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1.The project Transmission line

1.1 Scope

Plans are in place to establish an energy transmission and distribution line connecting Peperpot and Albina. This line aims to distribute electricity from power generation sources to different regions and consumers. If realized, it is expected to enhance energy access, improve reliability, and potentially electrify areas currently lacking electricity infrastructure.

At present, the available information suggests that an area extending up to 250 meters from either side of the East-West connecting Road could be designated for the construction of the transmission line. This study will encompass both scenarios, considering placement options north and south of the road. The total distance of the transect is approximately 135 kilometers, as depicted on Map1, when considering the road. This investment aims to serve a significant portion of the population; however, the exact population size targeted by this projected investment is currently under assessment. This document has been updated on the 1st of July 2024.



Maps 1: Indicative transmission line from Peperpot to Albina (www.google.com/maps/place, n.d.)

Landscape

The Road crosses the young and old coastal plain as well as the savanna belt.

- The Young Coastal Plain, spanning from 0 to 4 meters above mean sea level, extends approximately 100 kilometers in the west to 20 kilometers in the east of the country. It features mangrove forests, freshwater swamps with fertile clay soils, as well as sandy and shell ridges. Despite its significance as the habitat for about 90% of the population, concerns arise due to its vulnerability to sea level rise attributed to climate change. The area serves various economic purposes, with many swamps converted to residential areas, farms, road infrastructure, and industrial zones.
- The Old Coastal Plain, covering around 10,000 square kilometers, ranges from 4 to 10 meters above sea level. Formed from deposits during the Pleistocene epoch, it exhibits densely forested clay flats and ridges interspersed with grass-covered swamps and gullies. Over the years, open-pit bauxite mining and deforestation have occurred, resulting in soil reallocation and structural damage due to irreversibly compacted older clays when exposed.
- The savannah belt, elevating from 10 to 100 meters above mean sea level, spans roughly 10,000 square kilometers. Composed of coarse bleached white sand, yellowish-brown sands, and clay loams deposited by rivers during the Pliocene epoch, it hosts grasslands, palms, bushes, and other low-dispersed vegetation. The area harbors freshwater aquifers, serving as Suriname's sole rechargeable ones. While historically subject to logging and selective timber harvesting due to accessibility, attention is now shifting to the interior for these activities.



Maps 2: Ecological Subsystems of Suriname (Svensson, 2014)

1.2 Methodology

The report is grounded in a desk study of secondary literature and a rapid environment and social field assessment conducted along the entire East-West road. Following data collection, extensive discussions took place within the team to interpret the findings. Subsequently, the report was formulated based on these interpretations and discussions.

1.3 Description

General

The East-West connecting road, also known as the Oost-Westverbinding, is a significant transportation route in Suriname, connecting the eastern and western parts of the country. It stretches from Albina on the eastern border with French Guiana to Meerzorg, near the capital city of Paramaribo. The road intersects two administrative districts, namely Commewijne and Marowijne. Along this route, there are towns, settlements and businesses, each with varying population sizes and intensities of land use. The population primarily consists of Javanese, Hindustani, Tribal and Indigenous Peoples.

The Peperpot to Albina route facilitates various mobility characteristics:

- Incoming and outgoing visitors to and from French Guyana, estimated at 40,000 visitors per year pre-COVID;
- The Par'bo-Albina route facilitates the supply of goods and services to the districts of Commewijne, Marowijne, and partially Sipaliwini, including Paramaka and Tapanahony resort located south of Albina. The southern administrative resorts, accessible via land, water, and air travel (with approximately 15,000 residents), along with the Commewijne and Marowijne districts, potentially address the demand of a total of 50,000 people. This supply encompasses various essentials such as energy, water, fuel, education, health services, construction materials, trade in food supplies, and daily necessities.;
- Transportation of specific materials and equipment for the logging and mining industries and the actual logs, and timber;
- Traffic from residential areas, which also includes commuting to and from employment elsewhere.

Climate

Suriname indeed possesses a tropical rainforest climate marked by warm temperatures, high humidity, and substantial rainfall year-round. With temperatures consistently ranging from 24°C to 32°C (75°F to 90°F) and humidity levels frequently surpassing 80%, especially during the rainy season, the climate remains relatively stable with little seasonal variation.

The country experiences abundant rainfall, notably during the rainy season occurring from April to August and again from November to February. Annual precipitation levels can surpass 2,500 millimeters (100 inches) in certain regions, with interior rainforests receiving the heaviest amounts. However, in recent years, these established patterns have been undergoing noticeable changes, signaling the undeniable influence of climate change.

Vegetation and land use

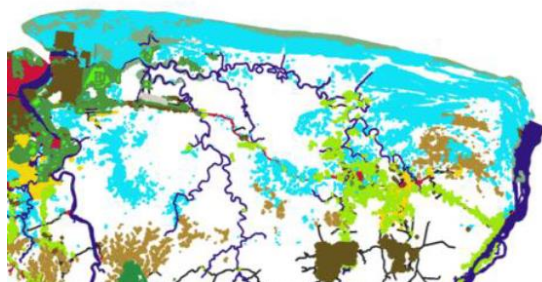
The Commewijne District exemplifies the transformation of historic cultivated plantations into small farms, horticulture zones, and secondary forests. In contrast, Marowijne was historically known for plantations primarily in the Cottica area. The predominant agricultural produce in the past included coffee, cacao, sugarcane, cotton, citrus, and rice, with a shift towards horticulture (fruit and vegetables) in the post-plantation era. The district's historic plantation value has contributed to flourishing tourism. As the transition from former plantations to residences occurred, areas of natural forest (savanna and swamp forest) and swamps have been preserved.

Marowijne has been recognized for its logging plantations and bauxite mining, around which the town of Moengo developed. Food production for laborers led to the establishment of dairy and poultry farms, with incentives for local growth. Tropical research during the colonial period resulted in the establishment of several pine plantations in Marowijne. Traditional villages of Indigenous and Maroon populations engage in subsistence farming, hunting, and fishing. This led to the emergence of administrative hubs with schools and commercial centers, particularly in Moengo.

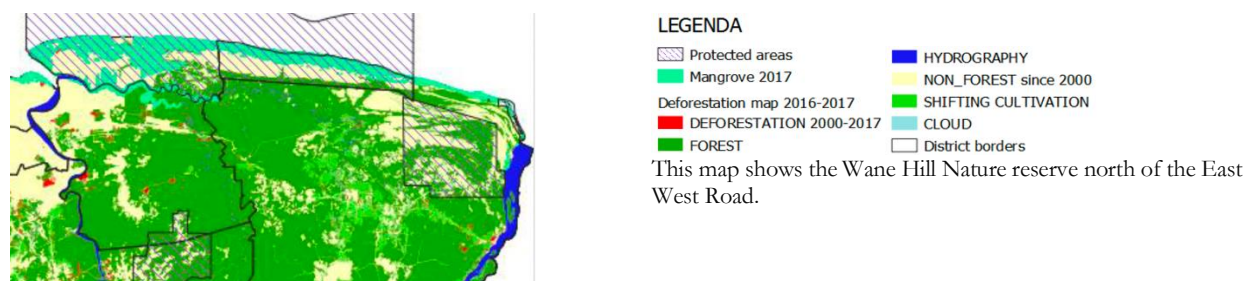
Albina, as a border town, has experienced growth and facilitates trade, schooling, healthcare, and other opportunities. Serving as a central hub for human and goods transportation to both rural areas in the north and south, as well as to French Guiana, Albina plays a pivotal role in regional connectivity and commerce.



This analysis highlights patches of non-forest areas, including residential areas and businesses, as well as predominantly forested lands comprising secondary forests and swamp forests, with locally established plantations, along the East-West Road.



The map indicates the presence of swamps, rivers (open waters), and adapted vegetation such as swamp forests. A closer examination of the study area reveals a considerable stretch of shifting cultivation zones along the road. In these areas, settlements primarily consist of Maroons and villages inhabited by Indigenous and Tribal Peoples (ITPs).



Maps 3: (Maps 3-5): LULC (Land Use Land Cover) maps period 2000-2015 (Source: presentation from SBB, 2019: The Contribution of Suriname's NFMS to Blue Carbon NDC) (Kasanpawiro, 2019)

1.4 Justification of IDBs involvement

Establishing a transmission line in part of a larger project to provide basic commodities to marginalized rural communities, is ticking off the SDG goals and IDB Policy Framework.

Table 1: Relevance to LADB

Policy Framework	Relevance (impact) to the project	Measures recommended
i) Human Rights	Access to the basic utility (Energy, Water, Telecommunication, Health, Safety)	Prioritize high. These investments are long overdue
ii) Gender equality	Improving accessibility of Energy by implementing the transmission line – creates a basis for equal opportunities between genders	Prioritize high. Ensure that the Electricity provision is linked to income generation initiatives to engage different genders. The package can be one of monthly payment for the services (no free access to energy)
iii) Inclusion of vulnerable groups and being non-discriminatory	Although this study was limited to desk study and a rapid field visit, the project creates opportunities for all. However, a number of follow up actions are necessary to ensure inclusiveness of the groups mentioned.	Prioritize high. With the measure on ii, inclusion of all groups could be incentivized. This may lead to entrepreneurship in the communities.
iv) Respect for the rights of ITPS and other traditional peoples	Although the Collective Rights are not recognized by law in Suriname. The Inter-American Court for Human Rights ruled that the GoS has to provide the basic utilities and more to ITPS (in at least 2 rules)	Prioritize high. The IDB can pressure the GoS to recognize the rights.
v) Enhancing stakeholder engagement	The rapid assessment didn't provide time for a stakeholders' engagement	Prioritize high. Engagement entails the principles of FPIC, often improves the ownership and allies are created to implement the project within the timespan reserved for.
vi) Building disaster and climate change resilience and minimizing greenhouse gas (GHG) emissions.	Energy Efficiency: Transmission lines can have indirect effects on GHG emissions. Although it has a social value, the environmental implications is associated with the type of energy that will be distributed through the transmission line. Burning fossil fuel leads to CO2 emissions, whilst solar and hydro have other types of emissions. Losses and Efficiency: In transmission and distribution of energy, there are always losses to be addressed. Losses can contribute to GHG emissions. Improving transmission lines and improving the grid should lead to reducing the carbon footprint associated to electricity transmission and distribution.	Prioritize high: Practice what the bank stands for and request for improving the efficiency to minimize losses.

vii) Protecting the LAC region's biodiversity, natural resources, and ecosystems.	The Peperpot-Albina route showcases captivating landscapes. Beginning at Peperpot, it is renowned for its Peperpot Nature Trail and the Peperpot Nature Corridor (706 hectares), extending from Roadside to the Suriname River. This area boasts the closest secondary forest to Paramaribo, which was naturally restored after Coffee and Cacao cultivation, offering a safe environment for leisure and educational activities with rich biodiversity to explore. Classified as forest reserve by the LBB-Forest Service Suriname, this route includes the Perica swamps, characterized by their abundant biodiversity established by the Forest Service. In addition, water systems flowing into the Wane Hill Nature Reserve remain important. What is the radiation scale and how will that impact on the local biodiversity?	Prioritize high: When the design of this transmission line is prepared, scenarios should entail an ESIA with (mitigation plan etc.).
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The overall conclusion is that the project fits in the Policy Framework of the Bank with mainly highly prioritized actions for Suriname and specifically the target communities. (IDB, 2020)

1.5 National Importance of the project

1.5.1 Local compliance

The Government of Suriname has prioritized the expansion, provision, and enhancement of basic amenities in both urban and rural areas across the country. The Medium-Term Development Plan (MOP) for the period 2022-2026 underscores the importance of creating conditions conducive to sustainable development. In this context, the proposed transmission line project from Peperpot to Albina aligns with the overarching policy direction outlined in the MOP (SPS, 2021).

Categorized as category B according to the guidelines set forth by the National Institute for Environment and Development in Suriname (NIMOS), the project demonstrates a commitment to responsible and sustainable development practices.

1.5.2 Legislation and Organization

The Environmental Framework act and the project Classification guidelines form the basis for the required Environmental and Social Impact Assessment (ESIA). Where national legislation does not sufficiently address the potential damage, reference to international conventions will be guiding.

As of the actual implementation phase, the labor act is guiding, and for ITPs zone, the absence of collective rights diverts the GO to deal with jurisprudent.

The Environmental Framework Act and the Project Classification Guidelines serve as the foundation for conducting the required Environmental and Social Impact Assessment (ESIA) for the project. In cases where national legislation does not adequately address potential environmental or social damage, reference to relevant international conventions will inform decision-making and mitigation measures. During the actual implementation phase, adherence to labor laws governs the project's labor practices. Additionally, for Indigenous and Tribal Peoples (ITPs) zones, where collective rights may be absent, the government addresses any legal matters through jurisprudence and established legal precedents.

The Electricity Act and the Energy Authority Suriname (EAS) Act were adopted by the National Assembly in 2016. With this, the first steps were taken in the restructuring and regulation of the electricity supply sector. The Energy Authority Suriname is responsible for regulation, enforcement, information dissemination, and advisory functions.

The Energy Authority Suriname must, at least once every five years, in consultation with the electricity supply sector, prepare an Electricity Sector Plan (ESP), which can be adopted by government decree. The ESP includes both the:

- Strategic plan, which looks at least 20 years ahead regarding further sustainability of the sector, as well as
- Technical plan, which maps out the needs for capacity expansion in production, transmission, and distribution for a period of 5 years.
- In addition, a Regulatory plan, which ensures that the implementation and oversight of regulation in the sector by the EAS are based on predictable business considerations. Not only technical and financial considerations, but especially environmentally friendly generation, transmission, and distribution systems.

Energie Bedrijven Suriname (EBS) serves as the leading utility company tasked with energy production and distribution throughout Suriname. Its responsibilities in these areas have expanded in recent years. While the Ministry of Natural Resources previously managed rural electrification through a dedicated division (DEV-Electrification Division), EBS is now transitioning to become a comprehensive energy provider nationwide. The EBS has several departments to address the following:

- Electricity Generation: Operates power plants to generate electricity using various sources such as thermal (using fossil fuels like diesel or heavy fuel oil) and hydroelectric power (utilizing the country's rivers and water resources).
- Transmission: Manages the transmission of electricity from power generation plants to distribution sub-stations using a network of transmission lines and infrastructure. This involves ensuring the efficient and reliable transfer of electricity over long distances.
- Distribution: Responsible for distributing electricity from substations to consumers, including residential, commercial, and industrial customers. This entails maintaining a network of distribution lines, transformers, and other equipment to deliver electricity to end-users.
- Customer Service: Supports its customers, including billing, metering, and responding to inquiries or complaints related to electricity supply.
- Infrastructure Maintenance: Maintains and upgrades its infrastructure, including power plants, transmission lines, substations, and distribution networks, to ensure the reliability and safety of the electricity supply.

Overall, EBS plays a crucial role in ensuring the availability, reliability, and accessibility of electricity to the population of Suriname through its activities in energy production and distribution.

In both districts, decentralized EBS units (Commewijne and Marowijne) are equipped to address failures and technical troubleshooting. In the event of significant issues, experts will be brought in as needed.

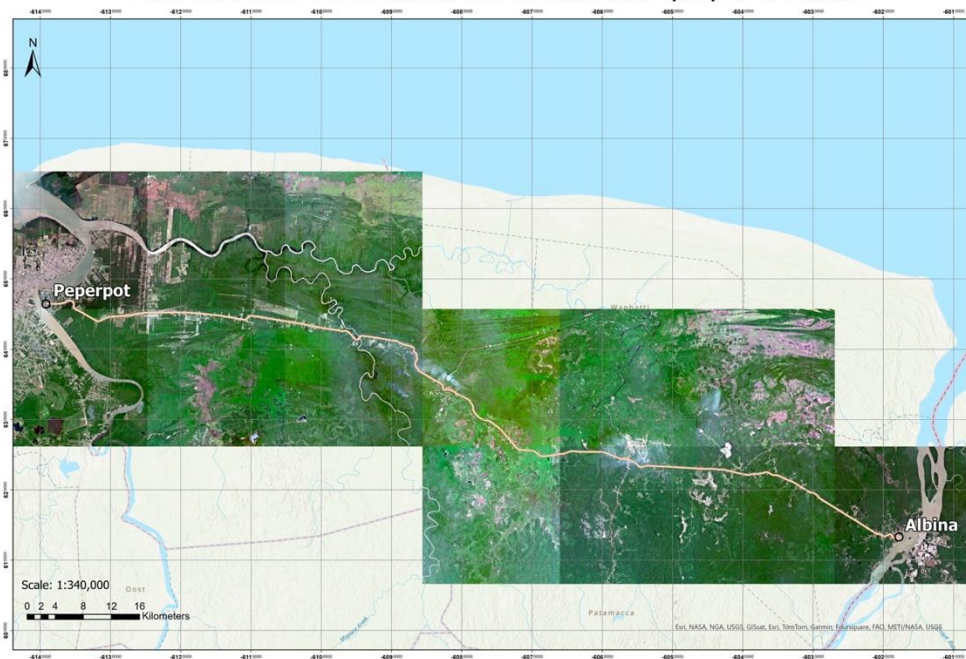
2. Environmental and Social Performance Standards vs Transmission and distribution line

2.1 ESPS Standards - Impact

The ten (10) ESPS standards are guiding principles:

- To identify and evaluate environmental and social risks and impacts of the project.
- To adopt a mitigation hierarchy and a precautionary approach to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, project-affected people, and the environment.
- To promote improved environmental and social performance of GoS through the effective use of management systems.
- To ensure that grievances from project affected people and external communications from other stakeholders are responded to and managed appropriately.
- To promote and provide means for adequate engagement with project-affected people and other stakeholders throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated. (IDB, Environmental and Social Policy Framework Guidelines for the Environmental and Social Performance Standards, 2021)

Environmental assessment East-West road:Peperpot to Albina.



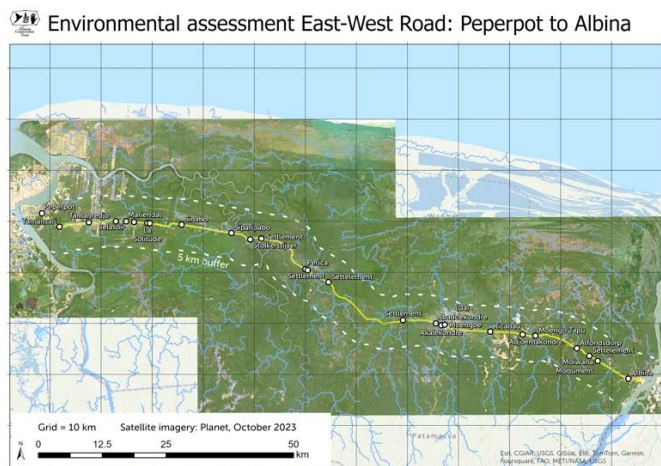
Maps 4: Geographic scope for the ESPS analysis of Peperpot-Albina

2.2 Results of the ESPS - Rapid Assessment

2.2.1 General Demographics

In essence the study area entails 2 districts, and a total of 7 Resorts and a population of approximately 50,000 that may be affected directly to the projected interventions. According to the SPS (MOP 2022-2026), the demand for energy at the moment is increasing by approximately 2% per year. However, due to the small scale of the economy and the upcoming economic activities in the mining and related sectors, it is expected that the demand may exceed this percentage considerably (possibly even exceeding 10%).

Table 2: General demographics



Maps 5: An overall map of the route Peperpot-Albina (ABS, 2021))

District	Households access to Energy 24x7	Resort	Population
Commewijne	10,850	Meerzorg	12,405
		Nieuw Amsterdam	5,650
		Alkmaar	5,561
		Tamanredjo	6,601
Marowijne	2,677	Moengo	10,834
		Moengo-tapu	579
		Albina	5,247
TOTALS	13,527		46,8777

Human Rights vs Energy access

Ensuring 24x7 energy access is not only a matter of convenience but also a fundamental human right. It is essential for safeguarding various other rights, including the rights to life, health, education, work, adequate housing, and gender equality. Therefore, efforts to achieve universal and reliable energy access are imperative from a human rights perspective.

Gradually Suriname is working towards ensuring energy for all members of society, which is crucial for promoting equity, empowerment, and participation. With the above the social inclusion perspective means equity, empowerment, and participation across all segments of society. It contributes to poverty reduction, improved education and health outcomes, gender equality, community development, and support for vulnerable groups, ultimately fostering a more inclusive and sustainable society.

2.2.2 Environmental assessment

Ecosystems: Swamps have been observed at Sinabo, Siparipabo, near Stolkertsijver, and Perica. **Swamps** are vulnerable ecosystems and need regular water influx to maintain the biodiversity. **Savannah forests** on bleached grounds are found from Alfonsdorp, Moiwana, Albina. Pine plantations have been spotted in Alalekondre, Moengo, and Ricanau. Savannahs are shallow (surface) aquifers important as drinking water source.

Vegetation: Throughout the stretch from Peperpot to Albina, there are secondary forests (sometimes behind the production areas – starting about 300-400 meters from the road and extending to directly along the road), interspersed with shrubbery, pastures, grasslands (Peperpot, swamps, savanna forests, and planted pine).

Notable species: Kankantries, awara palms, Mauritius palms, pina palms, planted pines, manja trees, and bamboo stands (often clustered in Belasoir, Sinabo, Siparipabo, and Stolkertsijver). *Cecropia* spp. (bospapaja) is characteristics for the many dormant farming plots (average smaller than 2ha) between Stolkertsijver and Albina.

Horticultural activities: There is roadside cultivation, and land has been cultivated up to about 500 meters on either side of the road, with crops such as cassava, some bananas, citrus, yardlong beans, cabbage, pineapple, pepper, and bitter melon. Fruit trees are noticeable along the stretch.

Deforested and burned forest: In some places, the forest has been cleared and burned, apparently for horticultural activities, subsistence farming (mainly along the strip of settlements) , charcoal production, and construction of camps/houses.

Protected areas and Natural Forests:

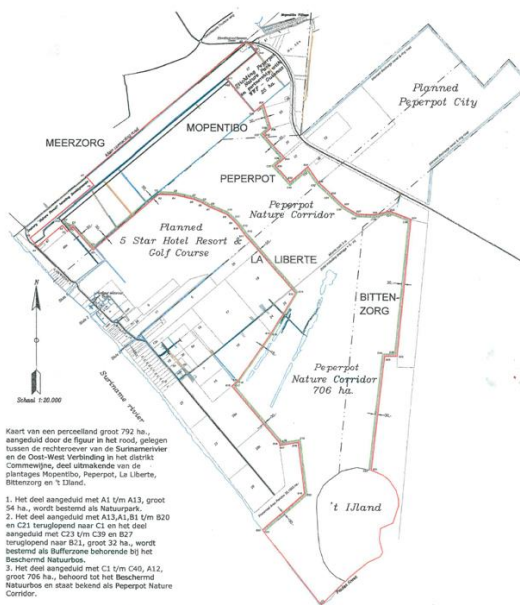
- a. The Peperpot Nature Park and Peperpot Nature Corridor (buffer) cover a total of 706 hectares (map9, 2019). This area comprises a frequently visited park and connects secondary and primary forests, facilitating the movement of animal species and water flow. It harbors a diverse range of species, including common, protected, and threatened species (<https://www.peperpotnaturepark.com>). Research and monitoring programs are effectively carried out through partnerships with local and foreign institutions. While the transmission line is intended to be situated outside the Corridor, during the construction phase, measures must be taken to minimize its impact on the outer boundaries of the area.
- b. The Perica Forest Reserve (map11); Perica is a swampy ecosystem.
- c. The Wane Nature Reserve (110,000 hectares, 1986 map13) encompasses swamps, savannas, and marsh forests. Rich in wildlife, it serves as the breeding grounds for orange-winged amazons. Wane Creek, after which the reserve is named, links the Marowijne with the Cottica River and was historically part of the inland waterway between the Marowijne and Paramaribo. Despite ongoing disputes with indigenous villages Marijkedorp and Alfonsdorp, who claim it as part of their hunting and fishing grounds, the area has remained uninhabited since the 1950s. The road will not traverse the protected area; however, construction plans must safeguard the Wane hill water system from impacts.



Environmental assessment East-West Road: Peperpot to Albina



Maps 6: Section 1- Peperpot- Stolkertsijver



Maps 7: Section 1- Peperpot Nature Park and Corridor



Plate 1: Tamanredjo centre



Plate 2: Agricultural extension and development hub



Plate 3: Fields in production (back) and in preparation (front)



Plate 4: Swamps and grassland- animal rearing lands or abandoned/ dormant



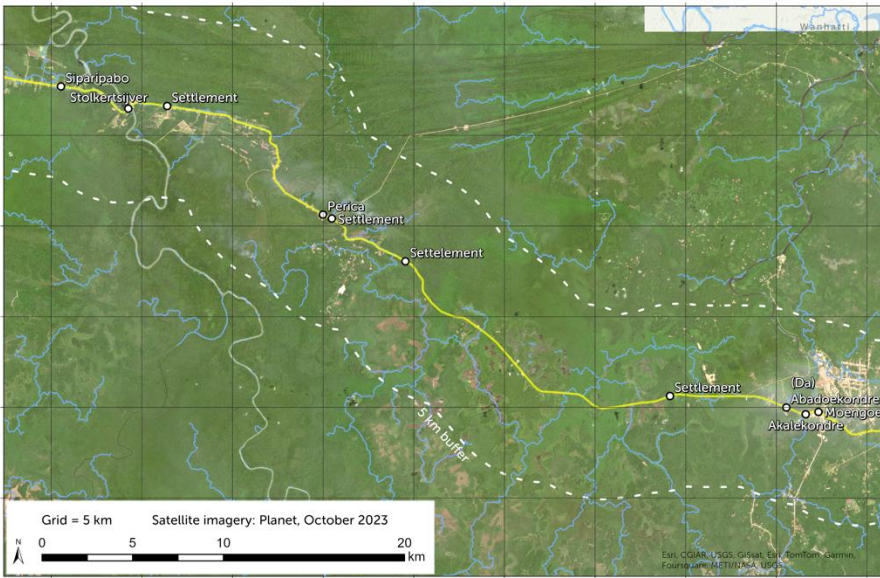
Plate 5: Stalls to offer vegetables and charcoal



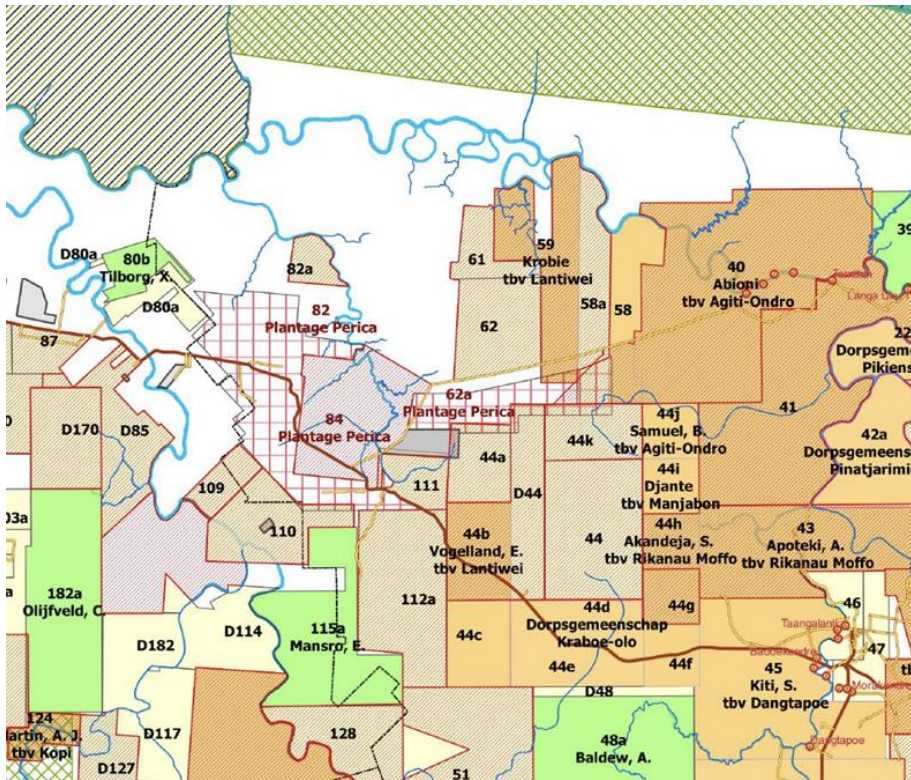
Plate 6: Along the entire road trace- signage from Telesur seen (cabels in the ground)

Hydrology and Drainage: On both sides of the road, there are open drains, interspersed with closed drains in residential areas. Open water swamps, creeks, and rivers flow from the southern side towards the north. As a result, there are approximately 10 bridges.

Environmental assessment East-West Road: Peperpot to Albina



Maps 8: Section 2- Stolkertsijver - Abadoekondre



Maps 9: Section 2 - Forest Reserve (Perica Plantation), www.Gonini.org



Plate 7: Bridge over Commewijne River- Stolkertsijver



Plate 8: Close to Stolkertsijver - a Telecommunication Tower



Plate 9: Former Bauxite Town: Moengo

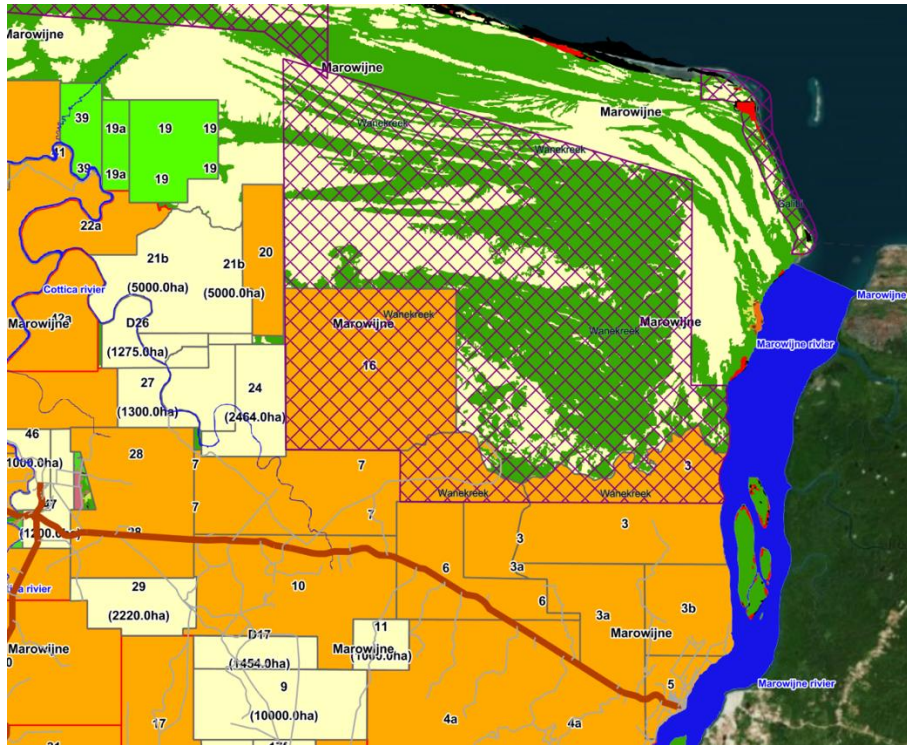


Plate 10: Road diverting from East West to the North with 8 tribal villages

 Environmental assessment East-West Road: Peperpot to Albina



Maps 10: Section 3 – Abadoekondre - Albina



Maps 11: Section3- Wane Hill (www.gonini.org)



Plate 11: Visiting the Office of the RO Ministry in Moengotapoe



Plate 12: Schoolcomplex in Moengotapoe



Plate 13: Road through undulating landscape with pine trees



Plate 14: Probably Slash and burn

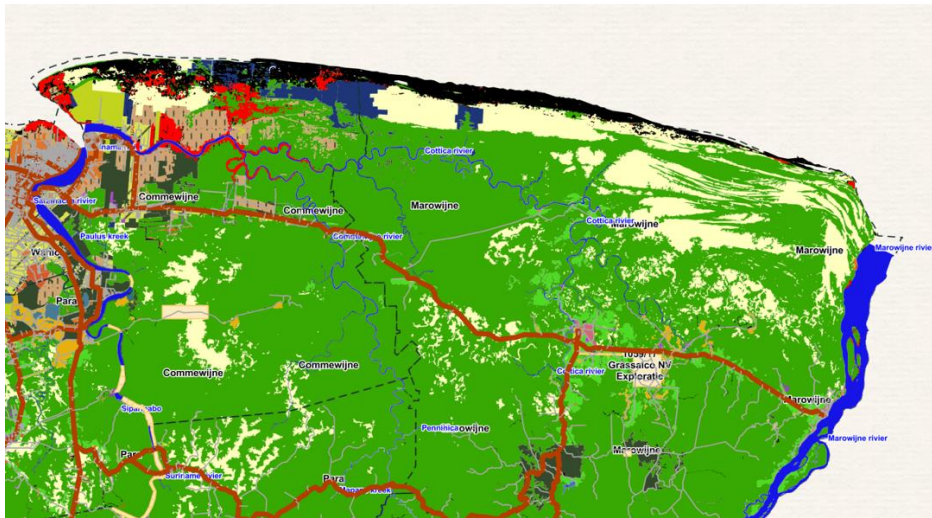
2.2.3 Social assessment

There are approximately 20 locations along the road stretch from Peperpot to Albina. The road is a crucial artery for education (primary school, junior secondary school, and even a high school complex past Moengotapu), for laying underground telecommunication cables, and installing telecommunication towers. Some characteristics are:

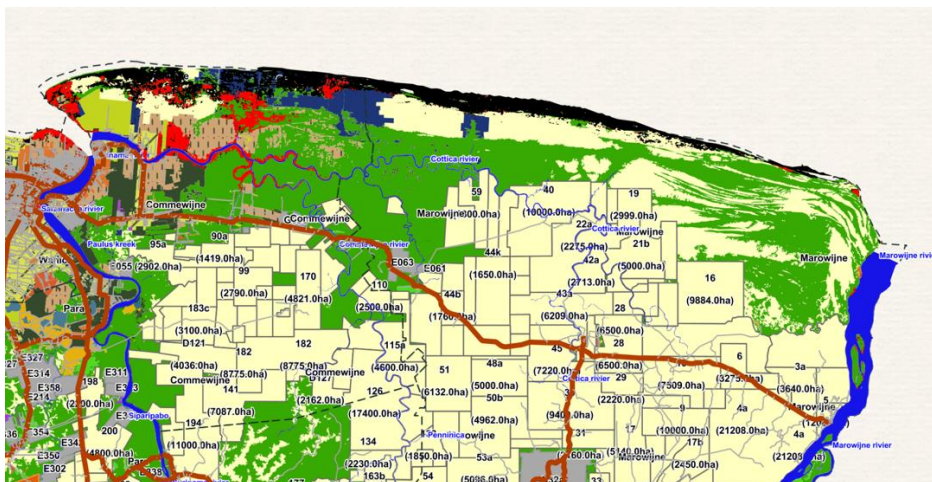
- Peperpot, Tamansari, and Tamanredjo (Map 8) mainly exhibit characteristics of small centers and rural roads with residences combined with horticultural activities. There are no significant large agricultural or livestock farms. They are more self-sufficient and comprise small businesses. A few small-scale businesses (livestock) are present. Commercial hubs are limited to warungs (typical restaurants of Commewijne), grocery stores, service providers (gas stations, auto repairs, health centers, a few banks and insurance companies, construction companies, decentralized government offices, swimming pools), and places of worship.
- There are five scattered settlements between Stolkertsijver and Albina (Map 10), displaying more linear development. The secondary forest along the road stretch from Stolkertsijver to Albina shows patches of shifting cultivation regeneration (upon abandonment of subsistence plots), which exemplifies food provision. Moiwana gained international attention due to the Moiwana massacre that occurred there in 1986. This tragic event involved the killing of numerous Maroon villagers by the Surinamese military during the Surinamese civil war. The Moiwana massacre is considered a significant event in Suriname's history and has had lasting impacts on the country's social and political landscape.
- Due to the departure of Suralco from Suriname, there has been a socio-economic decline in Moengo and surrounding areas (Maps 9 and 10). Depleted areas have been included in a rehabilitation program, where local men and women earn income by supplying indigenous plants for planting programs. The former mines and industrial sites present a bleak picture.
- Albina is a border town with most or all the amenities of a city. It serves as a hub to the south (villages along the Marowijne River, up to Tapanahony and Lawa), as well as to commercial mining areas, coastal villages (Corneliskondre and Langamankondre). Due to relatively inexpensive building materials, fuel, etc., there is also lively trade with French Guiana (Map 10).

There is significant employment in the transportation sector (land and water). Immigration police, sports complexes, schools, commerce, fire department, and hospitals are some of the additional amenities not observed at other locations along this road.

- Agricultural products from this region and along the entire Marowijne River can be marketed at the Saint Laurent market in French Guiana after formal registration by farmers. This tolerated policy is a "survival" for the many families who directly or indirectly earned from Suralco and their contractors.
- Although Grassalco NV is identified as the main player in the vicinity of the planned transmission line, this road stretch remains a crucial artery for transport from the south of Suriname (Map 13).



Maps 12: Mining License: Mainly limited to Grassalco



Maps 13: Timber concessions entail Community Forest License, as well as private licenses Source: (Geoportal, n.d.)

- Stolkertsijver is an important checkpoint because all roads ultimately lead through here to Paramaribo and vice versa. SBB (State Forest Management) is present here along with the Police (Map 9). Due to logging in the Marowijne and Sipaliwini districts, transportation permits are checked here. The logging concessions consist of private and community permits. Timber (roundwood) is minimally processed locally, resulting in significant wear on the road surface due to transportation (Map 15).

2.3 Environmental and Social Risks referring to the land use, observations and data at hand

The rapid assessment did not offer comprehensive data to thoroughly examine the environmental and social impacts. Nonetheless, we gleaned some insights from past efforts in the area and our understanding of the landscape and its inhabitants. Furthermore, the desk study provided additional valuable information to consider.

The trajectory of approximately 135km and a strip of maximum 500m could lead to a possible deforestation of 6750 Ha.

NIMOS (National Environmental Agency (NIMOS, Environmental Assessment Guidelines Vol.V: Power Generation and Transmission Lines, 2015)) provides guidelines for various types of Projects and Developments. Transmission Lines are required to adhere to the specifications outlined under category B for Environmental and Social Impact Assessments (ESIAs) in Suriname (ROM, 2023). The ESIA requests impact analyses and mitigation measures pertaining to biology, noise, ground and surface water, and socio-economic assessments, with particular focus on indigenous and tribal communities.

The required interactions include those with terrestrial species and habitats; aquatic species and habitats; noise and vibration; transportation; housing; indigenous and tribal communities; aesthetics; and human health.

Table 3: Analysis of the Projected Transmission Line against the ESPSs

Standards (IDB)	Measures to take in order to prevent, minimize, mitigate impact
<i>ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts</i>	<p><i>Category B: Operations that have the potential to cause mostly local and short-term negative environmental or social impacts and for which effective mitigation measures are known and readily available</i></p> <p>Environmental:</p> <p>During the design phase, additional data may be necessary to determine the placement of poles/towers for energy transmission. Comprehensive planning can minimize negative environmental impacts, prevent them altogether, or address them promptly. The most vulnerable ecosystems are water systems (creeks/rivers/swamps along the trajectory), where construction activities may disrupt natural flows or habitats of species. Carefully planned intervention seasons can help minimize these impacts. Preserving natural forest reserves, vegetation, and livelihoods for subsistence use is essential for maintaining biodiversity. It's important to recognize that projects of this nature often require vegetation clearance around transmission lines, typically constructed 120 to 450 meters wide, to prevent damage from falling trees or interference by animals or humans. Herbicides are often used for vegetation control in these areas. However, efforts should be made to minimize clearance, as loss of vegetation can impact wildlife habitats and lead to erosion. It's also crucial to conduct aerial surveys before construction to avoid interference with potential mineral deposits.</p>
<i>ESPS 2: Labor and Working Conditions</i>	<p>Social:</p> <p>Thorough mapping of stakeholders and rights holders is crucial for inclusive engagement following Free, Prior, and Informed Consent (FPIC) guidelines. If preferred, Indigenous and Tribal Peoples (ITPs) should receive project communications in their own language. Customary rights prevail until the Collective Rights act is approved. It's expected that communities along the East-West road will embrace the project due to the opportunities created by increased energy availability. Developing transmission corridors may benefit interior communities lacking power access or advanced means of travel. However, it could also expose new areas to intruders or poachers, requiring careful management. Collaboration between communities and governmental organizations (GOs) can address these issues. Some sections of the road from Peperpot to Albina may require alternative routes due to existing housing and businesses, potentially impacting the project budget. Temporary roads may be necessary during construction, requiring effective communication to mitigate tensions. A grievance mechanism is proposed to address issues not considered in the project design, with the Burger Informatie Centrum (BIC) at the district commissioner's office responsible for managing grievances.</p> <p>Vacancies for project implementation should be advertised locally, utilizing their own languages to ensure inclusivity (including tribal and indigenous languages, as well as Javanese, Hindustani, and Sranan Tongo). Basic compliance with labor laws is essential to meet various standards. All contractors and workers must adhere to appropriate etiquette when working in Indigenous and Tribal Peoples (ITP) areas, which includes adopting a respectful approach, avoiding discrimination, and following protocols to prevent sexual harassment. Furthermore, labor conditions should comply with national laws and regulations, ensuring that workers have adequate shelter, protection against noise and air pollution, reasonable working hours, adherence to safety and health procedures, and fair compensation.</p>
<i>ESPS 3: Resource Efficiency and Pollution Prevention</i>	<p>A <i>waste management plan</i> ahead of time can address- potential overuse of water, generation of waste, and mindful use of material to minimize pollution at side.</p> <p>In order to <i>minimize turbidity</i> of the water systems (swamps, creeks), bare soil should be covered by creepers, for which mowing would be option instead of using pesticides.</p>
<i>ESPS 4: Community Health, Safety, and Security</i>	<p>Transmission lines do not emit GHGs, the <i>electricity</i> they carry may <i>indirectly contribute to GHG emissions</i> depending on its source. The energy here may be hydroelectric-(renewable) which can significantly reduce GHG emissions associated with electricity generation. These sources produce little to no greenhouse gases during operation. Improving energy efficiency in electricity generation and transmission can help reduce overall energy consumption, thereby lowering GHG emissions. Encouraging energy conservation and promoting energy-saving practices among consumers can help reduce overall electricity demand, leading to lower GHG emissions. This can include incentivizing energy-efficient appliances, promoting energy conservation programs, and raising awareness about energy-saving behaviors.</p> <p>By employing a combination of these strategies and promoting collaboration among stakeholders, it is possible to minimize GHG emissions associated with electricity generation and transmission, contributing to global efforts to combat climate change.</p> <p>Construction activities during this project may lead to challenging traffic situations, particularly in terms of safety. Therefore, it is crucial to raise awareness, extend caution, and provide clear signage to address these concerns. Inconvenience to residents and workers along the road can be significant during project execution. It is essential to promptly create and communicate alternative safe and efficient routes to mitigate these challenges.</p>
	<p>Transmission lines do not emit radiation like radio antennas or microwave towers. However, they do produce electromagnetic fields (EMFs) as a result of electricity flowing through the conductors. These EMFs primarily consist of electric and magnetic fields, which diminish rapidly with distance from the transmission lines and are generally considered safe for humans at typical distances. The level of EMFs emitted depends on various factors such as voltage, current, line configuration, and distance. While some research suggests a potential link between long-term EMF exposure and certain health effects like cancer, scientific consensus remains inconclusive, necessitating further research to establish any causal relationship.</p>

Regulatory agencies worldwide have established guidelines and standards to limit human exposure to EMFs from power lines and other sources, based on the latest scientific evidence, to ensure public health and safety. However, the specific guidelines for EMF exposure may vary depending on the organization and country. Suriname can choose the guidelines that best suit its needs.

Adhering to the Precautionary Principle involves taking preventive action in the presence of uncertainty regarding potential risks. This may entail implementing measures to reduce EMF exposure, especially in sensitive areas such as schools, hospitals, and residential neighborhoods.

During construction, it is essential to ensure that the transmission lines do not interfere with existing communication networks. Additionally, the height of the transmission lines should allow trucks to pass through the corridor without obstruction.

While steel poles may be perceived as more aesthetically pleasing and have less spatial impact, they may be more visible from greater distances due to their solid structure. Steel poles also generally require shorter arms, resulting in a smaller right-of-way. However, they necessitate more concrete and non-organic soils for installation and tend to be more expensive. The choice of materials should be evaluated considering factors such as flooding, drought, severe wind, and spontaneous fires that occur annually.

ESPS 5: Land Acquisition and Involuntary Resettlement

While the exact design is not yet available, it is anticipated that displacement will not be necessary. The designer may encounter challenges in the densely populated areas of Tamansari/Tamanredjo and Albina. However, the possibility of rerouting the line remains an option. If the project prioritizes maintaining a distance of 250m throughout, negotiations and compensation schemes will need to be established. If only parcels are required for construction and placement of the transmission line, compensation and negotiation will continue to be crucial.

The Project Implementation Unit and its divisions should ensure clear communication with both directly and indirectly affected groups regarding these matters. It should elucidate how the government is coordinating among various ministries to execute the project (ROS, NH, GBB, BUZA). The majority of the transmission line route traverses open land, secondary forests, and dormant farms, posing minimal challenges. GLIS, the National Cadaster, will play a vital role in identifying rightful owners and addressing land ownership issues (ROM, 2023).

ESPS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

To minimize the impact, the detailed design should encompass the area necessary for construction and material storage, as well as requirements for daily operation. This design should be developed in accordance with the precautionary principle, aiming to minimize impact and implement prevention and mitigation measures promptly.

Along the projected transmission line route, there are several notable environmental features, including Peperpot Nature Park, Sinabo and Perica forest reserves, swamps, rivers, creeks, secondary forests, and a pine plantation. These areas harbor abundant biodiversity, particularly in Peperpot Nature Park, secondary forests, and the pine plantation.

As a preventive measure, involving AdeKUS University and the Forest Service Suriname (LBB) can provide valuable guidance to the project management team in implementing precautionary measures. Specifically, regarding drought, extra caution should be exercised to prevent fires. If line diversions are necessary, discussions should be held with the Peperpot Nature Park Foundation and LBB regarding Peperpot, Wanehill, Perica, and Pine reserves.

ESPS 7: Indigenous and Tribal Peoples

Because of the lack of collective rights recognition of Indigenous and Tribal People in Suriname, the following process is key for the project (part of the Engagement Plan)

- Free, Prior, and Informed Consent (FPIC): Respect the right of Indigenous and Tribal communities to provide FPIC before proceeding with the project. This involves consulting with the communities and obtaining their consent before initiating any activities. Explain the project in detail and get consent for the lots (m2) required for implementation- preferably in writing from the village leadership, including a map.
- Cultural and Spiritual Significance: Recognize and respect the cultural and spiritual significance of the land to Indigenous and Tribal communities. Consult with community elders and leaders to identify sacred sites, cultural heritage areas, and traditional land use practices.
- Traditional Ecological Knowledge (TEK): Incorporate Traditional Ecological Knowledge (TEK) into the design process. Indigenous and Tribal communities often possess valuable knowledge about local ecosystems, biodiversity, and natural resources that can inform sustainable design decisions.
- Conduct asap an ESIA and draft Mitigation Measures: Develop and implement mitigation measures to minimize negative impacts on Indigenous and Tribal lands. This may include adjusting the route of the transmission lines to avoid sensitive areas, implementing erosion control measures, and restoring disturbed land after construction.
- Compensation and Benefit-Sharing: Ensure fair and equitable compensation for any land use rights or resources affected by the transmission lines. Consider implementing benefit-sharing agreements that provide direct benefits to Indigenous and Tribal communities, such as job opportunities, training programs, or investments in community development projects.
- Capacity Building and Inclusion/Extension: Build the capacity/raise awareness of Indigenous and Tribal communities to participate meaningfully in the design process.

- Legal and Regulatory Compliance: Ensure compliance with relevant laws, regulations, and international standards pertaining to Indigenous and Tribal rights, environmental protection, and cultural heritage preservation.
- Grievance Mechanisms: Establish effective mechanisms for resolving conflicts and addressing grievances that may arise during the design and implementation of the transmission lines. This may involve setting up community liaison officers, grievance redress mechanisms, or mediation processes.
- By incorporating these considerations into the design process, transmission lines can be developed in a manner that respects the rights, values, and interests of Indigenous and Tribal communities while promoting sustainable development and environmental stewardship. (Meulenhof, 2020)

*ESPS 8:
Cultural
Heritage*

During the Engagement Phase (ESPS7), ensure that the heritage, sacred places are mapped and alternative lines and execution blueprint is made in accordance with the data gathered.

Protecting cultural heritage during the design and implementation phase of transmission lines requires careful planning and collaboration with relevant stakeholders, including local communities, cultural heritage experts, and regulatory agencies. Here are some steps that can be taken to safeguard cultural heritage:

- o Cultural Heritage Assessment: Conduct a thorough assessment of cultural heritage sites along the proposed route of the transmission lines. This assessment should identify archaeological sites, historic buildings, sacred sites, and other cultural assets that may be impacted by the project.
- o Consultation with Indigenous and Tribal Communities: Engage in meaningful consultation with Indigenous and local communities to identify culturally significant sites and understand their concerns and priorities. Respect traditional knowledge and customs during these consultations.
- o Avoidance and Minimization: Modify the design of the transmission lines to avoid impacting culturally significant sites whenever possible. If avoidance is not feasible, take measures to minimize the impact on these sites during construction and operation.
- o Mitigation Measures: Develop and implement mitigation measures to protect cultural heritage sites that cannot be avoided. This may include archaeological excavations, site monitoring, and the development of interpretive signage to educate workers and the public about the significance of the sites.
- o Monitoring and Compliance; Implement a monitoring program to ensure that cultural heritage sites are protected throughout the construction and operation of the transmission lines. Regular inspections should be conducted to detect any damage or disturbances to these sites.
- o Capacity Building: Provide training and capacity building opportunities for project staff and contractors on the importance of cultural heritage protection and the relevant laws and regulations. Foster a culture of respect for cultural diversity and heritage preservation within the project team.
- o Community Engagement and Awareness: Raise awareness among project stakeholders, local communities, and the general public about the importance of cultural heritage protection. Encourage community involvement in the monitoring and preservation of cultural sites.
- o Legal and Regulatory Compliance: Ensure compliance with relevant laws, regulations, and international conventions related to cultural heritage protection. Obtain necessary permits and approvals from heritage authorities before proceeding with construction activities.
- o Adaptive Management: Implement an adaptive management approach that allows for flexibility in responding to unforeseen impacts on cultural heritage sites. Regularly review and update mitigation measures based on monitoring results and stakeholder feedback.

*ESPS 9:
Gender
Equality*

To ensure gender equity is integrated into project planning and execution, the following measures can be taken:

- o Consultation and Participation: Engage with women, men, and gender-diverse individuals in meaningful consultations throughout the project cycle. Create opportunities for their active participation in decision-making processes, including the identification of priorities, design of interventions, and allocation of resources.
- o Access to Resources: Women and men have different perceptions of available resources in their livelihoods, and consequently have different access. The project should determine impacts on women's access to the local resources.
- o Address Gender-Based Violence: Take proactive measures to prevent and respond to gender-based violence (GBV) within the project area. Develop protocols and mechanisms for reporting and addressing incidents of GBV, and ensure that staff and community members are trained to recognize and respond to GBV effectively. In addition, ensure that project staff and contractors don't violate these policies themselves.
- o In recruiting staff, equal opportunities should be created between the genders.
- o Monitor and Evaluate Gender Outcomes: Establish gender-sensitive monitoring and evaluation mechanisms to track progress towards gender equality objectives. Collect sex-disaggregated data and gender-specific indicators to assess the impact of project interventions on women, men, and gender-diverse individuals.

*ESPS 10:
Stakeholder
Engagement
and
Information
Disclosure*

By integrating gender equity considerations into project planning and execution, projects can contribute to more inclusive and sustainable development outcomes that benefit everyone in the community.

Stakeholder engagement and information disclosure are critical aspects of any project involving transmission lines.

- Identify Stakeholders: Identify all relevant stakeholders who may be affected by the project, including local communities, landowners, Indigenous and tribal groups, governmental agencies, NGOs, and other interested parties.
- Early Engagement: Initiate stakeholder engagement early in the project lifecycle, ideally during the planning phase, to ensure that stakeholders are involved from the outset and have an opportunity to contribute to decision-making processes.
- Transparent Communication: Maintain transparent communication with stakeholders throughout the project, providing timely and accurate information about project objectives, timelines, potential impacts, and mitigation measures. Use clear and accessible language that is easily understandable by all stakeholders. Foster two-way communication that allows stakeholders to express their concerns, provide feedback, and ask questions about the project. Actively listen to stakeholder perspectives and address their concerns in a respectful and constructive manner.
- Multiple Channels: Use a variety of communication channels to reach different stakeholder groups, including community meetings, public forums, stakeholder workshops, social media, project websites, newsletters, and written materials in local languages.
- Tailored Information: Tailor information and engagement strategies to the specific needs and preferences of different stakeholder groups. Consider cultural, linguistic, and socioeconomic factors to ensure that information is accessible and relevant to all stakeholders.
- Transparency in Decision-Making: Maintain transparency in decision-making processes, clearly articulating how the stakeholder input has been considered and incorporated into project plans and decisions. Explain the rationale behind key decisions and any trade-offs that have been made.

By prioritizing stakeholder engagement and information disclosure, transmission line projects can build trust, foster positive relationships with affected communities, and enhance project outcomes while minimizing potential conflicts and disruptions.

KPI's were used to evaluate the environmental impacts. Figure 1, provides the framework, whilst Table 4 discusses the impact rating.

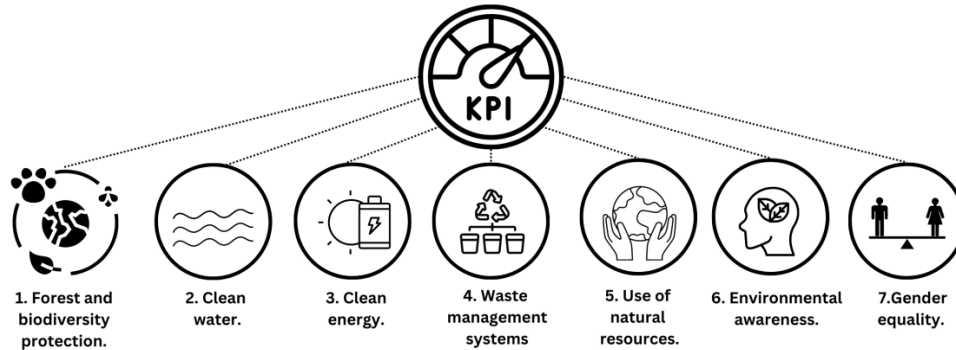


Figure 1: Environmental KPI's for the project design and execution

The overall ranking is Medium for Environmental impacts.

Table 4: Analysis of Environmental Impacts against the KPIs

Theoretical Frame vs Project Site				
Guidance			Results	
Rating impact	Description	Proceed with	East-West Connecting Road	RANKING: MEDIUM
High potential positive impact	Certain to benefit the environment and/or solves big socio-environmental issues	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated	1. Forest & biodiversity protection 2. Clean water 3. Cleaner energy	1. Monitoring by Rangers in Parks, Game wardens in Nature Reserves on environmental and biodiversity indicators 2. Creeks and savannab are important for potable water and can be monitored by Institutes (BOG/WLA) and Rangers 3. Not applicable: transmission will be most likely from fossil fuel- however impact is minimal on biodiversity.
Medium positive impact	May benefit the environment and/or may minor environmental issues	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated	4. Waste Management 5. Use of natural resources	4. Mindful shopping, guidelines for waste collection, storage, and disposal-recycling. Set up awareness program and execute together with external partners 5. During the preparatory phase, an inventory of the resources will be conducted to ensure if rare/threatened/protected species may be impacted. If needed a rehabilitation schedule will be made and implemented. Also, awareness raising amongst the recruited contractors to refrain from poaching, and commercializing resources, whilst engaged in the Transmission project.
Low positive impact	Could benefit the environment, but may not solve (socio)environmental issues	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated	6. Environmental awareness 7. Gender equality	6. Awareness program can be tailored designed and executed, adapted for the specific stakeholders 7. Engage as much as possible all genders in all project phases

Social Impact analysis are presented in table 5.

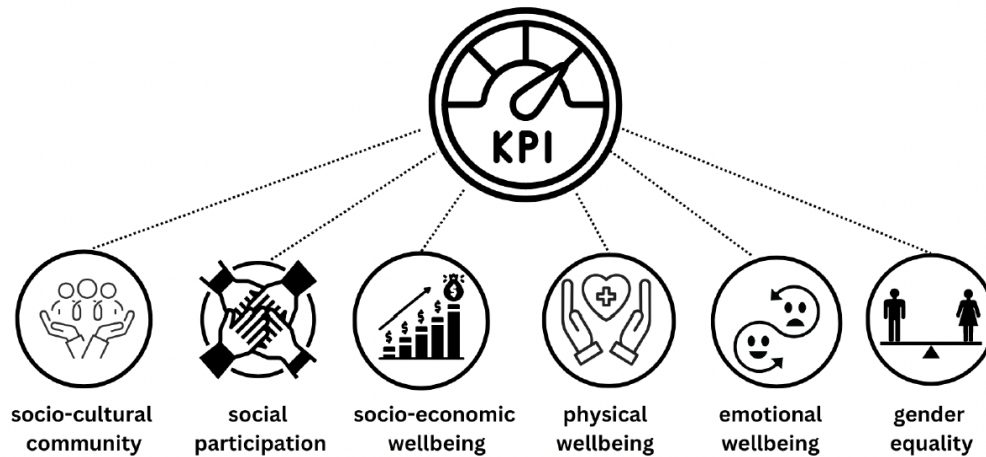


Figure 2: Social KPI's

Table 5: Analysis of Social Impacts against the KPIs

Theoretical Frame vs Project Site				
Guidance			Results	
Rating impact	Description	Proceed with	East-West Connecting Road	RANKING: HIGH
High potential positive impact	Certain to benefit the social and/or solves a major issue they are dealing with	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated	1.Social-cultural community issues 2.Social isolation (participation) 3.Socio-economic distress (wellbeing)	1. The project will elevate the life of the targeted communities; Engagement method is not yet in place – but needs asap to be designed; Important historic and cultural sites are preserved. 2. Communities living along the Road and further up the rivers that will benefit from this project have relatively easy accessibility; just a few sections of the trace have no telecommunication reception. Willing to actively to the project to achieve goals. 3. Willingness to provide construction material, labors, develop and elevate businesses (agricultural produce, industries, tourism, service providers etc.) and introduce technology.
Medium positive impact	May benefit the social group and/or may solve minor issues they are dealing with	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated	4. Physical distress (wellbeing) 5.Emotional distress (wellbeing)	4. Access to Energy or improved energy capacity can lead to better circumstances Education/Health/Nutrition/Leisure. 5. Safety issues may improve through 24x7 Energy. Socializing during the night and improve food security (less stress).
Low positive impact	Can benefit the social group, but may not solve any issues they are dealing with	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated	6. Gender inequality	6. More business opportunities for women (farming produce; improved physical wellbeing- introduction of small equipment/ machines to lessen physical burden; all gender can benefit the energy to further develop their skills and knowledge, but also increase their income levels

2.4 Ranking – for Risk classification

The Key Risk Indicators (KRI's) to determine risk were:

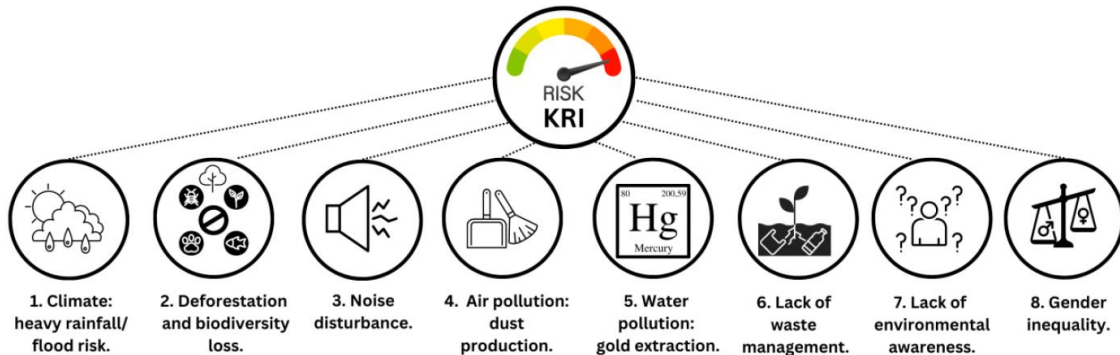


Figure 3: Environmental KRI's

Table 6 provides the guidance for ranking, as well as the likelihood of these to occur.

Table 6: Likelihood of Risks matrix

Impact Ranking	<i>Low potential negative impact</i> [No or insignificant damage to the environment and/ or socio-economic indicators]	<i>Moderate potential negative impact</i> [Consolidate damage to the environment and/ or socio-environmental indicators]	<i>High potential negative impact</i> [Significant damage to the environment and/ or socio-environmental indicators]	<i>Very high potential negative impact</i> [Irreparable damage to the environment and/ or socio-environmental indicators]
Likelihood Options	<i>Very Likely</i> [certain to occur]	<i>Likely</i> [can occur]	<i>Possibly</i> [may occur]	<i>Unlikely</i> [almost never occurs]

In table 7 the analysis is presented.

Table 7: Environmental Risk analysis

Key indicator	Potential Negative Impact	Likelihood of impact	Potential Risk Rating	Comments
1. Climate: heavy rainfall/drought	Moderate	Possibly	Moderate	In the more challenging accessible parts (swamps and creek forests), project may be delayed due to transportation and construction work. Floods or extreme droughts may impact on execution.
2. Deforestation & biodiversity loss	Moderate	Possibly	Moderate	The storage of material and construction requires clearing of parcels/forest and could result in a local loss of genetic material (doesn't need to be permanent)
3. Noise disturbance	Moderate	Possibly	Moderate	In the residential (urban) parts noise pollution may hamper the living comfort. For biodiversity, this may lead to at least temporary migration of species.

4. Air pollution: dust production	Low	Possibly	Low	Transportation of construction material (sand etc.), excavating etc. may cause dust and air-pollution which is expected to remain minimal.
5. Water pollution	Low	Possibly	Low	Should remain minimal, if an adequate exploring and designing is followed.
6. Lack of waste management	Moderate	Likely	Moderate	The project will be carried out in populated and remote sections along the trace. This means that significant amounts of waste should be correct disposed or recycled. These don't exist. Waste management in the urban/residential parts is limited to household waste. Special measures should be taken.
7. Lack of environmental awareness	Moderate	Possibly	Moderate	All workers will need to be educated/informed about the responsible project execution and minimize impact on the environment (waste/ noise/air/poaching etc.)
8. Gender inequality	Moderate	Possibly	Moderate	For an all inclusion approach, recruitment, engagement with communities needs specific guidance for an equal gender reflection.

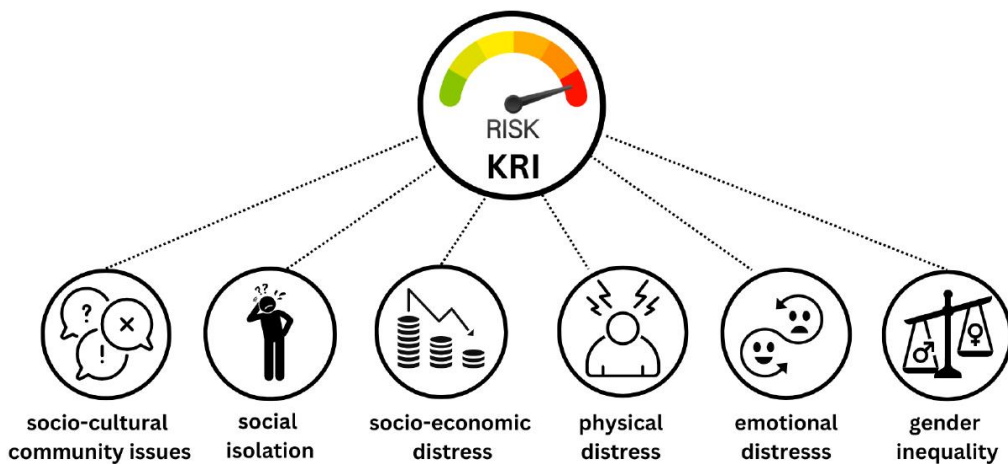


Figure 4: Social KRI's

Table 8 provides the guidance for ranking, as well as the likelihood of these to occur.

Table 8: Likelihood of Risks matrix

Impact Ranking	Low negative impact [Irreparable damage to social functions, processes or cultural items]	Moderate negative impact [Insignificant damage to social functions, processes or cultural items]	High negative impact [Considerable damage to social functions, processes or cultural items]	Very high negative impact [No or insignificant damage to social functions, processes or cultural items.]
Likelihood Options	<i>Very Likely</i> [certain to occur]	<i>Likely</i> [can occur]	<i>Possibly</i> [may occur]	<i>Unlikely</i> [almost never occurs]

Table 9: Social Risk analysis

Key indicator	Potential Negative Impact	Likelihood of impact	Potential Risk Rating	Comments
1. Socio-cultural community issues	Low	Possibly	Low	With a comprehensive engagement plan this can be properly addressed
2. Social isolation	Low	Possibly	Low	An all-inclusive approach may reduce negative impacts
3. Socio-economic distress	Low	Possibly	Low	An all-inclusive approach may reduce negative impacts
4. Physical distress	Low	Possibly	Low	An all-inclusive approach may reduce negative impacts
5. Emotion distress	Low	Possibly	Low	An all-inclusive approach may reduce negative impacts
6. Gender inequality	Moderate	Likely	Moderate	Can be promoted, but not made compulsory

To address the impacts and risks, a mitigation plan is presented in table 10.

Table 10: Mitigation and action plan

	Risk Classification	Mitigation
Negative project impacts on individuals and groups or vulnerable groups;	Moderate	i. Stakeholders mapping with identification of vulnerable individuals and groups; ii. Analyze ESIA study (impact) against vulnerable individuals and groups and ITP groups; iii. ESMP designed and implemented with regard to these groups; iv. Contingency Plan designed and implemented when needed.
Prejudice or discrimination against individuals or groups disadvantaged or vulnerable;	Low	i. Stakeholders mapping with identification of vulnerable individuals and groups; ii. Engagement Plan designed and implemented; iii. Draft policy and guidelines regarding anti-discrimination /prejudice and sanction breaches; iv. Develop and execute awareness raising around the policy; v. Grievance mechanism created and monitoring of complaints to act upon; vi. All-inclusiveness policy for recruitment of staff/contractors.

GHG emissions, risks, and impacts associated with ecosystems, and climate change, to the project, air pollution and use or pollution/sedimentation of water systems;	Moderate	<ul style="list-style-type: none"> i. ESIA conducted and; ii. ESMP designed and implemented; iii. Engage Nature Conservation Division (NCD) , AdeKUS (National Herbarium Suriname -BBS and National Zoological Collection-NZCS); iv. Approval of Biological Action Plan (BAP) and Environmental Health and Safety (EHS) Guidelines by NCD and BOG (Public Health Authority) and NIMOS (National Environmental Agency); v. Implementation of the monitoring plan (biodiversity and People); vi. Engage locals to become community monitors (rangers) to execute the monitoring plan together with research institutes, GoS and NGOs.
Community safety, including the safety of the project's infrastructure, and threats to human security – taking into consideration safe traffic, residential areas and business in the project area;	Moderate	<ul style="list-style-type: none"> i. ESH Plan and implementation, monitoring and adaptation should minimize the risks. If needed, the project Implementation Unit should be open to Alternative Routes.
Temporary or permanent adverse economic and social impacts relating to land or restrictions on land use;	Moderate	<ul style="list-style-type: none"> i. A Contingency plan and adaptation during the implementation to address unforeseen circumstances and improve on the go; ii. In combination with a Communication Strategy should minimize the impacts.
Risks or impacts associated with land and natural resource tenure and specifically lack of Land rights of ITPs- impacting on local land use patterns and tenorial arrangements, land access and availability, food security and land values, and any corresponding risks related to conflict or contestation over land and natural resources;	Substantial	<ul style="list-style-type: none"> i) Concessionaries of Agriculture, mining and logging should be identified and included in the stakeholder mapping and accordingly approached; ii) As of the ITPs no land tenure rights customary law will be followed to address access to land and natural resources and more.
Threat to the protection, conservation, maintenance, and restoration of natural habitats and biodiversity;	Moderate	<ul style="list-style-type: none"> i) Baseline studies and Monitoring plans are guiding documents to minimize risks of degradation.
Adverse impacts on communities of Indigenous and Tribal Peoples;	Moderate	<ul style="list-style-type: none"> i) Blue prints of the project edited with community input, such as mapping and respecting Traditional Environmental Knowledge (TEK) to minimize the impacts, mitigate.
Risks to cultural heritage;	Low	<ul style="list-style-type: none"> i) Blue prints of project edited with community Mapping should minimize the impacts. If needed re-direct the projected transmission line.
Gender-related risks, including gender-based exclusion, gender-based violence (sexual exploitation, human trafficking, and the spread of sexually transmitted diseases), and potential discrimination risks based on gender and sexual orientation, among others.	Moderate	<ul style="list-style-type: none"> i) Communication Plan, Awareness raising should be executed in a manner that community and contractors are aware of the project activities and the off-limit gender related breaches. Comply with Gender Policy and guidelines

3. Conclusion and Recommendations

The Environmental and Social Scoping Report's conclusion offers valuable insights into the potential impacts and risks linked to the project. Through swift analysis of environmental factors like vegetation, biodiversity, and water resources, alongside social aspects such as community livelihoods and cultural heritage, various priority areas have emerged. Overall, the project can be categorized as presenting a low ***moderate level of risk***.

It is evident that measures must be taken to mitigate potential adverse impacts on sensitive ecosystems, indigenous and tribal communities, and other stakeholders. This includes implementing robust environmental management plans, conducting thorough impact assessments, and engaging in meaningful consultation and collaboration with affected parties.

Moving forward, it is imperative that environmental and social considerations are integrated into all stages of the project lifecycle, from planning and design to implementation and monitoring. This will require close collaboration between project stakeholders, regulatory authorities, and local communities to ensure that the project is conducted in a manner that is environmentally sustainable, socially responsible, and respectful of human rights.

In light of the findings of this assessment, the following priority actions are recommended:

1. Develop and implement a comprehensive Environmental and Social Management Plan (ESMP) that addresses key risks and impacts identified in the assessment.
2. Establish mechanisms for ongoing stakeholder engagement and consultation to ensure that the concerns and interests of all parties are adequately addressed.
3. Monitor and evaluate the implementation of mitigation measures to track progress and make adjustments as necessary.
4. Provide capacity-building and training opportunities for project staff and local communities to enhance understanding of environmental and social issues and play an active role in the project outcomes (recruited by the project).
5. Foster transparency and accountability in project decision-making processes through regular reporting and disclosure of information to stakeholders.
6. Ensure that the ITP communities are approached according to the special guidelines (FPIC, TEK, IPR) and are respectfully engaged. Respectfully engage in historic and cultural sacred sites that can't be destroyed or degraded. Moiwana is a symbol of the physical and emotional battle fought in the 80's.

By prioritizing environmental and social considerations and implementing proactive measures to address identified risks and impacts, the project can achieve its objectives in a manner that is both environmentally sustainable and socially responsible.

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