meetings in the villages of the study area, two meetings were organized at the level of the municipalities impacted by the Project:

- 03/11/2020: meeting with the municipality of Tori-Bossito.
- 05/11/2020: meeting with the municipality of Zè.

Following these, public meetings were organized in the 8 villages affected by the Project so that information was brought directly to the Project-Affected Persons with the aim of increasing public participation. The meetings are presented in Table 7.2 below.

Table 7.2: ESIA Disclosure Consultations Organized

Date	Village	Duration	Number of Participants	Men	Women
04/11/2020	Houeze	2 hours 10 minutes	53	30	23
04/11/2020	Djitin-Aga	1 hour 30 minutes	51	49	2
06/11/2020	Anavié	1 hour 35 minutes	36	33	3
06/11/2020	Agbodjedo	1 hour 25 minutes	52	28	24
10/11/2020	Sogbe	1 hour 50 minutes	52	33	19
10/11/2020	Gbetaga	55 minutes	45	20	25
11/12/2020	Zebe	1 hour 30 minutes	49	45	4
12/11/2020	Dokanme	1 hour 15 minutes	57	41	13
		TOTAL	**392**	**279 (71%)**	**113 (29%)**

Source: Antea ESIA, modified by ERM 2022

7.4 Stakeholder Engagement Undertaken during Textile Park Scoping

A field mission was undertaken from **30 November to 3 December 2021 by ERM and LINER**. During the visits organised in the affected villages, the discussions focused mostly on the following points:

- Presentation of the consulting team;
- Presentation of the objective of the mission; and
- Presentation of the Project and its components.

7.4.1 Summary of Scoping Engagement Activities

Table 7.3 summarizes the scoping engagement activities held during the current scoping phase.

Table 7.3: Scoping Engagement Activities Held During Scoping

Date	Time	Location	Stakeholders	Photographic Evidence
01/12/2021	10:00 to 11:00	Agbodjedo village	■ Representatives of young people, women, the elderly ■ Village Chief and his advisers	
	11:30 to 13:00	Anavié village	■ Representatives of young people, women, the elderly ■ Village Chief and his advisers	

Date	Time	Location	Stakeholders	Photographic Evidence
	13:30 to 14:00	District of Tangbo-Djevie	■ District of Tangbo-Djevie – District Chief	
	16:00 to 16:30	-	■ Departmental Directorate for the Living Environment and Sustainable Development for Atlantique/Littoral	

Date	Time	Location	Stakeholders	Photographic Evidence
	17:30 to 18:00		■ Departmental Directorate of Industry and Trade for Atlantique/Littoral – Director's Collaborators	
02/12/2021	08:00 to 09:00	-	■ Prefect of Atlantique and its collaborators ■ Mayor of Tori Bossito ■ Departmental Directorate of Industry and Trade for Atlantique/Littoral – Director	

Date	Time	Location	Stakeholders	Photographic Evidence
	10:00 to 11:30	Djite Age village	■ Representatives of young people, women, the elderly ■ Village chief and his advisers	
	12:00 to 13:30	Houeze village	■ Representatives of young people, women, the elderly ■ Village chief and his advisers	

Date	Time	Location	Stakeholders	Photographic Evidence
	15:00 to 16:00	District of Tori Cada	■ District Chief of Tori Cada ■ Chief of the village of Tori Cada ■ Chief of the village of Zèbè ■ Chief of the village of Dokanmè ■ Chief of the village of Sougbé ■ District Councilor	
03/12/2021	10:00 to 13:00		■ Beninese Environment Agency (ABE) – Managing Director	

7.4.2 Key Concerns Raised by Stakeholders during Scoping Engagements

This Section provides an overview of the key issues raised by stakeholders during consultations for Scoping report. Table 7.4 presents a summary of concerns and issues raised by community representatives during those meetings

Table 7.4 Summary of Concerns and Issues

Subject	Key outcomes and concerns
Employment	■ Recruit local workforce ■ Give priority to young people in the affected villages ■ Create a facility for training and recruitment ■ Clarify whether training will be free ■ Define and inform officials and population on types of workers needed and employment criteria
Insecurity	■ Foreign workers ■ Young people not employed by the project
Health	■ Health concern linked to presence of 50% staff accommodation in the GDIZ
Workers accommodation	■ Analyze the risks related to the exposure of workers to be housed in the GDIZ to heavy metals, toxic gases and nuisances that will result from the installation of large industrial units in the GDIZ (cement plant, brewery, etc.) ■ Analyze the cumulative effects of other projects on the employee housing component
Access issues	■ Access to local villages blocked by GDIZ fence. ■ Fence the sacred forest and allow dignitaries to access it for rituals
Land and economic displacement	■ Allow production to be harvested before work begins ■ Support women's organisations financially to develop activity following the loss of agricultural land ■ Slowing down of the compensation process by the State ■ Reduced economic activities and therefore livelihoods ■ Scarcity of arable land and increase in poverty ■ Social problems that arise from dispossession ■ Support in retraining especially for young people and women
Air Pollution	■ Air pollution during construction and exploitation. Inform the populations of the gaps that would be observed after analysis of the air samples
Nuisance	■ Make every effort to ensure that during the construction and operation phase, no environmental nuisance (wastewater management, fire, explosion, etc.) is recorded ■ Concerns around accidents, noise and waste management
Waste water	■ Concerns around waste water management ■ Apply Zero Liquid Discharge Technology (ZLD) to avoid waste water discharge ■ Clarify describe the wastewater reuse circuit ■ Clarify the dye waste management method
Cultural Heritage	■ Community concerns about the integrity of the Anavié sacred forest ■ Concern about ensuring continued access to the sacred forest for their rights and sacrifices once the security barrier is constructed
ESIA	■ Provide a hazard study to be appended to the ESIA ■ Present in the ESIA the chemicals to be used in the production phase, the potential risks and especially their certification
Other	■ Learn about the experience of the International Textile Society (SITEX) located in the city of Lokossa in Benin

Source: Liner/ERM, 2021

7.5 Stakeholder Engagement to be Undertaken during Textile Park ESIA Phase

7.5.1 Engagement Program

The engagement program will cover the stakeholders' engagement activities for Textile Park ESIA development.

The engagement will continue to be undertaken in accordance with national and international good practice, which places an emphasis on broad engagement and disclosure of findings to stakeholders and requires that a stakeholder engagement plan be developed.

Two phases of engagement will be undertaken: (i) initial engagement with the national government, local government and non-governmental officials to ensure they are informed about the Project and activities that will be undertaken; and (ii) public participation and consultation which will involve a series of public gatherings/ hearing with a range of stakeholders including affected communities.

Any other stakeholders that are identified following the completion of the scoping engagement process should be consulted during the full ESIA process. This may include specific organizations such as NGOs and civil society, or businesses within the study area.

It is noted that due to the ongoing COVID-19 pandemic (as of this writing in April 2022 and for the foreseeable forthcoming months), stakeholder engagement will be conducted in conformance with all legal requirements mandated by Beninese authorities as well as recommendations from the World Health Organization (WHO). This may require a preference for virtual/remote engagements over face-to-face meetings.

Any engagement activities will need to consider adopting several measures in order to reduce the spread of infection, as follows:

- Wear protective face mask (surgical or FFP2);
- Choose outdoor venues rather than indoor;
- Maintain a distance of 1-2 meters (3-6 feet) from others; and
- Avoid shaking hands, and provide hand-cleaning stations.

Table 7.5 summarizes the planned stakeholder engagement activities on the Project.

Table 7.5 Engagement Program

Stage	Purpose	Status/Timing	Responsible to undertake engagement activity
ESIA Development: Data Collection and Project Disclosure	■ National, regional and local level engagement meeting to provide high-level Project information about the proposed development and gain feedback regarding the nature, scale and purpose of the Project and disclosure of scoping preliminary impacts and planning the main focus of the ESIA report. ■ A series of data collection activities will be undertaken to gather information for the ESIA baseline, to inform the impact assessment, specifically: ■ Key informant interviews with local stakeholders to (a) determine what, if anything, has changed since the GDIZ ESIA baseline data collection in 2020 (b) fill key identified gaps in the GDIZ ESIA. ■ Key informant interviews with local, departmental and national stakeholders, to gather qualitative data relevant to: - educational outcomes; - skills and vocational training; - social cohesion (social ills: crime, alcoholism, prostitution; social capital, trust, relationships, solidarity and mutual support, etc.); - national and regional economy and industry; ■ Focus groups with women to confirm the findings of the GDIZ ESIA and determine the nature and extent of any changes.	Planned	LINER/ERM

Stage	Purpose	Status/Timing	Responsible to undertake engagement activity
ESIA Disclosure	■ The Minister must make the impact study report available to the public within fifteen days of its submission. ■ In accordance with the public hearing procedure, the Minister authorizes the public hearing by decree. The population is informed of the holding of a public hearing by the publication of the decree in the Official Gazette, through the press and by public posting in the structures territorially concerned by the project. Article 59 details the deadlines that must be met following the publication of the decree: ■ The hearing file must be made available to the public within 8 days after the degree is published; - The first hearing session must be held within 15 days after the hearing file is made available; - The second hearing session must be held within 10 days after the first hearing session; - The hearing report must be submitted to the Minister within 10 days after the last hearing session. ■ The Public Hearing Commission is responsible, on behalf of the Minister, for conducting meetings and consultations as part of the proceedings. The commission is composed of 3 members, including a government official, an environmental specialist and a representative of non-governmental organizations. ■ The Minister makes the final hearing report available. ■ All documents relating to the hearing (written or recorded notes during meetings, exhibits, written depositions) are labelled, numbered and collected in a sealed package deposited with the Minister in charge of the Environment who assigns it to the ABE for archiving.	Planned	LINER/ERM with support from GDIZ E&S team

7.6 Grievance Mechanism

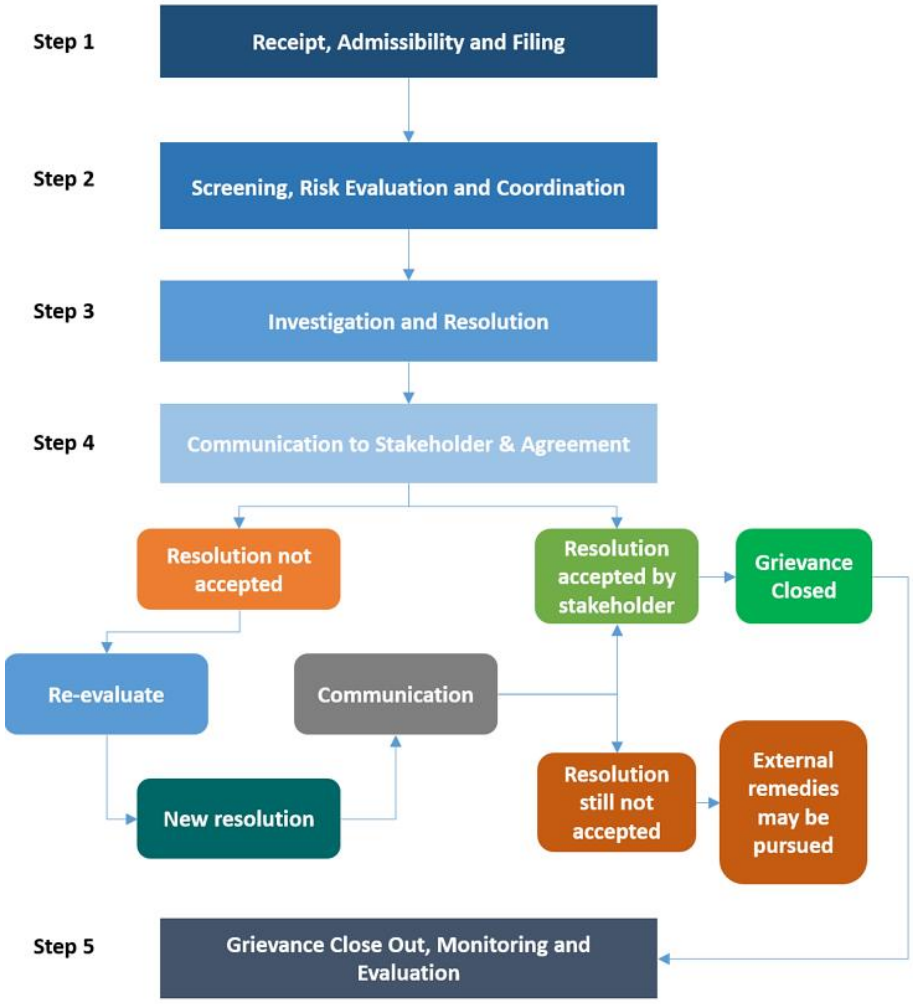
Grievances can encompass minor concerns as well as serious or long-term issues. They might be felt and expressed by a variety of parties including individuals, groups, communities, entities, or other parties affected or likely to be affected by the social or environmental impacts of the Project. Grievances may take the form of specific complaints about damages/injury, concerns about project activities, perceived incidents or impacts or requests for more information/clarity about the project. It is essential to have a robust and credible mechanism to systematically handle and resolve any complaints that might arise in order that they do not escalate and present a risk to operations or the reputation of the company (nationally or internationally).

Identifying and responding to any grievances supports the development of positive relationships between the Project and its stakeholders. A Grievance Mechanism (GM) provides a platform for stakeholders to engage with the Project, and provide ongoing feedback, as well as dispute resolution to minimise social risks that may cause Project delays and increase costs. If well-handled, an effective Grievance Mechanism can help foster positive relationships and build trust with stakeholders (Figure 7.1).

A GM was developed for the Project and included in the Framework SEP and is designed to identify and manage issues throughout the entire Project lifecycle. The GM outlines the approach to accepting, assessing, resolving and monitoring grievances from stakeholders regarding the Project according to established timeframes. Under the GM, complainants are able to submit grievances anonymously if they so choose and at no financial cost. It is intended that the GM function to resolve grievances efficiently and amicably however the GM in no way impedes a complainant's right to access judicial recourse.

Under the implementation of the GM, a representative will be appointed for the Project (Complaints Management Officer), who will be responsible for grievance management. Grievances will be passed through the representative in the first instance, who will be responsible for passing the grievance on to the appropriate person in line with the Project GM. Personnel responsible for grievance management have not currently been identified.

Figure 7.1 Grievance Mechanism



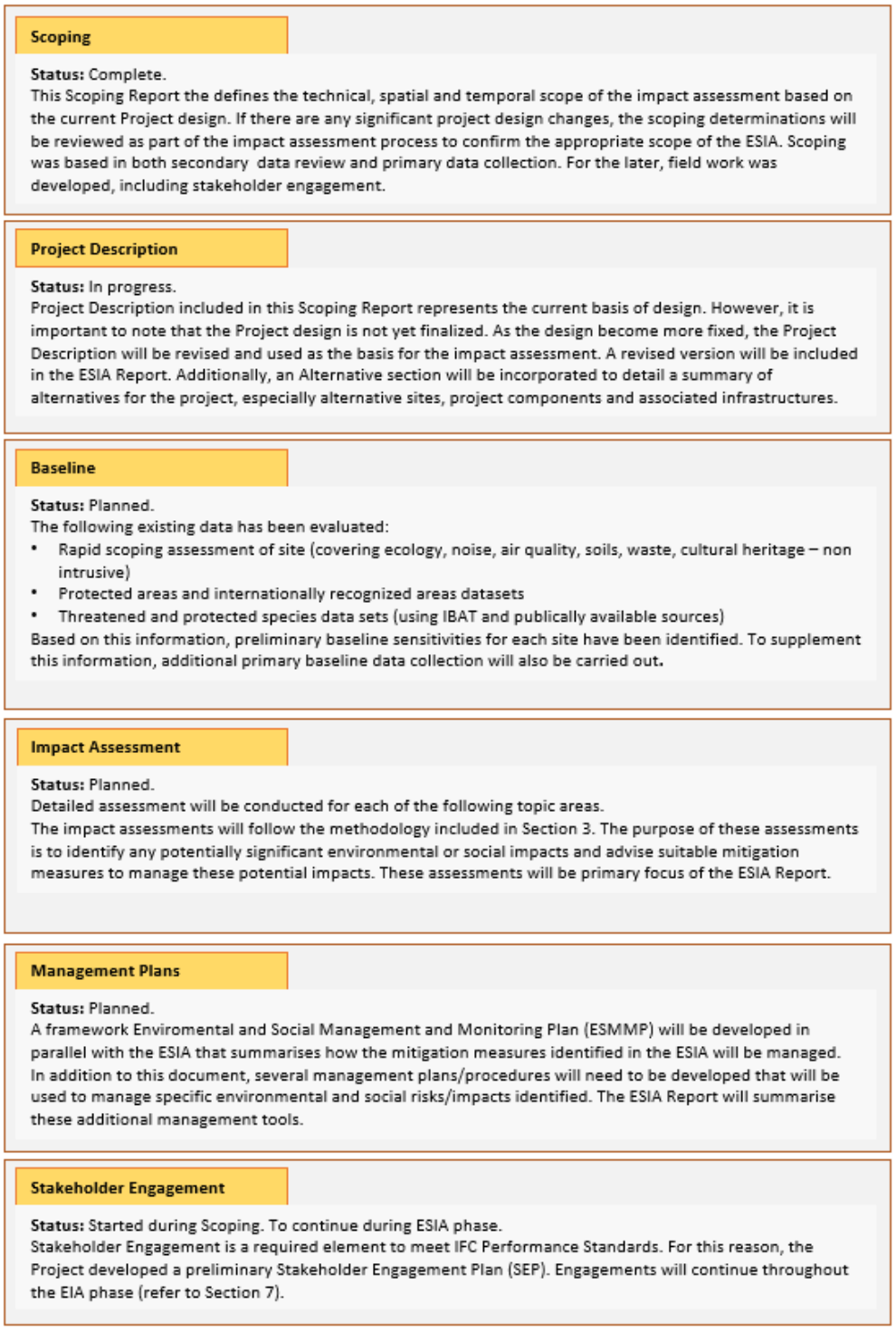
Source: ERM, 2021

8. NEXT STEPS TO COMPLETE THE ESIA PROCESS

8.1 Status of the Impact Assessment Process

As presented in Figure 8.1 the ESIA process is comprised of several steps (or the ESIA 'road map'). The current status of each of these and proposed actions to be undertaken is also provided in the same table.

Figure 8.1 Project ESIA Status



8.2 TOR for the Baseline, Impact Assessment and ESMP

As a result of the scoping process (refer to Section 6), the following environmental and social related topics were considered as the potential issues arising from the construction and operation phases of the Project that will require thorough consideration and additional studies during the ESIA and development of appropriate mitigation:

8.2.1 Air Quality (Construction, Operation)

Baseline: Conduct a semi quantitative Air Quality Study to assess the potential impacts which the project may have upon existing air quality. The assessment will draw upon IFC guidelines and other international guidelines. In line with IFC requirements, air quality baseline data is required. ERM proposed to limit the baseline study to nitrogen dioxide (NO_2) and particulate matter (PM which includes PM_{10} and $PM_{2.5}$) as these will be the only compounds of interest.

The basis for this approach is that the most significant emission sources for the project are likely to be road traffic (for which NO_2 is the pollutant of interest) and potentially combustion sources for which NO_2 and PM are of interest. The assumption is made that where a future industrial/commercial user is proposing to operate a facility that will have significant emissions of the other pollutants, a bespoke EIA and baseline survey will be required and undertaken at that time.

Baseline primary data collection: The baseline for the operational phase will be based upon monitoring undertaken in the field using diffusion tubes to monitor nitrogen dioxide and continuous PM monitoring for PM_{10} and $PM_{2.5}$. In the spirit of IFC requirements, monitoring will be undertaken for 2 months at each monitoring site, once in the dry season and once in the wet season. A total of six sites are proposed for NO_2 monitoring and one site for PM_{10} monitoring. Baseline data will be collected from both the site and also alongside the national highway where existing levels of NO_2 and PM are expected to be elevated and where impacts due to road traffic will arise.

Impact Assessment:

Construction phase: Assessment of construction impacts will focus on the potential effect of dust arising from the construction works (road, construction camps and laydown areas), and the use of unpaved roads by vehicles. A qualitative approach will be used, reflecting the fact that no major impacts are anticipated with the use of suitable mitigation. The approach will quantify the risk of dust nuisance arising at receptors, and on the basis of the risk identified will set out the mitigation required to control impacts. The mitigation will be tailored to the situation in Benin, and will take into account specific local conditions.

Operational phase modelling (two options):

- If baseline traffic study data is available, then ERM can model the pollutant concentrations using ADMS Roads.
- If baseline traffic study data is not available, then ERM will prepare a screening method based upon the UK Highways Agency Design Manual for Roads and Bridges (DMRB) and IFC guidelines adapted for the traffic fleet likely to be in place in Benin. DMRB is a semi-quantitative method that utilises traffic emission factors, and a dispersion factors derived from ADMS-Roads model for a typical road to estimate roadside concentrations at increments away from the roadside. This approach will provide a set of traffic screening criteria corresponding to thresholds for Minor, Moderate and Major Impacts. These screening thresholds can be used in the future to identify the potential for significant impacts to arise.

Apart from the baseline monitoring, no primary data collection is foreseen.

8.2.2 Noise and Vibration (Construction, Operation)

Impact Assessment: Noise impact assessment will be based on national regulations, assessment guidelines and procedures. Where such are not applicable or non-existent, suitable international

assessment protocols such as World Bank, IFC, equator principles and World Health Organisation (WHO) guidance will be consulted to determine suitable noise criteria. The assessment will be based on the most stringent criteria.

Noise assessment will be carried out by predicting noise levels from construction and operation of the project and assessing them against relevant standards or comparative changes for receptors between actual and anticipated noise levels. No primary data collection will be performed.

The noise modelling shall be performed by means of recognised noise prediction and presentation tools, capable to predict noise levels in the area surround of the project. The model shall provide noise contours and predicted noise levels at identified sensitive receptors. Predicted noise shall be compared with the relevant limits and where significant impacts are predicted, mitigation measures shall be recommended.

8.2.3 Biodiversity and Ecosystem Services (Construction, Operation)

Baseline: the Project activities may result in impacts to the biological environment, both during construction and operation phases. The area is characterized by mosaic of food crops (mostly pineapple), tree plantations (acacia, teak and eucalyptus), sparse houses and livestock farms, and fallow land are found. Herbaceous and shrubby species are predominant. Biodiversity values are in general terms reduced, with the exception of a relict forest (Sacred Forest of Anavié) 200m east of the Project. The Project is included within a Ramsar site “Oumémé Valley, Porto-Novo lagoon and Nokoué Lake complex”. Expected impacts may arise from the activities:

- Workers and equipment mobilization (construction phase; affects fauna);
- Preparatory works (construction phase; affects habitats, flora and fauna); and
- Vehicle movements (operation phase; affects habitats, fauna).

The ESIA will evaluate in detail the Project activities, environmental receptors and likely impacts in the area influence. Once the baseline information is gathered, the detailed potential impacts will be formulated that might occur during the construction and operational phases of the Textile Park. No additional primary data collection will be required. Mitigation measures for each of the identified impacts will be developed and residual impacts will be identified.

Impact Assessment: Site preparation activities, construction and earthworks (embankments and trenching construction, topsoil removal, etc.), may result in the removal, fragmentation or severance of habitat and impacts on the species that depend on that habitat. Vehicle and machinery movement both during the construction and operation phases might result in direct killing of fauna. Given that all activities will take place in an already degraded area, vegetation cover and animal presence are expected to be limited.

8.2.4 Water Resources (Construction, Operation)

Baseline: The construction and operation activities may have potential impacts on the hydrology and the quality of the water environment from:

- Extraction of groundwater;
- Physical intervention (runoff and erosion during construction activities); and
- Intentional (wastewater treatment plant discharge location) and accidental discharges to water during construction and operation.

The main purpose of the ESIA studies will be to further map the hydrological and hydrogeological features within the zone of influence of the Project. Once the baseline information is gathered, the detailed potential impacts will be formulated that might occur during the construction and operational phases of the Textile Unit. Mitigation measures for each of the identified impacts will be developed and residual impacts will be identified.

Impact Assessment: The water supply will be one of the main subjects to be assessed during the ESIA since a significant amount of water will be needed during construction and operation. The amount of water needed in both phases will be defined during the ESIA phase. Hydrogeological studies of the aquifer dynamics and capacity as well as an inventory of the extraction wells in the project area of influence need to be made available and reviewed during the preparation of the ESIA.

The flood risk and soil erosion assessment will be based in previous studies in the area and site observations. Based on these efforts recommended measures to mitigate the identified impacts along with a description of their implementation will be listed. Water sampling is not considered necessary as results from the ESIA Phase 1 (Antea, 2020) as well as the borehole tests carried out in May 2021 can serve as a baseline.

8.2.5 Geology and Soil (Construction, Operation)

Baseline: The construction and operation activities may have potential impacts on the soil in case of leakages and spills. In addition, erosion risks during the rainy season cannot be excluded due to the lengthy period of earthworks ongoing on the project site.

Impact Assessment: The main purpose of the ESIA studies will be to identify the main hazardous substances used during both construction and operation phases and to assess erosion risk zones and potential control measures

8.2.6 Resources and Wastes (Construction, Operation)

Significant quantities of various types of construction materials will be needed such as concrete, prefabricated segments, aggregates, asphalt, together with construction plant components, vehicles and machinery. In accordance with international good practice (e.g. IFC PS3), environmental and social implications need to be considered in the selection, sourcing and transport of materials from quarries and borrow pits will be assessed in the ESIA. The main principle is to source the materials locally where possible and feasible. Inefficient design and poor management of construction materials can also give rise to unnecessary consumption of resources and therefore inefficient use of materials.

Impact on waste management infrastructure should be considered given the risks of imposing potential additional stress on inadequate regional facilities.

8.2.7 Greenhouse Gas Emissions (Construction, Operation)

Baseline: The development of the Project will potentially increase the amount of greenhouse gas (GHG) emissions contributing to climate change. There is available information to calculate the GHG emissions during construction (eg. assumed average fuel consumption for construction equipment) and operation phase (eg. assumed average power consumption for operating equipment) of the Project.

Impact Assessment: ERM will use the data provided by the client to calculate anticipated GHG emissions (in CO2 equivalent) according to the requirements of International Standards. The GHG inventory will entail direct Scope 1 emissions from owned or controlled sources and indirect Scope 2 emissions from the generation of purchased energy during the Project's construction and operation phases. The anticipated annual GHG emissions will be contextualized against international thresholds and its impact significance will be determined. In order to minimise the impacts to climate change from the Project, measures, which can reduce the annual GHG emissions will be identified if deemed necessary. High level of qualitative evaluation is expected for Procurement of materials in terms of GHG and sustainability. While little is known about these (lack of data), overarching general mitigation measures and recommendations will be suggested to minimise inherent impacts.

8.2.8 Climate Change Risk Assessment (Construction, Operation)

Impact Assessment: According to the Equator Principle 4, the Climate Change Risk Assessment (CCRA) for all (assumed) Category A projects and Category B projects when appropriate must include

(i) consideration of physical climate risks and (ii) – if combined Scope 1 and Scope 2 Emissions are expected to be more than 100,000 tonnes of CO_2 equivalent annually – then also transition risks must be assessed as well as an evaluation of GHG-saving alternatives.

The Scope 1 and Scope 2 GHG emissions caused by the Project activities (construction and operation stages) are assumed to not exceed the annual 100,000 tonnes of CO_2 eq. threshold. This will be subject of the GHG emissions inventory during the ESIA process.

At this stage the assessment of transition risk is considered not to be required for this Project.

The physical CCRA must address the following questions at a high level:

- Develop a concise understanding of current and anticipated climate change risk in the area;
- Conduct a risk assessment (generally involving expert judgement) to identify specific risks that may become problematic under future climate change; and
- Understand magnitude, frequency, likelihood and vulnerability of the Project when exposed to climate change–related hazards.

For the CCRA ERM uses public available climate projections data (eg. World Bank Climate Change Knowledge Portal) when assessing the impact of climate change on climate hazards for any given location. The Intergovernmental Panel on Climate Change (IPCC)'s Sixth Assessment Report open-source data from the Coupled Model Inter-comparison Project (CMIP6) is the source of data used in the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP) and basis for many climate change prediction models to assess these future changes.

8.2.9 Socio-economic

Baseline: Considering the potential vulnerability of the communities living in and around the Project sites, it is important for the ESIA process to provide a detailed characterisation of the socio-economic conditions of these areas. The socio-economic study would build on the baseline established during the scoping phase, in turn largely based on the social baseline chapter of the GDIZ ESIA.

Written in 2020, the GDIZ ESIA social baseline generally provides a clear and detailed description of the basic socioeconomic conditions in the Project area, including:

- Population, demography and in-migration
- Gender equality and vulnerability
- Ethnicity, language and religion
- Land use and organization
- Education
- Health
- Infrastructures and services (roads, waste, sanitation, telecommunications etc.)
- Livelihoods and Economic Activities

Given the overall completeness of the existing baseline it is not envisaged to repeat the same level of investigation and stakeholder engagement during the socioeconomic baseline assessment. Rather social data collection and will focus on identifying areas where significant changes have occurred, and in filling a limited number of identified gaps of particular relevance to the Project. Social infrastructure data will also be confirmed and or updated.

Key identified actions to fill gaps in the social baseline include:

- Improve description of educational outcomes
- Develop a clearer characterization of skills and vocational training
- Improve description of social cohesion (social ills: crime, alcoholism, prostitution; social capital, trust, relationships, solidarity and mutual support, etc.)
- Develop description of national and regional economy

Developing this characterisation will require the undertaking of a limited socio-economic survey in the social AoI to collect data and engage with community members. In this respect, it is recommended that a team of social specialists collect data through use of the following methodologies:

- Key Informant Interviews (KIIs): KIIs will collect district and available settlement level information from individuals who have knowledge of a specific subject or are informed members of the community, such as authorities, civil society organisations and social and health experts (natural resources, labor conditions, in-migration, education, health support) where available. Feedback about perceptions of the Project will also be collected during these meetings.
- Focus Group Discussions (FGDs): FGDs will be organised with groups in the community, particular in regards to vulnerable groups, such as women and youth. This will be particular useful to understand access to employment, education, health and vulnerabilities as well as exposure to gender-based violence (GBV) and sexually-transmitted diseases.
- Field Observations and Ground Truthing: Field team will visit key locations within the AoI where key social sensitivities have been identified (i.e. healthcare facilities, educational facilities, cultural resources, grazing/agricultural areas, settlements conditions etc.). These locations will initially be identified prior to field mobilisation through desktop review of satellite images and other sources.

The methodology for field survey data collection will consider gender and vulnerability in line with International Best Practices.

Impact Assessment: The social impact assessment will consider those issues and aspects scoped into the study during the scoping phase. These are likely to include impacts on:

- Economy and employment;
- Community health, safety and security;
- Vulnerable groups;
- Worker Management and Rights;
- Infrastructure and services; and
- Community cohesion.

Impacts on the health and safety of the community may arise during construction as a result of noise, vibration, dust and other emissions from earthmoving, blasting, piling, and operation of equipment and vehicles. During operations these could be linked to nuisance due to odour and noise.

Other risks involving the public associated with construction could include impacts from construction traffic and accidents involving handling of hazardous materials during construction. Even if Project site is fenced, children and youths are amongst those vulnerable to the physical hazards associated with the construction activities, due to traffic caused by circulation of machines and vehicles.

The presence of an external workforce working and living in the Project area camps (if applicable) where interaction with nearby communities is possible could lead to the increased transmission of communicable and sexually transmitted diseases within these communities. Any community concerns or perceptions regarding reduced health and physical safety by the community also need to be addressed.

Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labor abuses and to ensure fair treatment, remuneration and working or living conditions. These issues will be considered not only for those who are directly employed by Arise IIP but also its contractors (including sub-contractors), operators and within the supply chain. Labor and working conditions as compared to relevant in Country laws and the Lenders Requirements will be assessed in the ESIA.

Physical and/or economic displacement are not part of the scope of this ESIA, as these topics were considered by GDIZ as a different work stream (Phase 1 ESIA) and are currently being addressed by a different team.

8.2.10 Community Health and Safety

Impacts on the health and safety of the community will be evaluated in the ESIA. Both during construction an operation Community H&S related impacts may vary depending on the baseline and project detailed design.

During construction as a result of noise, vibration, dust and other emissions from earthmoving, blasting, piling, and operation of equipment and vehicles. Other risks involving the public associated with construction could include physical accidents on sites, impacts from construction traffic and accidents involving handling of hazardous materials during construction. Children and youths are amongst those vulnerable to the physical hazards associated with the construction activities, including fall from unguarded areas at height, construction traffic, for example, especially in event of unauthorised entry.

Local communities can also potentially be exposed to health and safety issues posed by spills, fires and explosions. In addition, the presence of an external workforce working and living in the Project area camps (if applicable) where interaction with nearby communities is possible could lead to the increased transmission of communicable and sexually transmitted diseases within these communities. Any community concerns or perceptions with regard to reduced health and physical safety by the community also need to be addressed.

Main disturbances and H&S risks will probably continue when the Textile Park is operational from machinery and traffic. Mitigation measures for traffic such as signage, advance warning of diversions, and access to grievance mechanism reduces scale to medium will be considered. The development and implementation of a Traffic Management Plan will be evaluated. The implementation of these mitigation measures is likely to reduce the risk of accidents and injuries.

8.2.11 Workforce Social Issues

Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labour abuses and to ensure fair treatment, remuneration and working or living conditions. These issues will be considered not only for those who are directly employed by the EPC but also its contractors (including sub-contractors), industrial operators and within the supply chain. Labour and working conditions as compared to relevant national laws and the Lenders Requirements will be assessed in the ESIA.

8.2.12 Cultural Heritage

Baseline: Conduct a comprehensive tangible and intangible Cultural Heritage baseline survey, to including field survey and ground truthing of Cultural Heritage resources identified in the scoping report by an appropriately qualified Cultural Heritage specialist. Engagement with local stakeholders will be critical to identifying and assessing the impact of the Project on intangible Cultural Heritage.

Impact Assessment: Construction and operation impacts will be assessed for the potential to directly and indirectly impact tangible and intangible Cultural Heritage within the Project AoI.

Construction

Ground disturbance and earthworks associated with the construction phase have the potential to partially or wholly remove the following Cultural Heritage:

- Above ground and buried archaeology, including undiscovered archaeological sites;
- Built heritage including historic buildings and shrines; and
- Industrial heritage including historic railways, rail and road bridges, etc.

Any structures (bridges, fly-overs, embankments etc.) may have an impact on the setting of built and living Cultural Heritage through the introduction of intrusive visual or auditorial elements to their physical environment or 'setting'.

Construction- related restriction zones:

- The creation of restriction zones associated with the construction phase has the potential to restrict public access to existing Cultural Heritage sites;

Operation

Restriction zones, operation of development and associated infrastructure associated with the operation phase has the potential to impact Cultural Heritage in the following ways:

- The creation of restriction zones associated with the operation phase has the potential to restrict access to and use of existing Cultural Heritage resources.
- The operation of the Project and associated infrastructure has the potential to restrict access to and the use of existing Cultural Heritage resources.

8.2.13 Cumulative Impacts

A Cumulative Impact Assessment (CIA) will be performed, as per international guidelines and best practices. The objectives of the CIA are as follows:

- To determine if the combined impacts of the Project, other projects and activities, and natural environmental and social drivers will result in a Valued Environmental and Social Component (VEC) condition (or "receptors and resources") that may put the sustainability of a VEC at risk (i.e. exceed a threshold for VEC condition which is an unacceptable outcome); and
- To determine what management measures could be implemented to prevent an unacceptable VEC condition; this may include additional mitigation of the Project being assessed, additional mitigation of other existing or predictable future projects, or other regional management strategies that could maintain VEC condition within acceptable limits.

The overall aim of the CIA is to avoid/minimize any of the identified cumulative impacts.

The evaluation of potential cumulative impacts is highly dependent on the particular locations/activities under review, and therefore each situation will be assessed qualitatively on a case-by-case basis.

As above, the approach to the CIA will be undertaken in line with the *IFC Good Practice Handbook: Cumulative Impact Assessment and Management Guidance for the Private Sector in Emerging Markets*. In line with the Handbook's proposed approach, a Rapid Cumulative Impact Assessment (RCIA) approach is considered to be appropriate for the Project as it considers the challenges to conducting a CIA in an emerging market, which apply in this case, namely:

- Lack of baseline data related to the other project developments;
- Uncertainties associated with anticipated developments; and
- Limited and emergent, strategic regional, sectoral, or integrated resource planning schemes.
- In line with IFC PS 1 guidance notes (GN41) that the assessment will be "*commensurate with the incremental contribution, source, extent, and severity of cumulative impacts anticipated*", this assessment attempts to focus only on the potentially significant cumulative impacts, and where the Project's contribution to the cumulative impact is considered to be significant. In line guidance provided in Section 2 and 3 of the IFC Handbook, potential mitigation measures are designed to focus on cooperation and information-sharing, in recognition of the limited control and direct influence/ decision-making ability of this private sector sponsor.

In general, this cumulative impact assessment follows the recommended approach to a RCIA as described by the IFC Handbook and is undertaken through the following five-step methodology:

- ***Step 1:*** *Definition of the relevant spatial and temporal boundaries;*

- ***Step 2:*** *Identification of key VECs and screening/Identification of potentially relevant other projects in the region;*
- ***Step 3:*** *Determine present conditions of the VECs; and*
- ***Step 4 & 5 & 6:*** *Assessment of potential cumulative impacts and identification of appropriate mitigation measures* [(40)]*.*

The different components to be included in the CIA will be set during EIA phase, based on a focused analysis. The infrastructures planned within the GDIZ Industrial Park will be considered.

8.3 ESIA Report Structure

In alignment with Beninese regulations and international applicable standards, a suggested structure of the ESIA is provided below.

- Section 1. Introduction;
- Section 2. Presentation of the Project and the zone of Influence

  - The project description will detail Project activities throughout the lifecycle i.e. from site clearance and construction to operation.

- Section 3. Scope, Methodology and Approach
- Section 4. Review of Relevant Legislation and International Standards

  - The review of relevant country & international legislation, policy and project standards will outline the framework within which the Project will be approved for construction and operation.

- Section 5. Environmental and Social Baseline

  - The baseline section will include a summary of all relevant environmental and social baseline data gathered as part of the ESIA process, with significant detail provided where possible on the key sensitivities.

- Section 6. Description and Analysis of the Project Alternatives (project variants).
- Section 7. Stakeholder engagement and local consultations

  - Ongoing stakeholder engagement and consultation, including implementation of the Grievance Mechanism, will be managed, and reported.

- Section 8. Main concerns related to the development of the Project

Summary of the main ecological, environmental, socio-economic and health and safety related concerns, as required by the Beninese authorities.

- Section 9. Impact assessment and mitigation

  - The impacts section will describe the assessment methodology used to assess the potential Project impact on baseline conditions and will define the significance criteria used for this assessment. Potential cumulative impacts will also be assessed, by considering impacts arising from the Project and how these might interact with impacts from other existing or planned developments in the area; and

- Section 10. Assessment of technological risks related to the Project

Summary of the main technological risks and appropriate measures, as required by the Beninese authorities.

- Section 10. Grievance Mechanism

(40) Note that Steps 4, 5 and 6 are included as one element here within the approach as the results of assessment and proposed mitigation are presented (in one table) for each of the projects where there are considered to be overlapping VECs.

Description of the Grievance Mechanism for the project, if deemed necessary during the development of the ESMP.

- Section 11. Environmental and Social Management Plan - ESMP

- The ESMP will be prepared to capture mitigation measures and management actions that have been identified in the impact assessment, and deemed to be technically feasible, financially and institutionally viable.
- ESMP will include the need for the development of a fit for purpose ESMS, as well as for the development of the Proponent's sustainability or HR policies or of EPC requirements.
- ESMP will include a list of specific management plans that will be developed prior to construction. The requirements under the Environmental, Health, And Safety General Guidelines – Occupational Health And Safety will be observed.
- The ESMP will allocate responsibilities for the implementation of environmental and social measures to project qualified personnel that will have the knowledge, skills, and experience necessary to perform their work, including current knowledge of the host country's regulatory requirements and the applicable requirements of Performance Standards 1 through 8. The ESMP will also suggest personnel training programs on environmental and social issues to ensure the personnel will perform the actions in a competent and efficient manner.
- The ESMP will also include the need to develop an External Communications Protocol as well as a Grievance Mechanism for Affected Communities and Project workforce.
- ESMP and SEP will describe the strategy around periodic reporting process to the Affected Communities that describe progress with implementation of the project Action Plans on issues that involve ongoing risk to or impacts on Affected Communities and on issues that the consultation process or grievance mechanism have identified as a concern to those Communities.
- ESMP will also be focused on the following elements (in full compliance with IFC PS2): Human Resources Policies and Procedures, Working Conditions and Terms of Employment, Workers' Organizations, Non-Discrimination and Equal Opportunity, Retrenchment, Grievance Mechanism, Child Labor, Forced Labor, Occupational Health and Safety, Workers Engaged by Third Parties, Supply Chain.

- Section 13. Environmental and Social Management System (ESMS) Environmental monitoring and follow-up plan

Plan describing environmental monitoring and follow-up requirements, as required by the Beninese authorities.

APPENDICES

APPENDIX A PHYSICOCHEMICAL SOIL ANALYSIS (ESIA PHASE 1)

Parameters	Units	Results								Dutch intervention values
		Soil-1	Soil-2	Soil-3	Soil-4	Soil-5	Soil-6	Soil-7	Soil-8	
X coordinates	m	6.607.951	6.597.809	6.587.626	6.587.626	6.587.626	657.314	656.237	6.569.434	
Y coordinates	m	2.258.073	225.887	2.249.462	2.234.761	2.234.761	2.244.142	2.235.677	2.230.454	
Physical analysis										
Dry matter	% mass MB	84.1	85	84.8	87.7	84.6	85.4	86.2	87.8	-
Hydrocarbon index C10-C40	mg/kg MS	<20	<20	<20	<20	<20	<20	<20	<20	-
Hydrocarbons >C10-C12	mg/kg MS	<20	<20	<20	<20	<20	<20	<20	<20	-
Hydrocarbons >C12-C16	mg/kg MS	<20	<20	<20	<20	<20	<20	<20	<20	-
Hydrocarbons >C16-C21	mg/kg MS	<20	<20	<20	<20	<20	<20	<20	<20	-
Hydrocarbons >C21-C35	mg/kg MS	<20	<20	<20	<20	<20	<20	<20	<20	-
Hydrocarbons >C35-C40	mg/kg MS	<20	<20	<20	<20	<20	<20	<20	<20	-
Heavy metals										
Chromium (Cr)	mg/kg MS	73	30	43	38	50	53	37	31	380
Nickel (Ni)	mg/kg MS	7	8	9	6	6	8	6	4	310
Copper (Cu)	mg/kg MS	14	25	14	9	14	15	10	6	190
Zinc (Zn)	mg/kg MS	16	15	14	10	12	15	12	9	720
Arsenic (As)	mg/kg MS	3	<2.0	2	<2.0	<2.0	2	2	<2.0	55
Cadmium (Cd)	mg/kg MS	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	12
Mercury (Hg)	mg/kg MS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10
Lead (Pb)	mg/kg MS	13	15	13	<10	10	13	<10	<10	530
Semi-volatile chlorinated hydrocarbons										
Aldrin	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.32
o, p'-DDD	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	34
p, p'-DDD	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	34
o, p'-DDE	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	2.3
p, p'-DDE	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	2.3
Dieldrin	mg/kg MS	<0.16	<0.16	<0.16	<0.15	<0.16	<0.16	<0.15	<0.15	-

alpha-Hexachlorocyclohexane	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	17
beta-Hexachlorocyclohexane	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	5
gamma-Hexachlorocyclohexane (Lindane)	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	1
delta-Hexachlorocyclohexane	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	-
epsilon-Hexachlorocyclohexane	mg/kg MS	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	-
Light chlorobenzenes										
1,2,3-Trichlorobenzene	mg/kg MS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	11
Extractable pesticides at pH 2										
2,4-D	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
2,4,5-T	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
2,4-DB	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Bentazon	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Bromoxynil	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Clopyralid	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Dicamba	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Dichloroprop	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Ioxynil	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
MCPA	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	4
MCPB	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Mecoprop	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Picloram	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metsulfuron-methyl	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metosulam	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Extractable pesticides at pH=7										
Alachlor	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Aldicarb	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Ametryn	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Atrazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.71
Azinphos-ethyl	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Bifenox	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-

Bromacil	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Buturon	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Carbaryl	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.45
Carbetamide	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Carbofuran	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Chlorfenvinphos	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Chloridazon	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Chloroxuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Chlorotoluron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Crimidine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Cyanazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Desethylatrazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Desethylterbutylazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Desisopropylatrazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Desmetryne	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Diazinone	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
2,6-Dichlorobenzamide	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Diflubenzuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Dimefuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Dimethoate	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Diuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Ethidimuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Ethofumesate	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Fenuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Flazasulfuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Hexazinon	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Isoproturon	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Lenacil	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Linuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metalaxyl	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-

Metamitron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metazachlor	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Methabenzthiazuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metobromuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metolachlor	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metoxuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Metribuzin	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Monolinuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Monuron	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Napropamide	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Pendimethalin	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Prometryne	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Propazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Propoxur	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Propyzamide	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Sebutylazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Simazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Tebutam	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Terbutryne	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Terbuthylazine	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Triadimenol	mg/kg MB	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-

Source: ANTEA, ESIA 2020.

APPENDIX B GROUNDWATER ANALYSIS RESULTS (ESIA PHASE 1)

Groundwater Analysis Results ESIA Phase 1

Parameters	Units	Results						Limit value		
		GW_01	GW_02	GW_03	GW_04	GW_05	GW_06	National Law[41]	WHO (2007)[42]	NEPM Australia[43]
Odour		None	None	None	None	None	None	-	-	-
pH	-	6.41	5.2	5.9	5.52	5.55	5.48	6.5-8.5	-	-
Temperature	°C	28.4	28	29	29.8	28.7	28	-	-	-
Conductivity	µS/cm	375	63	133	201	100	147	-	-	-
Aspect	-	Clear	Clear	Clear	Clear	Clear	Clear	-	-	-
Arsenic (As)	µg/l	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	50	10	100
Cadmium (Cd)	µg/l	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	5	3	10
Chrome (Cr) total	µg/l	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	50	50	1000
Copper (Cu)	µg/l	<5.0	48	41	83	75	12	2000	2000	200
Mercury (Hg)	µg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	6	2
Nickel (Ni)	µg/l	<10	<10	<10	<10	<10	<10	20	70	20
Lead (Pb)	µg/l	<10	<10	<10	37	<10	<10	50	10	200
Zinc (Zn)	µg/l	<50	<50	<50	130	100	<50	-	-	2000
Hydrocarbon index C10-C40	mg/l	<0.05	<0.05	<0.05	<0.05	<0.16	<0.05	-	-	-
Hydrocarbons> C10-C12	mg/l	<0.05	<0.05	<0.05	<0.05	<0.16	<0.05	-	-	-
Hydrocarbons> C12-C16	mg/l	<0.05	<0.05	<0.05	<0.05	<0.16	<0.05	-	-	-
Hydrocarbons> C16-C21	mg/l	<0.05	<0.05	<0.05	<0.05	<0.16	<0.05	-	-	-
Hydrocarbons> C21-C35	mg/l	<0.05	<0.05	<0.05	<0.05	<0.16	<0.05	-	-	-

41 Decree No. 2001-094 of 20 February 2001 setting the standards for drinking water quality, article 17

42 Guidelines for drinking water

43 Guidelines for agricultural irrigation

Parameters	Units	Results						Limit value		
		GW_01	GW_02	GW_03	GW_04	GW_05	GW_06	National Law[41]	WHO (2007)[42]	NEPM Australia[43]
Hydrocarbons> C35-C40	mg/l	<0.05	<0.05	<0.05	<0.05	<0.16	<0.05	-	-	-

Source: ANTEA, ESIA 2020

Borehole test results (GDIZ, 2020)

Parameters	Units	Results	Limit values	
		(S24 F7)	WHO (2007)[44]	National Law[45]
Turbidity	NTU	0.57	5	5
Temperature	°C	28.4	-	-
pH	-	5.1	-	6.5 <X< 8.5
Electrical conductivity	µS/cm	57.1	-	-
Total alkalinity	°F	0.8	-	-
Chloride (Cl^-)	mg/L	14.2	900	250
Sulphate (SO_4^{2-})	mg/L	<3	250	500
Calcium (Ca^{2+})	mg/L	3.57	100	100
Magnesium (Mg^{2+})	mg/L	0.86	-	50
Carbonates (CO_3^{2-})	mg/L	Traces	-	-
Bicarbonates (HCO^{3-})	mg/L	9.76	-	-
Total hardness	mg/L of $CaCO_3$	12.46	-	200
Dissolved Oxygen	mg/L	2.7	-	-
Free carbon dioxide	mg/L	184.8	-	-
Aggressive carbon dioxide	mg/L	128.48	-	-
$CaCO_3$ balance	-	Aggressive	-	-
Nitrates NO^{3-}	mg/L	5	50	45
Nitrites NO^{2-}	mg/L	<0.046	3	3.2

44 Guidelines for drinking water

45 Decree No. 2001-094 of 20 February 2001 setting the standards for drinking water quality, article 17

APPENDIX C LIST OF *TAXA* (ESIA PHASE 1)

Flora					
Species	**Common name**	**Beninese Red List**	**Law 93-009 of 2nd July 1993**	**IUCN Red List**	**Season**
Acacia mangium	Brown salwood	-	-	LC	Rainy
Albizia adianthifolia	Albizia	LC	P	LC	Rainy
Albizia zygia.	Albizia	LC	P	LC	Rainy, Dry
Alchornea cordifolia	-	-	-	LC	Dry
Allophylus africanus	-	-	-	LC	Rainy, Dry
Antiaris toxicaria	Antiaris	LC	P	LC	Rainy
Azadirachta indica	Neem	-	-	LC	Rainy
Bauhinia rufescens	-	-	-	LC	Dry
Carpolobia lutea	-	-	-	LC	Rainy
Ceiba pentandra	Kapok	LC	P	LC	Rainy, Dry
Celtis philippensis	-	-	-	LC	Rainy
Clausena anisata	Horsewood	-	-	LC	Rainy, Dry
Commelina benghalensis	Dayflower	-	-	LC	Rainy
Commelina diffusa	Climbing Dayflower	-	-	LC	Dry
Culcasia scandens.	-	-	-	LC	Rainy
Cyperus iria	-	-	-	LC	Rainy
Cyperus rotundus	Nutgrass	-	-	LC	Rainy
Delonix regia	Flame tree	-	-	LC	Rainy
Dialium guineense	Black tamarind	LC	P	LC	Rainy, Dry
Dioscorea abyssinica	Dooya	-	-	LC	Rainy
Dracaena arborea	-	-	-	LC	Rainy
Elaeis guineensis	African oil palm	-	-	LC	Rainy, Dry
Ficus exasperata	-	-	-	LC	Rainy, Dry
Ficus trichopoda	-	-	-	LC	Rainy
Flueggea virosa	-	-	-	LC	Rainy, Dry
Gmelina arborea	-	-	-	LC	Rainy, Dry
Holarrhena floribunda	-	-	-	LC	Rainy
Imperata cylindrica	Coton grass	-	-	LC	Dry
Khaya senegalensis	Caïlcedrat	EN	P	VU	Dry
Mangifera indica	-	-	-	DD	Rainy, Dry
Manihot esculenta	-	-	-	DD	Rainy
Margaritaria discoidea	-	-	-	LC	Rainy
Memecylon afzelii	-	-	-	LC	Rainy
Milicia excelsa	Ioko	EN	P	NT	Dry

Mimosa pigra	-	-	-	LC	Rainy
Pavetta corymbosa	-	-	-	LC	Rainy
Pouteria alnifolia	-	-	P	VU	Rainy
Rauvolfia vomitoria	Poison devil's pepper	-	P	LC	Rainy, Dry
Rhus natalensis	-	-	-	LC	Rainy
Sorindeia grandifolia	-	-	-	LC	Rainy
Spondias mombin	Prunier monbin	LC	P	LC	Rainy
Sterculia tragacantha	-	-	-	LC	Dry
Triplochiton scleroxylon	Samba	EN	P	LC	Rainy
Uvaria chamae	-	-	-	LC	Rainy, Dry
Zanthoxylum zanthoxyloides	Fagara jaune	VU	P	LC	Rainy, Dry

Source: Antea, 2020.

*Note: EN - endangered, VU - Vulnerable, LC - Least Concern, NT - Near Threatened , P - Protected under National Regulation.Species present in the Anavié Sacred Forest are marked with a *. Species present in the Project area are marked with ***

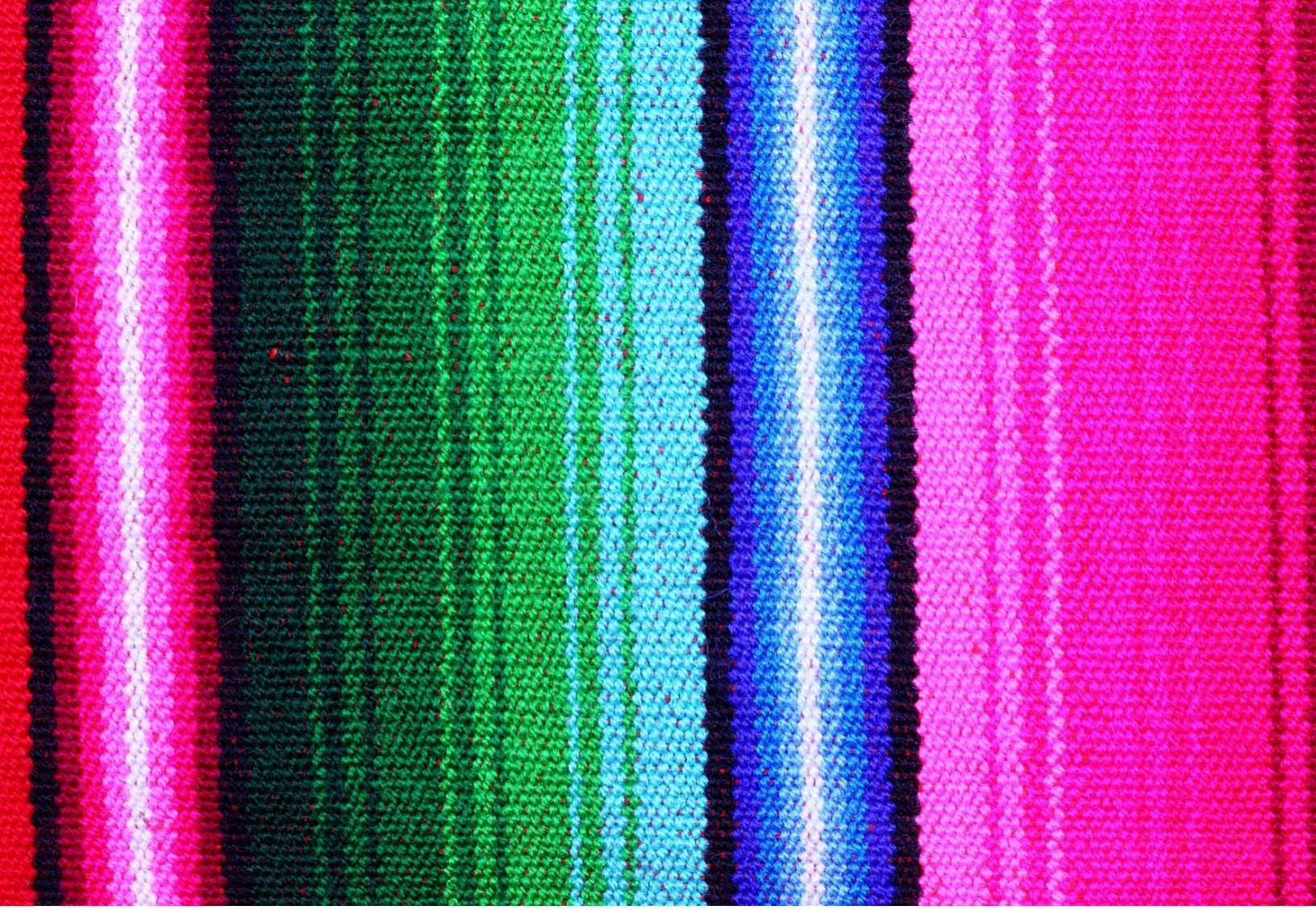
Bird species

Order - Scientific name	Individuals	Order - Scientific name	Individuals
Accipitriformes	**15**	*Camaroptera brachyura*	88
Accipiter badius	1	*Cecropis abyssinica*	7
Elanus caeruleus	1	*Cinnyris chloropygius*	58
Kaupifalco monogrammicus	9	*Cinnyris coccinigastrus*	19
Polyboroides typus	4	*Cinnyris cupreus*	8
Apodiformes	**8**	*Cinnyris superbus*	1
Cypsiurus parvus	4	Cinnyris venustus	2
Telacanthura ussheri	4	Corvinella corvina	65
Bucerotiformes	**5**	Dicrurus adsimilis	1
Lophoceros nasutus	2	Estrilda melpoda*	31
Phoeniculus purpureus	3	Euplectes franciscanus*	2
Caprimulgiformes	**13**	Hirundo aethiopica	31
Caprimulgus climacurus	13	Lanius collaris	16
Charadriiformes	**40**	Malaconotus blanchoti	6
Vanellus lugubris	40	Malimbus rubricollis	2
Columbiformes	**265**	Passer griseus	4
Streptopelia semitorquata*	86	Ploceus cucullatus*	420
Streptopelia senegalensis	48	Ploceus nigerrimus*	20
Treron calvus	2	Ploceus nigricollis	14
Turtur afer	127	Prinia subflava	7
Turtur tympanistria	2	Prionops plumatus	4
Coraciiformes	**4**	Pycnonotus barbatus	146
Ceyx pictus	3	Spermestes bicolor	9
Halcyon leucocephala	1	Spermestes cucullatus*	15
Cuculiformes	**166**	Sylvietta virens	1
Centropus senegalensis	139	Turdus pelios	41
Ceuthmochares aereus	6	Vidua macroura*	3
Chrysococcyx caprius*	19	**Pelecaniformes**	**7**
Chrysococcyx klaas*	2	Bubulcus ibis	7
Falconiformes	**6**	**Piciformes**	**2**
Falco cuvierii	2	Pogoniulus bilineatus	2
Falco tinnunculus	4	Psittaciformes	3
Galliformes	**70**	Psittacula krameri	3
Pternistis bicalcaratus*	70	**Strigiformes**	**12**
Musophagiformes	**7**	Otus senegalensis	2
Crinifer piscator	7	Ptilopsis leucotis	6
Passeriformes	**1023**	Scotopelia peli	2
Amblyospiza albifrons*	2	Tyto alba	2

Source: Antea, 2020.

*Note: the species marked with a * showed breeding behaviours (Nest-building, laying, nuptial plumage, or courtship).*

APPENDIX D FRAMEWORK STAKEHOLDER ENGAGEMENT PLAN



Société d'Investissement et de Promotion de l'Industrie du Benin

Framework Stakeholder Engagement Plan

Textile Unit Park - Glo-Djibé Industrial Zone, Benin

Final Report

V 2.0

27 November 2021

Project No.: 0606482

The business of sustainability

ERM

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Acronyms and Abbreviations

Name	Description
ABE	Agence béninoise pour l'environnement
AoI	Area of Influence
CLO	Community Liaison Officer
CRS	Community Relations Service
CSO	Civil Society Organizations
E&S	Environmental and Social
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
ERM	Environmental Resources Management
ESD	Environmental and Social Department
ESIA	Environmental and Social Impact Assessment
ETP	Effluent Treatment Plant
FSEP	Framework Stakeholder Engagement Plan
FSEP	Framework Stakeholder Engagement Plan
GDIZ	Glo-Djigbé Industrial Zone
GRB	Government of the Republic of Benin
GRM	Grievance Redress Mechanism
IFC	International Finance Corporation
LINER	LINER Consulting SARL
LRMP	Livelihoods Restoration Management Plan
PAP	Project-affected people
RAP	Resettlement Action Plan
SEP	Stakeholder Engagement Plan
SIPI	Société d'Investissement et de Promotion de l'Industrie Benin

1. INTRODUCTION

1.1 Background and Objectives

The ARISE Group is a pan-African industrial developer designing, building, and executing large scale infrastructure and logistics projects in Africa. ARISE Integrated Industrial Platform (ARISE IIP) has entered into a partnership with the Government of the Republic of Benin (GRB) to create the Glo-Djigbe Industrial Zone ('GDIZ'). The *Société d'Investissement et de Promotion de l'Industrie Benin* (SIPI Benin) is a joint-venture that was created by the two parties to manage the development of the GDIZ. The GDIZ is part of a vast development plan for the north-western area of Cotonou planned by the GRB.

The GDIZ is being developed in three phases corresponding to three adjacent areas. Environmental Resources Management France SAS (hereafter ERM) and its Beninese partner Liner have been engaged by SIPI Benin to prepare an Environmental and Social Impact Assessment (ESIA) for a Textile Park (the Project) located within Phase 1 of the GDIZ.

The ESIA for the GDIZ was approved by the GRB in 2021. Acquisition of the Phase 1 lands, including the Project site, through a GRB-led expropriation process is underway. Construction, including the enclosure of the full 330 ha Phase 1 area, land clearance and construction of roads and civil engineering works, is also underway and is expected to be completed by Q4 2022.

This document is the Framework Stakeholder Engagement Plan (referred to as the "FSEP"). The FSEP will serve as an internal planning tool to guide the initial stages of interaction and communication with Project stakeholders though the ESIA process, while setting the stage for future engagements during subsequent phases of the Project. It is submitted as an annex to the ESIA Scoping Report.

This document is to be considered a living document that will be updated as new stakeholders are identified and feedback gathered through engagements. The FSEP will serve as the basis for the development of the full SEP during ESIA process.

1.2 Stakeholder Engagement Principles

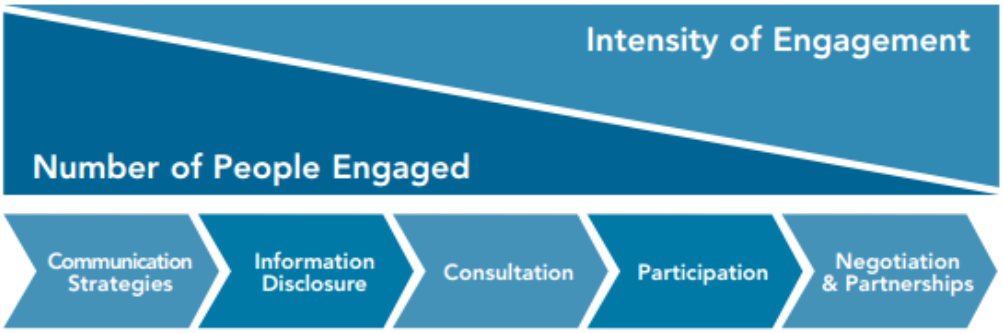
Effective stakeholder engagement ensures Project-affected people (PAP) and other concerned individuals, groups and organizations are fully informed as well as provides opportunities for their meaningful participation in project planning, implementation and monitoring. It is an ongoing process aimed at building and maintaining strong and constructive relationships over time – beginning during the earliest stages of project development and continuing throughout the project lifecycle.

Project's objectives regarding stakeholder engagement are as follows:

- To ensure regular, timely, accessible, and appropriate dissemination of information related to the Project in an appropriate manner to all external stakeholders;
- To build trusting relationships by engaging openly and honestly with communities, government authorities, and other key stakeholders;
- To ensure open channels of communication are in place between GDIZ and stakeholders that are accessible to all external stakeholders, regardless of gender, age, ethnicity, and / or social status;
- To involve relevant external stakeholders in decision-making on Project and program design elements that will impact on their socio-economic wellbeing and future development; and
- To create and ensure access to an effective grievance mechanism that can facilitate early indication and prompt resolution of project-related concerns.

The intensity and frequency of stakeholder engagement will be commensurate to the Project's development schedule as well as activity type and risk while generally following the spectrum of stakeholder engagement outlined in Figure 1-1 below.

Figure 1-1 Spectrum of Stakeholder Engagement

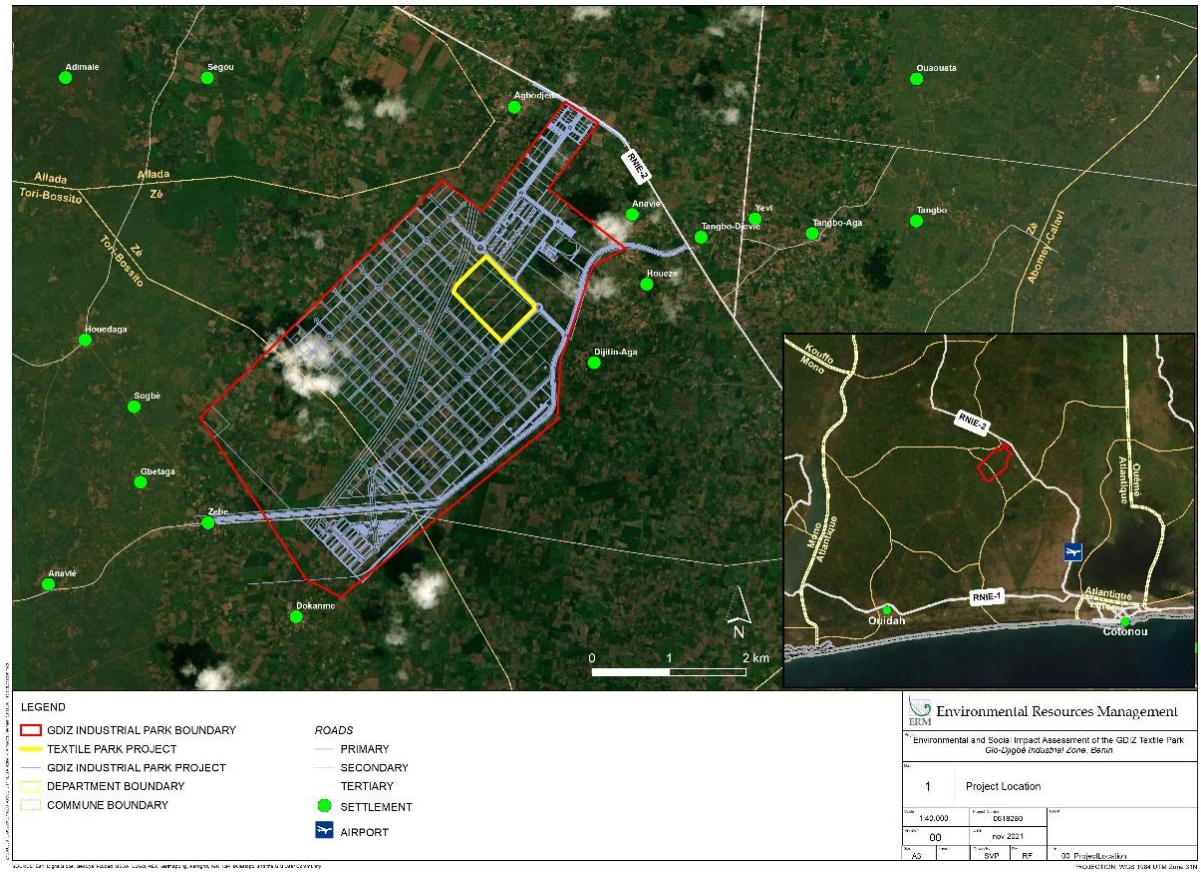


Source: IFC, 2007, 'Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets'

1.3 Project Description

The Textile Park Project ('The Project') will be constructed within the GDIZ Industrial Park, which is being developed some 25 km north of Cotonou and Ouidah in the Atlantic Department of Benin, within the municipalities of Tori-Bossito and Ze, as shown on the Project location map (Figure 1-2). The GDIZ is situated adjacent to the northern boundary of the land secured by the government for the planned Cotonou airport which has not yet been constructed. The GDIZ will cover an area of 1,640 ha, to be developed in three phases.

Figure 1-2: Textile Park Project location



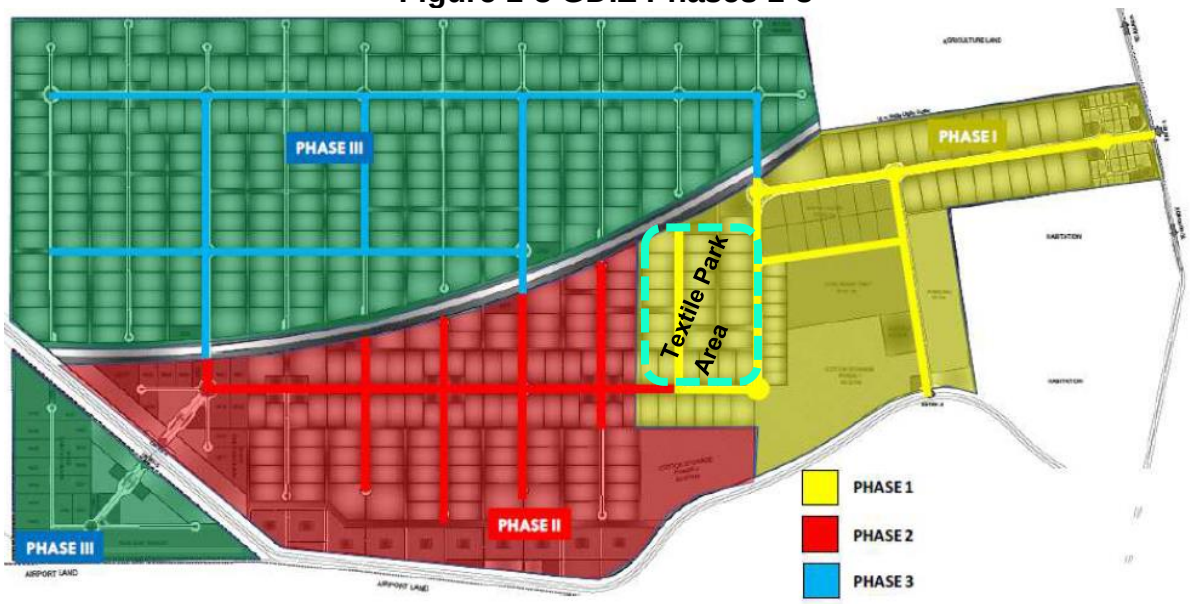
Source: ERM, 2021

The Textile Park will be developed on 50 ha of land within the 333 ha Phase I area, already under construction (see Figure 1-3). The Textile Park Project Site (and the Phase 1 lands) is situated within the municipality of Ze, in proximity to the villages of Agbodjedo, Anavie, Djitin-Aga and Houeze.

The Textile Park will be comprised of 4 Textile factories, of which 3 factories will include processing activities (dyeing and finishing); 20 Garmenting units; 2 Garmenting training centers; Vocational training center; and Expat housing for up to 6,141 workers.

Each of the 4 textile factories will include infrastructures for spinning and weaving processes. Out of the 4 factories, 3 will include infrastructure for dyeing and finishing technological processes and therefore include an effluent treatment plant (ETP). Each factory will employ between 4,000 and 4,500 workers. Each garmenting unit will cover an area of 10,800 m2 and each unit will employ 2,000 to 3,000 workers.

Figure 1-3 GDIZ Phases 1-3



Source: Antea ESIA, modified by ERM 2021

2. LEGISLATIVE REQUIREMENTS

2.1 National Framework

The obligation to carry out an ESIA is based on the Framework Law on the Environment (98-030 of 12 February 1999) of the Republic of Benin, which, inter alia, in Title V, Chapter I, Article 87-93, imposes the impact assessment procedure.

Article 3-d. of the Framework Law on the Environment in Benin stipulates that *"the various social groups must intervene at all levels in the formulation and execution of national environmental policy; this principle is crucial in the fight against poverty and promotes the country's development".*

In this context, the General Guide to Conducting an Impact Assessment[1], drawn up by Beninese Agency for the Environment (ABE), establishes public participation as an essential phase of the administrative procedure of environmental assessment: *"The third phase consists of informing the public about the project in order to allow them to participate in the decision-making process by making the file of the application for a certificate of conformity available to them. The public can also obtain all the information they need concerning the technical content of the studies and express their appreciation of the project's impact on the environment, including by holding a public hearing."*

Benin regulations do not specifically provide a framework for public consultation during the environmental assessment process although Article 36 of the Decree No. 2017-332 of 6 July 2017 does state that the ESIA report must contain a summary of public participation (consultations and public hearing). Article 91 of the Framework Law specifies that after receiving the impact study, the Minister must make it public. The Framework Law on the Environment No. 98-030 of 12 February 1999, art. 19, requires the Minister to make the impact study report available to the public within fifteen days of its submission.

Public hearing procedure

The public hearing procedure in Benin was instituted by the Framework Law on the Environment No. 98-030 of 12 February 1999. It was reinforced and specified in Decree No. 2017-332 of 6 July 2017 on the organization of environmental assessment procedures in the Republic of Benin and its Title V relating to the public hearing on the environment.

Nevertheless, an impact assessment report is not systematically the subject of a public hearing. On the contrary, the decision to hold a hearing is initiated under 2 conditions (art. 54):

- Where, in deciding on an EIA file, the Minister deems it necessary to obtain the opinion of citizens in order to inform his decision;
- Upon request addressed to the Minister within 15 days after making the draft EIA report public.

Once decided, the Minister forwards the application to all structures interested in the project and the ABE for the purpose of obtaining a technical opinion that may justify its acceptance or rejection. Acceptance of the application leads to the organization of the public hearing by order.

The population is informed of the holding of a public hearing by the publication of the decree in the Official Gazette, through the press and by public posting in the structures territorially concerned by the project. After publication of the decree, the procedure (art. 59) details the time limits that must be respected, namely:

- 8 days after the publication of the order for the public availability of the hearing file;
- 15 days after the file is made available for the first hearing session;

[1] Le guide général de réalisation d'une étude d'impact sur l'environnement. Available at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi2htP_0Nv1AhWBFjQIHWAVA8UQFnoECAMQAQ&url=https%3A%2F%2Fbj.chm-cbd.net%2Fimplementation%2Fdocuments%2Ffol693481%2Ffol157694%2Fetimpactenv.pdf%2Fdownload%2Ffr-BE%2F1%2Fetimpactenv.pdf&usg=AOvVaw0Bzi5lpJRfwdXBtXI1DaUs

- 10 days after the first session for the second hearing session;
- 10 days after the last hearing session for delivery of the Hearing Report to the Minister.

The Public Hearing Commission is responsible, on behalf of the Minister, for conducting meetings and consultations as part of the proceedings. The commission is composed of 3 members, including a government official, an environmental specialist and a representative of non-governmental organizations.

All documents relating to the hearings (written or recorded notes during meetings, exhibits, written depositions) are labelled, numbered and collected in a sealed package deposited with the Minister in charge of the Environment who assigns it to the ABE for archiving.

2.2 IFC Performance Standards

The IFC Performance Standards (PS) on Environmental and Social Sustainability (2012) are considered the benchmark for international good practice for environmental and social risk management in private sector developments.

PS1: *Assessment and Management of Environmental and Social Risks and Impacts* outlines the key requirements related to stakeholder engagement as summarized in Figure 2-1 below.

Figure 2-1 IFC PS1 Requirements for Stakeholder Engagement

Stakeholder Analysis and Engagement Planning: Stakeholder engagement is an on-going process that may involve, in varying degrees, the following elements: stakeholder analysis and planning, disclosure and dissemination of information, consultation and participation, grievance mechanism, and on-going reporting to Affected Stakeholders.

Disclosure of Relevant Project Information: Provide affected stakeholders with access to relevant information on: (i) the purpose, nature, and scale of the project; (ii) the duration of proposed project activities; (iii) any risks to and potential impacts on such stakeholders and relevant mitigation measures; (iv) the envisaged stakeholder engagement process; and (v) the grievance mechanism.

Consultation: Consultation will be in line with the degree of impact of the Project and should: i) begin early and continue through project, ii) be based on prior disclosure of relevant and easily accessible information on the project, iii) focus engagement on those who are directly affected, iv) be free of outside interference and external manipulation, v) enable meaningful participation, vi) be documented.

Informed Consultation and Participation: For projects with potentially significant adverse impacts on affected stakeholders, conduct an informed consultation and participation process. It should involve deep exchange of views and information, and an organized and iterative consultation, leading to the project incorporating into their decision-making process the views of the affected stakeholders on matters that affect them directly, such as the proposed mitigation measures, the sharing of development benefits and opportunities, and implementation issues. The process should be documented, in particular the measures taken to avoid or minimize risks to and adverse impacts on the affected stakeholders. The stakeholders should be informed about how their concerns have been considered.

External Communications: Implement and maintain a procedure for external communications that includes methods to (i) receive and register external communications from the public; (ii) screen and assess the issues raised and determine how to address them; (iii) provide, track, and document responses, if any; and (iv) adjust the management program, as appropriate. In addition, clients are encouraged to make publicly available periodic reports on their environmental and social sustainability.

Grievance Mechanism for Affected Stakeholders: Establish a grievance mechanism to receive and facilitate resolution of affected stakeholders' concerns and grievances about the client's environmental and social performance.

On-going Reporting to Affected Stakeholders: Provide periodic reports to the affected stakeholders that describe progress with implementation of the project Action Plans on issues that involve on-going risk to or impacts on affected stakeholders and on issues that the consultation process or grievance mechanism have identified as a concern to those stakeholders. The Performance Standards require that after completion of an environmental assessment the consultation and disclosure must continue throughout the life cycle of the project.

3. ROLES AND RESPONSIBILITIES

Roles and responsibilities of key staff involved in the management of the FSEP are described below.

The overall responsibility for stakeholder consultation and participation will lie with GDIZ, which will form a Community Relations Service (CRS). This service will be integrated into the Environmental and Social Department (ESD) and will have to collaborate directly with the communication manager to prepare messages and communication supports so that they are in line with the more global corporate communication plan developed for GDIZ.

For ESIA Textile Park development, stakeholder engagement will be carried out by both ERM/Liner and GDIZ team. All community consultation and engagement is done by Consultant, as GDIZ engages community leaders to mobilize people to attend public consultation sessions and supports ABE during ESIA disclosures (including public hearing).

3.1 CRS Team Leader

GDIZ CRS Team Leader will be responsible for ensuring adequate resources are available to enable the effective implementation of the FSEP, including the appointment of qualified personnel, and ensuring that significant environmental and social impacts and major non-conformances are properly addressed and managed. The GDIZ CRS Team Leader will approve communication where necessary to external stakeholders.

3.2 Community Liaison Officer (CLO)

A Community Liaison Officers (CLO) is based locally in order to maintain a continuous presence in Project area, to build trust and relationships with key stakeholders and affected communities, and receive and manage grievances.

3.3 Resettlement Officer

A Resettlement Officer will be responsible for the overall implementation of the full range of community engagement actions detailed within this FSEP. The Resettlement Officer will perform a coordinating and quality control function to ensure both alignment on stakeholder engagement across Project teams and also that the requisite standard of engagement activity and internal operations are met.

The Resettlement Officer will ensure messaging is consistent and clear when engaging stakeholders and will support the CLO(s) ensure that they have the resources required to implement the FSEP.

The structure of the team involved in engagement will be regularly reviewed and additional capacity be introduced if necessary. This includes capacity at the local level, in terms of the CLO team, with potential additional appointment of resources reporting to the CNS Team Leader. This includes recruiting new members for the team or up-skilling existing members.

3.4 E&S Consultants (ERM and Liner)

ERM and LINER were engaged by GDIZ to act as E&S consultants for preparation of Project ESIA. Stakeholder engagements and consultation activities related to ESIA development will be planned by E&S consultants and validated by GDIZ before carrying out activities. GDIZ CRS team will also oversee and provide support to consultants to stakeholder engagement with local communities and authorities.

4. STAKEHOLDER IDENTIFICATION AND ANALYSIS

4.1 Stakeholder Identification

The objective of stakeholder identification is to establish which organizations and individuals may be directly or indirectly affected (positively and negatively) by, or have an interest in, the Project. Stakeholder identification is an on-going process, involving regular review and the updating of the stakeholder register as the Project proceeds.

The IFC Performance Standards define stakeholders as persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively.

A systematic analysis of the identified stakeholders is important to better understand their respective concerns and to develop an appropriate approach for engagement. This section describes how the stakeholders are assessed based on their anticipated degree and topics of interest, as well as their role in processes which may affect activities.

Stakeholders identified for inclusion in engagement activities should meet one of the following criteria:

- Have an interest in the Project;
- Would potentially be impacted by or have an influence on the Project (negatively or positively); or
- Could provide commentary on issues and concerns related to the Project.

For the purposes of this exercise, stakeholders have been identified primarily based on the knowledge and understanding of the local context, as shared by GDIZ or included in the 2020 GDIZ ESIA.

At this stage, the primary Area of Influence (AoI) for ESIA Textile Parks Scoping Phase will cover 4 villages likely to undergo impacts from full GDIZ development, as per the original GDIZ ESIA social study area, which are Agbodjèdo, Anavyé, Houèzé and Djitin-Aga. However, given the early stage of Project development, the AoI may be refined through further study, which could result in changes or additions to the list of identified stakeholders.

For Scoping Phase purposes, consultations were undertaken in the municipalities of Ze (District of Tangbo-Djevie) and the municipality of Tori-Bossito (District of Tori Cada). These consultations confirmed initial assessment that the communities of Tori-Bossito will not be directly impacted by the Project.

It should be noted positions of stakeholders may change over time as the Project progresses. The assessment of stakeholder influence, interest and impact, as well as perception, will be reviewed and updated as appropriate. In addition, any new stakeholder identified will be added into the analysis.

For the launch of the scoping phase, stakeholders have been identified and analyzed based on the following parameters which are summarized in Table 4-1:

- Level of Influence (rated by high, medium, low) – defined as the ability of the stakeholder to affect or influence decision- making processes and outcomes related to the resettlement process; and
- Level of Interest (rated by high, medium, low) – defined as the willingness of the stakeholder to be informed and actively participate in the resettlement process.

Table 4-1 Project Stakeholders

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
Governmental Authorities (National Level)				
Ministry of the Living Environment and Sustainable Development	Ministère du Cadre de Vie et du Développement Durable (MCVDD)	Defines and monitors the implementation and evaluation of State policy on housing, urban development, urban mobility, cartography, geomatics, land use planning, sanitation, environment, management of the effects of climate change, reforestation, protection of natural and forest resources, preservation of ecosystems. Ensures that the programs and projects envisaged or in progress on the national territory are carried out in accordance with the legislative and regulatory provisions in force. In this Project, the MCVDD has the prerogative to issue the certificate of environmental compliance necessary for its application.	High	High
Beninese Environment Agency	Agence Béninoise pour l'environnement (ABE)	Implements the environmental policy defined by the Government. ABE gives its technical opinion to the MCVDD / Government on the authorization to undertake or operate works or establishments subject to ESIA, on the environmental feasibility of the plans, programs and projects to be carried out and on the initiation and execution of the external environmental audit. Thus, it oversees the organization of environmental assessment procedures in the Republic of Benin.	High	High
National Agency for Territorial Planning	Agence Nationale d'Aménagement du Territoire	Elaborates and ensure the implementation of the national policy on spatial planning, with the	Medium	Low

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		support of the various administrations involved; initiate the elaboration of spatial planning documents at national, sectoral and local levels. Ensures the spatial coherence of major structuring projects, such as the current Project, prior to their implementation.		
General Directorate of Water, Forests and Hunting (ex- General Directorate for Forests and Natural Resources)	Direction Générale des Eaux Forêts et Chasse (ex-Direction Générale des Forêts et des Ressources Naturelles)	Ensures the development and rational management of natural resources (forest, wildlife and others) through development of State policies, strategies, regulatory texts and other tools for reforestation and sustainable management of natural resources. Monitors and evaluates implementation of policy and regulations.	Medium	Low
National Geographic Institute	Institut Géographique National	Responsible for the production, conservation and dissemination of basic geographic information: urban land registers; rural land plans; national cadastre. Identifies the geographic coordinates and topography of the Project site and physically delimits the Project site.	Medium	Low
Ministry of Industry and Trade	Ministère de l'industrie et du Commerce	Design, implementation, monitoring and evaluation of the general policy of the State in terms of promotion of industry and trade.	High	High
Industrial Development Department	Direction Générale du Développement Industriel	Carries out or commission studies on industrial development in Benin, draws up and implements industrial development strategies.	High	Medium
General Directorate for Trade	Direction Générale du Commerce	Responsible for formulating and implementing national policy on internal and external trade, competition, prices and the fight against fraud.	High	Medium

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
Ministry of Agriculture, Animal Husbandry and Fisheries	Ministère de l'agriculture de l'Elevage et de la Pêche	Responsible for the design, coordination, implementation and monitoring-evaluation of the State's policy in terms of improving production, the income of producers in the Agriculture, Livestock and Fisheries sectors and the standard of living of the population.	Medium	Low
Ministry of Health	Ministère de la Santé	Responsible for developing and implementing the Government's health policy. Within this framework, it coordinates and monitors the implementation of health-related activities.	High	High
National Directorate of Public Health	Direction Nationale de la Santé Publique	Responsible for the monitoring and evaluation of collective and individual measures for prevention, prophylaxis and health promotion. It is also responsible for school health programs.	Medium	Medium
Infrastructure, Equipment and Maintenance Direction	Direction des Infrastructures, des Equipements et de la Maintenance	Responsible for the design, monitoring and evaluation of civil engineering activities (construction, rehabilitation and maintenance). It is also the body in charge of the management and maintenance of the medico-technical equipment of the Ministry of Health.	Medium	Low
Ministry of Infrastructure and Transport	Ministère des Infrastructures et des Transports	Develops and ensures the implementation and monitoring-evaluation of the general policy of the State in terms of land, maritime, fluvio-lagunar and air transport as well as public works and other infrastructures.	Medium	Low
National Road Safety Centre	Centre National de Sécurité Routière	Responsible for the study, research and implementation of all means intended to	Medium	Medium

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		increase the safety of road users, in particular through measures to prevent and combat road accidents.		
Ministry of Labour and Public Function	Ministère du Travail et de la Fonction Publique	Defines, implements, monitors and evaluates State policy on labour, the civil service, administrative and institutional reform, the family, national solidarity, employment, microfinance and equal opportunities. Responsible for microfinance, entrepreneurship, youth employment and equal opportunities. The Ministry is also involved in the promotion of the family, women, gender and the reintegration of disabled persons.	Medium	Low
Ministry of Social Affairs and Microfinance	Ministère des Affaires Sociales et de la Microfinance	Defines, implements and monitors the State's policy on social welfare, family, children, national solidarity, microfinance and equal opportunities. It ensures that conditions conducive to the growth of families and the development of children are in place.	Medium	Low
General Directorate of Labour	Direction Générale du Travail	Responsible for designing, implementing, monitoring and evaluating national labour policy, promoting health at work, promoting social dialogue in the workplace; promoting the fight against child labour.	Medium	Low
National Social Security Fund	Caisse Nationale de Sécurité Sociale	Manages the occupational risks of employees, provides health coverage to affiliated salaried workers, provides support services to employers to raise awareness of occupational hazards. Participates in the setting up of Health and Safety Committees (CHS) in companies, carries out monthly or unannounced technical inspections of	Medium	Medium

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		employers in order to detect anomalies and check working conditions, and carries out investigations in the event of a work-related accident in order to determine causes and responsibilities.		
Ministry of Planning and Development	Ministère du Plan et du Développement	Promotes economic and social development and monitors the implementation of Government policies, programs, projects and decisions on national, regional and local development.	Medium	Low
Development Authority of the Glo-Djigbe Perimeter	Autorité de Développement du Périmètre de Glo-Djigbé (ADGP)	Manages implementation of the Glo-Djigbe airport project. Responsible for expropriation and compensation of persons affected by the project; creating and implementing the development plan, commissioning the works. The ADPG is responsible for ensuring that security conditions are met within the perimeter surrounding the airport so that the airport can operate in the best possible conditions. As such, it is a central stakeholder in the Project and will need to be kept informed of its progress.	Medium	Medium
Ministry of the Interior and Public Security	Ministère de l'Intérieur et de la Sécurité Publique	Responsible for the development and implementation of State policy on security, civil protection and civil liberties. Within the framework of the Project, the safety of persons and property on the one hand and the implementation of emergency plans on the Project site on the other hand are the responsibility of the Republican Police and the National Fire Brigade.	Medium	Low

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
Ministry of Tourism, Culture and Arts	Ministère du tourisme, de la culture et des arts	Responsible for cultural heritage management and protection in coordination with the National commission on the protection of cultural heritage.	Low	Low
Ministry of Decentralization and Local Governance	Ministère de la Décentralisation et de la Gouvernance Locale	Responsible for defining, implementing and monitoring-evaluating State policy on decentralization, deconcentration, local governance and grassroots development. Ensures the administration of administrative districts (prefectures and arrondissements) and the supervision of decentralized communities (municipalities).	Medium	Low
National Agency for Domain and Land	Agence Nationale du Domaine et du Foncier (ADNF)	Secures and coordinates land and state management at the national level. Ensures equitable access to land through land registration, investment security, effective management of land conflicts, the process of expropriation for public utility. As part of the GDIZ Project, ANDF will be a member of the Interministerial Commission in charge of the expropriation procedure. This commission will oversee the expropriation procedure and the compensation of persons affected by GDIZ Project but also of SEZs as a whole.	High	High
National Water Company of Benin	Société Nationale des Eaux du Bénin (SONEB)	Limited industrial and commercial company which operates in the field of drinking water. Its purpose is the abstraction, transfer, treatment and distribution of drinking water as well as the disposal of wastewater.	High	High

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		Within the framework of the GDIZ Project, SONEB will intervene on the water access and sanitation aspects of the Project.		
Beninese Electric Power Company	Société Béninoise d'énergie électrique (SBEE)	State-owned industrial and commercial company under the supervision of the Ministry of Energy, Petroleum and Mining Research, Water and Development of Renewable Energies. Within the framework of the GDIZ Project, SBEE will intervene on the electricity supply aspect of the Project.	High	High
Regional / Departmental Authorities				
Departmental Directorate for the Living Environment and Sustainable Development for Atlantic/Littoral	Direction Départementale du Cadre de Vie et du Développement Durable de l'Atlantique / Littoral	Oversees the implementation, at the departmental level of the national policy on the living environment and sustainable development. Monitors the implementation of MCVDD projects in the field and reports periodically to the Prefect and the Minister of the Living Environment and Sustainable Development.	High	High
Departmental Directorate of Industry and Trade for Atlantic/Littoral	Direction Départementale de l'Industrie et du Commerce de l'Atlantique/Littoral	At a departmental level, coordinates, controls and monitors all actions for the promotion of industries. Monitors the evolution of the industrial fabric to direct investment to valorize local raw materials and the integrated development of identified sectors.	High	High
Departmental Directorate of Health for Atlantic/Littoral	Direction Départementale de la Sante de l'Atlantique/Littoral (DDS-AL)	Plans, coordinates, supervises and controls all the activities of the health services, both in the implementation of national programs and in the operation of the health zones and public and private health facilities in the department.	Medium	High

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		Within the framework of this Project, the Ministry of Health, through its decentralized services, will rely on the DDS-AL for the monitoring of health actions and the Information, Prospective and Advice Centre (CIPEC) for the monitoring of information-education-communication activities on HIV-AIDS and sexually transmitted diseases (STDs).		
Departmental Directorate for Infrastructure and Transport for Atlantic/Littoral	Directions Départementales des Infrastructures et des Transports de l'Atlantique/Littoral	Monitoring and control of construction, maintenance, rehabilitation, development and asphalting of roads and/or construction works carried out on its territory; managing the road network within its territorial jurisdiction and carrying out maintenance work.	Medium	Low
Departmental Directorate of Planning and Development for Atlantic/Littoral	Direction Départementale du Plan et du Développement de l'Atlantique/ Littoral	Assists the prefects in the elaboration of strategies, plans and development programs; provide technical assistance to mayors in the elaboration, implementation, monitoring and evaluation of their development plans and programs.	Medium	Low
Departmental Directorates of Social Affairs and Microfinance	Direction départementale des affaires sociales et de la microfinance	Ensures, within its territorial jurisdiction, the implementation of the competences devolved to the Ministry in the field of family, social protection and microfinance.	Medium	Medium
Departmental Directorate of Labor and Public Service Atlantique-Littoral	Direction Départementale du Travail et de la Fonction Publique Atlantique-Littoral (DDTFP-AL)	This is the territorially-competent direction to intervene on the Project. It will be responsible for ensuring compliance with the ESMP measures relating to hiring and working conditions in line with national regulations.	Medium	High
Departmental Directorate of the Interior and Public	Direction Départementale de l'intérieur et de la	Responsible for security issues in the Department.	Medium	Medium

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
Security Atlantique/Littoral	sécurité publique Atlantique/Littoral			
Regional Fire Department	Direction régionale des sapeurs-pompiers	The presence of several industrial units implies carrying out hazard studies in order to manage the issues of risk of explosion, fire, etc.	Medium	Medium
Atlantic-Littoral Prefecture / Department	Préfecture / Département de l'Atlantique/ Littoral	The prefect at the head of prefecture represents the executive power in the Atlantic/Littoral region. In this capacity, he coordinates all the decentralised services of the state and administers the life of the region by delegation, and has a right of review over the projects that are carried out there.	High	High
Mayor of Ze	Marie de Zè	Town hall/Municipality authority Key to support community engagement and lead community representatives Expectations on Local development Participates in the stakeholder consultation process.	High	High
District of Tangbo-Djieve	Arrondissement de Tangbo-Djieve	The District of Tangbo-Djieve, which hosts the project, has an essential role as the legal representative of the communities. Through the authority of the district, development associations will work in symbiosis in order to harmonize the monitoring of the ESMP.	High	High
Agbodjedo village chief	Chef de village Anavie	Represents the populations and is in charge of the development of the villages and the questions related to the habits and customs.	High	High
Anavie village chief	Chef de village Anavie	Represents the populations and is in charge of the development of the villages and the questions related to the habits and customs.	High	High
Djitin Aga village chief	Chef de village Djitin Aga	Represents the populations and is in	High	High

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		charge of the development of the villages and the questions related to the habits and customs.		
Houeze village chief	Chef de village Houeze	Represents the populations and is in charge of the development of the villages and the questions related to the habits and customs.	High	High
Local Stakeholders (Communities / Associations/ Companies)				
Communities of Agbodjedo; Anavie Djitin Aga ; Houeze	Communautés de Agbodjedo; Anavie Djitin Aga ; Houeze	Community members/leaders; High expectations for jobs to facilitate agricultural to urban transition. Will experience impacts and opportunities associated with increased industrial activity and in-migration.	High	High
Vulnerable groups/persons from local communities	Groupes/personnes vulnérables des communautés locales	Elders, people with disabilities, lower income families, etc.	Low	High
Opinion leaders of Agbodjedo, Anavie, Djitin Aga, Houeze	Leaders d'opinion de Agbodjedo ; Anavie Djitin Aga ; Houeze	Important means of mobilization, communication and public awareness.	High	High
NGOs				
GRADD NGO	GPRADD ONG (Groupe de Recherche et d'Action pour le Développement Durable)	GPRADD stands for "Research and Action Group for Sustainable Development." This NGO carries out community awareness activities on the E&S risks of projects. Also supports the implementation of E&S policies and engage with and inform communities to reinforce their acceptance of projects.	Medium	High
IRETI NGO	IRETI (Institut de Recherche d'Expertise en Environnement et Technologie de l'Information) ONG	IRETI stands for "Research Institute for Expertise in Environment and Information Technology". It is an NGO working in the fields of health, environment and education. Also supports the implementation of E&S	Medium	High

Stakeholders	Stakeholders (official French name)	Definition and Connection to the Project	Level of Influence (High/ Medium/ Low)	Level of Interest (High/ Medium/ Low)
		policies and engage with and inform communities to reinforce their acceptance of projects.		
Local associations				
Local Development Committees	Associations de développement de Agbodjedo, Anavie, Djitin Aga, Houeze	Development associations must take a look at the benefits that their communities derive from the Project in relation to their needs. In all localities, there are development associations that watch over the interests of the communities. It is this role that the various associations will play in the present case.	Medium	High
Medias				
Radio: ORTB; Golf FM; Radio Lama; Diaspora FM	Radio : ORTB; Golf FM; Radio Lama; Diaspora FM	Office of Broadcasting and Television of Benin (ORTB) is a public radio; Radio de la Lama located in the Municipality of Allada and which covers the entire area; Diaspora FM located in the district of Glo-Djigbé. These bodies are useful in the implementation of the communication strategy of the project.	Low	Medium
TV: ORTB TV; GOLF TV; EDEN TV	Télévision : ORTB TV; GOLF TV; EDEN TV	Office of Broadcasting and Television of Benin (ORTB) a public television; Golf TV (a private prime time television located in Cotonou) and EDEN TV (a private prime time television also but located in the district of Glo-Djigbé). EDEN TV and Diapora FM are indeed a press group.	Low	Medium
Press: Journal LA NATION	Presse : Journal LA NATION	National print media that can serve as a communication channel for the project.	High	Medium

Source: LINER/ERM, 2022

4.2 Stakeholder Analysis

As observed, stakeholder groups such as national, regional and local authorities have predominantly higher interest and influence on the Project.

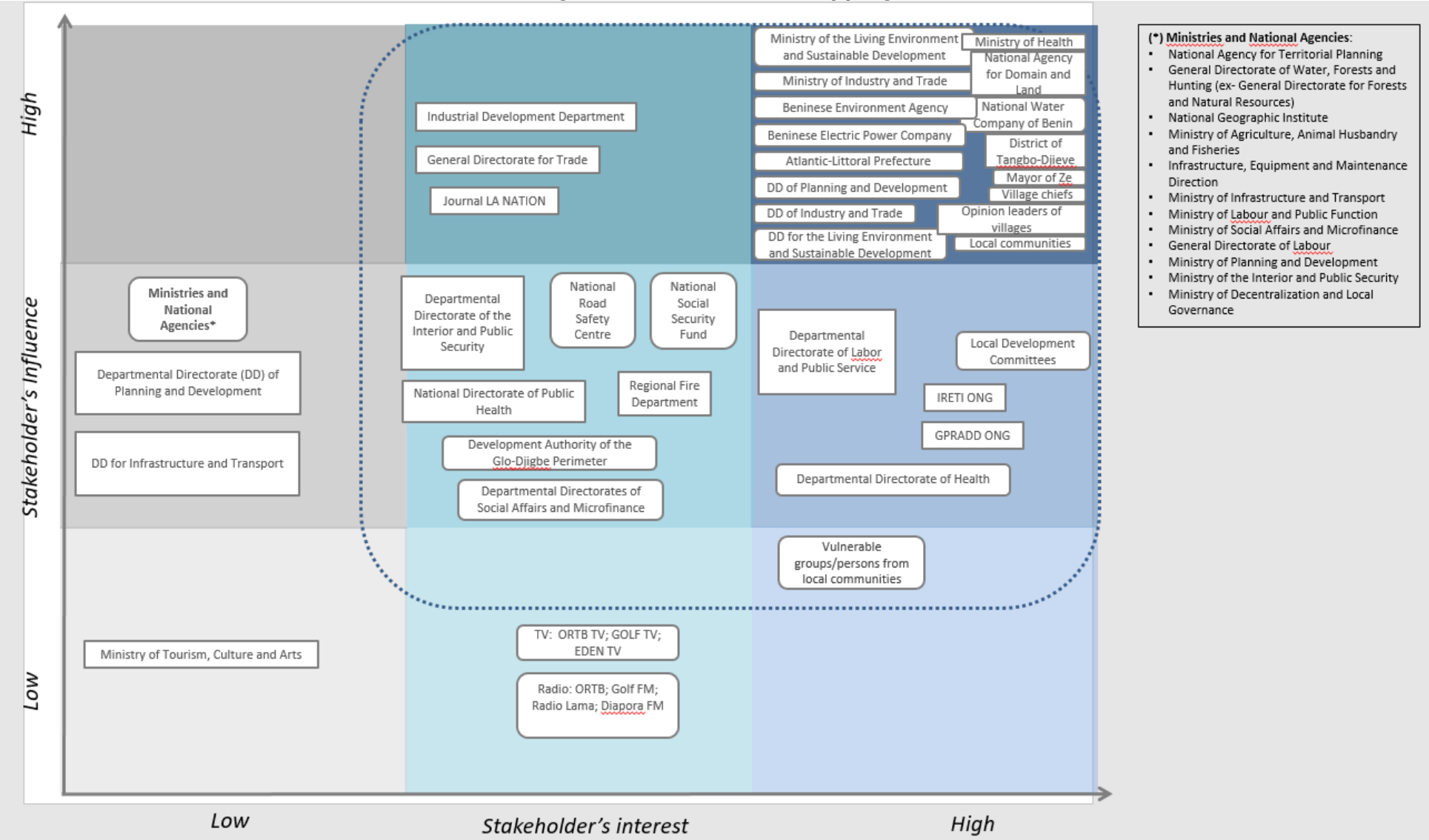
Local communities, such as site neighbors and neighboring populations have a medium to high potential influence on and interest in the project.

Different levels of engagement will be proposed for different categories of stakeholders. This is primarily based on experience with similar projects and the analysis of the stakeholder consultation and engagement process to date.

Less intensive forms of engagement such as disseminating information may be adequate to keeping stakeholders informed about Project progress and should be addressed to low influence/impact stakeholders.

For others, more collaborative engagement is advisable in order to solve more systemic and deep-rooted challenges that can bring major challenges or changes in Project implementation activities.

Figure 4-1 Stakeholder Mapping



Source: LINER/ERM, 2022

5. STAKEHOLDER ENGAGEMENT UNDERTAKEN TO DATE

5.1 GDIZ ESIA

Stakeholder engagement was undertaken as part of the GDIZ ESIA. The consultation process took two forms:

- **Preliminary consultations**: held with communities of the study area during the social field data collection. It mainly focused on informing villages in the study area about the Project, its main characteristics and its potential impacts.
- **ESIA disclosure consultations**: the ESIA disclosure aimed at presenting the major ESMP measures to be implemented by the Project to minimize environmental and social impacts.

5.1.1 Preliminary consultations

Several meetings and interviews were carried out with populations, socioeconomic community groups, Civil Society Organizations (CSOs) and local authorities in the municipalities of Tori-Bossito and Ze and their respective districts, Tori-Cada and Tangbo-Djevie which house the Project site.

The main purpose of these meetings was to collect data on the local socio-economic context in order to complete the initial state of the human environment in this impact study. They also made it possible to inform the population about the Project (nature and description, delimitation, likely impacts for residents) and to collect their perceptions and opinions, their fears, expectations.

There were four different types of consultation activities:

- **Preparatory meetings and site visits** with local authorities, in order to show them the limits of the future site of the industrial zone;
- **Two public consultation meetings** in the 2 districts of the Project study area;
- **22 focus groups** with different socio-professional and socio-demographic categories, which aimed both to collect socio-economic data and to exchange on the Project; and
- **Individual interviews with key stakeholders** to fully understand the functioning of the land system in the Project area and identify the constraints to land acquisition.

Due to opposition to the Project, the village of Agbodjedo was not covered by the various consultation activities.

Table 5-1 below shows the activities carried out.

Table 5-1: Summary of the institutions and groups met

Nb.	Date	Location	Institution or group met	Number of participants
1	29/10/2019	Ze town hall	Preparatory meeting Mayor of Ze	3
2	30/10/2019	Tori-Bossito town hall	Preparatory meeting Mayor of Tori-Bossito	4
3	30/10/2019	Tangbo-Djevie district in Ze	Preparatory field meeting with the local authorities (CA and CV) concerned in the Arrondissement of Tangbo- Djevie in Ze	8
4	31/10/2019	Tori-Cada district	Preparatory field meeting with the local authorities (CA and CV) concerned from the District of Tori-Cada	9
5	11/11/2019	Tori-Cada district	Public consultation with local residents of the Tori-Cada District Project site	54
6	14/11/2019	Dokanme	Focus group with the village chief, councillors and religious leaders	16

7	15/11/2019	District of Tangbo-Djevie in Ze	Public consultation with the persons living in the vicinity of Tangbo-Djevie Project site.	
8	19/11/2019	Dokanme	Focus group with Dokanme youth group	36
9	19/11/2019	District of Tori-Cada	Focus group with the village chief, his councillors and the religious leaders of Zebe	11
10	20/11/2019	Zebe	Focus group with Zebe youth group	19
11	20/11/2019	Gbetaga	Focus group with the village chief, his councillors and the religious leaders of Gbetaga	15
12	21/11/2019	Dokanme	Focus group with the women of Dokanme	34
13	21/11/2019	Zebe	Focus group with Sogbe women's group	15
14	22/11/2019	Zebe	Focus group with the vulnerable groups of Zebe	11
15	22/11/2019	Sogbe	Focus group with the village chief, his councillors and the religious leaders of Sogbe	11
16	23/11/2019	District of Tori-Cada	Focus group with the craftsmen and merchants of Tori-Cada District	15
17	25/11/2019	District of Tori-Cada	Focus group with the Associations/CSOs of ToriCada District	21
18	25/11/2019	District of Tori-Cada	Focus group with farmers, stockbreeders and landowners of Tori-Cada District	14
19	30/12/2019	District of Tangbo-Djevie in Ze	Public Consultation with the residents of Tangbo-Djevie in Ze	39
20	31/12/2019	District of Tangbo-Djevie in Ze	Focus group with Operators and Owners	26
21	02/01/2020	District of Tangbo-Djevie in Ze	Focus group with Tangbo-Djevie Association/CSOs	15
22	02/01/2020	District of Tangbo-Djevie in Ze	Focus group with the Craftsmen and traders of Tangbo- Djevie	17
23	03/01/2020	Houeze	Focus group with village chief, councillors and religious leaders	12
24	03/01/2020	Houeze	Focus group with young people	19
25	04/01/2020	Djitin-Aga	Focus group with village chief, councillors and religious leaders	15
26	04/01/2020	Houeze	Focus group with vulnerable groups	11
27	06/01/2020	Anavie	Focus group with village chief, councillors and religious leaders	18
28	06/01/2020	Djitin-Aga	Focus group with the women of Djitin-Aga	22
29	07/01/2020	Anavie	Focus group with young people	18
30	14/01/2020	Cotonou	Meeting with IGN	3
31	15/01/2020	Cotonou	Meeting with ANDF	3
32	15/01/2020	Cotonou	Meeting with APIEX	5
33	15/01/2020	Cotonou	Meeting with AGETIP Benin SE	10

Source: Antea ESIA, modified by ERM 2022

The various consultation activities revealed fears about the Project and strong opposition to it. Those consulted have badly experience the airport project where local residents were deprived of their land and feel they have not received fair compensation.

The main concerns and issues raised during the consultation activities were:

- Land and economic displacement: not being compensated at fair value;

- Employment: not being able to find other sources of income, not getting jobs on the Project site, and women not be able to sell their goods at the Project site;
- Social consequences: Project will severely affect village social organization and family stability; and
- Health and safety: development of diseases caused by Project activities and resulting nuisances.

The following proposals were made by the groups interviewed to minimize some of the negative impacts:

- Identify a site for the industrial zone within the future airport itself or to relocate the site to another area initially planned for industrial development (in the municipality of Ze);
- Allow populations to harvest their crops before the works begin and not destroy the crops before the works start;
- Provide fair compensation before work begins;
- Give priority to offering jobs to expropriated farmers or to help them find alternative land;
- Give priority to offering jobs to young people and women from villages in the area;
- Future workers made to respect local standards; and
- Strengthen local infrastructure: health, water, education, electricity and access roads.

As a result, the following measures have been integrated into the ESIA and ESMP:

- Sensitizing workers to local customs;
- Establishment of a recruitment program that prioritizes expropriated PAPs and women from villages in the area;
- Establishment of a Voluntary Community Development Program by the proponent to finance the construction of infrastructure in villages bordering the Project site;
- Provision of fair compensation corresponding to the real value of the assets;
- Alignment of the Project schedule and the work start-up period with the harvesting periods of the main crops on the site; and
- Establishment of a robust livelihood restoration program under the RAP.

5.1.2 ESIA disclosure consultations

Public consultations for the disclosure of the ESIA were organized from the 3rd to the 12th of November 2020. The purposes of these consultations were to present the main conclusions of the ESIA process, the major impacts of the Project and the proposed mitigation measures, and to get the feedback of project-affected communities on these measures.

Various communication tools were used, mostly a poster and a PowerPoint. The Covid-19 prevention measures applicable in Benin were applied during the meetings.

Prior to the organization of consultation meetings in the villages of the study area, two meetings were organized at the level of the municipalities concerned by the Project:

- 03/11/2020: meeting with the Municipality of Tori-Bossito.
- 05/11/2020: meeting with the Municipality of Ze.

Following these, public meetings were organized in the 8 villages affected by the Project so that information was brought directly to the Project-Affected Persons with the aim of increasing public participation. The meetings are presented in Table 5-2 below.

Table 5-2: ESIA disclosure consultations organized

Date	Village	Duration	Number of Participants	Men	Women
04/11/2020	Houeze	2 hours 10 minutes	53	30	23
04/11/2020	Djitin-Aga	1 hour 30 minutes	51	49	2
06/11/2020	Anavie	1 hour 35 minutes	36	33	3
06/11/2020	Agbodjedo	1 hour 25 minutes	52	28	24
10/11/2020	Sogbe	1 hour 50 minutes	52	33	19
10/11/2020	Gbetaga	55 minutes	45	20	25
11/12/2020	Zebe	1 hour 30 minutes	49	45	4
12/11/2020	Dokanme	1 hour 15 minutes	57	41	13
		TOTAL	392	279 (71%)	113 (29%)

Source: Antea ESIA, modified by ERM 2022

5.2 Textile Park ESIA – Scoping Phase

5.2.1 Scoping Engagement Activities

During the visits, the discussions focused mostly on the following points:

- Presentation of the consulting team;
- Presentation of the objective of the mission; and
- Presentation of the project and its components.

Table 5-3: Scoping Engagement Activities

Date	Time	Location	Stakeholders	Photographic Evidence
01/12/2021	10:00 to 11:00	Agbodjedo village	■ Representatives of young people, women, the elderly ■ Village Chief and his advisers	
	11:30 to 13:00	Anavie village	■ Representatives of young people, women, the elderly ■ Village Chief and his advisers	

Date	Time	Location	Stakeholders	Photographic Evidence
	13:30 to 14:00	District of Tangbo-Djevie	■ District of Tangbo-Djevie – District Chief	
	16:00 to 16:30	-	■ Departmental Directorate for the Living Environment and Sustainable Development for Atlantique/Littoral	

Date	Time	Location	Stakeholders	Photographic Evidence
	17:30 to 18:00		■ Departmental Directorate of Industry and Trade for Atlantique/Littoral – Director's Collaborators	
02/12/2021	08:00 to 09:00	-	■ Prefect of Atlantique and its collaborators ■ Mayor of Tori Bossito ■ Departmental Directorate of Industry and Trade for Atlantiaue/Littoral – Director	

Date	Time	Location	Stakeholders	Photographic Evidence
	10:00 to 11:30	Djite Age village	■ Representatives of young people, women, the elderly ■ Village chief and his advisers	
	12:00 to 13:30	Houeze village	■ Representatives of young people, women, the elderly ■ Village chief and his advisers	

Date	Time	Location	Stakeholders	Photographic Evidence
	15:00 to 16:00	District of Tori Cada	■ District Chief of Tori Cada ■ Chief of the village of Tori Cada ■ Chief of the village of Zèbè ■ Chief of the village of Dokanmè ■ Chief of the village of Sougbé ■ District Councilor	
03/12/2021	10:00 to 13:00		■ Beninese Environment Agency (ABE) – Managing Director	

5.2.2 Key Concerns Raised by Stakeholders

This Section provides an overview of the key issues raised by stakeholders during consultations for Scoping report. Table 5-4 presents a summary of concerns and issues raised by community representatives during those meetings

Table 5-4 Summary of concerns and issues

Subject	Key outcomes and concerns
Employment	■ Recruit local workforce ■ Give priority to young people in the affected villages ■ Create a facility for training and recruitment ■ Clarify whether training will be free ■ Define and inform officials and population on types of workers needed and employment criteria
Insecurity	■ Foreign workers ■ Young people not employed by the project
Health	■ Health concern linked to presence of 50% staff accommodation in the GDIZ
Workers accommodation	■ Analyze the risks related to the exposure of workers to be housed in the GDIZ to heavy metals, toxic gases and nuisances that will result from the installation of large industrial units in the GDIZ (cement plant, brewery, etc.) ■ Analyze the cumulative effects of other projects on the employee housing component
Access issues	■ Access to local villages blocked by GDIZ fence. ■ Fence the sacred forest and allow dignitaries to access it for rituals
Land and economic displacement	■ Allow production to be harvested before work begins ■ Support women's organisations financially to develop activity following the loss of agricultural land ■ Slowing down of the compensation process by the State ■ Reduced economic activities and therefore livelihoods ■ Scarcity of arable land and increase in poverty ■ Social problems that arise from dispossession ■ Support in retraining especially for young people and women
Air Pollution	■ Air pollution during construction and exploitation. Inform the populations of the gaps that would be observed after analysis of the air samples
Nuisance	■ Make every effort to ensure that during the construction and operation phase, no environmental nuisance (wastewater management, fire, explosion, etc.) is recorded ■ Concern around accidents, noise and waste management
Waste water	■ Concern around waste water management ■ Apply ZLD technology to avoid waste water discharge ■ Clarify describe the wastewater reuse circuit ■ Clarify the dye waste management method
ESIA	■ Provide a hazard study to be appended to the ESIA ■ Present in the ESIA the chemicals to be used in the production phase, the potential risks and especially their certification
Other	■ Learn about the experience of the International Textile Society (SITEX) located in the city of Lokossa in Benin

Source: Liner/ERM, 2021

6. ENGAGEMENT PROGRAM

The engagement program will cover the stakeholders' engagement activities for Textile Park ESIA development.

The engagement will continue to be undertaken in accordance with national and international good practice, which places an emphasis on broad engagement and disclosure of findings to stakeholders and requires that a stakeholder engagement plan be developed.

Two phases of engagement will be undertaken: (i) initial engagement with the national government, local government and non-governmental officials to ensure they are informed about the Project and activities that will be undertaken; and (ii) public participation and consultation which will involve a series of public gatherings/ hearing with a range of stakeholders including affected communities.

Any other stakeholders that are identified following the completion of the scoping engagement process should be consulted during the full ESIA process. This may include specific organizations such as NGOs and civil society, or businesses within the study area.

It is noted that due to the ongoing COVID-19 pandemic (as of this writing in January 2022 and for the foreseeable forthcoming months), stakeholder engagement will be conducted in conformance with all legal requirements mandated by Beninese authorities as well as recommendations from the World Health Organization (WHO). This may require a preference for virtual / remote engagements over face-to-face meetings.

Any engagement activities will need to consider adopting several measures in order to reduce the spread of infection, as follows:

- Wear protective face mask (surgical or FFP2);
- Choose outdoor venues rather than indoor;
- Maintain a distance of 1-2 meters (3-6 feet) from others; and
- Avoid shaking hands, and provide hand-cleaning stations.

Table 6-1 summarizes the planned stakeholder engagement activities on the Project.

Table 6-1 Engagement Program

Stage	Purpose	Status/Timing	Responsible to undertake engagement activity
TOR validation	■ Initial meetings held by ABE to note the Project's potential issues ■ The first phase of the consultation takes place during the validation of the terms of reference and consists of informing the population in advance of the day of the validation visit and carrying out the visit jointly with the representatives of the population concerned by the project.	Planned	LINER/ERM
ESIA Development: Data Collection and Project Disclosure	■ National, regional and local level engagement meeting to provide high level Project information about the proposed development and gain feedback regarding the nature, scale and purpose of the Project and disclosure of scoping preliminary impacts and planning the main focus of the ESIA report. ■ A series of data collection activities will be undertaken to gather information for the ESIA baseline, to inform the impact assessment, specifically: ■ Key informant interviews with local stakeholders to (a) determine what, if anything, has changed since the GDIZ ESIA baseline data collection in 2020 (b) fill key identified gaps in the GDIZ ESIA. ■ Key informant interviews with local, departmental and national stakeholders, to gather qualitative data relevant to: - educational outcomes; - skills and vocational training; - social cohesion (social ills: crime, alcoholism, prostitution; social capital, trust, relationships, solidary and mutual support, etc.); - national and regional economy and industry; ■ Focus groups with women and to confirm the findings of the GDIZ ESIA and determine if the nature and extent of any changes.	Planned	LINER/ERM

Stage	Purpose	Status/Timing	Responsible to undertake engagement activity
ESIA Disclosure	■ The Minister must make the impact study report available to the public within fifteen days of its submission. ■ In accordance with the public hearing procedure, the Minister authorizes the public hearing by decree. The population is informed of the holding of a public hearing by the publication of the decree in the Official Gazette, through the press and by public posting in the structures territorially concerned by the project. Article 59 details the deadlines that must be met following the publication of the decree: ■ The hearing file must be made available to the public within 8 days after the degree is published; - The first hearing session must be held within 15 days after the hearing file is made available; - The second hearing session must be held within 10 days after the first hearing session; - The hearing report must be submitted to the Minister within 10 days after the last hearing session. ■ The Public Hearing Commission is responsible, on behalf of the Minister, for conducting meetings and consultations as part of the proceedings. The commission is composed of 3 members, including a government official, an environmental specialist and a representative of non-governmental organizations. ■ The Minister makes the final hearing report available. ■ All documents relating to the hearing (written or recorded notes during meetings, exhibits, written depositions) are labelled, numbered and collected in a sealed package deposited with the Minister in charge of the Environment who assigns it to the ABE for archiving.	Planned	LINER/ERM with support from GDIZ E&S team

7. ENGAGEMENT MECHANISMS

SIPI Benin will use the following engagement mechanisms for information disclosure:

- GDIZ Website;
- In addition to ABE, SIPI Benin will provide where necessary supplemental support for public notices in the Project Area, such as information posted on bulletin boards, announcements on local radio stations, advertisements/publications in local newspaper; and
- Accessible onsite information center which will be staffed during regular business hours, and where residents can come to ask questions, submit grievances, and deposit other information, such as applications for posted positions or supplier qualifications.

To conduct stakeholder consultation, SIPI Benin will support the E&S consultant on the use the following engagement mechanisms:

- Public forums, featuring a presentation by a Project representative followed by a question and answer session;
- Focus groups, including specific sessions for vulnerable or marginalized groups when required and appropriate;
- Key informant interviews, such as one-to-one meetings with government authorities and local leaders; and
- Open houses, inviting external stakeholders to visit select site locations and engage with Project representatives.

Where appropriate, progress on key issues will be reported back to stakeholders to demonstrate how their input has been incorporated into Project procedures.

Prior to each engagement, a planning session will be held by SIPI Benin and the E&S Consultant to determine the following elements:

- Key messages that SIPI Benin wishes to communicate (integrated for the different engagement stages/topics);
- Supporting materials (meeting attendance form, camera, flipchart, visual materials such as maps and pictures, information leaflet, projector, poster);
- Resources responsible for engagement;
- Order of stakeholders to be engaged – depending on engagement activities, it may be necessary to begin engagements with authorities / customary leadership before cascading down to the wider community;
- Timing of meetings – ensure that enough time is allowed for and between meetings to account for any delays and that the meeting is held at a time that is convenient for stakeholders;
- Prepare for the likely questions from stakeholders/community members by drafting a set of standard questions and answers to be followed; and
- Consider what sign-off is needed before disclosing key information about the Project and using the standards questions and answers in meetings.

In addition, the consultation and engagement process should bring into consideration the existence of vulnerable groups. Ensuring that these groups are adequately considered in the engagement activities and that their views and concerns are taken into account during the engagement process is critical to ensure these are not further victimized and they are able to benefit from Project opportunities.

Table 7-1 provides a list of different strategies to capture vulnerable groups' views throughout the Project.

Table 7-1 Strategies to Capture Vulnerable Groups' Views

Groups	Description
Illiterate groups	■ Information to be disseminated by community representatives or other means through culturally appropriate methodologies (radio, verbal public announcements, face to face information sharing etc.)
Women and girls	■ The CRD will establish robust systems of communication with women and girls in the community and provide safe spaces to voice concerns. This will be done through consultations and focus groups with women and girls. Individual interviews will be held if needed. ■ The CRD will consult local women organisations to understand the types of GBV that are present in the communities; ■ The Grievance mechanism will provide an specific channel for investigation and resolution of grievances related to GBV, including anonymous grievances and psychosocial counselling[2]
Disabled groups (blind, deaf and/or hard of hearing)	■ Information dissemination and public consultation will be adapted to disabled groups (e.g. translation of documents to sign language or braille) ■ The CRD will liaise with local NGOs working with vulnerable groups and disable people to disseminate information
Elderly	■ Project information will be disseminated in local language(s) and public consultation meetings will ensure appropriate language for targeted audience
Economically Disadvantaged Groups	■ Resources will be allocated for ensuring participation of economically disadvantaged groups in meetings and public consultations, such as transportation and infrastructure. ■ Information dissemination and public consultation will be adapted to easily reach communities with limited access to telecommunications technology or internet resources, such as leaflets and messages on radio stations. ■ Project will provide a toll free number for grievances, free of charge to complainants.

[2] The approach to this group will follow the strategic guidelines of the following report: http://documents1.worldbank.org/curated/en/399881538336159607/Environment-and-Social-Framework-ESF-Good-Practice-Note-on-Gender-based-Violence-English.pdf

8. GRIEVANCE MECHANISM

A grievance is defined as a concern raised by an individual or group of stakeholders affected by the operations of the Project. In the context of the proposed Project, grievances may also be related to a commitment of the Project owner or its subcontractors that has not been honored.

8.1 Principles

A grievance redress mechanism is an important part of an effective engagement program and a useful communication tool between affected companies and communities. The system receives and manages concerns raised by stakeholders in a transparent, constructive, prompt, confidential (if desired), culturally appropriate, and accessible manner.

International best practice requires the following criteria for grievance redress systems:

- Legitimate: Promotes trust by implementing a fair and just process;
- Accessible: Stakeholders are aware of the mechanism and assistance is provided to those who face barriers to participation;
- Predictable: The procedure for the examination and resolution of admissible complaints is clear and consistent;
- Equitable: All parties concerned have access to the mechanism and can engage in the process in a fair, informed and respectful manner;
- Transparent: Full information is provided regularly and proactively to build confidence in the effectiveness of the mechanism;
- Compatible rights: The procedure operates in accordance with internationally recognized human rights; and
- A source of continuous learning: Opportunities to improve the mechanism and practices that mitigate future complaints are continually identified.

Grievances are not negative indicators of performance or weak relationships with stakeholders. Conversely, they are a sign of stakeholder confidence in the Project owner's commitment to be responsible for its impacts.

Grievances are often the first indicator of small issues and a robust redress mechanism gives the Project owner the opportunity to respond before they escalate into bigger issues. The dress mechanism can therefore act as an early warning system and be a useful tool for strengthening relationships with stakeholders.

SIPI Benin will need to consider the grievance mechanism gender dynamics in communication channels and to ensure that women and vulnerable groups are properly engaged and have a suitable recourse to voice complaints.

8.2 Eligibility

Anyone can file a grievance at any time and at no financial cost with the ability for complainants to remain anonymous if they choose. While it is intended that the grievance mechanism offers is used as a way to reach amicable solutions between the Project and complainants in a fair, efficient, and transparent manner, this process in no way impedes a complainant’s right to access judicial recourse at any time.

Grievances however must meet one or more of the following criteria:

- The grievance identifies an impact, complaint, concern, or problem that is directly or indirectly related to one or more activities of SIPI Benin or its subcontractors; and / or

- The grievance concerns the activities of SIPI Benin or one of its representatives, including their employees and contractors.

If the grievance is considered out-of-scope, SIPI Benin will draft an explanation which will be fed back to the complainant with of where to go to get the issue addressed (if possible).

8.3 Process

There are two types of grievances: informal and formal. Informal grievances are those that are discussed directly between stakeholders and a member of the GDIZ team. It is anticipated that the majority of complaints will be informal and able to be resolved quickly on site. A grievance form does not need to be completed for an informal complaint, but the subject and residence of the complainant should be noted in the complaints register to serve the purpose of an early warning system.

If it is not possible to resolve an informal complaint on the spot and / or the complainant expects a formal response, the complainant has the option of registering a formal complaint. It is the responsibility of the GDIZ team to ensure that stakeholders understand how the grievance mechanism works and how to access it, and to encourage complainants to register a formal complaint if they are not satisfied with the proposed resolution for the informal complaint. Formal grievances may then be the result of an informal complaint that was not resolved, or they may be recorded by stakeholders without previous discussion.

A formal grievance must be filed in written form. If the complainant is unable or unwilling to write down their grievance, a representative or member of the GDIZ team will provide assistance. The grievance form will be available at several public offices in the Project area.

The grievance mechanism will also include a telephone number to ensure accessibility and anonymity, as required. The telephone number will be posted on bulletin boards in the Project area and key messages shared by members of the community relations team. When a complaint is received by the hotline, a Grievance Officer will either fill out a grievance form directly or arrange to meet with the complainant in person and complete a form at that time.

All GDIZ employees, contractors, and representatives should be aware of the existence of the grievance redress mechanism and how stakeholders can access it so that if someone with a complaint approaches them, they can direct them to the system or to a member of the community relations team.

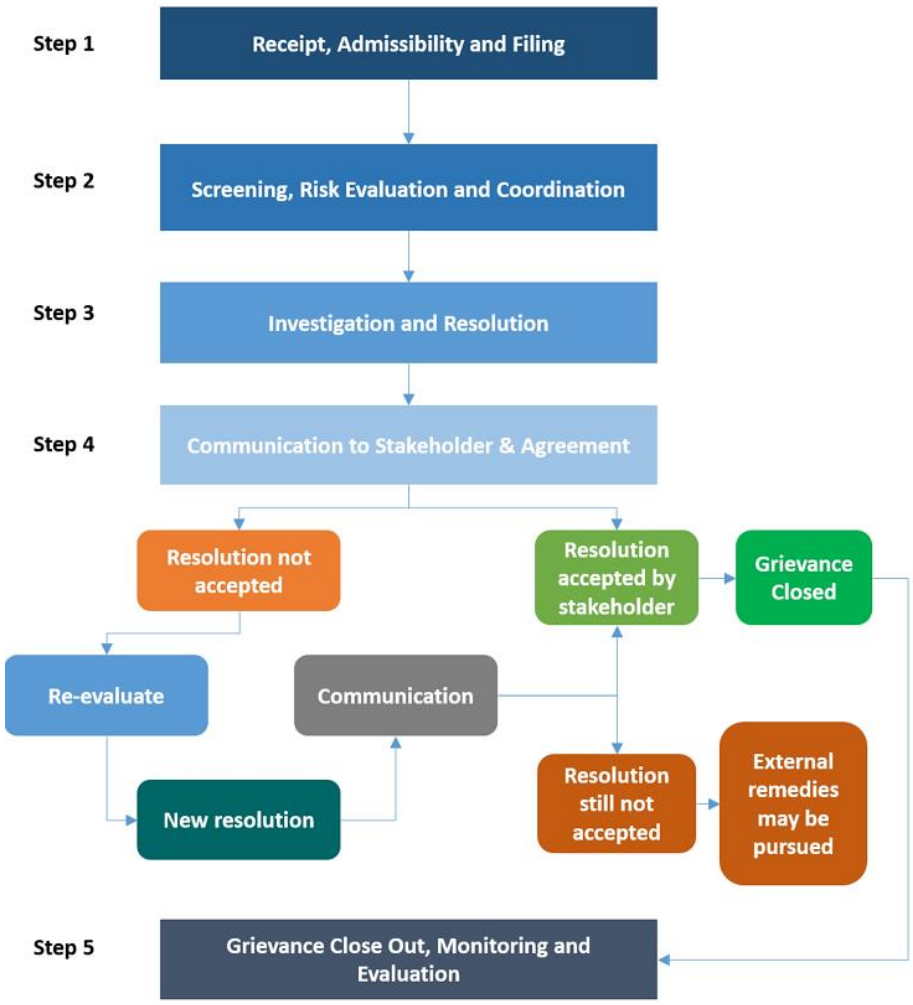
The grievance form is then submitted to a member of the Community Relations Team who has been designated as the Grievance Officer and who will follow the process described in Figure 8-1 below.

All grievances will need to undergo some degree of screening, risk evaluation and prioritization. GDIZ will be responsible for managing the grievance resolution process. Management of the grievance will entail determining the nature of the investigation based on the type of grievance and the potential risk attached to it. Prior to beginning the investigation process, SIPI Benin shall establish the nature of the grievance and risk level to determine the resolution timeframe, measures needed for review and investigation.

Should a complainant reject the resolution proposed by the Project, the grievance may be escalated to an independent grievance committee who will investigate the issue. The nature of the corrective measures, the timeframe and the person responsible for resolving the grievance will be re-entered on the grievance form and presented to the complainant for acceptance.

The complainant, if not satisfied with the decision of the independent committee will enjoy, like any other person at any given time, the right to refer his or her petition to judicial recourse through legal authorities.

Figure 8-1 Grievance Mechanism Process



**It is intended that an amicable solution is reached between the Project owner and complainant before seeking judicial recourse; however, the grievance process in no way impedes a complainant's right to access judicial recourse at any point they choose.*

8.4 Monitoring

The key indicator that should be monitored as part of the system is the total time taken to resolve complaints. While the time required depends on the complexity of each complaint, an assessment of the average time can be helpful in determining whether the process conforms to the principle of speed.

The Community Relations Manager should also verify that the deadlines set for each step are also met; if they are not, the team should consider and discuss with stakeholders how to adapt the process or allocated resources to ensure that all commitments are met.

9. DOCUMENTATION, FEEDBACK AND MONITORING

All engagement activities throughout the life of the Project will be documented and filed in order to track and refer to records when required and ensure delivery of commitments made to stakeholders.

9.1 Data Management

The following stakeholder engagement records and documentation will be used:

- **Public consultation Report/ Meeting Minutes:** Records the date and time of every meeting, the attendees (disaggregated by gender), topics of discussion, and any decisions or commitments made. This information will be entered into the Stakeholder Engagement Log within 48 hours of each engagement. The meeting minutes including any photos and supporting annexures will be archived electronically.
- **Stakeholder Register (Appendix A)**: Contains records of key stakeholders (both individuals and groups) and contact details including:
  - National, District and Local Authorities;
  - Local community leaders;
  - Community representatives such as farmers, women, health workers and teachers**;**
  - Local industry (tourism and agriculture); and
  - International national or local environmental and social non-governmental organizations.
- **Stakeholder Engagement Log (Appendix B)**: All engagements with stakeholders will be recorded using key information from the meeting template to provide high-level tracking of engagements taken to date. Where detailed information on a specific engagement is required, the Stakeholder Engagement Log may be cross-referenced with archived meeting templates.
- **Grievance Form and Register (Appendix C)**: All grievances received will be recorded in a Grievance Form and Grievance Register in order to address grievances and record whether they have been satisfactorily been closed out, response times to address complaints, patterns in grievances received and potential to avoid recurrent problems and improve the Project's overall performance.

9.2 Key performance indicators

The Table below presents the Key Performance Indicators (KPIs) for this FSEP, which includes the Project's target and monitoring tools that will be used to assess each KPI.

Table 9-1: SEP's Key Performance Indicators (KPIs)

KPI	Target	Monitoring Tool
Public Consultation	Total number of participants from different backgrounds and sectors, minutes and photographic evidence	Public Consultation Report
Community Participation, Consultation and Engagement Activities	GDIZ's Social and Stakeholder Engagement Team shall record formal and informal engagements, consultations and community investments with local communities and summarize engagements in a community engagement performance report, including community workshops, focal groups, and public consultations and visioning meetings.	- Stakeholder Register - Stakeholder Engagement Log - Meeting Minutes - Photographic evidence
Number of confirmed grievances by community	Total number reducing each year	Grievance Database

KPI	Target	Monitoring Tool
Number of confirmed grievances resolved in a timely manner according to risk evaluation	100%	- Grievance Database

Source: ERM, 2021

APPENDICES

Appendix A EXAMPLE OF STAKEHOLDER REGISTER

Stakeholder Group	Stakeholder	Contact Details	Connection to the Project
Authorities - Central Government	ABE	Telephone Email Address Names	Competent authority for ESIA approval

Appendix B EXAMPLE OF STAKEHOLDER LOG TEMPLATE

#	Date	Attendees (names)	Stakeholder names and role	Venue/Location	Number of attendees (Number of women/men/total	ISSUES, CONCERNS AND FEEDBACK REPORTED

Appendix C EXAMPLE OF GRIEVANCE COMMUNICATION FORM AND GRIEVANCE LOG TEMPLATE

GRIEVANCE FORM

PUBLIC GRIEVANCE FORM
Reference No:

Full Name:
Note: you can remain anonymous if you prefer or request not to disclose your identity to the third parties without your consent

First name _____
Last name _____
❑ I wish to raise my grievance anonymously
❑ I request not to disclose my identity without my consent

Contact Information
Please mark how you wish to be contacted (mail, telephone, e-mail).

❑ By Post: Please provide mailing address:
_____
_____
_____
❑ By Telephone: _____
❑ By E-mail _____

Preferred Language for communication

❑ English
❑ Other, please specify

Description of Grievance:

What would you like to see happen to resolve the grievance issue?
IF Grievance is related to a specific event/Incident;

Date of Incident
❑ One time incident/grievance (date _____)
❑ Happened more than once (how many times? _____)
❑ On-going (currently experiencing problem)

Signature: _____ Date: _____

						Grievance management Process dates						Responsibilities			Complaint resolution				
ID	Date Received	Name of Complainant (CONFIDENTIAL)	Description of Concern / complaint	Settlement	Level of severity:	Evaluation / Acknowledgement of complaint DATE	Assessement DATE	End of investigation DATE	Response DATE	DATE of Resolution	DATE Closed	Responsible Department or Contractor	Complaint Owner	Responsible person	Due date	Results of the actions - Proposed Resolution/Feedback to Complainant	Closing date	Satisfied with Outcome (yes/no)?	If no, why not?

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