

4.1 AREA OF INFLUENCE

In the context of this ESIA, the area of influence of the CIPREL 5 project was defined on the basis of the different components of the project, namely:

- the areas where the planned activities of the project will take place (project area, associated infrastructure and immediate surroundings); and
- more or less extensive areas that may be subject to direct and indirect impacts on the natural and human environment.

The area of influence varies according to project activities and environmental and social components. Table 4.1 describes the area of influence of the project.

Table 4.1 *Area of influence of the Project*

Component	Construction Phase	Operation phase
Air quality	500 m from the access road and the construction site.	Approximately 10 km from the air emission point (centered on the CIPREL 5 site).
Noise & Vibration	1 km from the unloading dock, the access road and the construction site.	About 2 km from noise sources (centered on the CIPREL 5 site).
Electromagnetic Field	No expected influence	50 m on both sides of the power line
Biodiversity	Direct: physical footprint of the project, 1 km around the project site and in the immediate vicinity of wastewater discharge. Indirect: in the air quality zone of influence (10 km).	Direct: physical footprint of the project, 1 km of the project site and in the immediate vicinity of wastewater discharges. Indirect: in the air quality zone of influence (10 km).
Surface Water	Ebrié lagoon between Port Bouët and the Taboth area (marine traffic of construction barges, risk of accidental spillage).	Lagoon Ebrié within about 1km around the point of discharge of treated water.
Groundwater	Aquifer beneath the project area.	Aquifer beneath the project area.
Waste	Waste storage and treatment sites in the region	Waste storage and treatment sites in the region
Cultural Heritage	Physical footprint of project and construction areas, villages of Taboth and Sassako	Physical footprint of project and construction areas, villages of Taboth and Sassako

component	Construction Phase	Operation phase
Social	<p>Area of direct influence:</p> <ul style="list-style-type: none"> Villages Taboth, Avagou, Sassako, Ndjem, Adoukro and Abreby. <p>Area of indirect influence:</p> <ul style="list-style-type: none"> Department Jacqueline. 	<p>Area of direct influence:</p> <ul style="list-style-type: none"> Villages Taboth, Avagou, Sassako, Ndjem, Adoukro and Abreby. <p>Area of indirect influence:</p> <ul style="list-style-type: none"> Department Jacqueline

4.2

MAIN AREA OF STUDY

The area of study is directly related to project components and activities at the plant and related infrastructure level as well as immediate environmental and social receptors. The main factors that determine this area are:

- construction of Project infrastructure (clearing, land leveling, drainage, hard surfaces, installation of equipment, etc.);
- the development of associated infrastructure (dock, road, and gas supply line);
- transport related to the construction activities of the power plant and the power line;
- the noise, water and air emissions of the plant during operation;
- human and environmental receptors sensitive to noise, vibration, and air emissions near sources of emissions;
- surface and groundwater resources potentially impacted by plant activities;
- plant and animal species potentially affected by construction and operation activities;
- the users of the natural resources that will be affected by the project; and
- potential beneficiaries of the economic benefits of the project.

Most impacts should occur within 2 km of the site, and this will be the primary study area. The study area of the plant is shown in the figure below. As explained in Section 4.1, the area of influence of the project varies according to the project activities and the different environmental and social components. The ESIA takes this aspect into account and therefore covers areas with varying extents depending on the components evaluated.

Figure 4.1 Main Area of Study of the ESIA



The project involves the construction and operation of a combined cycle gas-fired power plant with an installed capacity of 390 MW and the construction of a 15.6km power line. The plant configuration includes the operation of a gas turbine, a boiler and a steam turbine. The construction activities will extend over the period 2019-2021 with the progressive exploitation of the facilities. The operation of the plant is planned at least until 2040, or 2045 according to the concession agreement that will be made with the Ivorian state. It can operate beyond this date, since the concession agreement can be extended, renewed and provides for a retrocession to the state at the end of the concession.

As described in Chapter 3, Project Description, the construction of the plant primarily requires the following activities and facilities:

- the conversion of an existing unloading dock on the Island Bakré Island north-west of the Vridi Canal;
- the development of paths and access roads for transporting the material from the loading dock to the plant site;
- the construction and operation of a basic life for employees (between 1,000 and 1,500 jobs);
- transportation of construction equipment, machinery and equipment from the port of Abidjan;
- clearing and preparation of the land; and
- the construction of the power plant and the power line.

The operation of the plant will require the following main activities:

- the construction and operation of a residence area for 70 employees and their families on an area of approximately 5-6 ha, on a site yet to be defined;
- the water consumption of the lagoon for the forced draft cooling tower and the discharge of the purge water from the cooling system in the lagoon (around 630 m³ / h) and 1680 m³ / h in the case of increased cooling);
- groundwater consumption (around 20 m³ / h) to feed the water-steam cycle;
- discharge of service wastewater (domestic wastewater, residual water from the water-steam cycle) into the canal;
- air emissions from the plant (combustion fumes, salt water droplets); and

- the sound emissions of the plant.

4.4

IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

The first step in the impact assessment process is a preliminary identification of potential project impacts on environmental and social receptors. This exercise is based on the preliminary assessment of interactions between:

- the main components and activities of the project summarized in Section 4.3, Scope of Activities and detailed in Chapter 3, Project Description; and
- the area of influence of the project and its potential receptors described in Section 4.1, Influence Area and detailed in Chapter 6, Description of the Baseline Environment.

The use of a matrix makes it possible to evaluate the potential interaction between the different project activities and the environmental and social components. Table 4.2 presents the interaction matrix of potential impacts of the CIPREL 5 project.

Table 4.2 Matrix for identifying potential impacts of the CIPREL V project in Taboth

Project components and activities	Physical						Biological			Socioeconomic								
	Climate and GHG *	Air quality	Noise and vibration	Living Environment and Landscape	soils	Groundwater and surface water	lagoon ecology	terrestrial biodiversity	marine biodiversity	local governance	social dynamics and demography	Mobility and Transport	Welfare, health and safety	land tenure	Access and use of natural resources	employment and economic activities	Basic infrastructure and services	Cultural Heritage
Land use of the plant, the power line and associated infrastructure (road, dock)				x	x	x								x	x			
Clearing of the site and work areas during construction			x	x	x	x		x					x		x			x
Construction activities (earthworks, piling, concrete slab, buildings, installations)		x	x	x				x				x						
Presence of vehicles / equipment of transportation and construction	x	x	x					x			x	x						
Presence of labor and housing of workers								x		x	x	x			x	x	x	
Waste generation							x											
River transport			x			x	x				x	x			x			
Operation phase																		
Air emissions	x	x		x	x			x					x		x			
Water consumption in the lagoon						x	x											
Discharge of cooling water in the lagoon						x	x								x			
Groundwater consumption						x									x			
Discharge of wastewater/sewage in the lagoon						x	x								x			
Noise emissions			x									x						
Waste generation				x	x	x	x					x						
Presence of workers and their families									x	x	x	x				x	x	
Exceptional accidental event					x	x	x					x						