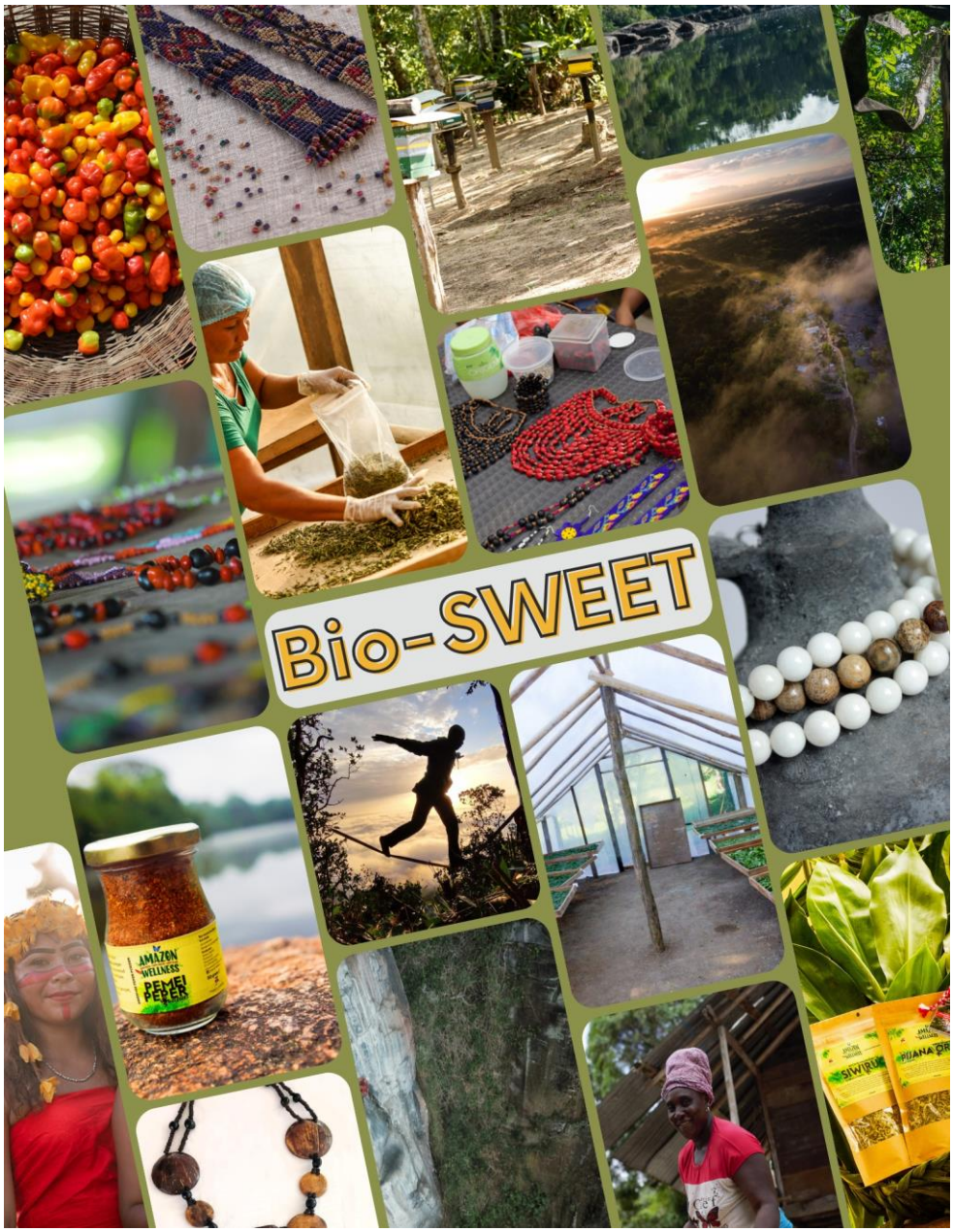

CONSULTANCY TO SUPPORT RURAL ELECTRIFICATION WITH RENEWABLE ENGERGY, POTABLE WATER, AND TELECOMMUNICATIONS IN SURINAME

Prepared by ACT on behalf of Energie Bedrijven Suriname (EBS) and Ministerie van Natuurlijke Hulpbronnen (MNH)

ABSTRACT

This document presents the findings of the Sociocultural Analysis (SCA) & Indigenous Peoples Plan (IPP) performed through this consultancy.

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Consultant

Paramaribo, 15 April 2024

Contents

Tables:

Figures:

1 Introduction

This report presents the results of the "BIO-ECONOMY EMPOWERMENT IN SURINAME'S INDIGENOUS COMMUNITIES THROUGH ACCESS TO WATER, ENERGY, AND TELECOMMUNICATIONS (BIO-SWEET)' against Sociocultural Analysis (SCA) and Indigenous Peoples Plan (IPP)

The project aims at promoting a just, clean and sustainable energy transition by increasing access to electricity, water, telecommunications services in rural areas and by promoting the decarbonization of the electricity sector.
The general objective of the first operation is to promote the socio-economic development of villages in the Amazon rural areas of Suriname. The specific objectives are to:

(i) provide villages in the Amazon rural areas of Suriname with reliable access to renewable energy-based electricity, potable water supply, and telecommunication systems and

(ii) foster the development of a bio economy in the Amazon rural areas of Suriname with a gender and diversity perspective. This report zooms in on the Sociocultural Analysis (SCA) and Indigenous Peoples Plan (IPP) of the project.

2 Background Information

IDB

The Inter-American Development Bank (IDB) is the main source of financing for sustainable, social, economic and institutional development in Latin America and the Caribbean. The bank will facilitate an energy, water and telecommunications project for the sustainable development of Indigenous peoples in south Suirname in Alalapadu, Apetina, Sipaliwini, Kwamalasamutu, Kawemhakan, Kumakapan, Pelelu Tepoe, Palumeu, Amotopo and Coeroeni.

The project phases include:

1. Information gathering in 2022 and 2023
2. Preparation and planning in 2023 and 2024
3. Project start in 2025.

The assessment phase was conducted in close collaboration with the Ministry of RoS and Ministry NH, as well as the VIDS, TTA as contractor and sub-contractor ACT-Suriname.
Amazon Conservation Team Guianas (prior known as Amazon Conservation Team Suriname) was hired as a subcontractor by Trama Tecno Ambiental (TTA) in the information gathering process for supporting the initial engagement strategy in t 10 previously mentioned indigenous villages in South-Suriname. The report prepared by ACT-Guianas under that consultancy assignment served as a key output deliverable for Trama Tecno Ambiental (TTA).

Trama Tecno Ambiental (TTA)

Trama Tecno Ambiental is a global consulting and engineering company with headquarters in Barcelona, Spain. Since its founding in 1986, fully committed to a sustainable energy development, TTA has been providing specialized services in distributed generation through renewable energies, energy management and efficiency, rural electrification, self-generation, integration of renewables in buildings, sustainable architecture, as well as, specialized training, education and technological development related to its activities.

Amazon Conservation Team Guianas (ACT-G)
The Amazon Conservation Team Guianas (ACT-G) is a nonprofit organization that is dedicated to protecting the Amazon rainforest. ACT-Guianas aims to achieve this via partnerships with the local native Indigenous and tribal peoples of Suriname, the traditional inhabitants and users of the rainforest. Respect for, and integration of, their traditional cultural knowledge is crucial for the protection of their land's ecosystems.

3 Objectives

Objective of the Conditional Credit Line for Investment Programs (CCLIP).
The objective of this CCLIP is to support the Government of Suriname in its efforts to promote a just, clean and sustainable energy transition by increasing access to electricity, water, telecommunications services in rural areas and by promoting the decarbonization of the electricity sector.

General objective of the First Individual Investment Operation. The general objective of the first operation is to promote the socio-economic development of villages in the Amazon rural areas of Suriname. The specific objectives are to: (i) provide villages in the Amazon rural areas of Suriname with reliable access to renewable energy-based electricity, potable water supply, and telecommunication systems and (ii) foster the development of a bio economy in the Amazon rural areas of Suriname with a gender and diversity perspective.

Component I. Infrastructure investments. This component will finance the provision of electricity, water and telecommunications services and their productive use in the Amazon rural areas of Suriname with four subcomponents. Given that the operation is structured as a multiple works investment loan, which entails the financing of several independent, but technically similar subprojects towards achieving project objectives, a representative sample for Component I of around 50% of the total investment will be defined in order to process and approve the operation.

Subcomponent I.1. Energy systems. Finances the supply, installation, and commissioning of solar mini-grids, resilient to natural phenomena and including the upgrade of the existing distribution network to provide 24/7 electricity supply in the Amazon rural areas. This subcomponent will also promote the efficient use of electricity in these villages.

Subcomponent I.2. Water systems. Finances the upgrade of the existing water intake, treatment and distribution to provide clean and reliable water supply to the villages in the Amazon rural areas. This component will also promote the efficient use of water in these villages.

Subcomponent I.3. Telecommunications systems. Finances the upgrade of existing and deployment of new distribution and access telecommunications infrastructure24 to provide reliable telecommunications services in the Amazon rural areas.

Subcomponent I.4. Bio-economy development and community awareness. Finances the implementation of productive and sustainable uses of electricity, water, and telecommunications, focused on bio-economy, within the Amazon rural areas. Also, it finances activities to strengthening the beneficiaries' commitment and ownership of the projects and technical training for women and indigenous women and support their participation in the installation and maintenance of the energy systems. The bioeconomic activities will be designed to maximize the benefits to women, indigenous population and afro descendants.

Component II. Institutional Capacity. Strengthens the institutional capacity of MNH and EBS to plan, design and supervise rural electrification and water projects. It will finance the following activities: (i) training of personnel in project management, rural electrification, water systems, digital technologies; and implementing the gender and diversity action plan of EBS (ii) specialized technical support for the design, coordination, and supervision of the works and (iii) managing environmental and social considerations of projects.

A SCA/ IPP is prepared to identify and manage the risks and impacts of a project on Indigenous Peoples. Whenever an Indigenous Peoples community is identified within the project area of influence (direct and indirect), a SCA should be carried out to determine risks and potential negative and positive impacts on the Indigenous Peoples.

If risks and impacts are identified, the Borrower should prepare an IPP outlining the actions to minimize and/or compensate for adverse impacts in a culturally appropriate manner.
The SCA additionally, should identify the benefits/activities for inclusion of indigenous peoples and other communities, whereby the activities should be designed in a culturally appropriately manner.
The SCA can be part of the Environmental and Social Impact Assessment prepared for the project, or it can be an independent document. The complexity of the SCA will depend on the nature and scale of a project and should be proportional to the type and magnitude of the risks and impacts, as well as to the vulnerability of the population. The SCA and IPP are two parts of the same document.

Given the nature and scale of risks and impacts, a separate IPP[1] was considered not required for this project. Therefore, if during the implementation of the project, management takes into consideration to make needed adjustments in a culturally appropriate manner and with the informed consultation and participation of the Indigenous Peoples, it should be considered sufficient to avoid, mitigate and/or compensate the adverse impacts.

4 Scope of Work

The geographic scope is limited to ancestral Trio and Wayana lands (10 villages) refers to the specific territories inhabited by the Trio and Wayana indigenous peoples in Suriname, entailing approximately 7.0 ha. These lands are primarily located in the southern part of Suriname, in the interior rainforest region near the borders with Brazil, extending in the directions of Guyana and French Guyana.

[1] An IPP is a mutually agreed plan that is shared between the site and the affected indigenous groups. An IPP is a collaborative process as much as a document. It is underpinned by engagement conducted according to the FPIC 'Free, Prior and Informed Consent 'principles.

5 Sociocultural Analysis (SCA)

5.1 General approach and methodology

To perform the SCA / IPP, social research and sub-research questions were formulated.

5.1.1 Social Research Questions (RQs)

Main Social RQ:

What are the general outlines of the Sociocultural Analysis (SCA) /Indigenous Peoples Plan (IPP) for IDB's solar energy, potable water and telecommunications projects in the communities of Alalapadu, Apetina, Sipaliwini, Kwamalasamutu, Kawemhakan, Kumakapan, Pelelu Tepoe, Palumeu, Amotopo and Coeroeni for the preparation of a multiple works' operation (Bio-SWEET) that will strengthen the bio-economy potential?

In order to properly answer the main research question, the following sub-research questions will need to be answered:

Sub-Social RQs

1. What are the socio-cultural and socio-demographic characterizations of the locations?
    a. *What are the traditional structures?*
    b. *Who are the key stakeholders per location?*
    c. *What are the household characteristics?*
    d. *What are the government structures?*
    e. *What are the demographics?*
    f. *What are other socio-cultural observations?*
2. What are the baseline household energy, water and telecommunications need and social considerations of the Indigenous peoples in each location?
3. What are the potential positive impacts of improved energy, water and telecommunication services on the Indigenous peoples' social best practice indicators?
    a. *What are the relevant social key performance indicators (KPI's)?*
    b. *What are guidelines to enhance these positive impacts (enhancement policies)?*
4. What are the potential social risks that can damage the long-term sustainability of improved energy, water and telecommunication services and/or damage the Indigenous peoples' natural environment?
    a. *What are the relevant social key risk indicators (KRI's)?*
    b. *What are policies and action plans to mitigate the risks (safeguard policies)?*
5. What are the Free Prior and Informed Consent (FPIC) considerations per location?
6. Is there local expertise and what are the capacity gaps for the energy, water and telecommunications project in each location?
7. What socio-economic activities can be potentiated with improved water, energy and telecom access in each location?
8. What are potential community ownership models that can lead to the sustainable maintenance of the project's investments.
9. What is the legal framework pertaining to indigenous people?
10. What is the potential local bio-economy that can be developed?

5.2 Theory of Change

A 'social theory of change' was formulated to help inform and guide policy decisions. This theory consists of a vision for the socio-cultural aspects that can be referred back to throughout the project's phases and activities.

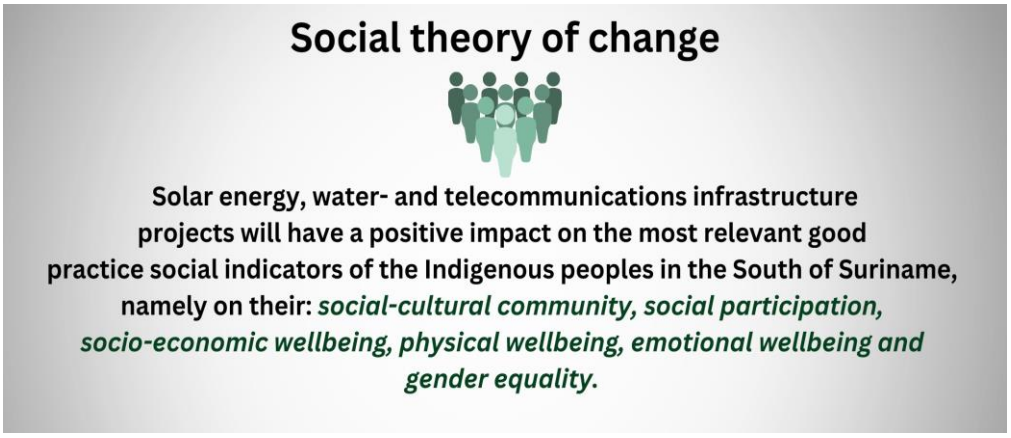
5.2.1 Social Theory of Change

In this paragraph the following aspects are introduced:

- The social theory of change;
- Social Impact Analysis (SIA)
- Social Risk Analysis (SRA)
- Social safeguards.

The social theory of change on which the analysis of this report is based, is formulated as:
"Solar energy, water- and telecommunications infrastructure projects will have a positive impact on the most relevant good practice social indicators of the Indigenous peoples in the South of Suriname, namely on their: social-cultural community, social participation, socio-economic wellbeing, physical wellbeing, emotional wellbeing and on gender equality," as highlighted in the figure below.

Figure 1 Social Theory of Change



This report contains a Social Impact Analysis (SIA) and a Social Risk Analysis (SRA). From the SIA, indicators for SRA were extracted to formulate relevant safeguards.

Social safeguards are principles, policies, regulations or procedures designed to ensure positive social goals and outcomes. Best practice indicators and policies for Indigenous peoples and international quality of life frameworks were taken into consideration in the analysis of this report and the formulation of metrics and safeguards.

Figure 2 Social safeguards

5.3 Socio-Cultural Analysis (SCA)

5.3.1 Baseline Information on the Indigenous Peoples in the Project's Area of Influence

This paragraph discusses the Sub-Social RQ # 1, as stated below, and provides baseline social information:

What are the socio-cultural and socio-demographic characterizations of the locations?

a. *What are the traditional structures?*
b. *Who are the key stakeholders per location?*
c. *What are the household characteristics?*
d. *What is the belief system?*
e. *What are the government structures?*
f. *What are the demographics?*
g. *What are other socio-cultural observations?*

5.3.1.1 Socio-cultural characteristics

a. Traditional structures

The Granman is the paramount chief or head of the tribe. The current Granman of the Wayanas is Ipomadi Pelenapïn, who resides in Kawemhakan, and the Granman of the Tirió's (or Trio's) is Jimmy Ronald Toeroemang who resides in Kwamalasamutu. Below the Granman are the captains followed by the Basjas on the village level.

b. Key stakeholders per location

Below the key stakeholders of the traditional structures per village are presented:

Table 1 Key Stakeholders

Villages	Function	Family Name & First Name
Kwamalasamutu	Granman	Toeroenmang, Jimmy
Kwamalasamutu	Head-Captain	Shonshonson, Wakoeroeman
Kwamalasamutu	Captain	Moeshe, Menio
Kwamalasamutu	Captain	Puttoena, Sheddida
Kwamalasamutu	Head-Basja	Nola, Amessaja
Kwamalasamutu	Basja	Inarew, Shalome
Kwamalasamutu	Head-Basja	Koemoe, Oewawa
Kwamalasamutu	Basja	Sinkara, Mikowe
Kwamalasamutu	Basja	Sinkara, Reitia
Kwamalasamutu	Basja	Waachpi, Jakoeta
Amotopo	Head-Captain	Ipajadi, Peppoe
Amotopo	Captain	Panekke, Paneshi
Amotopo	Head-Basja	Kuuruui, Pikoekoe
Amotopo	Basja	Ineshaachpe, Rosianna
Sipaliwini	Captain	Ijapawai, Essikijo
Sipaliwini	Head-Captain	Antawa, Essikaja
Sipaliwini	Basja	Ineshaachpe, Simiehpe
Sipaliwini	Basja	Oochpatapo, Kraske
Sipaliwini	Basja	Merekeru, Reki
Sipaliwini	Basja	Shanaide, Idaike
Alalapadu	Captain	Morishi, Janinipuung
Alalapadu	Head-Basja	Padoe, Nikolashi
Alalapadu	Basja	Iejoepi, Roekoe
Alalapadu	Basja	Shokopo, Klavin
Alalapadu	Basja	Padoe, Mieke
Alalapadu	Basja	Jitashe, Itaria
Coeroeni	Head-Captain	Toehanpe, Akuupashe
Coeroeni	Captain	Toehanpe, Koronu
Coeroeni	Basja	Wono, Sasseke
Coeroeni	Basja	Takajana, Aletashi
Coeroeni	Basja	Sinkara, Ira
Coeroeni	Basja	Tawadi, Regina
Apetina	Basja	Tenopo, Jari, Trg. K.T.
Apetina	Captain	Same, Ikinaidoe
Apetina	Head-Captain	Japanaloe, Oeloekoeni
Apetina	Basja	Ikinaidoe, Shitoenka
Apetina	Captain	Mettelli, Ainakadi
Apetina	Basja	Pawkoe, Olokwi

Apetina	Basja	Shadi, Tamussi
Apetina	Basja	Koemaja, Jadiwana
Apetina	Basja	Merenke, Marius
Apetina	Basja	Meliwa, Pessida Walita
Apetina	Chief	Aptuh, Noewahe
Apetina	Captain	Ajamaka, Pantakoe Idimawal
Apetina	Basja	Neni, Emahpe Sela
Apetina	Captain	Mettelli, Evelina Nora Joana
Kawemhakan	Basja	Idiwa, Makiloewa
Kawemhakan	Basja	Itoewaki, Kelista Kwaikoe
Kawemhakan	Basja	Moekoewa, Makidoe
Kawemhakan	Basja	Tajan, Settipan
Kawemhakan	Captain	Palijale, Apoetoe
Kawemhakan	Basja	Alampia, Madijalapoe J.
Kawemhakan	Chief	Pelenapin, Ipomadi Toko
Kawemhakan	Head-Captain	Pelenapin, Mitioe M.
Kawemhakan	Head-Basja	Malikoe, Liejoe
Palumeu	Basja	Ikoewa, Nolina
Palumeu	Head-Captain	Padoe, Pishiechpe
Palumeu	Basja	Madena, Tujokuunke
Palumeu	Basja	Madena, Aneshinke
Palumeu	Basja	Malakaita, Sikiwa
Palumeu	Basja	Makainoe, Jakoenoena
Palumeu	Head-Basja	Arekepuung, Kajese D.
Pelelu Tepoe	Captain	Nola, Shitipani
Pelelu Tepoe	Basja	Wenaloe, Diter
Pelelu Tepoe	Captain	Saimanie, Shoepipi
Pelelu Tepoe	Basja	Tajawade, Piatoe
Pelelu Tepoe	Basja	Teweme, Pemei
Pelelu Tepoe	Head-Captain	Shanaupe, Moshesi Mokuphe
Pelelu Tepoe	Basja	Shokopo, Ikoewenna
Pelelu Tepoe	Head-Basja	Shanaupe, Jang
Pelelu Tepoe	Basja	Shokopo, Sabrina Caroline
Pelelu Tepoe	Basja	Kawaidoe, Marcel Asaina
Pelelu Tepoe	Basja	Atoewinali, Kamala
Pelelu Tepoe	Basja	Mapadina, Kererija
Pelelu Tepoe	Basja	Atoewinali, Midijang
Pelelu Tepoe	Basja	Ankarapi, Patowa
Pelelu Tepoe	Basja	Ashiware, Siteisi Jacob
Pelelu Tepoe	Basja	Alekkawa, Shalome Natase
Pelelu Tepoe	Captain	Ankarapi, Lola
Pelelu Tepoe	Basja	Imeroepeng, Arikoeiwa Loi

Pelelu Tepoe	Basja	Sapa, Madijanneke
Pelelu Tepoe	Basja	Maisani, Dennio
Pelelu Tepoe	Basja	Maisani, Josepi
Kumakapan	Not yet appointed as Basja	Anita Ariyana-Baisha

Figure 3 The captain of Alalapadu, board supervisors, TTA consultants, and villagers of Alalapadu during TTA field consultation in 2022

c. Household characteristics: traditional gender roles

In the South of Suriname there are traditional gender roles: the men hunt to provide food for their family and the women fetch water, cook and take care of the children. In Sipaliwini, Pelele Tepoe, Palumeu and Kwamalasamutu the men may also do illegal wildlife trades to make money.

The indigenous partners have asked ACT-S for income generating projects which lead to the creation of several programs including beekeeping and honey production for the men, herbal tea farming and tea production and jewelry, and pepper farming and ground pepper production for the women. The organization Conservation International Suriname (CI) developed a Tuhka also called brazil nut factory in Alalapadu where both men and women work.

Table 2 NGO's- livelihood projects per location

NGO	Livelihood projects	Location
ACT	Stingless beekeepers	Palumeu, Pelelu Tepoe, Coeroeni and Kwamalasamutu
ACT	Tea farming and products	Pelelu Tepoe, Kwamalasamutu and Coeroeni
	Jewelry making	Kwamalasamutu, Sipaliwini, Pelelu Tepoe and Apetina.
ACT	Ground pepper production	Pelelu Tepoe and Kwamalasamutu.
CI	Brazilian Nuts	Alalaparoe

In addition, ACT-S has an active environmental department where local Indigenous rangers are trained to protect their land's biodiversity. Additionally, the ACT ranger teams actively include women in their program and are currently working even further on creating gender appropriate expansion of their ranger activities.

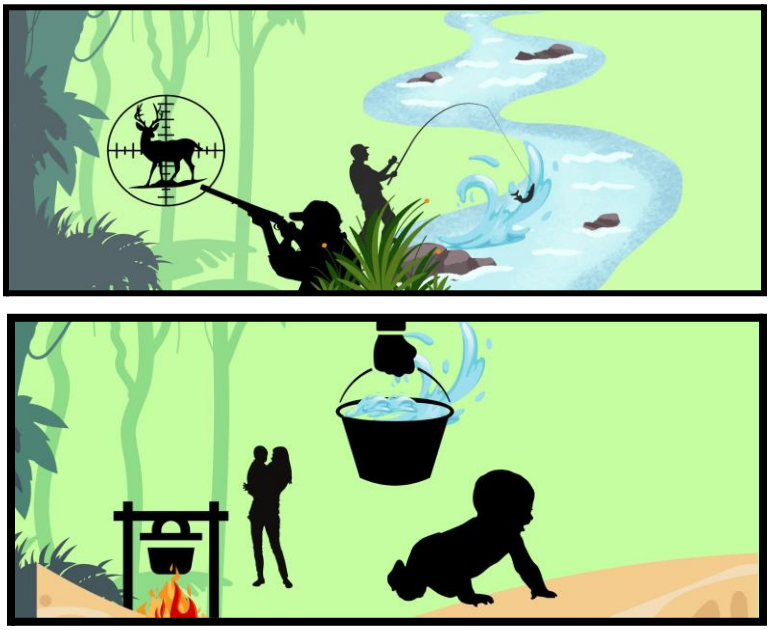


Figure 4 Illustration of traditional gender roles

d. Belief systems

All villages are predominantly Baptist Christians, although some villages have a history with traditional shamanic healing methods. In general, the Wayanas still have the knowledge of traditional medicine, but many of the Wayana shamans moved across the Marowijne River into French-Guyana causing local traditional medicine knowledge to wane[2]. Many of the shamans- also called wisdom carriers- of the Tirió 'lost' their 'powers' due to the Christian missionaries. However, there are still traditional clinics active today in Apetina, Kwamalasamutu and Pelelu Tepoe, as presented in the table below.

[2] The parents get monthly child benefits if their children are born in French-Guyana. A lot of villagers tend to leave and move to French-Guyana because they have better access to basic needs there.

Table 3 Tribe and traditional medicine clinic per location

	Tribe	Active traditional medicine clinics/shamans
Alalapadu	Tirió	
Apetina	Wayana	yes
Sipaliwini	Tirió	
Kwamalasamutu	Mostly Tirió	yes
Kawemhakan	Wayana	
Kumakapan	Wayana	
Pelelu Tepoe	Mostly Tirió	yes
Palumeu	Tirió and Wayana	
Amotopo	Tirió	
Coeroeni	Tirió	

e. Government structures

The villages have official government workers. Below the District Commissioner, there are:

- Board Supervisors and
- Assistant Board Supervisors at the village level.

Their official tasks are listed in table 4 and 5.

Table 4 Official tasks of the Board supervisor

Official tasks of the Board Supervisor:
1. Receives assignments and instruction from the district-secretary and in some cases from the district commissioner.
2. Is tasked with inventorying, discussing, and suggesting solutions administratively in their resort.
3. Monitors the construction, repair, and maintenance of secondary and tertiary roads.
4. Monitors the regular maintenance works; cleaning maintenance of roadsides, squares, strips, cemeteries and waste sites.
5. Checks the operation of regularly maintenance of civil/build/technical activities in consultation with the Technical Staff.
6. Checks, in consultation with the civil engineering department, the work performance of third parties, according to the specific conditions;
7. Conducts research into permit requests for setting up and exploiting industries, businesses, shops, and retail companies.
8. Checks the compliance of permit conditions of industries, businesses, shops, and retail companies.
9. Conducts research before giving advice to the district-secretary and/or district-commissioner.
10. Is present for meetings/'Krutus', with people of the resort and/or villagers to identify and give solutions to specific problems.
11. Supervises optimal waste disposal and cleaning services in their resort.
12. Mediates in simple civil cases.
13. Attends audiences at the district-commissariat.
14. Prepares for visits to their resort from state officials and policymakers.
15. Takes care of the administrative processing for documents pertaining to their resort.
16. Regularly prepares reports pertaining to social, cultural, economic, and ecological developments in their resort for the district-commissioner or the district-secretary.
17. Takes care of the proper functioning of the board service in their resort.
18. Is intimately involved in the general, free, and secret elections in their district/resort.
19. Takes care of order in the resort.
20. Stays on top of managerial developments.
21. Delivers advice/opinions to the district-commissioner, district-secretary, and the adjunct district-secretary.
22. Conducts all activities in the extension of their function.

Table 5 Official tasks of the Assistant Board Supervisor

Official tasks of the Assistant Board Supervisor
1. Makes an inventory, discusses or advises on (possible) solution(s) at the administrative level in his/her jurisdiction;
2. Also supervises the construction, repair and maintenance of secondary and tertiary roads and the regular maintenance and/or cleaning of roadsides, strips, squares, general cemeteries, rubbish dumps, etc.;
3. Also checks the implementation and regular maintenance of various Civil, Construction/Technical activities;
4. Also supervises, in collaboration with the Civil Engineering Department, the proper execution of work by third parties and others in accordance with specifications;
5. Co-investigates(s) license applications for setting up and operating industries, companies, companies, retail companies, etc. and also checks compliance with permit conditions of industries, companies, companies, retail companies, etc.;
6. Be closely involved in organizing the general, free and secret elections in the relevant district/administrative district;
7. Participate in field research before issuing an advice to the Board Overseer;
8. Attends meetings/krutus with resort and/or villagers to make an inventory or possibly propose solutions to various problems and also mediates in simple civil matters;
9. Supervises an optimal waste collection and cleaning service in the relevant resort;
10. Attends co-audiences at the district commissariat;
11. Helps prepare official visits by policy and/or state officials
to the district/administrative resort or resort;
12. Is also responsible for the overall administrative processing of documents from the relevant jurisdiction and is also responsible for the overall order and peace in the district/administrative jurisdiction or jurisdiction;
13. Keeps himself regularly informed of developments in the field of public administration;
14. Regularly reports both orally and in writing to the Board Overseer;
15. Carry out all activities related to the position.

f. Demographics

In table 6 the population number and household info as gathered during Krutu sessions and from ACT-S databases.

Table 6 Population and household information per location

Village	Population and household info
Alalapadu	150 people.
Apetina	400 people, 127 households.
Sipaliwini	179 people, 39 households, 69 houses, 94 men and 85 women.
Kwamalasamutu	800 people
Kawemhakan	300 people, 50 households, 60 houses, 60 men.
Kumakapan (small settlement).	There are 7 people daily in the village. 20 of the children of the village go to school in French-Guyana.
Pelelu Tepoe	450 people
Palumeu	300 people
Amotopo	40 people
Coeroeni	70 people.

g. Other socio-cultural observations

The following other socio-cultural observations were observed.

- **Kawemhakan** is the most westernized village, their houses are also in a modern western style made from wood and stone. This village is financially more well off than the other locations. The parents get monthly child benefits if their children are born in French-Guyana. A lot of villagers tend to leave and move to French-Guyana because they have better access to basic needs there.
- **Kwamalasamutu** is the biggest village, with about 800 people.
- **Kumakapan** has the least amount of people and can be considered a small settlement. Their captain died 4 years ago. The front of the village is deserted and only 6 houses are inhabited in total. There is a female leader of the settlement that wishes to be appointed as Basja.

5.3.1.2 Baseline needs assessment

This paragraph discusses the Sub-Social RQ # 2.

*What are the **baseline household energy, water and telecommunications need and social considerations** of the Indigenous peoples in each location?*

Interviews were hold with the communities in all villages during Krutus that were organized especially for this purpose. The results regarding the baseline needs assessment per village are presented in the table below.

Table 7 Baseline needs assessment

Baseline needs assessment			
Village	**Energy**	**Water**	**Telecommunications**
Alalapadu	The village has no stable source of electricity. There is a broken solar panel at 'Krutu oso' the Krutu houses and the controller does not work. Their generator is also broken; they rarely had gas for it. One female Krutu participant owns a freezer but is not able to use it.	Their main drinking water is from the creek. They also bathe in the creek with soap. They have been given advice to cook it first. Some people save rainwater in a Duro tank. They receive old, bottled water from Paramaribo. Diarrhea and vomiting due to contaminated water are common. In the dry season they do not have enough water for all households, including the teachers' households. They are aware that they can get malaria from contaminated water areas and get sick due to stool and dead fish. Mostly their children get diarrhea from the water.	Only the people from the Tuhka nut factory have access to telecom. The clinic at the airport has a radio. People with a job or income are able to buy phones but due to bad reception are not able to use it properly. Older women contact family via the village radio transmitter. They want radio(programs) to be able to listen to the news and other programs. Two women have been on the internet before. Especially the younger people would love to learn how to use new technologies.
Village	**Energy**	**Water**	**Telecommunications**
Apetina	They have a diesel generator, but better electricity is needed. Not every household is connected to the electricity line and not 24/7. They have light from 18.00 to 23.00hrs. They would like around the clock electricity for appliances, music, tv, and for saving of food. Apetina has a freezer house that everyone can use if they pay a fee.	Rainwater is saved in Duro tanks and only available in the rainy season. In the dry season they use water from the river or creeks and let the sediment settle. Some people cook it, some do not. UNICEF set up a clean and safe water system for the school. It has the potential for extension to other households via tap water. There are 6 taps in the village. They bathe in the river or creek.	They have phone reception. Telesur 3G. no radio. Everyone uses and knows how to work with the internet/ WIFI connections. The Basja is currently discussing radio projects with other actors.

	Some people use the common village freezer, some smoke their food. They are not happy with the current system where they need 2-3 vials per month. Every 2 months they fetch 6-7 fuel vials at Godo Olo. They take considerable risk for their motorboats to go through water acceleration points to pick up the vials at Godo Olo.		
Village	**Energy**	**Water**	**Telecommunications**
Sipaliwini	There is a central electricity line with a solar panel, but only for the school, church and Tukusipan. The village does not have a generator. Some people own freezers, but most do not. The main roads have solar panel powered lamps. The villagers want light at night. That is very important to them for kids' homework, when people fall ill or medical emergencies such as a birth.	Their drinking water is rainwater collected in a Duro tank and tap water. They bathe with tap water or in the river. The river and creek water are polluted in the rainy season. The villagers are content with the water they have but would want a better quality of water, i.e. cleaner water options.	There is telecom from ACT. People who own a phone use the WIFI signal provided via ACT. Tareno Media is not operational. ACT's radio station for communication with MZ is broken. Most people own a phone. Most men know what the internet is. Half of the women know what the internet is.

Village	Energy	Water	Telecommunications
Kwamalasamutu	There is a generator that runs on diesel. They have 7 barrels of diesel oil for 3 months, but they need They need at least 10 or 12 a month for the generator and excavator. Some people don't have electricity at all. If there is no diesel, they can't use the freezer. There needs to be 24-hour electricity. The current electricity is irregular, breaking their current freezer and causing meat to go bad frequently. Some don't have any electric appliances. Some have a freezer (there are 150 freezers in the village), washing machine, rice cooker, tv, charger, batteries and flashlights.	They have a source of tap water which is spring water. They currently fetch their drinking water from the river, collected rainwater and the creek. A Duro tank collects the rainwater. They don't have a means to purify the water. The women bathe in the river or in the creek. When they are 'feeling lazy', they will use tap water. The men bathe in the river after hunting.	There is a tower, but they think it is owned by tourists. They do not know who owns or maintains it. All of the men have phones, 10 of the women have phones.
Village	**Energy**	**Water**	**Telecommunications**
Kawemhakan	They have a generator. They need 9 vials per month. The government pays for it and they receive it via a boat from Albina. They have light at night. They need ice to chill their food; they buy ice in French-Guyana. They have freezers, but enough capacity to store all their food.	It is a 30-minute walk to the river where they fetch water in a bucket. They have tap water but that is not accessible in the dry season. In the rain season people get seriously ill from the tap water. Rainwater or cooked river water are their drinking water. "The kids of the village keep drinking unsanitary water anyway and they get really sick…", Miep and Doos (Head Captain). Better water access is their main need.	They have Digicel and Telesur telecommunications access. There is not always reception, especially during lightning storms. Their radio transmitter is broken. They say they need internet access to be able to do online banking or to easily access government papers from CBB. The younger people are more familiar with the internet.

Village	Energy	Water	Telecommunications
Kumakapan	**There is a generator, but one generator panel is broken. There are also old electrical panels. Electricity is needed.**	In the rainy season they can use rainwater as drinking water. Otherwise, they use river water. They are aware that because of gold prospecting methods, the water is no good for drinking use, especially when the tide is high. In the dry season they are forced to drink river water.	Digicel and Telesur have reception there, but because there is no electricity there is no facility to charge phones.
Village	**Energy**	**Water**	**Telecommunications**
Pelelu Tepoe	-Primarily they use a Photovoltaic Solar system. Secondarily they use a diesel generator as backup, but there is not always oil available for the generator. Since they have the solar system, the government stopped sending diesel oil for the generator. -Remarkably, everyone seems to have a freezer. -They use freezers, televisions, smartphones, music speaker boxes, planers and circular saws. -They have light at night from the PV system. -The PV system is not operational 24 hours a day. It is operational from 9/10 o' clock in the morning to 12 o' clock at night. They would like electricity access to their houses.	Their drinking water is from the water crane and Duro tank and the river. Pelelu Tepoe has their own water system where strategically placed tap points are placed. However, now of the Krutu interviews, the water system is not operational, so their main water is from Duro tanks. They let the sediments in the water sink to the bottom by letting it settle for a while, then they put the top water in another bucket to drink or use as is or some people cook it. They only tend to get sick from river water, not from rainwater or crane water. They bathe in the river or at the crane.	Telesur, 3G. In the rainy season, the connection is not optimal. They have tv's and can watch channel 12 (Algemene Televisie Verzorging). They do not have radio reception. They do have phones and active internet connections. 100% of men have been on the internet before, 60% of women have been on the internet before. All the men own a phone, 80% of the women own a phone.

Village	Energy	Water	Telecommunications
Palumeu	They have a diesel generator that hasn't been used for almost 2 years. After this visit two technicians of DEV (Dienst Energie Voorziening) went to fix the generator after our field visit.	They use river water and collect rainwater. METS has a water well for the tourist lodge. The water system connects to the water system of the school, not the rest of the village. Since Covid-19, there has been no water supply for the school. ACT has put tanks with water for general use and sanitary use of the school since November 2022. They seldom get sick from rainwater, but if the river water is not cooked right, they get diarrhea.	They have Telesur 3G. The men and women own mobile phones. Everybody is familiar with the internet.
Village	**Energy**	**Water**	**Telecommunications**
Amotopo	They have no source of energy in the village. They use campfires as a light source at night. There is no light in our house at night. They use flashlights, but if they don't have batteries, it stays dark. They keep meat conserved by drying and smoking. They would love to have a fridge with improved energy access.	They use rainwater or river water. Somebody fetches water for the elderly in the village. They can get sick from the river water.	They have WIFI from ACT. Older villagers do not have phones and are not familiar with the internet. Younger people are familiar with WhatsApp. The captain has a radio transmitter.
Village	**Energy**	**Water**	**Telecommunications**
Coeroeni	ACT brought solar panels in 2019. They feel they need a better solar system. They would like fridges, drilling machines, planers and washing machines.	Their drinking water is river water and rainwater. They are not used to cooking water and get sick a lot from the water. They say a water system needs to come as soon as possible. 2024 is too long of a wait, "Maybe we won't be able to make it till that time".	There is WIFI in the village. All the men, also the older men, own phones.

5.3.2 A Description of the Potential Impacts, and the Opportunities for Indigenous Peoples Development

This paragraph discusses Sub-Social RQ # 3, as stated below.

What are the potential positive impacts of improved energy, water and telecommunication services on the Indigenous peoples' social best practice indicators?

a. What are the relevant social key performance indicators (KPI's)?

b. What are guidelines to enhance these positive impacts (enhancement policies)?

5.3.2.1 Social KPIs

KPIs are metrics used to evaluate whether the social theory of change can be met by IDB's water, solar energy- and telecommunications infrastructure projects on Indigenous land in the South of Suriname.

Figure 5 shows the Social Key Performance Indicators (KPI's) that were extracted from interview results.

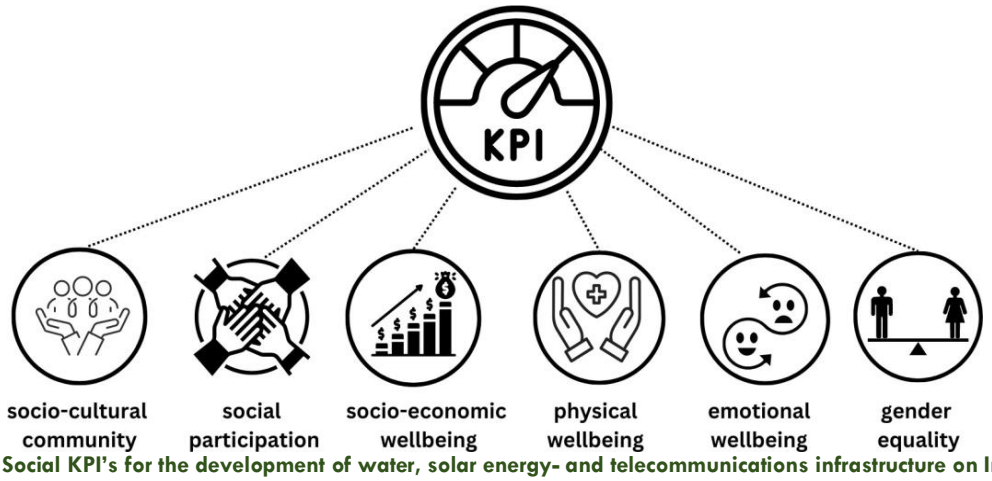


Figure 5 Social KPI's for the development of water, solar energy- and telecommunications infrastructure on Indigenous land in the South of Suriname

To rate the KPI, a 3-level positive impact analysis was done to see what potential positive impacts could occur (high, medium or low potential positive impact, see table below).

Table 8 Potential positive impact rating

Potential positive Impact rating	Description	Proceed with:
High potential positive impact.	Certain to benefit the social group and/or solves a major issue they are dealing with.	Guidelines to enhance or optimize this potential positive impact or opportunity should be formulated.
Medium potential 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.
Low potential 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.

5.3.2.2 Potential positive social impact analysis: an overview of Opportunities for Indigenous Peoples' Development

KPI's were used to assess the potential positive impact on the social groups / opportunities for Indigenous Peoples' Development.

Table 13, 14 and 15 show the overview of the positive impact rating and analysis.

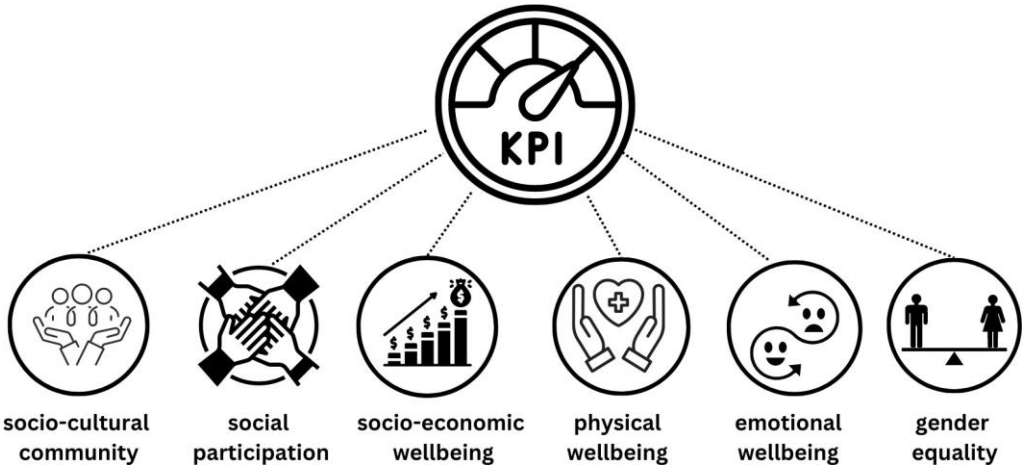


Figure 6 KPI's for the development of water, solar energy- and telecommunications infrastructure on Indigenous land in the South of Suriname

Table 9 Potential positive social impact rating: an overview

Social Key Performance Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawemhakan	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
Socio-cultural community										
1.optimizing their way of life.										
2.engagement method in place.										
3.cultural heritage and -territories maintained.										
Social participation										
4.easy access to the city for family.										
5.feeling supported.										
6.willing to accommodate workers to achieve project goals.										
7.willing to be trained for operation and maintenance.										

8.increased personal development.										
9.increased sense of equal rights.										
10.willing to learn new technologies.										
Socio-economic wellbeing										
11.willingness to work in operation and maintenance.										
12.increased business opportunity.										
13.elevation of existing businesses.										
14.use of new tools.										
Physical wellbeing										
15.improved medical care.										
16.improved health and nutrition status.										
17.improved food security.										
18.improved sense of leisure.										
Emotional wellbeing										
19.improved sense of safety.										
20.less stress.										
Gender equality										
21.More business opportunity for women.										
22.improved physical wellbeing for women.										
23.men having more time for family or household activities.										

Table 10 Positive impact colour legend

Legend	
	High positive potential impact.
	Medium positive potential impact.
	Low positive potential impact.
	Not Applicable.
	No information.

5.3.2.3 Opportunities to enhance positive social impact

Table 11 Opportunities to enhance positive social impact

Potential positive social impact analysis overview.		
The scope that was assessed is whether the KPI's benefit the social group and/or solve a major issue they are dealing with, as verbally stated during Krutu sessions and by socio-cultural assessment of the location in question.		
Key Performance Indicator	**Positive social impact analysis: an overview.**	**Opportunities to enhance this positive impact**
Socio-cultural community		
1. Optimizing their way of life.	-Alalapadu's energy and water needs would be especially optimized. -Apetina water's needs would be especially optimized. -Sipaliwini's energy and water needs would be especially optimized. -Kwamalasamutu would like to optimize in their energy water and telecom systems. -Kawemhakan water needs would be especially optimized. -Kumakapan's electricity, water and energy needs would be especially optimized. -Pelelu Tepoe's water needs would be especially optimized -Palumeu's water needs would be especially optimized -Amotopo's energy and water needs would be especially optimized. - Coeroeni's water needs would be especially optimized	The water needs could be significantly optimized by filtering the mercury from the water in Apetina, Kawemhakan and Kumakapan (consult the environmental safeguards report for more information on this topic).
2. Engagement method in place.	The traditional Krutu is the best practice engagement method for all villages.	The Krutu setting can be used to communicate with the villagers during project building grievances or guidelines for the villagers and their leaders.
3.Cultural heritage and -territories maintained.	Territories for building purposes will be chosen by villagers themselves. No cultural heritage sites will be disturbed. Most villages would still use wood to cook food, except for Kawemhakan where they would prefer quicker electrical cooking. In Alalapadu they would like the following territories not to be entered or used: the cemetery, the school, and the spot reserved for a second landing strip. In Sipaliwni, territories they would not like to be entered are the nature reserve and the cemetery. In Kumakapan they have cultural artefacts in the ground that need to be considered.	Being mindful of territories that are not allowed to be used or entered is an important social safeguard.
Social participation		
4.Easy access to the city for family.	Alalapadu inhabitants noted that calling or reaching family more easily is why they would like the project to be executed as soon as possible. They have family members that live in the city of Paramaribo. In Apetina they already have phones and easy access to the family. In Sipaliwini all the men have phones and half of the women have phones. In Kwamalasamutu they have phones and access to family via ACT's WIFI/telecom.	

	In Kawemhakan they have phones and access via Digicel and telesur. In Kumakapan there is reception but no electricity to charge phones. In Pelelu Tepoe they have phones and access to family via Telesur. In Palumeu they already have phones and access to family via Telesur. In Amotopo not everyone has phones, there is no energy access to charge them. They would like to call family members. In Coeroeni all the male Krutu participants already have phones.	
5. Feeling supported	All villages would feel very supported. They have all been made false promises by various political parties or the government. There is no info on Kumakapan.	False promises made is something to consider when constructing FPIC forms and during project information sessions with villagers.
6.Willingness to accommodate workers to achieve project goals.	All villages are willing to accommodate workers to achieve project goals. However, the men of Alalapadu have made clear they do not want to be deceived and lied to. In Amotopo, the men were very enthusiastic and mentioned they would build a new house specifically to accommodate workers of the IDB project.	
7. Willing to be trained for operation and maintenance.	They are all willing to be trained. Alalapadu and Sipaliwini is open to online training. Most villagers would like to be compensated for minor maintenance services.	Compensating their villagers for maintenance work can be discussed in the village ownership model plan.
8. Increased personal development.	New opportunities for development can occur during training for operation and maintenance of the services. New opportunities for personal development are also there with freed up time from physical manual labor that is necessary to carry water and to hunt for food. All the villages were eager to learn. Pelelu Tepoe and Palumeu noted that they could be even more productive with longer energy access (light at night).	
9. **Increased sense of equal rights.**	The question was hard to answer in Apetina, Sipaliwini, Kwamalasamutu and Palumeu. There was no Krutu in Kumakapan, to gather info. In Kawemhakan, Amotopo and Coeroeni they strongly agree that they would have an increased sense of equal rights. In Pelelu Tepoe they did not find this question applicable, since they already have telecommunications connection and solar power.	
10. Willing to learn about new technologies.	All villages are open to learning new technologies. Apetina is already familiar with the concept of online training. Alalapadu, Sipaliwini, the men of Kwamalasamutu are open to online training. The women of Kwamalasamutu and the people of Coeroeni are neutral about online training. There is no info on Kumakapan. The remaining villages are not open to online training.	In training models, Alalapadu, Sipaliwini and Kwamalasamutu modes of online training or communication could be possible if needed.

Socio-economic wellbeing		
11. Willingness to work in operation and maintenance.	All villages are willing to work for operation and maintenance. In Kawemhakan and Coeroeni there have been Krutu participants that have already volunteered to help (see capacity gap analysis). In Kwamalasamutu they do not want to carry heavy items themselves and would like modern machines like ATV's for that.	Operation and maintenance by local villagers increase community ownership.
12. Increased business opportunity.	With the right support, tourism could be (re-) developed for all villages. In Kumakapan there is an additional potential to become a historical archaeological site and rare tourist attraction. There is also potential for archaeological research.	Tourism and archaeological research can be included in socio-economic models to sustain long term maintenance of the project building objectives.
13. Elevation of existing businesses.	In all villages, improved energy, water and telecom access could improve their businesses. This is because with those services, tourism could be developed that could increase the sales of their local products. They could expand their current businesses such as honey from stingless bees, tea production, woodworks for arts and crafts, ground pepper production and traditional medicine (only in Kwamalasamutu and Pelelutepoe).	
14. Use of new tools.	The women of Alalapadu mentioned they would buy a rice cooker if they had the funds. The men of Kwamalasamutu say they would buy circular saw and a planer to make planks all day. With improved energy and water access all villages would have a better potential for developing tourism. Tourism could sell food to tourists by using tools such as a rice cooker or an electrical cooking stove to more efficiently cook food if needed. Or to have clean water access ready to cook the traditional way.	
Physical wellbeing		
15. Improved medical care.	All villages have a health clinic of the Medical Mission. Only in Kumakapan the people need to go to Kawemhakan's health center. With improved telecom they could reach the Medical Mission quicker. With access to night light, they can better respond to medical emergencies such as births. Improved water access and quality could improve their medical care.	
16. Improved health and nutrition status.	With improved water quality and access they would have improved physical wellbeing (less stomach aches and diarrhea. With closer water access the women would not have to fetch water from the creek or river. There are no freezers in Palumeu, Amotopo and Coeroeni. With improved energy access they could save food in the fridge instead of smoking or barbacotting it.	Apetina has a freezer house. This is a great example of a community ownership model.
17. Improved food security.	They would have improved food security with fridges/ energy access. With quicker access to cleaner water, they could create better food security and safety.	

18. Improved sense of leisure.	Most women would experience an improved sense of leisure with closer water access as they are the ones that fetch water for their families. The women of Sipaliwini already feel a sense of leisure; they used to spend 5 hours fetching water. The men might hunt less with better food security. In general people would like to hear or see the news so they can be up to date with current affairs of other villages and the rest of the world.	ACT-S's initiative of Tareno Media, a radio station for peoples of South Suriname can be broadcasted for the village locations for improved sense of leisure.
Emotional wellbeing		
19. Improved sense of safety.	In general, people would feel safer at night to prevent accidents and to see potentially dangerous animals such as snakes. In Palumeu the Krutu participants stated that they already feel safe. In Kawemhakan they already feel safe at night when they go to bed. In Kumakapan an elderly man feels unsafe because snakes enter his camp and there is no electricity or light at night. Pelelu Tepoe already has light at night, and it makes them feel safer.	
20. Less stress.	Especially the women who fetch water would have less stress with improved water access and less drinking water-related illnesses. Some men say they would also experience less stress if there was better food security.	
Gender equality		
21. More business opportunity for women.	With the right support and mindfulness of project investors and other organization, the following business opportunities could be created for women: • Direct business opportunity: The women are willing to work for operation and maintenance of the projects. If the women are actively included in gender-environment nexus during project building work and are given compensation for contributing to the waste management and recycling team of building workers or other site workers. • Indirect business opportunity: Improved energy and water access could potentiate the development of tourism which could lead to more business opportunity for women. They could serve as tour guides, sell their arts and crafts, honey products or cook meals. Improved energy and water access could lead to investment opportunities in the field of bio economy, such as processing teas or the processing of cinnamon bark into bottled essential oils.	Women empowerment can improve community ownership models.
22.Improved physical wellbeing for women.	In Sipaliwini women do not have to fetch water. Improved water quality improves their health. There is no info on Kumakapam. Kwamalasamutu has tap water. There is no info on the women of Coeroeni.	
23. Men having more time for family or household activities.	Applicable already in Tepoe. Where they have light at night which lead to the men doing wickerwork and other household activities.	

5.3.3 A Description of the Potential Social Risks and Culturally Appropriate Mitigation Measures **(Indigenous Peoples Plan - IPP)**

This paragraph discusses the Sub-Social RQ # 4 as stated below.

What are the potential social risks that can damage the long-term sustainability of improved energy, water and telecommunication services and/or damage the Indigenous peoples' natural environment?

a. What are the relevant social key risk indicators (KRI's)?

b. What are policies and action plans to mitigate the risks (safeguard policies)?

In addition, this paragraph is involved with a description of potential social risks and direct, indirect, and cumulative impacts on indigenous peoples, as well as the opportunities and project benefits for IPs, with particular importance to their physical and cultural survival, territorial integrity, social organization and customary laws and economy.

It also presents the culturally appropriate mitigation measures that will be undertaken to manage the risks and impacts of the project on Indigenous Peoples, as well as the measures that will be taken to ensure that Indigenous Peoples are equal project beneficiaries.

5.3.3.1 Social Risk Rating and Culturally Appropriate Mitigating Measures / Action Plan

5.3.3.1.1 Social KRIs

From the Social KPI's, Social Key Risk Indicators (KRI's) were extrapolated (figure 10). Social KRI's are metrics that can evaluate potential risks that could negatively impact the social theory of change for IDB's water, solar energy- and telecommunications infrastructure projects on Indigenous land in the South of Suriname.

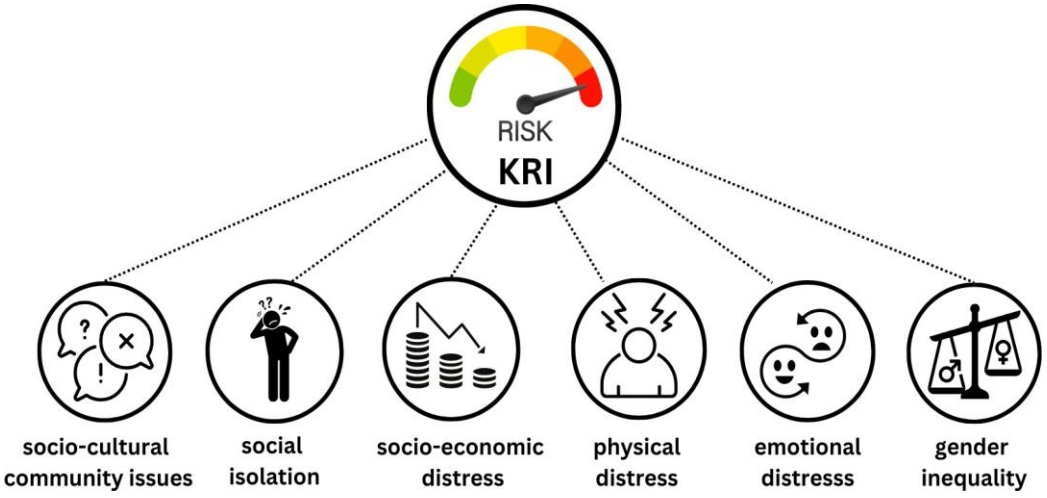


Figure 7 Social KRI's for solar for the development of water, solar energy- and telecommunications infrastructure on Indigenous land in the South of Suriname

A risk analysis was carried for these Social KRI's by:

- Rating the potential negative impact (table 9).
- Rating the likelihood of this negative impact; likelihood is the level of probability that a risk will occur (table 10).
- Evaluating the risk using a risk matrix (risk= potential negative impact x likelihood) (table 11). The potential risks are defined by 4 categories: low risk, moderate risk, substantial risk and high risk.
- Describing the risk per category with subsequent plan of actions (table 12).

Table 12 Potential negative impact rating

Potential negative Impact rating	Description	Proceed with:
Very high potential negative impact	Irreparable damage to the environment and/orsocio-environmental indicators.	Risk analysis
High potential negative impact	Significant damage to the environment and/orsocio-environmental indicators.	Risk analysis.
Medium potential negative impact	Considerable damage to the environment and/orsocio-environmental indicators.	Risk analysis.
Low potential negative impact	No or insignificant damage to the environment and/or socio-environmental indicators.	Risk analysis.

Table 13 Likelihood rating

Likelihood	Description
Very likely	Certain to occur.
Likely	Can occur.
Possible	May occur.
Unlikely	Almost never occurs.

Table 14 Risk matrix

Likelihood- very likely	**Moderate**	**Substantial**	**High**	**High**
likely	**Low**	**Moderate**	**Substantial**	**High**
possible	**Low**	**Moderate**	**Moderate**	**Substantial**
unlikely	**Low**	**Low**	**Low**	**Moderate**
Negative impact	**Low**	**Medium**	**High**	**Very high**

Table 15 Social risk rating and mitigating measures / action plan

Risk rating	Description	Actions / Mitigating Measures
High	Solar energy, water or telecommunications infrastructure activities may cause irreparable direct or indirect damage to Indigenous peoples' socio-cultural community, social participation, socio-economic wellbeing, physical wellbeing, emotional wellbeing or gender equality.	Risk mitigation: The risk can be avoided, reduced to as low as reasonably practicable (ALARP), or transferred. The risk is not acceptable. Safeguards should be formulated.

Substantial	Solar energy, water or telecommunications infrastructure activities may cause significant direct or indirect damage to Indigenous peoples' socio-cultural community, social participation, socio-economic wellbeing, physical wellbeing, emotional wellbeing, or gender equality.	Risk mitigation: The risk can be avoided, reduced to as low as reasonably practicable (ALARP), transferred or retained. The risk may be acceptable. Safeguards should be formulated.
Moderate	Solar energy, water or telecommunications infrastructure activities may cause considerable direct or indirect damage to Indigenous peoples' socio-cultural community, social participation, socio-economic wellbeing, physical wellbeing, emotional wellbeing or gender equality.	Risk mitigation: The risk can be avoided, reduced to as low as reasonably practicable (ALARP), transferred or retained. The risk may be acceptable. Safeguards should be formulated.
Low	Solar energy, water or telecommunications infrastructure activities cause no or insignificant damage to Indigenous peoples' socio-cultural community, social participation, socio-economic wellbeing, physical wellbeing, emotional wellbeing or gender equality.	Further risk reducing measures may not be needed. Guidelines could be formulated.

5.3.3.1.2 Potential social risks analysis

KRI's (figure 9) were used to assess the potential risks that could damage the social groups or cultural functions. Table 16, 17 and 18 shows an overview of the risk rating and analysis.

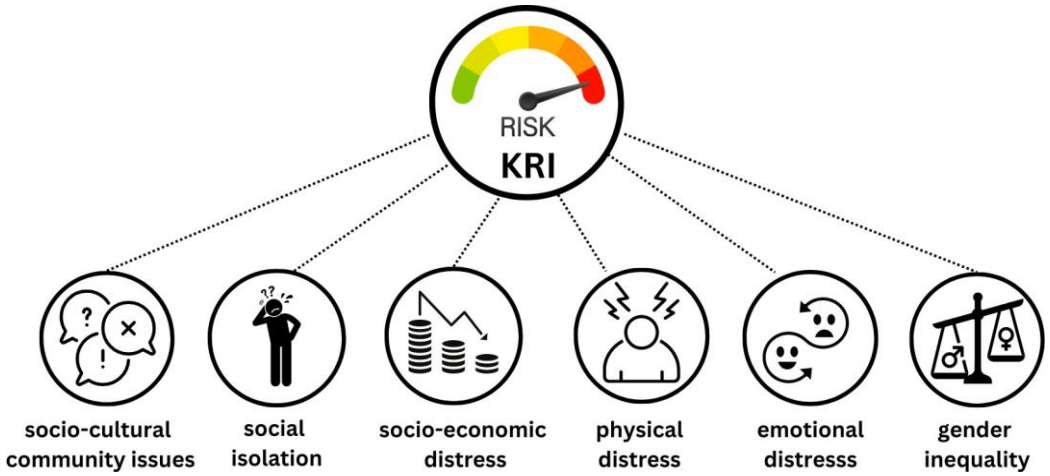


Figure 8 Social KRI's for solar for the development of water, solar energy- and telecommunications infrastructure on Indigenous land in the South of Suriname

Social Key RIsk Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawamhakan	Kumakapan	Pelulu Tepoe	Palumeu	Amotopo	Coeroeni
Socio-cultural community issues										
1.Indecision about community ownership models.										
2.Temporary displacement due to project building activities.										
Social isolation										
3.Unequal distribution of water, energy or telecom services.										
4.Lack of local capacity and expertise to sustain maintenance or operation of the systems.										
5.Lack of trust due to past false promises.										
Socio-economic distress										
6.Lack of paid jobs or employed villagers to upkeep ongoing costs.										
7.Inability to buy freezers, electronic devices or other eletrical tools										
Physical distress										
8.Physical injury while supporting project objectives.										
9.Noise disturbance at critical locations.										
10.Distance for fetching water too far, especially for the elderly.										
11.Dust production during building activities.										
Emotional distress										
12.Worries and stress about generating the finances for the projects.										
13.Temporary distress due to project building activities.										
Gender inequality										
14.Gender inequality in the ability to pay for and maintain services.										
15.Gender inequality in potential job creation.										

Table 16 Risk analysis colour legend

Risk analysis color legend

Legend	
	High risk.
	Substantial risk.
	Moderate risk.
	Low risk.
	Not Applicable.
	No information.

5.3.3.2 Recommended safeguard policies and social best practices

For all risks assessed the recommended risk mitigation strategy is to absorb or transfer the risk by reducing these to ALARP by following the recommended safeguard policies and social best practices outlined in table 18.

Table 17 Recommended safeguard policies and social best practices

Potential risk analysis.		
The scope that was assessed is whether the KPI's damage the social group, as verbally stated during krutu sessions and by socio-cultural assessment of the location in question.		
Social KRI	**Risk analysis: an overview.**	**Recommended safeguard policies and social best practices.**
Socio-cultural community issues		
1.Indecision about community ownership models.	In Alalapadu there is a moderate risk for indecision; they already have community model where they gather money to buy diesel oil for the generator, however they need more krutus to decide if everyone should pay or only the financially strong ones. In Apetina there is a low risk for indecision; they said they will pay together. In Sipaliwni there is a low risk of indecision. They want to see if they can pay first, if not they would go to ACT or the government for help. In Kwamalasamutu there is moderate risk for indecision; some say only those that use it have to pay for it, others say everyone will have to pay. The women say they would need a social affairs person to gather and manage the money. In Kawamhakan there is a moderate for indecision: they said they would need some further discussions to decide whether every household would help pay. There is no info on Kumakapan. In Pelelu Tepoe there is a low risk for indecision. They already have a solar panel. For additional systems they would like to set money aside for people that cannot pay. In Palumeu there is a moderate risk for indecision. They say they have low level of income and would need to look for outside funding. They said for the elderly without income could not pay but they would cover it as a community. In Amotopo there is low risk for indecision; they will gather money in a village money pot to cover the costs. In Coeroeni there is a low risk for indecision: they are clear on paying together as a community.	Krutus are needed on a village level to discuss financial ownership models that fit their village. Consent forms that state that they are aware that the operation and maintenance costs are their responsibility, use audio recording if possible. In general, community financial ownership models seem the best fit for most villages.
2.Temporary displacement due to project building activities.	Is unlikely to occur, the local Indigenous peoples will lead the projects workers to the locations in the village where they could do building work.	

Social isolation		
3.Unequal distribution of water, energy or telecom services.	In Apetina UNICEF prioritized water for the school. In Palumeu only the tourism lodge has access to a clean water well. In general, there is no local technical expertise present.	Inclusion of every household, sex and age would be a recommended good practice as a social safeguard. Water connection at the household level would be ideal. At minimum, be mindful of the distance of water tap sites for the weaker persons in the village. To increase ownership and long-term sustainability of the projects it is recommended to put significant effort into training programs for both men and women focusing on capacity building.
4.Lack of local capacity and expertise to sustain maintenance or operation of the systems.	In Apetina they have people for minor maintenance for their generator and telecommunications service. They already get technical expertise from the city. In Kawamhakan there might be some solar panel expertise and lot of Krutu participants want to help with the solar panel building and maintenance. In Kumakapan there are not a lot of (young) people in the village. In Pelelu Tepoe, they have strategically placed water tap points. However, it was not working at the time of the interviews. This indicates a lack of local capacity to fix the problem. In Palumeu their generator was broken for two years and they did not have the means or expertise to fix it.	Substantial efforts need to be put into training programs for women and men.
5.Lack of trust due to past false promises.	There is no info on this in Kumakapan and Pelelu Tepoe. In general, at most locations false promises were made by political parties and government bodies. The lack of trust is substantial in Alalapadu where they made the following statement: “We have a new law; if people come here and lie to us, we will put them back on the plane.”	Within the informed consent process, considerable effort needs to be taken to inform the inhabitants of the project phases and what they can expect to happen next.
Socio-economic distress		
6.Lack of paid jobs or employed villagers to upkeep ongoing costs.	In most villages, the inhabitants have expressed that there might not be enough income-generating activities to meet the potential maintenance and operations costs. Worries about these finances are significant.	Stimulating the local economy and creating new livelihoods with improved energy, water and telecommunications access will ensure the long-term sustainability of the project building objectives.
7.Inability to buy freezers, electronic devices or other electrical tools.	Some villages have freezers present, albeit not with enough capacity to freeze food for the entire population. In Apetina there has been a solution where they designed a freezer house where people pay a fee to make use of it.	The Apetina freezer house model is interesting to develop with fundraising as a model in each village.
Physical distress		

8.Physical injury while supporting project objectives.	Physical injury during building work is not applicable right now, but could occur. In Kwamalasamutu they are not willing to carry heavy items, they say they need an ATV car for that.	Within the FPIC mechanism, what they could expect to include with physical manual labor during project building objectives is recommended.
9.Noise disturbance at critical locations.	In Apetina they would not be okay with noise disturbance close to the school or church during active hours. Sipaliwni. Low. Are okay. In Kwamalasamutu they would like no noise disturbance during school time. In Pelelu Tepoe they would not like noise distrubance in the middle of the village, close to the school or at the Krutu oso. The men say building work can be done on one end of the airstrip. In Palumeu they would not be okay with noise disturbance close to the school yard or in the middle of the village. There is no info on Kumakapan and Coeroeni. The inhabitants of the rest of the locations are okay with some noise disturbance.	Grievance mechanisms are expressed via krutus. The noise disturbance limits are recommended to be taken into account during project building work.
10.Distance for fetching water too far, especially for the elderly.	In Amotopo they have noted that they actively fetch water for the elderly in the village. In Apetina they would not be okay with dust production close to their school. In Kwamalasamutu they would not like dust production close to a person that is ill. In Pelelutepoe they would not like dust production close to the school or at the Krutu oso. In Palumeu they would not allow dust production close to the school or in the middle of the village. There is no info on Coeroeni and Kumakapan. The inhabitants of the rest of the locations are okay with some dust production.	Including and considering all households, including the elderly, is recommended.
Emotional distress		
12.Worries and stress about generating the finances for the projects.	Most villages have worries about covering the potentials costs. There is no info on Kumakapan and Coeroeni.	In the FPIC process, worries of villagers and their leaders should be addressed. It is recommended to give an estimate of the potential maintenance and operational costs.

13.Temporary distress due to project building activities.	Most villages are okay with some temporary distress to achieve project outcomes. There is no info on Kumakapan and Coeroeni.	The preliminary FPIC process has shown that they would be okay with some temporary distress due to project building objectives.
Gender inequality		
14.Gender inequality in the ability to pay for and maintain services.	Gender equality is an ongoing process and is something to be taken into account for all villages. In relation to project building objectives, not all villages have female rangers that could join the waste management teams during project building objectives. Indirectly though, with improved energy, telecom and water access there could be pot entail job creation in the field of tourism and bio economy such investors in tea or ground pepper production. Additionally, most women spend a lot of time fetching water (not in Sipaliwini) the men tend to have more job opportunities. Improved water access would give women more opportunities to earn money.	Gender equality and women empowerment is recommended to be built-in in all project phases. Creating jobs and compensating women during the project work is recommended. Stimulating women's livelihoods that can be potentiated with improved energy, water and telecommunications access is recommended.

Social safeguards: a three-phase model

From the SIA and SRA, a three-phase social safeguards model has been designed to ensure the long-term sustainability of the solar, water and telecommunications infrastructure projects. Within this model, the relevant safeguards have considered: action plans, ownership models and social best practice.

Under this section the Sub-RQs 5,6,7, and 8, as stated below, are discussed, as part of the three-phase social safeguards model.

Sub- RQ 5: What are the Free Prior and Informed Consent (FPIC) considerations per location? (discussed in Phase 1 below).

Sub- RQ 6: Is there local expertise and what are the capacity gaps for the energy, water and telecommunications project in each location? (discussed in Phase 2 below).

Sub- RQ 7: What socio-economic activities can be potentiated with improved water, energy and telecom access in each location? (discussed in Phase 3 J. below).

Sub- RQ 8: What are potential community ownership models that can lead to the sustainable maintenance of the project's investments. (discussed in Phase 3 K. below).

The social safeguard model includes the following phases:

Phase 1. Free Prior and Informed Consent (FPIC) safeguards.

A. *Early FPIC responses.*
B. *False promises and informed consent forms.*
C. *Dust production and noise disturbance.*
D. *Safeguarded territories.*
E. *Grievance mechanism.*
F. *Potential physical injury.*

Phase 2. Community Capacity Building (CCB) safeguards: technical capacity.

G. *Capacity gap analysis.*
H. *Technical capacity training programs.*
I. *Gender equality: women empowerment.*

Phase 3. CBB safeguards: socio-economic capacities and ownership models.

J. *Socio-economic factors to consider willingness to pay potential, current potential to pay and future opportunities that can be potentiated with improved energy, water and telecommunications access.*
K. *Financial ownership models to sustain operation and maintenance costs.*

Ad Phase 1. Free Prior and Informed Consent (FPIC) safeguards

A. Early FPIC responses

The principle of Free, Prior and Informed Consent (FPIC) refers to the right of Indigenous peoples to give or withhold consent for any action that would affect their lands, territories or rights.

Legally speaking there is no official recognition in Suriname's legislative system that states that native groups own the land they live on. However, an amendment on a draft Law on Collective Rights of Indigenous people and Tribal groups is under debate in Parliament to gradually recognize the right to self-determination, cultural integrity, FPIC and the composition of traditional authorities.

By starting the FPIC process early in the engagement process, community ownership and responsibility is encouraged and built-in early on. In this report, early FPIC analysis has been analyzed via the positive impact analysis report with an overview of 23 KPI's in table 10. In general, all inhabitants showed significant willingness to participate in IDB's solar, energy and telecommunications projects, are excited about the opportunity and think that the projects would have a significant beneficial effect on their social group.

The table below shows a quick overview of the preliminary FPIC considerations per village as stated during initial Krutu sessions.

Table 18 Preliminary FPIC per location

Preliminary FPIC	
Village	**FPIC**
Alalapadu	The villagers are very excited about the project goals. They strongly agree that solar energy, water and telecommunications networks will be good for them and their village. However, they noted that they do not want people to come to their village and make false promises anymore.
Apetina	They say they want and need cleaner water alternatives than creek or river water and would prefer around-the-clock electricity. They strongly agree that the projects (solar panels and water infrastructure improvement) will be good for their villages.
Sipaliwini	They agree that the projects would be good for their village.
Kwamalasamutu	They strongly agree that the projects would be good for their village.
Kawemhakan	The villagers are very excited about potential project outcomes and would feel very supported. They strongly agree that these projects would be good for their village.
Kumakapan	The villagers want and need electricity and clean drinking water.
Pelelu Tepoe	They agree that the projects will be good for their village. They want and need better water quality and access and around the clock energy.
Palumeu	They agree that the projects could improve their lives.
Amotopo	They strongly agree that the projects will be good for their village although they are worried about the costs. The men were very enthusiastic and mentioned they would build a new house specifically to accommodate workers of the IDB project.
Coeroeni	They agree that access to energy would be good.

B. False promises and informed consent forms

Table 19 False Promises rating

Social Key Risk Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawemhakan	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
5.Lack of trust due to past false promises										

From KRI number 5 it is clear that especially in Alalapadu the inhabitants have been marked by previous false promises of political parties and government bodies. To minimize social conflict, it is recommended to clearly explain the project phases and objectives to the inhabitants and their leaders and to explain the project's conditions. The consent form in the table below is a model to be used during Krutu FPIC discussions before starting project building.

The traditional leaders make the final decisions and would need to decide if the local government board supervisors should be included in the FPIC process. In addition, it is recommended to actively inform villagers in a Krutu setting or, at minimum, to interview a sample percentage of villagers to test their informed consent about their head captains' final decision.

Table 20 Model consent form

Krutu/interview date:	
I hereby declare that: **I have been informed about the nature, methods and purpose of the IDB projects.** **that the inhabitants of [*location name*] have been informed about the nature, methods and purpose of the IDB projects.** **(Optional) Krutu date:** **Location:** **I hereby give [*organization name/ person's name*] consent to install solar panels, telecommunication networks and/or water infrastructure in [*location name*]** **I will allow project workers to enter the village for the discussed time frame to perform building work.** **I understand that operational and maintenance costs are not covered by IDB/ project investors and their working partners [*organizations name/ person's name*].**	
Location:	
Name(s) of translator(s):	
Signature of translator(s):	

Name.	Traditional leader role: Granman/ Captain/ Basja.	Signature.
Name.	Governmental bodies: Board supervisor/ assistant board supervisor.	Signature.
Name of inhabitant. "I hereby declare to have been informed on IDB's project goals".		Signature.
Notes of discussions		

C. Dust production and noise disturbance

Table 21 Dust production and noise disturbance rating

Social Key Performance Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasa	Kawemhaka	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
9.Noise disturbance at critical locations.										
11.Dust production during building activities.										

KRI number 9 and 11 have shown the following instructions from inhabitants in relation to possible dust and noise production: In Apetina they would not be okay with dust production or noise disturbance close to their school during active hours. In Kwamalasamutu they would not like dust production close to a person that is ill. In Pelelu Tepoe they would not like dust production or noise disturbance close to the school or at the Krutu oso. In Palumeu they would not allow dust production or noise disturbance close to the school or in the middle of the village. There is no info on Coeroeni and Kumakapan. The inhabitants of the rest of the locations are okay with some dust production or noise disturbance.

D. Safeguarded territories

In Alalapadu they would like the following territories not to be entered or used: the cemetery, the school, and the spot reserved for a second landing strip. In Sipaliwni, territories they would not like to be entered are the nature reserve and the cemetery. In Kumakapan they have cultural artefacts in the ground that need to be considered.

E. Grievance Mechanism

In all village the traditional engagement method is the Krutu format. In the occasion of grievances during site visits, the inhabitants stated that they would notify project workers via their traditional leaders.

Table 22 shows the stated preferred grievance mechanism per village.

Table 22 Grievance mechanism per village as stated during Krutu sessions

Grievance mechanism	
village	Grievance mechanism
Alalapadu	The villagers will let the captain or Basja know if grievances should occur.
Apetina	The villagers would let the head captain know and then the remaining captains or Basjas.
Sipaliwini	They would notify the traditional leaders, first the captain, then the Basjas.
Kwamalasamutu	They would let the Granman know.
Kawemhakan	They would let the ranman or the head captain know.
Kumakapan	Not answered, but most likely the current village leader who wants to become appointed as Basja (their head captain died 4 years ago).
Pelelu Tepoe	They would let the captain know, then the village management.
Palumeu	They would let the captain know.
Amotopo	They would let the captain and the traditional leaders know. The captain will see if everyone agrees, and the traditional leaders will decide in the end.
Coeroeni	They would let the captain know and he would express the concerns to the builders.

F. Potential physical injury

Table 23 Potential physical injury rating

Social Key Performance Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawemhakan	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
Physical distress										
8.Physical injury while supporting project objectives.										

KRI number 5 shows that the inhabitants of all locations are mostly willing to help with project building objectives. In Kwamalasamutu they do not want to carry heavy items themselves. In the case of medical emergencies, there is a Medical Missions per village that will need to be contacted (except for Kumakapan).

Ad Phase 2. Community Capacity Building (CCB) safeguards: technical capacity

Table 24 Community Capacity Building (CCB) safeguards: technical capacity rating

Social Key Performance Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawemhakan	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
4.Lack of local capacity and expertise to sustain maintenance or operation of the systems.										

G. Capacity gap analysis

From KRI number 4 it is clear that there is a gap in local technical capacity, as presented in the table below.

Table 25 Local capacity gap analysis for solar, water and telecommunications infrastructure

Capacity gap analysis				
Village	**Solar energy**	**Water**	**Telecommunications**	**Comments**
Alalapadu				**There is no technical capacity already present among villagers.**
Apetina	**Roy Meliwa does the maintenance of the village generator voluntarily.**		**Kenneth Welisiwen is responsible for telecom maintenance and Gilbert Koemaja for electrical maintenance. They only do cleaning maintenance. Systematic technical maintenance is done by people from the city. Gilbert Koemaja is not in the village right now.**	**There is potential capacity for minor maintenance work for the solar and telecom projects.**

Sipaliwini	**There is a working solar panel in the village. Who maintains it is unknown.**		**ACT maintains their WIFI/telecom connection.**	
Kwamalasamutu				**There is no known local technical capacity.**
Kawemhakan	**"One of the villagers works for a small solar panel company in French-Guyana, he could help", Miep Doos, (head captain). In addition, Krutu participants Nasa, Allianna and Glenn would like to work on the solar panels as well.**			
Kumakapan				**There is no local capacity and there are no young people daily present in the village.**
Pelelu Tepoe			**There is no local technical capacity for the telecom service, but they do clean maintenance in the area around the mast.**	**They already have solar and telecom systems. They have water infrastructure with water from a crane, however, was not working. Nobody in the village seems to be able to fix it and the women must carry water from the river again.**
Palumeu			**Madena Senkerija does gardening maintenance around the telecom installations.**	
Amotopo			**ACT rangers, Anderson and Usari maintain the telecom system.**	

Coeroeni		**For the water system the following people would like to contribute: Lesley, Tukaram, Alvin, Eli, Alex Toehamji, Wono Saiseke.**	**For the telecom system, the following people would like to contribute: Telecom: Orfeo Nanasaike and Windel Sinkora.**	

H. Training programs

It is recommended to absorb this risk but to increase ownership and long-term sustainability of the projects by putting significant effort into capacity building training programs for both men and women. These trainings can happen 'on the job' during project building work or during periodic refreshers to help build capacities further. Most villages prefer in person training, although inhabitants of Alalapadu and Sipaliwini are open to online training.

These trainings can include basic minor maintenance work such as cleaning the solar panel or telecommunications areas, but also technical maintenance work such as plumbing techniques, pipeline repairs and technical solar panel instructions.

I. Gender equality: women empowerment

Actively including women in all areas of project phases will increase community ownership and long term-sustainability of the projects. Since women carry water for the village, it is recommended to include them in the technical use of new water systems. Women can also be included in the gender-environment nexus by offering jobs for waste management and recycling work during site visits to minimize negative environmental impact.

Ad Phase 3. CCB safeguards: socio-economic capacities and ownership models

J. Socio-economic factors to consider

Table 26 Socio-economic factors rating

Social Key Performance Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawemhakan	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
Socio-economic distress										
6.Lack of paid jobs or employed villagers to upkeep ongoing costs.										
7.Inability to buy freezers, electronic devices or other electrical tools										
Emotional distress										
12.Worries and stress about generating the finances for the projects.										

The KRI number 6, 7 and 12 show that there are socio-economic factors that need to be addressed in order to sustain the projects long term. From the preliminary Krutu sessions, the following socio-economic factors were gathered: the willingness to pay, their current potential to pay and the potential future economic activities that can be potentiated.

Table 27 Socio-economic factors to consider

Socio-economic factors.			
Village	**Willingness to pay**	**Current potential to pay: Main economic activities to cover operational costs.**	**Potential future economic activities and use of new tools with improved energy, water and telecom access.**
Alalapadu	They still need to figure out how they could pay for it.	Both men and women are employed at the Tuhka nut factory.	● Tourism ● They do not see selling traditional medicine as a business opportunity. ● Bio economy opportunities include: stingless beekeeping, tea farming and ground pepper production.
Apetina	The men say that there are enough people in the village with income to help pay for the costs, if it is not enough they would ask ACT or the government for help.	The women say that they have income from arts and crafts, selling wild meat and fish and government official work, ranger work, traditional clinic assistants and work in tourism.	● They already do tourism work but this can be developed further with improved water access and quality. ● They see selling medicinal products as a potential business opportunity. ● Bio economy opportunities include: stingless beekeeping, tea farming and ground pepper production
Sipaliwini	Ideally, they said they would ask ACT, the government or other NGO's to help cover the costs, until enough villagers have income to manage it. They are worried about how much everything would cost and if they would be able to do it by themselves. Especially the women said they would work to try to cover the costs themselves.	Overall their means of income are via: ACT rangers, health assistants, government work (gardeners, station chef LVT, BO's, captains, Basjas), artisans, tea production and animal trade.	● The women said they could try to sell wild meat to help cover operational and maintenance costs. ● Villagers see selling medicinal products as a potential business opportunity. ● There is an opportunity to further develop tourism in the village. ● Bio economy opportunities include: ground pepper production, stingless beekeeping and tea farming.

Kwamalasamutu	They mentioned they would rather family members that come to visit them and tourists help pay for the operational and maintenance costs. On the other hand, they do not want to be dependent on outside funding. They are willing to cover the operational costs by themselves.	Selling honey from stingless bees, tea production and selling traditional medicine. Some villagers receive monthly child benefits from	● Tourism would have an opportunity to elevate their business such as jewelry making for the women. But the women say tourist don't always want to buy from them, and tourists don't like to be without water and electricity for long. ● The men say they already sell medicine to people and they can come to their clinic to be treated. Wukta, shaman; In 2008 somebody who had prostate cancer came from abroad (French Guiana) About 5 people per year call from the city. Maroons also called him for medicine. He then sends the medicine against payment. If people come for work, they seek him for medicine. He mentioned that in the last IDB mission he also gave advice and sold medicine to people. With improved access to clean water, electricity and telecom there is a good possibility more tourists will come and their ability to sell jewelry and medicine will increase. ● The men also say that with 24/7 electricity they would buy a circular saw and a planer to make planks all day. We want to work so we can support our kids. "We want learn more, we want to know more." ● Men would want to sell souvenirs like a bow and arrow, hunted game or hustle in other ways to make money. ● Bio economy opportunities include: other types of tea farming.
Kawamhakan	They have to further develop their community payment model. Some want people to pay individually, some per household or family.	French-Guyana. Additional income includes: Men- 'Hustling': selling fish, selling hunted game to the French and other villagers, selling souvenirs to tourists, sawing planks, and making wooden furniture.	● Tourism can be developed: the men would like to sell souvenirs to tourists or give tours. The women would like to sell food like bami goreng and cook for tourists or sell fish. ● They do not want to sell traditional medicine, they believe in- and want-western medicine.

		Women- 'Hustling', selling food like bami goreng dishes or selling fish.	
Kumakapan		There is a Chinese store in the village.	Kumakapan. Economic potential. ● There is a potential to become a historical archaeological site and rare tourist attraction. ● There is potential for archaeological research. ● There is also potential for redevelopment of the settlement as a stopping area for travelers.
Pelelu Tepoe	They are willing to pay for it if they have income. Especially the women.	There are income streams in the village, but for less than half of the villagers. The income streams are: Government people, trading in game and fish, trading in animals and arts and crafts, NGO workers, Stingless beekeepers, selling ground peppers and tea and traditional medicine.	● They are open to the development of tourism. But they say research must be done to see whether it is feasible to do on their own. ● They already sell medicinal products to outsiders.
Palumeu	Because of a lack of income, they would prefer the projects to be subsidized. They are willing to contribute what they can. At the same time they do not want to depend on outside funding, because they know the government does not always have money available for them.	Government work, the men and women sell crafts. The men also trade animals and sell meat and fish to Paramaribo, but that is a seasonal occurrence. Both men and women say that there was more income when the METS was active. But due to covid-19 everything has stopped, so there is loss of income.	● Tourism was their primary source of income before covid-19: There is tourism lodge and METS travels and tours has collaborated with the village before. However, since covid-19 business has slowed down significantly leading to less job opportunity in the field of tourism. There is an opportunity for redevelopment of tourism in the village. ● Knowledge of traditional medicine is waning. Most of the villagers have no knowledge of the use of medicinal plants. The interviewed villagers are willing to learn from other villages so they can use this as a source of income by selling medicinal products. ● Bio economy opportunities include: tea farming and ground pepper production.

Amotopo	The men said they can save up money in the village savings pot. They are clear on their payment model: they would like to pay together as a community.	The men say that do not have a lot of options to make money. The women can sell fish, but there is no real market to sell their goods. Their community is too small.	● They are very excited about the potential to make money with tourism. "Yes absolutely, we could make money with that." In the past tourists used to come and they would be able to sell things to them. ● They do not see traditional medicine or selling of medicinal products as an option. ● Bio economy opportunities include: stingless beekeeping, tea farming and ground pepper production.
Coeroeni	They want to pay for the costs together as a community, but have to think about how to go about doing that.	No information.	● They are interested in their options for tourism. ● Bio economy opportunities include ground pepper production.

K. Financial ownership models to sustain operation and maintenance costs

Table 28 Community ownership rating

Social Key Performance Indicator	Alalapadu	Apetina	Sipaliwini	Kwamalasamutu	Kawemhakan	Kumakapan	Pelulu Tepu	Palumeu	Amotopo	Coeroeni
Socio-cultural community issues										
1.Indecision about community ownership models.										

From KRI number 1 it is clear that the villages need some more time to discuss the practical application of their ownership models. This risk can be reduced to ALARP[3] by presenting the following 4 solutions to the village inhabitants and their traditional leaders:

1. Community ownership: It is recommended that villagers use a community ownership model where the costs are shared by all households and managed in a community fund or money pot. The money is recommended to be primarily allocated towards small and technical maintenance of the systems, preferably by locals and additional technical maintenance from expertise in Paramaribo. By giving estimates of potential costs per year, a minimum fee per household can be calculated. The fund can also serve as savings for a community freezer house that could ensure food security options for villagers.
2. A fixed percentage of the profits from local livelihoods such as beekeeping, arts and crafts and various tea farming practices and traditional medicine clinics could be allocated towards the community funds to sustain the operation and maintenance costs.
3. If the villages are still without enough financial means to cover the costs, partial risk transference can be lobbied for at governmental agencies. Diesel oil for village generators are usually funded by the government, therefore it could be discussed if this money could be used towards operational and maintenance costs instead.
4. Future developments to sustain maintenance costs could include a bio economy- tourism model in which the tourist would need to contribute a minimum fee to the village community funds.
   ACT-S is currently working on a feasibility study for tourism in ACT-S collaborating villages.

Whether these community funds are managed via bank accounts or via cash currency can be decided by the villagers and their traditional leaders. With cash currency there would need to be local administrative capacity and possibly, training.

[3] ALARP means 'As Low as Reasonably possible.

5.3.4 A Description of Monitoring, Evaluation & Reporting Arrangements

In this section the **sociocultural indicators**, that serve as a baseline for eventual monitoring of changes generated by the project, are identified/suggested/described.

Furthermore, a **monitoring system** specifically for Indigenous communities, is described. The possibility of implementing a participatory community monitoring system, is regarded practical.
A description of monitoring, evaluation, and reporting mechanisms (including responsibilities, frequencies, feedback, and corrective action processes).

Sociocultural indicators
The socio-cultural indicators have already been identified during interviews in the villages, as shown in Chapter 5 paragraph 5.3.4.1.1, under the social KPIs and the Social KRIs. The scientific document was used for this. The KPIs are shown again below for the convenience of the reader.

Figure 37 shows the Social Key Performance Indicators (KPI's) that were extracted from interview results.

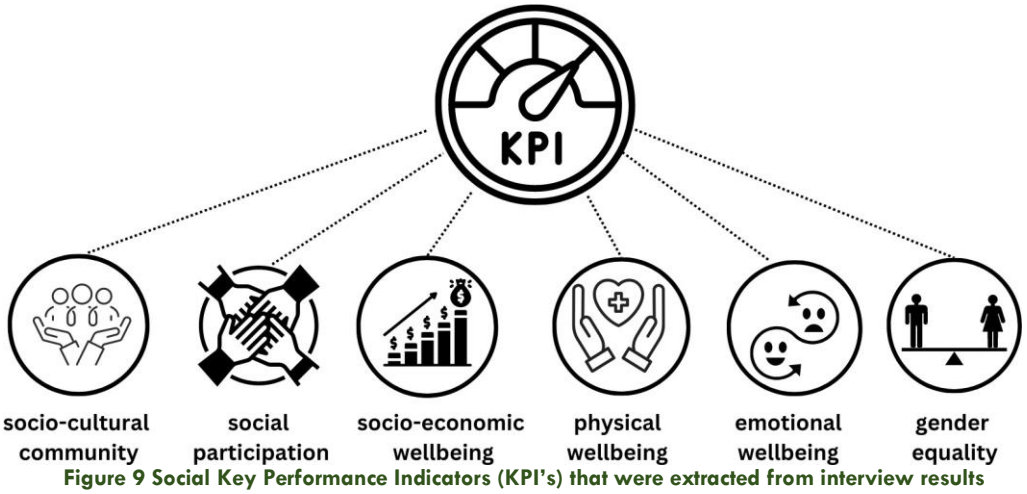


Figure 9 Social Key Performance Indicators (KPI's) that were extracted from interview results

In the table below, the socio-cultural KPIs are defined.

Table 29 Definition of social KPIs

	KPI	Definition
1	**Socio-cultural community**	A community's social and cultural wellbeing is involved with a sense of belonging, social inclusion and social stability – it encompasses the community's lifestyles, values and beliefs.
2	**Social participation**	At its core, *social participation* can be understood as "a person's involvement in activities that provide interaction with others in society or the community" (Levasseur, Richard, Gauvin, & Ramond, 2010, p. 2148).
3	**Socio-economic wellbeing**	Socioeconomic well-being means the mix of social and economic factors that produce the best outcomes for a person's health and well-being. Although a high income is not strictly necessary, a sufficient level of financial security is a significant factor in mental and physical health as well as educational outcomes.
4	**Physical wellbeing**	Physical wellbeing is the ability to maintain a healthy quality of life that allows individuals to get the most out of their daily activities without undue fatigue or physical stress. It relates to a variety of different aspects ranging from sleep and exercise and to nutrition and sexual health.
5	**Emotional wellbeing**	Emotional well-being is an individual's ability to effectively cope with life's stressors and to identify and manage emotions in a way that supports and improves his/her mental well-being.
6	**Gender equality**	Gender equality involves equal enjoyment by women and men of socially-valued goods, opportunities, resources and rewards.

Monitoring system for indigenous communities

The table below, provides the KPIs and the sub-indicators related to the social KPIs (Key Performance Indicators), that could be used for the monitoring of the potential project impact. These sub indicators were extracted from table 10. As these KPIs and sub indicators were already used during interviews with the villagers in the 10 communities, the outcome of these interviews, provided in aforementioned table, could serve as the baseline.

Table 30 Social KPIs and Sub-indicators

Social KPIs and
Socio-cultural community
1. Optimizing their way of life.
2. Engagement method in place.
3. Cultural heritage and -territories maintained.
Social participation
4. Easy access to family.
5. Feelings supported.
6. Willing to accommodate workers to achieve project goals.
7. Willing to be trained for operation and maintenance.
8. Increased personal development.
9. Increased sense of equal rights.
10. Willing to learn new technologies.
Socio-economic wellbeing
11. Willingness to work in operation and maintenance.
12. Increased business opportunity.
13. Elevation of existing businesses.
14. Use of new tools.
Physical wellbeing
15. Improved medical care.
16. Improved health and nutrition status.
17. Improved food security.
18. Improved sense of leisure.
Emotional wellbeing
19. Improved sense of safety.
20. Less stress.
Gender equality
21. More business opportunity for women.
22. Improved physical wellbeing for women.
23. Men having more time for family or household activities.

Monitoring of the project should also be done through KRIs (Key Risk Indicators), derived from the identified KPIs for this project. These KRIs, as well as the KPIs, were included in the interviews with the villagers, so that the results of these interviews, contained in aforementioned table can act as a baseline. As a guideline for assessing progress and impact, the KPIs must continue to improve, while the KRIs must become less and less. Below are the identified KRIs, which are again included below for the convenience of the reader.

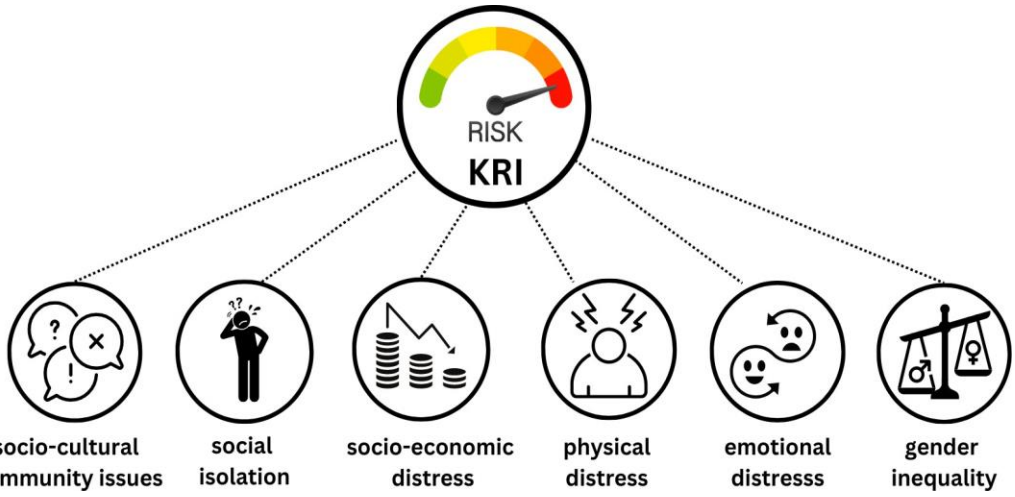


Figure 10 Social KRI's for solar for the development of water, solar energy- and telecommunications infrastructure on Indigenous land in the South of Suriname

Table 31 Social KRIs and Sub-risk indicators

Social KRIs and Sub-risk indicators
Socio-cultural community issues
1. Indecision about community ownership models.
2. Temporary displacement due to project building activities.
Social isolation
3. Unequal distribution of water, energy or telecom services.
4. Lack of local capacity and expertise to sustain maintenance or operation of the systems.
5. Lack of trust due to past false promises.
Socio-economic distress
6.Lack of paid jobs or employed villagers to upkeep ongoing costs.
7.Inability to buy freezers, electronic devices or other electrical tools.
Physical distress
8.Physical injury while supporting project objectives.
9.Noise disturbance at critical locations.
10.Distance for fetching water too far, especially for the elderly.
11.Dust production during building activities.
Emotional distress
12.Worries and stress about generating the finances for the projects.
13.Temporary distress due to project building activities.
Gender inequality
14.Gender inequality in the ability to pay for and maintain services.
15. ender inequality in potential job creation.

Participatory community monitoring system

Villagers could play an important role in the monitoring of the project. This is possible by raising problems with the Grievance Mechanism. The community forest monitors, trained by ACT-Guiana, could also fulfill a monitoring role, given their training, capacity, competence, experience in other projects, network that they could use if necessary, access to smart phones with images, organization and mobilization capacity.

5.3.5 A Description of the Legal Framework Pertaining to Indigenous Peoples

Below, an analysis of the general legislative framework in relation to ITPs is provided.

5.3.5.1 International Legislation

Suriname has no Collective Rights policy, but has subscribed to different universal and regional human rights treaties, including the following:

- ICCPR International Covenant on Cultural and Political Rights)
- ICESCR (International Covenant on Economic, Social and Cultural Rights)
- CRC (United Nations Committee on the Rights of the Child)
- CERD (UN Committee on the Elimination of Racial Discrimination)
- CEDAW (Convention on the Elimination of All Forms of Discrimination Against Women).

In addition, Suriname has voted for the adoption of the UN Declaration on the Rights of Indigenous Peoples in 2007 ("UNDRIP").

Suriname is one of the few countries in South America that has not ratified ILO Convention 169.

The legislative system of Suriname, based on colonial legislation, does not recognize Indigenous or Tribal peoples, and till today Suriname has no legislation governing Indigenous and Tribal peoples' land or other rights. This forms a major threat to the survival and well-being of Indigenous and tribal peoples, particularly given the strong focus that is being placed on Suriname's many natural resources (including oil, bauxite, gold, water, forests and biodiversity).

5.3.5.2 Draft Legislation Collective Rights ITP

In 2021, a draft act on Collective Rights ITPs was submitted to Parliament. This framework act should provide the basis for existing acts to be revised and new acts to be developed. The act aims to comply with the international human rights, guaranteeing legal certainty for everyone and legal protection of the collective rights of Indigenous peoples.

The new draft act tries to strike a balance between traditions and the general public interest. Legal rules are largely based on the law and partly on customs. Rights are based on traditions; the traditions need to be understood to know exactly what those rights are. The traditions are known to the people themselves, and that makes it complex. The rights are not the same legal concepts as those known in western law; they have autonomous characteristics.

Currently the second round of debates should start in Parliament. Coalition parties are preparing amendments to the draft version. It is expected that the act is approved prior to May 2025. The prioritized acts to design and get approved after the framework act is endorsed, are:

- FPIC (Free Prior and Informed Consent)
- Integration of Traditional Governance in decentralized Governance
- Appealing institute (to settle conflicts)
- Demarcation of IPR lands.

In addition, a list of 10 acts should be developed and modified, in order to align the framework act with crosscutting topics (for example).

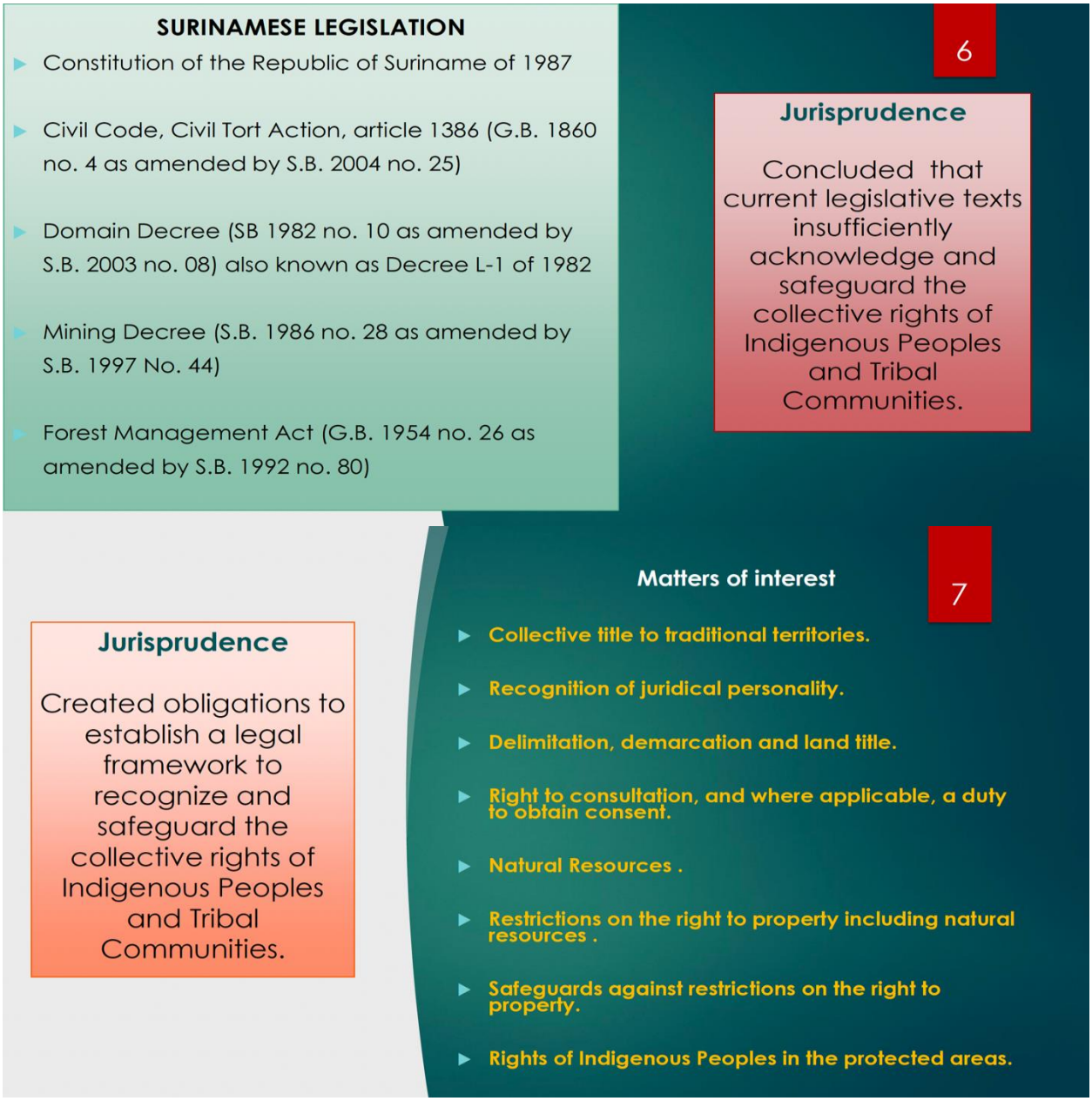


Figure 11 Acts to be designed and/or developed (Source: Watra Human Rights Consultancy, 2020)

5.3.5.3 Current Situation

Although having signed a number of international Conventions, and jurisprudence created by international ruling, the following reality exist on the ground:

ESPS 7: Indigenous and Tribal Peoples	*7.1General* *(i)Indigenous Rights* *(ii)Avoidance of Adverse Impacts* *(iii) Transborder Indigenous Peoples* *(iv) Indigenous Peoples in Isolation and Initial Contact* *(v)Participation and Consent* *7.2CIRCUMSTANCES REQUIRING FREE,* *PRIOR AND INFORMED CONSENT* *(i)Impacts on Lands and Natural Resources* *(ii)Subject to Traditional Ownership or Under Customary Use* *(iii)Relocation of Indigenous Peoples from Lands and Natural Resources Subject to Traditional* *(iv)Ownership or Under Customary Use* *(v) Cultural Heritage* *7.3Mitigation Development and Benefits* *7.4Government Coordination of Indigenous Issues*	***Governance*** ITP traditional leadership is not fully integrated in the administrative system, and thus not aligned with planning and budget approval cycle for a decentralized execution of annual and multiple annual plans. Due to this discrepancy in governance, often ITPs are not fully aware of the policy regarding issuing concessions to exploit resources. ***Cultural heritage*** Without rights, ITP territories, the culture is under threat. ITPs identity is inherent to their environment the rely on. Its physical and spiritual connectivity that is at risk. Mapping the sacred sites, the historic movement etc. being recognized by central government is crucial. Resources map to use of building, food, medicine etc. is part of the ITP identity. Conservation of the language and traditional knowledge are also at risk apart from the material heritage. Suriname has no national ITP museum. ***Education in the rural ITP regions*** is limited. Primary education is mainly accessible, however with limited competence. Secondary and Vocational education is also limited. ***Access to Healthcare*** Although healthcare posts are well spread in the interior, no physicians have permanent presence in the villages. Only in the larger towns.

		Benefit sharing (from renewable/extractive industry and ecosystem services) There is a wide variety of models for benefit sharing, sometimes even on voluntary level. The models maybe present on paper, but not implemented on community level- serving a smaller group. Mining, logging and tourism are the known sector to use benefit models, however leadership is often lured into corruption. ***Environmental impact from projects*** Pollution and degradation due to economic activities impact on the ITPs without adequate payments, rehabilitation, restoration plans etc.

5.3.6 A description of the potential local bio-economy

In this paragraph the Sub-RQ # 10, as stated below, is researched.
What is the potential local bio-economy that can be developed in South Suriname?

In addition, budgets and actions for supporting socio-economic development through productive uses are presented.

5.3.6.1 Introduction

For a community to strive, a livelihood that would sustain and support their household is of eminent importance. It is widely known that economic growth creates opportunities for a wider choice of livelihood and that sustainable livelihoods are needed for economic growth and development of rural communities.

In that regard, supporting rural communities with basic services such as energy, water and telecommunication is an important step towards economic growth and development of rural communities. But additionally, it is important to have a regular income for the sustainability of both the livelihood and the services. Thus, by identifying existing and potential livelihoods in the rural communities and to transform these activities into regular income activities will be further mentioned as bio-economies.

This report is a part of the Basic Concept Design (Deliverable 3) of the study *"Support to the assessment of ten mini grids to improve access to water, telecommunications, and energy needs in South Suriname and empower socioeconomic development through productive uses"* performed by TTA, Ilaco, ACT and Vids, and aims to portray the strategy of identified potential bio-economic activities in the 10 indigenous communities.

This report not only illustrates a strategy but also the necessary financial means to develop the different bio-economies identified during the assessments (Deliverable 2) of aforementioned study.

5.3.6.2 Methodology and Definitions

Sustainable development projects or initiatives in rural communities do not always succeed. But experiences from various stakeholders, community partners, and other development institutions whom has years of partnerships and collaborations with these rural communities, has shown that development and any other initiatives are more likely to succeed if the methodology is in alignment with their needs, culture and more importantly, their involvement.

In fostering bio-economics by integrating conservation, sustainable resource management, traditional knowledge, and community empowerment to promote economic opportunities while preserving the rich biodiversity and cultural heritage of the Amazon rainforest, the following approach is reckoned:

Sustainable Resource Management:
This involves helping communities develop sustainable harvesting techniques for forest products, such as nuts, fruits, and medicinal plants. By supporting sustainable resource management, ACT contributes to the economic viability of ITP communities while preserving the biodiversity and ecosystem services of the Amazon.

Traditional Knowledge and Innovation:
Indigenous communities possess valuable traditional knowledge about the Amazon rainforest's resources and their sustainable use. The documentation and preservation of this knowledge can foster innovation and the development of bio-based products and processes. This involves supporting community-led initiatives for sustainable agriculture, traditional medicine research and development (R&D), and the production of value-added products derived from forest resources.

Market Access and Fair Trade:
This involves providing technical support, training, and assistance in establishing sustainable supply chains. By connecting ITP producers with fair trade and environmentally conscious buyers, as an NGO we help create economic opportunities that align with conservation goals. This step is a lengthy and tedious one.

Ecotourism and Community-Based Enterprises:
Development of community-based ecotourism initiatives that showcase the Amazon's natural and cultural heritage, is the next big step to undertake. By promoting responsible and sustainable tourism practices, ACT can help generate income for indigenous communities while raising awareness about the importance of conserving the rainforest.

Policy Advocacy and Collaboration:
Engaging in policy advocacy at local, national, and international levels to promote sustainable practices, indigenous rights, and conservation policies. By collaborating with governments, NGOs, and stakeholders, ACT contributes to the development of policies and frameworks that recognize the economic value of the Amazon rainforest and support sustainable bioeconomic initiatives.

No bio economy without biodiversity
Supporting climate change adaptation and mitigation in the Amazon basin through innovative bio-businesses that seek to conserve the Amazon ecosystems and biodiversity, boost climate resilience, and improve local livelihoods in the Amazon countries is crucial. Starting to elevate this in Suriname, and especially in south Suriname is a great pilot for the country, and demonstrating carbon emission as well as reaching SDG goals.

These bio-businesses could be structured under different bio-economy value chains that prioritize natural capital and deliver climate benefits, including sustainable agroforestry, non-timber natural forest products, growing native species timber, and community-led nature tourism.

Figure 12 Project links with Sustainable Development Goals

5.3.6.3 Background on bio economy in South-Suriname

The indigenous communities in South-Suriname can be, geographically, organized into regions: south-east (Pelelu Tepu, Palumeu, Apetina, Kawemhakan, and Kumakapan) and south-west (Amatopo, Coeroeni, Alalapadoe, Sipaliwini, and Kwamalasamutu). In the south-east the Wayana tribe dominates the region, and in the south-west the Trio tribe.

Figure 13 Indigenous communities in South-Suriname

In general, these communities generate incomes by selling and trading fish, wild meat, wildlife, arts, crafts, by providing services to visitors (governmental institutions, non-governmental organizations (NGO's), tourists, et al), and in some cases by being employed to the government as traditional authorities, public workers, and teachers' assistants. Most of these income generators are seasonal; depending on the demand and availability of the sources.

But NGO's and other partners of the communities took initiatives to create sustainable income alternatives where communities have a more regular income. Most of these initiatives are currently ongoing and growing to be more successful, ensuring that more families have a better economic well-being, thus a better overall wellbeing. The following figure illustrates only the current bio-economic activities, which have been initiated and still facilitated by several organizations.

At the time of visit there were no formal economic activities being support in Kawamhakan, Kumakapan, or Amotopo. Kawamhakan used to have a fish pond cultivation activity, but not ongoing anymore. There is a local community-based organization, Mulokot, that is working closely with the community and have supported the construction of a new schools and also have plans to support economic activities. In Amotopo there is a tourist resort running with some participation of the community, but there does not appear to be a close relationship.

Figure 14 Current bio-economic activities per community

For more details on the current income generating activities, both regular and seasonal, consult Deliverable #2 of the study, mentioned before. However, there is still a great need for income-generating activities in these villages. But, given the limited resources, it is necessary to set priorities and target activities with highest success potential, responsive to communities, and prioritized by them.

The priorities identified here are based on existing economic activities in the villages (historically and developed with the support of ACT, CI, VIDS, and Mulokot) and the most feasible options from a list of desires value. Previous experiences are incorporated in what is recommended to initiate or expand. Therefore, it is advocated to focus as much as possible on expanding existing livelihoods in the villages, and to build on existing commercial initiatives initiated by villagers and entrepreneurs from the city.

5.3.6.4 Contours of bioeconomic activities

This section of the reports provides a short narrative of the different bio economy identified, altogether with the objectives and budgetary needs. The following is a strategy that generally aims to grow the number of employments, meaning ensuring more families with a regular income.

1. Kwamalasamutu

For Kwamalasamutu, the focus will be on expanding the stingless bee project, the herbal tea production, and the jewelry, arts, and crafts production.

- Stingless Bee

The stingless bee project in Kwamalasamutu is seen as one of the sustainable livelihoods where families have a secure income. Now, there are around 60 people employed: either as bee technicians, as beekeepers, bee box producers or as beehive spotters. Families who maintain beehives sell propolis and honey and have an average income of SRD 5,000 (130 USD) per month. The next step is to accommodate more families in Kwamalasamutu with this sustainable income alternative.

Main objective:

Upscaling Stingless Beekeeping as a sustainable livelihood for increased income generation through the production of honey and propolis.

Specific objectives:
Objective 1: Locals grow about 100 bee boxes each
Objective 2: Increase income of at least USD 250.- per month per household within 4 years
Objective 3: Increase number of employers with 10 more

Action plan:
There are necessary actions to undertake in order to reach the objectives. These actions are projected within a 4-year timeframe.

1. Engage with community to grow to 100 bee boxes each
2. Specializing bee box producers, beehive spotters, beekeepers, and bee technicians to increase production
3. Accommodate community with adequate and equipped stingless bee building
4. Increase awareness in sustainable beekeeping
5. Train candidates in administration and manage parts of value chains at least on village levels

Expected outcome:
Sustainable livelihood for villagers aligned with the global vision of conserving the Amazon Rainforest.

- Herbal Tea

Another sustainable alternative livelihood for the community of Kwamalasamutu is the herbal tea. At the moment there are 3 different herbal tea being processed and sold. These herbal teas are being wild harvested, washed, dried, process, packaged and administrated – this is the current production process. At the moment there are 30 women with a secure income with this alternative income. The next step is to grow to 60 women. The average income is SRD2,500 (65 USD) per household/month and with the upscaling that would grow to SRD 5,000 (130 USD).

Main objective:
Upscaling herbal tea as a sustainable livelihood for increased income generation by shifting from wild harvesting to growing herbs.

Specific Objectives:
Objective 1: Local produce tea in a rotational system (harvesting, cultivating and providing time for recuperation to the plants.
Objective 2: Locals have an income of USD 120, - per month per household within 4 years.
Objective 3: Generate at least 30 new jobs for women

Action Plan:

1. Design sustainable harvesting model
2. Equip team with adequate infrastructure, tools and equipment
3. Training in health, safety and environmental practices
4. Community engagement and awareness
5. Capacity building: marketing, financials, operation and management, planning, and maintenance.

Expected outcome:
Sustainable livelihood for villagers aligned with conserving the Amazon Rainforest.

- Jewelry, Arts & Crafts

Another sustainable income alternative for the community of Kwamalasamutu is Jewelry, Arts & Crafts. Arts & Crafts is part of the indigenous culture and in Kwamalasamutu this livelihood already operates as a fully locally managed enterprise. It requires relative low investments, generates sustainable income, and there is sufficient interest in the village for this livelihood to upscale. Currently, there are 12 women benefiting from income through this livelihood with an average income of SRD 2,500 per month per household, and would be upscaled to 72 women and men with an average income of SRD 5,000 per month per household.

Main objective:
Upscaling the jewelry and arts and crafts livelihood for increased income generation via product innovation and provision/improvement of production infrastructure.

Specific objectives:
Objective 1: Development of 2 new product lines 'home décor' and 'kitchen utensils' (mainly for men)
Objective 2: Development of high-end products e.g., for special occasions and auctions, as gifts, decorations
Objective 3: Construction of a workshop and furnish it with equipment, to house and facilitate producers of arts and craft, including Iniri Rainforest Jewelry, a CBO owned by jewelry making women of 4 villages
Objective 4: Support at least 60 women to engage in arts and crafts work.

Action plan:
1. Community engagement, awareness and recruitment
2. Capacity building of members in product quality and its monitoring, commitment, reliability and quality, and branding
3. Marketing and exploring markets
4. Equip the team with adequate facilities, tools, and equipment.
5. Diversify product lines

Expected outcome:
Establishing a sustainable jewelry and arts and craft livelihood and conserving the Amazon Rainforest.

- CAPEX, Management & Running Costs

Table 32 Total Capex for bio economy activities in Kwamalasamutu

Bioeconomy Activity	Kwamalasamutu	
I. Stingless Bee		
Building construction	$	40,000.00
Building furnishing	$	17,500.00
Workshop equipment	$	10,000.00
Bee box Supply	$	10,000.00
I. Stingless Bee	**$**	**77,500.00**
II. Herbal Tea Production		
Production Facility	$	15,000.00
Management Facility	$	19,500.00
Utensil, Equipment	$	22,500.00
II. Herbal Tea Production	**$**	**57,000.00**
IV. Jewelry, Arts & Crafts		
Workshop Construction	$	37,000.00
Workshop equipment	$	8,125.00
Stock input	$	2,500.00
Packaging Material	$	1,500.00
IV. Jewelry, Arts & Crafts	**$**	**49,125.00**
TOTAL CAPEX	**$**	**183,625.00**

Table 33 Total Management and running costs for bio economy Kwamalasamutu for 4 years

Cost Item	Kwamalasamutu	
I. Project Management		
Project Coordination	$	60,075.00
Technical and Financial Reporting	$	900.00
Logistic Support	$	6,750.00
Social Impact Support	$	7,500.00
Insurance of Experts	$	300.00
TOTAL I.	**$**	**75,525.00**
II. Project Execution Direct Investments		
Local Collaborators	$	7,500.00
Bee technicians (4)	$	16,800.00
Local Resource Persons	$	4,000.00
Project Oversight - Leadership	$	13,500.00
Marketing & Branding	$	29,062.50
TOTAL II.	**$**	**70,862.50**
III. Training & Capacity Building		
Quality Improvement	$	18,750.00
Training Material	$	15,328.00
TOTAL III.	**$**	**34,078.00**
IV. Logistics		
Local Transport	$	25,000.00
Fuel (Boat, Equipment, Lubricants)	$	6,250.00
Flight Charters	$	50,000.00
Accommodation of Trainees	$	18,750.00
TOTAL IV.	**$**	**100,000.00**
TOTAL Management and Running costs (4 years)	**$**	**280,465.50**

2. Sipaliwini Savana

For the community of Sipaliwini Savana, the focus will be on introducing the stingless bee project and expanding the jewelry, arts, and crafts production.

- Stingless Bee

The community of Sipaliwini has expressed their interest in developing stingless beekeeping as a livelihood in their village for the production of honey, and propolis, and in the future pollen. Its feasibility for the stingless beekeeping is high due to the sufficient interest in the village for this livelihood, it's also part of their indigenous culture, guaranteed sales, export opportunities, and the prices for honey and propolis are very attractive.
Since this will be a new livelihood, it will be challenging since there are no existing beekeepers in the village. However, there is sufficient interest for engaging in this livelihood. After the introduction and development phase, it is expected to have 100 men and women benefit from an income with this livelihood.

Main objective:
Introduction and developing Stingless Beekeeping as a sustainable livelihood for income generation through the production of honey and propolis.

Specific objective:
Objective 1: Locals grow about 50 bee boxes each
Objective 2: Locals have an income of USD 125.- per month per household within 4 years
Objective 3: Generate at least 100 new jobs in stingless bee program

Action plan:
1. Community engaged in having about 50 boxes each
2. Capacity building in box production, spotting beehives, collecting, beekeeping, administration and bee technicians
3. Providing a dedicated, and fully utilized bee house with availability of adequate cooling facilities

Expected outcomes:
Sustainable livelihood for villagers and conservation of the Amazon Rainforest

- Jewelry, Arts & Crafts

Another sustainable income alternative for the community of Sipaliwini is Jewelry, Arts & Crafts. Arts & Crafts is part of the indigenous culture and in Sipaliwini too, this livelihood already operates as a fully locally managed enterprise. It requires relative low investments, generates sustainable income, and there is sufficient interest in the village for this livelihood to upscale. Currently, there are 30 women benefiting from income through this livelihood with an average income of SRD 2,500 per month per household and would be upscaled to 52 women and men with an average income of SRD 5,000 per month per household.

Main objective:
Upscaling the jewelry and arts and crafts livelihood for increased income generation via product innovation and provision/improvement of production infrastructure.

Specific objectives:
Objective 1: Development of 2 new product lines 'home décor' and 'kitchen utensils' (mainly for men)
Objective 2: Development of high-end products e.g., for special occasions and auctions, as gifts, decorations
Objective 3: Construction of a workshop and furnish it with equipment, to house and facilitate producers of arts and craft, including Iniri Rainforest Jewelry, a CBO owned by jewelry making women of 4 villages
Objective 4: Create at least 22 new jobs

Action plan:

1. Community engagement, awareness and recruitment
2. Capacity building of members in product quality and its monitoring, commitment, reliability and quality, and branding
3. Marketing and exploring markets
4. Equip the team with adequate facilities, tools, and equipment.
5. Diversify product line

Expected outcome:
Establishing a sustainable jewelry and arts and craft livelihood and conserving the Amazon Rainforest.

- CAPEX, Management & Running Costs

Table 34 Total Capex for bio economy activities in Sipaliwini Savana

Bioeconomy Activity	Sipaliwini Savana
I. Stingless Bee	
Building construction	$ 40,000.00
Building furnishing	$ 17,500.00
Workshop equipment	$ 10,000.00
Bee box Supply	$ 10,000.00
I. Stingless Bee	**$ 77,500.00**
IV. Jewelry, Arts & Crafts	
Workshop Construction	$ 37,000.00
Workshop equipment	$ 8,125.00
Stock input	$ 2,500.00
Packaging Material	$ 1,500.00
IV. Jewelry, Arts & Crafts	**$ 49,125.00**
TOTAL CAPEX (Per Village)	**$ 126,625.00**

Table 35 Total Management and Running costs for bio economy activities in Sipaliwini Savana for 4 years

Cost Item	Sipaliwini
I. Project Management	
Project Coordination	$ 40,050.00
Technical and Financial Reporting	$ 600.00
Logistic Support	$ 4,500.00
Social Impact Support	$ 5,000.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 50,450.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 5,000.00
Bee technicians (4)	$ 16,800.00
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 9,000.00
Marketing & Branding	$ 19,375.00
TOTAL II.	**$ 54,175.00**
III. Training & Capacity Building	
Quality Improvement	$ 12,500.00
Training Material	$ 5,852.00
TOTAL III.	**$ 18,352.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 222,977.00**

3. Alalapadu

The focus in Alalapadu is to improve the current facility to increase Tuhka nuts production and Tuhka Cosmetic Oil production.

- Tuhka Nut Factory and Cosmetic Oil

This village has around 140 inhabitants, divided into 23 households. Tuhka Foundation for Sustainable Development Alalapadu was founded on 25 May, 2017 with the aim of increasing and promoting the well-being of the community in Alalapadu in Sipaliwini. The foundation wants to achieve this by using valuable natural products found in the Alalapadu area, including Tuhka nuts. There are currently around 20-25 people employed in the Tukha Factory. Currently, the average income is 2,500 SRD (65 USD) per month.
This foundation has established a Tuhka Nut Factory in Alalapadu where they sell and distribute the Tuhka oil and Tuhka roasted nuts. The process of the production consists of wild harvesting, drying, nutcracking, roasting and processing further to either oil or packed roasted nuts.

Main objective:
Upscale the factory to facilitate a bigger production of roasted Tuhka Nuts and Tuhka Oil in collaboration with Coeroeni.

Specific objectives
Objective 1: People will be able to increase their income to at least 150 USD
Objective 2: Diversify the products being offered

Action plan:

1. Develop a new product line
2. Train local in the new product
3. Train to maintain quality and produce higher quantities
4. Explore new markets
5. Construct expansion
6. Train local in the new product
7. Training in maintaining quality and produce high quantities

Expected outcomes:
Diversified and sustained income from the Tuhka factory in Alalapadu.

- CAPEX, Management & Running Costs

Table 36 Total Capex for bio economy activities in Alalapadu

Bioeconomy Activity	Alalapadu
V. Tuhka Products	
Factory Construction	$ 25,000.00
Production Equipment	$ 35,000.00
Packaging Material	$ 2,500.00
V. Tuhka Products	**$ 62,500.00**
TOTAL CAPEX	**$ 62,500.00**

Table 37 Total management and running costs for bio economy in Alalapadu for 4 years

Cost Item	Alalapadu
I. Project Management	
Project Coordination	$ 20,025.00
Technical and Financial Reporting	$ 300.00
Logistic Support	$ 2,250.00
Social Impact Support	$ 2,500.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 25,375.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 2,500.00
Bee technicians (4)	$ -
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 4,500.00
Marketing & Branding	$ 9,687.50
TOTAL II.	**$ 20,687.50**
III. Training & Capacity Building	
Quality Improvement	$ 6,250.00
Training Material	$ -
TOTAL III.	**$ 6,250.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 152,312.50**

4. Coeroeni

The focus for the community of Coeroeni will be on exploring the community-based sportfishing and the Tuhka cosmetic oil production.

- Community-based ecotourism

The small village has access to several unique creeks/ sceneries, bird species, and other attractions. Currently the last phase of a feasibility study should be conducted. Ecotourism has the potential as an alternative livelihood.

Main objective:

Develop most promising Community-based tourism products with community engagement in a people, planet, profit approach.

Specific objectives:

Objective 1: Feasibility study of the preferred tourism option in Coeroeni
Objective 2: Community-based Tourism model initiated in two villages
Objective 3: Create at least 10 jobs in the ecotourism sector

Action plan:

1. Research and data collecting on potential products
2. Conduct technical studies of feasibility and socio-economic, cultural and environmental assessment with mitigation plan for negative impact
3. Community engagement and consultancy of opportunities
4. Equip community with fully locally equipped facilities e.g., accommodation, boat transport, water, electricity
5. Training in management of tour, hospitality, and food and beverage
6. Develop local identity to the product and its market.

Expected outcomes:

Sustainable livelihood for villagers and conservation of the Amazon Rainforest.

- Cosmetic Oils

In Coeroeni, the inventory of Brazil nut trees shows potential to have a first local processing of these nuts to Tuhka oil – the community has shown interest to further explore and develop this income alternative. The refinery of the local processed oil could be in collaboration with Alalapadu.
Since this will be a new livelihood, it will be challenging. However, there is sufficient interest for engaging in this livelihood. After the introduction and development phase, it is expected to have 25 men and women benefit from an income with this livelihood, not limited to Coeroeni, but also from Kasjoe Eiland, Amotopo and even Kwamalasamutu.

Main objective:

Develop a Tuhka oil factory in Coeroeni in close collaboration with Alalapadu.

Specific objectives:

Objective 1: Construction of small factory for Tuhka Oil processing
Objective 2: Develop new product line
Objective 3: Generate at least 25 new jobs

Action plan:

1. Identify new product line
2. Training locals in maintaining quality and high production rate
3. Construct small, but fully equipped processing factory
4. Explore markets
5. Facilitate internships at Alalapadu

Expected outcomes:
Sustainable livelihood for villagers and conservation of the Amazon Rainforest.

- Jewelry, Arts & Crafts

Another sustainable income alternative for the community of Coeroeni is Jewelry, Arts & Crafts. Arts & Crafts is part of the indigenous culture and in Coeroeni too, this livelihood already operates as a fully locally managed enterprise. It requires relative low investments, generates sustainable income, and there is sufficient interest in the village for this livelihood to upscale. Currently, there are about 30 women benefiting from income through this livelihood with an average income of SRD 2,500 per month per household, and would be upscaled to 52 women and men with an average income of SRD 5,000 per month per household.

Main objective:
Upscaling the jewelry and arts and crafts livelihood for increased income generation via product innovation and provision/improvement of production infrastructure.

Specific objectives:
Objective 1: Development of 2 new product lines 'home décor' and 'kitchen utensils' (mainly for men)
Objective 2: Development of high-end products e.g., for special occasions and auctions, as gifts, decorations
Objective 3: Construction of a workshop and furnish it with equipment, to house and facilitate producers of arts and craft, including Iniri Rainforest Jewelry, a CBO owned by jewelry making women of 4 villages
Objective 4: Generate at least 22 new jobs and double potential income

Action plan:

1. Community engagement, awareness and recruitment
2. Capacity building of members in product quality and its monitoring, commitment, reliability and quality, and branding
3. Marketing and exploring markets
4. Equip the team with adequate facilities, tools, and equipment.
5. Diversify product line

Expected outcome:
Establishing a sustainable jewelry and arts and craft livelihood and conserving the Amazon Rainforest.

- CAPEX, Management & Running Costs

Table 38 Total Capex for bio economy activities in Coeroeni

Bioeconomy Activity	Coeroeni
III. Tourism	
Completion Feasibility Study	$ 75,000.00
Construction of Tourist Lodges	$ 375,000.00
Transport of resources	$ 37,500.00
III. Tourism	**$ 487,500.00**
IV. Jewelry, Arts & Crafts	
Workshop Construction	$ -
Workshop equipment	$ 8,125.00
Stock input	$ 2,500.00
Packaging Material	$ 1,500.00
IV. Jewelry, Arts & Crafts	**$ 12,125.00**
V. Tuhka Products	
Factory Construction	$ 45,000.00
Production Equipment	$ 75,000.00
Packaging Material	$ 1,500.00
V. Tuhka Products	**$ 121,500.00**
TOTAL CAPEX	**$ 621,125.00**

Table 39 Total Management and running costs for bio economy activities in Coeroeni

Cost Item	Coeroeni
I. Project Management	
Project Coordination	$ 60,075.00
Technical and Financial Reporting	$ 900.00
Logistic Support	$ 6,750.00
Social Impact Support	$ 7,500.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 75,525.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 7,500.00
Bee technicians (4)	$ -
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 13,500.00
Marketing & Branding	$ 29,062.50
TOTAL II.	**$ 54,062.50**
III. Training & Capacity Building	
Quality Improvement	$ 18,750.00
Training Material	$ 6,116.00
TOTAL III.	**$ 24,866.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 254,453.50**

5. Amatopo

The focus in Amatopo, in regards to developing bio economy, will be on stingless bee.

- Stingless Bee Project

The community of Amatopo also have expressed their interest in developing stingless beekeeping as a livelihood in their village for the production of honey, and propolis, and in the future pollen. Its feasibility for the stingless beekeeping is high due to the sufficient interest in the village for this livelihood, it's also part of their indigenous culture, guaranteed sales, export opportunities, and the prices for honey and propolis are very attractive.
Since this will be a new livelihood, it will be challenging since there are no existing beekeepers in the village. However, there is sufficient interest for engaging in this livelihood. After the introduction and development phase, it is expected to have approximately 10 households engaged in this alternative income opportunity.

Main objective:
Introduce and develop Stingless Beekeeping as a sustainable livelihood for income generation through the production of honey and propolis.

Specific objective:
Objective 1: Locals grow about 50 bee boxes each
Objective 2: Locals have an income of USD 125.- per month per household within 4 years
Objective 3: Generate at least 10 new jobs

Action plan:
1. Engaging community in having about 50 boxes each
2. Capacity building in box production, spotting beehives, collecting, beekeeping, administration and bee technicians
3. Providing a dedicated, and fully utilized bee house with availability of adequate cooling facilities

Expected outcomes:
Sustainable livelihood for villagers and conservation of the Amazon Rainforest

- CAPEX, Management & Running Costs

Table 40 Total Capex for bio economy activities in Amatopo

Bioeconomy Activity	Amatopo
I. Stingless Bee	
Building construction	$ 40,000.00
Building furnishment	$ 17,500.00
Workshop equipment	$ 10,000.00
Bee box Supply	$ 10,000.00
I. Stingless Bee	**$ 77,500.00**
TOTAL CAPEX	**$ 77,500.00**

Table 41 Total Management and running costs for bio economy activities in Amatopo for 4 years

Cost Item	Amatopo
I. Project Management	
Project Coordination	$ 20,025.00
Technical and Financial Reporting	$ 300.00
Logistic Support	$ 2,250.00
Social Impact Support	$ 2,500.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 25,375.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 2,500.00
Bee technicians (4)	$ -
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 4,500.00
Marketing & Branding	$ 9,687.50
TOTAL II.	**$ 20,687.50**
III. Training & Capacity Building	
Quality Improvement	$ 6,250.00
Training Material	$ 2,480.00
TOTAL III.	**$ 8,730.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 154,792.50**

6. Pelelu Tepoe

For the community of Pelelu Tepoe the focus for developing bio economy activities will be on the stingless bee project, and initiative of pepper powder production or production of bamboo straws.

- Stingless Bee Project

The community of Tepoe has expressed their interest in further developing their stingless beekeeping as a livelihood in their village for the production of honey, and propolis. Its feasibility for the stingless beekeeping is high due to the sufficient interest in the village for this livelihood, it's also part of their indigenous culture, guaranteed sales, export opportunities, and the prices for honey and propolis are very attractive.
This livelihood is already in a developing stage but no income is generated yet. The next step of the development is to secure the income generation by having 25 men and women engaged with each 100 bee boxes.

Main objective:
Introduction and developing Stingless Beekeeping as a sustainable livelihood for income generation through the production of honey and propolis.

Specific objective:
Objective 1: Locals grow about 100 bee boxes each
Objective 2: Locals have an income of USD 125.- per month per household within 4 years
Objective 3: Generate at least 25 new jobs within 4 years

Action plan:
1. Community engaged in having about 100 boxes each
2. Capacity building in box production, spotting beehives, collecting, beekeeping, administration and bee technicians
3. Providing a dedicated, and fully utilized bee house with availability of adequate cooling facilities

Expected outcomes:
Sustainable livelihood for villagers and conservation of the Amazon Rainforest.

- Pepper Powder Production/Bamboo straws

In order to choose between pepper and bamboo, a more thorough analysis is required. Many attempts were made to support the community with Pepper production and processing to pounding to pepper powder. The product has a longer chain, which entails: cultivation of a rainfed farming system- facing challenges of climate change, diseases and pests, combined with periodically set back in the number of active farmers (other social obligations- leaving the village) and small amounts of pepper powder regularly produced. Villagers have not been consistent farmers to feed into processing. In order to have the pepper production become a serious business, at least 50 women have to be dedicated to this initiative.
It's therefore that a more lucrative activities, which engage first harvesting of wild bamboo/grass as natural straws is initiated, whilst more data is collected around the seriousness of pepper production.

The straw initiative, would entail men harvesting and women engaged in the cleaning, drying and packaging. In that sense the same “pepper” house could be redesigned for straw production. Analogue to the investments determined under the pepper initiative, a nursery with those species that are the best for this purpose could be set up.

Main objective:
Develop a value chain based on a more in-depth analysis of Pelelu Tepoe’s interest.

Specific objectives:
Objective 1: Learn if pepper or straw has a cultural, economic and environmental chance for being developed in a second value chain for Tepoe.
Objective 2: Equip the community with a farming/harvesting scheme that is aligned with the processing unit (either pepper/straw)
Objective 3: Generate at least 50 new jobs within 4 years
Action plan:

1. Engage community to be involved with the production
2. Mapping, collect data and prepare plots that are resilient against flooding
3. Install nursery for propagation
4. Introduce agro-forestry practices / harvesting protocol
5. Upgrade existing facility with proper equipment, tools, and storing facility
6. Identify market

Expected outcomes:
Diversified income generation options under villagers of Tepoe, based on their commitment.

- CAPEX, Management & Running Costs

Table 42 Total Capex for bio economy activities in Pelelu Tepoe

Bioeconomy Activity	Pelelu Tepu
I. Stingless Bee	
Building construction	$ 40,000.00
Building furnishment	$ 17,500.00
Workshop equipment	$ 10,000.00
Bee box Supply	$ 10,000.00
I. Stingless Bee	**$ 77,500.00**
VI. Pepper Powder / Bamboo Straws	
Restauration of Factory	$ 25,000.00
Production Equipment	$ 32,500.00
Packaging Material	$ 1,500.00
VI. Pepper Powder	**$ 59,000.00**
TOTAL CAPEX	**$ 136,500.00**

Table 43 Total Management and running costs for bio economy activities in Pelelu Tepoe for 4 years

Cost Item	Pelelu Tepu
I. Project Management	
Project Coordination	$ 40,050.00
Technical and Financial Reporting	$ 600.00
Logistic Support	$ 4,500.00
Social Impact Support	$ 5,000.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 50,450.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 5,000.00
Bee technicians (4)	$ 16,800.00
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 9,000.00
Marketing & Branding	$ 19,375.00
TOTAL II.	**$ 54,175.00**
III. Training & Capacity Building	
Quality Improvement	$ 12,500.00
Training Material	$ 2,480.00
TOTAL III.	**$ 14,980.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 219,605.00**

7. Palumeu

For the community of Palumeu, the focus for developing bio economy activities will be on the stingless bees and eco-tourism.

- Stingless Bee Project

The community of Palumeu has expressed their interest in developing stingless beekeeping as a livelihood in their village for the production of honey, and propolis. Its feasibility for the stingless beekeeping is high due to the sufficient interest in the village for this livelihood, it's also part of their indigenous culture, guaranteed sales, export opportunities, and the prices for honey and propolis are very attractive.
Since this will be a new livelihood, it will be challenging since there are no existing beekeepers in the village. However, there is sufficient interest for engaging in this livelihood. After the introduction and development phase, it is expected that 20 households would benefit from an income with this livelihood.

Main objective:
Introduce and develop Stingless Beekeeping as a sustainable livelihood for income generation through the production of honey and propolis.

Specific objective:
Objective 1: Locals grow about 50 bee boxes each
Objective 2: Locals have an income of USD 125.- per month per household within 4 years
Objective 3: Generate at least 20 new jobs
Action plan:

1. Engaging community in having about 50 boxes each
2. Capacity building in box production, spotting beehives, collecting, beekeeping, administration and bee technicians
3. Providing a dedicated, and fully utilized bee house with availability of adequate cooling facilities

Expected outcomes:
Sustainable livelihood for villagers and conservation of the Amazon Rainforest

- Eco-tourism

The Ecotourism company of the Mets NV, a subdivision of the SLM – national carrier, has developed a well invested and cultural embedded livelihood option in Palumeu which has proven to be successful. The engagement of community members from basic service provision, until management level locally was reached within 2 decades. A trajectory that entailed many trainings and internships.
Due to political involvement, COVID, maintenance was neglected which led to the deterioration of the resort. Although the METS shared some serious interest to re-start the operations, it's premature to include their investments in this report. Meanwhile, locals have shown interest in the start-up of a guesthouse locally. There are mixed feelings about the guesthouse, which needs further assessment.

Main objective:
Have a model CBT set up, based on knowledge and experience with the METS NV and aligned with nature and cultural conservation.

Specific objectives:
Objective 1: Strengthen the local community of Palumeu to further develop a CBT model.
Objective 2: Generate at least 25 new jobs in the ecotourism sector

Action plan:
1. Rehabilitate the guesthouse with amenities (Energy, Water, Lodges, transportation)
2. Execute training plan: Hospitality, F&B, guiding, management, maintenance, etc.
3. Update the role of each household in tourism and ensure fair engagement and earnings
4. Develop local identity to the product and market
5. Marketing of site

Expected outcomes:
A well-managed village wide CBT product developed, with seasonal earnings.

- CAPEX, Management & Running Costs

Table 44 Total Capex for bio economy activities in Palumeu

Bioeconomy Activity	Palumeu
I. Stingless Bee	
Building construction	$ 40,000.00
Building furnishing	$ 17,500.00
Workshop equipment	$ 10,000.00
Bee box Supply	$ 10,000.00
I. Stingless Bee	**$ 77,500.00**
III. Tourism	
Completion Feasibility Study	$ 50,000.00
Construction of Tourist Lodges	$ 10,000.00
Transport of resources	$ 25,000.00
III. Tourism	**$ 85,000.00**
TOTAL CAPEX	**$ 162,500.00**

Table 45 Total Management and running costs for bio economy activities in Palumeu for 4 years

Cost Item	Palumeu
I. Project Management	
Project Coordination	$ 40,050.00
Technical and Financial Reporting	$ 600.00
Logistic Support	$ 4,500.00
Social Impact Support	$ 5,000.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 50,450.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 5,000.00
Bee technicians (4)	$ 16,800.00
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 9,000.00
Marketing & Branding	$ 19,375.00
TOTAL II.	**$ 54,175.00**
III. Training & Capacity Building	
Quality Improvement	$ 12,500.00
Training Material	$ 5,224.00
TOTAL III.	**$ 17,724.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 222,349.00**

8. Apetina

In regard to the development of any bio economy activities in Apetina, the focus will be on further expansion of the current jewelry, arts & crafts initiative.

- Jewelry, Arts & Crafts

Another sustainable income alternative for the community of Apetina is Jewelry, Arts & Crafts. Arts & Crafts is part of the indigenous culture in Apetina too, this livelihood already operates as a fully locally managed enterprise. It requires relative low investments, generates sustainable income, and there is sufficient interest in the village for this livelihood to upscale. Currently, there are about 20 women benefiting from income through this livelihood with an average income of SRD 2,500 per month per household, and would be upscaled to 40 women and men with an average income of SRD 5,000 per month per household.

Main objective:
Upscaling the jewelry and arts and crafts livelihood for increased income generation via product innovation and provision/improvement of production infrastructure.

Specific objectives:
Objective 1: Development of 2 new product lines 'home décor' and 'kitchen utensils' (mainly for men)
Objective 2: Development of high-end products e.g., for special occasions and auctions, as gifts, decorations
Objective 3: Construction of a workshop and furnish it with equipment, to house and facilitate producers of arts and craft, including Iniri Rainforest Jewelry, a CBO owned by jewelry making women of 4 villages
Objective 4: Create at least 20 new jobs and double income opportunity within 4 years

Action plan:
1. Community engagement, awareness and recruitment
2. Capacity building of members in product quality and its monitoring, commitment, reliability and quality, and branding
3. Marketing and exploring markets
4. Equip the team with adequate facilities, tools, and equipment.

Expected outcome:
Establishing a sustainable jewelry and arts and craft livelihood and conserving the Amazon Rainforest.

- CAPEX, Management & Running Costs

Table 46 Total Capex for bio economy activities in Apetina

Bioeconomy Activity	Apetina
IV. Jewelry, Arts & Crafts	
Workshop Construction	$ 37,000.00
Workshop equipment	$ 8,125.00
Stock input	$ 2,500.00
Packaging Material	$ 1,500.00
IV. Jewelry, Arts & Crafts	**$ 49,125.00**
TOTAL CAPEX	**$ 49,125.00**

Table 47 Total management and running costs for bio economy activities in Apetina for 4 years

Cost Item	Apetina
I. Project Management	
Project Coordination	$ 40,050.00
Technical and Financial Reporting	$ 600.00
Logistic Support	$ 4,500.00
Social Impact Support	$ 5,000.00
Insurance of Experts	$ 300.00
TOTAL I.	**$ 50,450.00**
II. Project Execution Direct Investments	
Local Collaborators	$ 5,000.00
Bee technicians (4)	$ -
Local Resource Persons	$ 4,000.00
Project Oversight - Leadership	$ 9,000.00
Marketing & Branding	$ 19,375.00
TOTAL II.	**$ 37,375.00**
III. Training & Capacity Building	
Quality Improvement	$ 12,500.00
Training Material	$ 6,116.00
TOTAL III.	**$ 18,616.00**
IV. Logistics	
Local Transport	$ 25,000.00
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00
Flight Charters	$ 50,000.00
Accommodation of Trainees	$ 18,750.00
TOTAL IV.	**$ 100,000.00**
TOTAL Management & Running costs (4 years)	**$ 206,441.00**

9. Kawemhakan & Kumakapan

Kawemhakan and Kumakapan has been organized under one section due to the size of Kumakapan and its relation with Kawemhakan. For these communities the focus will be on developing the jewelry, arts & crafts, and wood workshops.

- Jewelry, arts & crafts

Another sustainable income alternative for the community of Kawemhakan and Kumakapan is Jewelry, Arts & Crafts. Arts & Crafts is part of the indigenous culture in these communities too. It requires relative low investments, generates sustainable income, and there is sufficient interest in the village for this livelihood to upscale. Currently, the goal is to have 30 women and men with an average income of SRD 5,000 per month per household.

Main objective:
Upscaling the jewelry and arts and crafts livelihood for increased income generation via product innovation and provision/improvement of production infrastructure.

Specific objectives:
Objective 1: Development of 2 new product lines 'home décor' and 'kitchen utensils' (mainly for men)
Objective 2: Development of high-end products e.g., for special occasions and auctions, as gifts, decorations
Objective 3: Construction of a workshop and furnish it with equipment, to house and facilitate producers of arts and craft, including Iniri Rainforest Jewelry, a CBO owned by jewelry making women of 4 villages
Objective 4: Creation of at least 30 new job opportunities within the value chain

Action plan:
1. Community engagement, awareness and recruitment
2. Capacity building of members in product quality and its monitoring, commitment, reliability and quality, and branding
3. Marketing and exploring markets
4. Equip the team with adequate facilities, tools, and equipment.

Expected outcome:
Establishing a sustainable jewelry and arts and craft livelihood and conserving the Amazon Rainforest.

- Wood workshop

Kawemhakan and Kumakapan are amidst an economy where producing building materials for houses, boats, et al. are highly operating. Providing and sustaining equipped buildings/factories that only focusses on producing wood material for various purposes will not only improve the economy in these villages, but also improve the monthly income for families.

Main objective: Support the communities with at least one wood processing factory to increase number of households to at least 10 with a monthly income of SRD 5,000.

Specific objectives:
Objective 1: Construction of a wood processing factory that can produce on relevant
Objective 2: Furnishing wood processing factory with adequate facilities, tools, and equipment.
Objective 3: Creating job opportunities for at least 10 more men and women

Action plan:

1. Community engagement, awareness and recruitment
2. Furnishing wood processing factory with adequate facilities, tools, and equipment
3. Training in health, safety, and environment best practices
4. Crosscutting capacity building and skills exchange
5. Training in sustainable forestry practices

Expected outcome:
Improving livelihoods income through wood processing activities in alignment with sustainable forestry practices and in longer term the conservation of the Amazon Rainforest.

- Capex, Management and Running Costs

Table 48 Total Capex for bio economy activities in Kawemhakan and Kumakapan

Bioeconomy Activity	Kawemhakan	Kumakapan
IV. Jewelry, Arts & Crafts		
Workshop Construction	$ 37,000.00	$ -
Workshop equipment	$ 8,125.00	$ -
Stock input	$ 2,500.00	$ -
Packaging Material	$ 1,500.00	$ -
IV. Jewelry, Arts & Crafts	**$ 49,125.00**	**$ -**
VII. Wood Workshop		
Building Construction	$ 60,000.00	$ -
Building Furnishing	$ 25,000.00	$ -
Workshop Equipment	$ 20,000.00	$ -
VII. Wood Workshop	**$ 105,000.00**	**$ -**
TOTAL CAPEX	**$ 154,125.00**	**$ -**

Table 49 Total management and running costs for bio economy activities in Kawemhakan and Kumakapan for 4 years

Cost Item	Kawemhakan	Kumakapan
I. Project Management		
Project Coordination	$ 40,050.00	$ -
Technical and Financial Reporting	$ 600.00	$ -
Logistic Support	$ 4,500.00	$ -
Social Impact Support	$ 5,000.00	$ -
Insurance of Experts	$ 300.00	$ -
TOTAL I.	**$ 50,450.00**	**$ -**
II. Project Execution Direct Investments		
Local Collaborators	$ 5,000.00	$ -
Bee technicians (4)	$ -	$ -
Local Resource Persons	$ 4,000.00	$ -
Project Oversight - Leadership	$ 9,000.00	$ -
Marketing & Branding	$ 19,375.00	$ -
TOTAL II.	**$ 37,375.00**	**$ -**
III. Training & Capacity Building		
Quality Improvement	$ 12,500.00	$ -
Training Material	$ -	$ -
TOTAL III.	**$ 12,500.00**	**$ -**
IV. Logistics		
Local Transport	$ 25,000.00	$ -
Fuel (Boat, Equipment, Lubricants)	$ 6,250.00	$ 3,000.00
Flight Charters	$ 50,000.00	$ -
Accommodation of Trainees	$ 18,750.00	$ 9,000.00
TOTAL IV.	**$ 100,000.00**	**$ 12,000.00**
TOTAL Management & Running costs (4 years)	**$ 200,325.00**	**$ 12,000.00**

10. Total Budget

The total budget for the development of bio economy activities in 10 indigenous communities is **USD 2.7 MUSD.**

1. Total budget - CAPEX

Table 50 Total CAPEX for all bio economy activities in all communities (exclusive 5.5% contingency)

Bioeconomy Activity	Kwamalasamutu	Sipaliwini	Alalapadu	Apetina	Palumeu	Pelelu Tepoe	Amatopo	Coeroeni	Kawemhakan	Kumakapan	TOTAL
I. Stingless Bee	77,500	77,500	-	-	77,500	77,500	77,500	-	-	-	**387,500**
II. Herbal Tea Production	57,000	-	-	-	-	-	-	-	-	-	**57,000**
III. Tourism	-	-	-	-	85,000	-	-	487,500	-	-	**572,500**
IV. Jewelry, Arts & Crafts	49,125	49,125	-	49,125	-	-	-	12,125	49,125	-	**208,625**
V. Tuhka Products	-	-	62,500	-	-	-	-	121,500	-	-	**184,000**
VI. Pepper Powder	-	-	-	-	-	59,000	-	-	-	-	**59,000**
VII. Wood Workshop	-	-	-	-	-	-	-	-	105,000	-	**105,000**
CAPEX USD	**183,625**	**126,625**	**62,500**	**49,125**	**162,500**	**136,500**	**77,500**	**621,125**	**154,125**	**-**	**1,573,625**
Contingency 5.5%	**10,099**	**6,964**	**3,438**	**2,702**	**8,938**	**7,508**	**4,263**	**34,162**	**8,477**		**86,549**
TOTAL CAPEX USD	***193,724***	***133,589***	***65,938***	***51,827***	***171,438***	***144,008***	***81,763***	***655,287***	***162,602***	***-***	***1,660,174***

Total CAPEX is estimated around 1.66 MUSD.

5.3.6.5 Total budget - OPEX

Table 51 Total OPEX for all bio economy activities in all communities for 4 years (exclusive 5.5% contingency)

Cost Item	Kwamalasamutu	Sipaliwini	Alalapadu	Amatopo	Coeroeni	Pelelu Tepoe	Palumeu	Apetina	Kawemhakan	Kumakapan	TOTAL
I. Project Management	75,525	50,450	25,375	25,375	75,525	50,450	50,450	50,450	50,450	-	**454,050**
II. Project Execution Direct Investments	70,863	54,175	20,688	20,688	54,063	54,175	54,175	37,375	37,375	-	**403,575**
III. Training & Capacity Building	34,078	18,352	6,250	8,730	24,866	14,980	17,724	18,616	12,500	-	**156,096**
IV. Logistics	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	12,000	**912,000**
OPEX USD	**280,466**	**222,977**	**152,313**	**154,793**	**254,454**	**219,605**	**222,349**	**206,441**	**200,325**	**12,000**	**1,925,721**
Contingency (5.5%)	**15,426**	**12,264**	**8,377**	**8,514**	**13,995**	**12,078**	**12,229**	**11,354**	**11,018**	**660**	**105,915**
TOTAL COSTS (OPEX) USD	***295,891***	***235,241***	***160,690***	***163,306***	***268,448***	***231,683***	***234,578***	***217,795***	***211,343***	***12,660***	***2,031,636***

Total OPEX for 4 years is estimated to be 2.04 MUSD.

5.3.6.6 Total creation of new employment

Table 52 Overview on amount of employment of current bio economy activities

Current	Kwamalasamutu	Sipaliwini	Alalapadu	Apetina	Palumeu	Pelelu Tepoe	Amatopo	Coeroeni	Kawemhakan	Kumakapan	
Stingless bees	60	0			0	0					60
Herbal tea	30										30
Ecotourism					0			0			0
Jewelry and handcrafts	12	30		20				30			92
Brazil nut production			25					0			25
Pepper Powder						0					0
Wood workshop									0		0
Cosmetic oil											0
Total	**102**	**30**	**25**	**20**	**0**	**0**	**0**	**30**	**0**	**0**	**207**

As of 2023, there are a total of 207 jobs employed by community members through the current bio economy activities.

Table 53 Overview of number of new employments with expanding and developing bio economy activities

New	Kwamalasamutu	Sipaliwini	Alalapadu	Apetina	Palumeu	Pelelu Tepu	Amatopo	Coeroeni	Kawemhakan	Kumakapan	
Stingless bees	10	100			20	25	10				**165**
Herbal tea	30										**30**
Ecotourism					25			10			**35**
Jewelry and handcrafts	60	22		20				22	30	5	**154**
Brazil nut production			10					25			**35**
Pepper Powder						50					**50**
Wood workshop									10		**10**
Cosmetic oil											**0**
Total	**100**	**122**	**10**	**20**	**45**	**75**	**10**	**57**	**40**	**5**	**484**

With the expansion of current bio economy activities and by developing potential bio economy activities, within 4 years there will be around 500 new jobs created.

5.3.7 Current status of primary electrification through renewable energy in the target villages

The current electricity law stipulates that the EAS is responsible for the energy sector plan, which is then executed, once approved, by various actors, among which EBS. Nonetheless, there is close collaboration between relevant stakeholders. In principle EBS has national concession for power generation, transmission, and distribution. However, because of cost effectivity issues, EBS has not focused much on the hinterland. Hinterland electrification has been historically done by MNH and DEV via two routes: i) DEV with the decentralized Diesel gensets and ii) via various solar PV installation projects. In some cases, under request from MNH, EBS provides ass1istance, or advice in specific projects.

Currently in the interior of Suriname in the hinterland, DEV within MNH is responsible for the electricity supply with small, isolated power generation systems using diesel fuel. The power supply is limited but free for a few hours per day, about 4-6 hours per day from 6:00/7:00 pm – 12:00 pm, depending on diesel provision. In some villages, depending on the percentage of school-aged children in the village, electricity is also available from 5.00-7.00 in the morning, provided that the number of technical working hours is within acceptable limits given the equipment installed at the specific village.

The power generators and the electricity distribution grids are government owned and operated and maintained by DEV. In this regard DEV has their own staff working in these villages. Maintenance is both reactive and preventive, yet, the GoS has no fixed long-term policy towards asset management, return on investments and replacement of critical equipment/infrastructure. The present management and operation model do not require recovery of operating costs; by consequence, there is no incentive in the communities to make efficient use of the limited supplied electricity [1].

Although DEV is capable of performing the operation and maintenance of the local electricity equipment/infrastructure, there are key challenges, namely: i) in the case of hybrid power systems (solar PV + diesel generators) DEV has trained personnel of maintenance and troubleshooting if needed for these systems, yet, these technical staff do not live in these villages (this is the case for the villages Gujaba and Godo Olo) and ii) due to the aging workforce of DEV, it is difficult (though not impossible) to find new recruits. A critical challenge faced by the GoS for many years is the high costs associated with fuel supply for the villages.

Furthermore, as mentioned earlier hereabove, the availability of technicians in the villages where solar PV systems (hybrid or stand-alone) are installed, is problematic. Lastly, there is a lack of technical standards on designs of mini grids and PV systems, i.e., experience has shown that in the past decade, solar PV systems were haphazardly installed as a patchwork of various system and control designs, whereby maintenance, training, system longevity and sustainability were deemed of minor importance. Consequently, if damage occurs, it is unclear which entity has a role to fulfill with clear tasks and responsibilities, there is no stockpile of spare parts, and each village has totally different standards for the technical equipment.

Some hybrid, mini grids solar systems and individual solar systems have been built in the hinterland from different organizations: NGO´s and private sector unfortunately due to lack of operation, maintenance and management plan the systems are out of operation. Below, it shows a list of mini grids systems installed in Suriname.

Table 54 List of solar microgrids in Suriname

Project	Size kWp	Technology	Stakeholder (developer/funder)	Status	Year of commissioning
Good Olo (southeast)	250 kWp	Solar PV microgrid	Global Environment Facility/ Inter-American Development Bank (GEF/IADB)	Operated by EBS and DEV	2021
Pokigron, Atjoni	500 kWp	Solar PV microgrid	Inter-American Development Bank (IADB)	Operated by EBS	2018
Goejaba (upper Suriname)	450 kWp	Solar PV microgrid	Powerchina, Ministry of Natural Resources	Operated by DEV	2021
Pikin Slee (upper Suriname)	300 kWp	Solar PV microgrid	Powerchina, Ministry of Natural Resources	Operated by DEV	2021
Gunzi (upper Suriname)	20 kWp	Solar PV microgrid	WTEC, Ministry of Natural Resources, EBS, University Anton de Kom Suriname	Not in operation	2014
Coeroeni	9.1 kWp	Solar PV microgrid	Amazon Conservation Team (ACT) – Suriname	In operation by ACT	2019
Sipaliwini	3.75 kWp	Solar PV microgrid	Amazon Conservation Team (ACT) – Suriname	In operation by ACT	2019
Pelelu Tepu (Tapanahoni river)	21 kWp	Solar PV microgrid	Amazon Conservation Team (ACT) – Suriname	Operated by DEV (Electrification Service) of the Ministry of Natural Resources.	2018

Table 55 List of Individual Standalone Systems in South Suriname

Project	Size kWh	Technology	Stakeholder (developer/funder)	Status	Year of commissioning
Traditional Medicine Clinic, Apetina	1.925 kwh/day	Solar PV Standalone	UNDP J-CCCP, Amazon Conservation Team (ACT) – Suriname	Supported by ACT	2017
Traditional Medicine Clinic, Peleloe Tepoe	1.925 kwh/day	Solar PV Standalone	UNDP J-CCCP, Amazon Conservation Team (ACT) – Suriname	Supported by ACT	2017
Traditional Medicine Clinic, Kwamalasamutu	1.925 kwh/day	Solar PV Standalone	UNDP J-CCCP, Amazon Conservation Team (ACT) – Suriname	Supported by ACT	2017
Media Center, Kwamalasamutu	12kwh/day	Solar PV Standalone	DOB Ecology, UNICEF, Amazon Conservation Team (ACT) – Suriname	Supported by ACT	2020
Brazil Nut Factory, Alalapadu	31.90 kwh/day	Solar PV Standalone	Green Growth Suriname (GGS), Conservation International (CI) – Suriname	Supported by CI-S	2020

5.3.8 Current status of Telecommunications in the target villages

While 5G technology is being introduced by Telesur in Paramaribo, telecommunications towers in the interior of the country are limited to 3G/4G. There is a Long-Term Evolution (LTE) network that reaches the interior of Suriname through a tower infrastructure and a microwave dish network. This network is connected through Telesur or Digicel to a submarine optic cable network that is connected to North America.

Telecommunications towers can also provide DTV, which stands for Digital Television. It refers to the broadcasting of television signals using digital encoding, in contrast to the earlier analog television technology. Digital television offers several advantages over analog television, including improved picture and sound quality, as well as the ability to support multiple channels of programming within the same bandwidth.

The following table provides a summary overview of the current status of telecommunications (phone/internet) in the ten villages targeted by this project. For more details on the current status and needs expressed by the communities, see the Deliverable 2: Diagnosis report (separate report for each village).

Table 56 Summary overview of telecommunications status quo

Name of Village	Status of Telecommunications
Kwamalasamutu	Telesur: 30m tower with 2G coverage currently in use, powered by solar. 120m tower is built and will be installed with 3G/4G/DTV. To improve the quality of internet services, Telesur is busy with a 10/10Mbps VSAT satellite link upgrade. ACT-Suriname: VSAT internet with bandwidth 2 Mbps / 0.5 Mbps.
Palumeu	Telesur: 120m tower with 3G/4G/DTV, powered by solar.
Peleloe Tepoe	Telesur: 120m tower with 3G/4G/DTV, powered by solar.
Apetina	Telesur: 120m tower with 3G/4G/DTV, powered by solar.
Kawemhakan	Telesur: 120m tower with 3G/4G/DTV, powered by solar. Digicel: 130m tower with 3G, powered by solar. The Digicel and Telesur towers are located 400 meters from each other. There is also phone signal from Digicel French Guiana.
Kumakapan	No telecom tower, but phone coverage from both Digicel and Telesur through signal from the towers in Kawemhakan. There is also phone signal from Digicel French Guiana. Since there is no electricity, phones cannot be charged in the village.
Alalapadu	VSAT internet provided by an NGO: • Conservation International (CI): Speed is 2 Mbps/0.5 Mbps and installed by B-MAX Telesur has tower materials on location and in the village, but the telecommunications tower has not been built yet.
Coeroeni	VSAT internet provided by two NGOs: • Amazon Conservation Team (ACT): Speed is 2 Mbps/0.5 Mbps and installed by B-MAX • Green Growth Suriname: Speed is 2 Mbps/0.5 Mbps and installed by STRAIGHT-IP (CBC&P) There is no telecommunications tower, but Telesur has identified a potential location for a tower agreed by the village authorities

Amatopo	VSAT internet provided by an NGO and a company: • Amazon Conservation Team (ACT): Speed is 2 Mbps/0.5 Mbps and installed by STRAIGHT-IP (CBC&P) • Amatopo Eco Lodge: installed by STRAIGHT-IP (CBC&P) There is no telecommunications tower, but Telesur has identified a potential location for a tower agreed by the village authorities
Sipaliwini Savana	VSAT internet provided by an NGO: • Amazon Conservation Team (ACT): Speed is 2 Mbps/0.5 Mbps and installed by B-MAX There is no telecommunications tower, but Telesur has identified a potential location for a tower agreed by the village authorities.
Tutu Kampu	No coverage. The closest telecommunications tower is in Apetina, but the signal does not reach far enough. Also, no VSAT.

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Annex I Terms of Reference

Consultancy to support for rural electrification with renewable energy, potable water, and telecommunications in Suriname.

Location: Suriname.

The IDB Group is a community of diverse, versatile, and passionate people who come together on a journey to improve lives in Latin America and the Caribbean. Our people find purpose and do what they love in an inclusive, collaborative, agile, and rewarding environment.

About this position

Established in 1959, the Inter-American Development Bank ("IDB" or "Bank") is the main source of financing for economic, social and institutional development in Latin America and the Caribbean. It provides loans, grants, guarantees, policy advice and technical assistance to the public and private sectors of its borrowing countries.

The Inter-American Development Bank (IDB or the Bank) works to improve lives in Latin America and the Caribbean. Through financial and technical support for countries working to reduce poverty and inequality, IDB helps improve health and education, and advance infrastructure. It aims to achieve development in a sustainable, climate-friendly way. IDB is today the leading source of development financing for Latin America and the Caribbean. It provides loans, grants, and technical assistance; and it conducts extensive research. IDB maintains a strong commitment to achieving measurable results and the highest standards of increased integrity, transparency, and accountability.

The IDB's Environmental and Social Solutions Unit (VPS/ESG) is responsible for ensuring that IDB financed projects and other activities are environmentally and socially sustainable and comply with the Bank's environmental and social policies. Specialists in VPS/ESG provide the Bank and its borrowers with guidance on environmental and social safeguard issues and participate in project teams, providing technical input on social and environmental issues during project preparation/due-diligence and supervision.

The objective of the Consultancy is to (i) prepare environmental and social (E&S) documents required for the preparation of a multiple works operation ("Bio-SWEET") that will strengthen the bioeconomy potential for indigenous communities in the Sipaliwini District of Suriname through improvements in energy, water, and telecommunications infrastructure, in accordance with the requirements of the Bank's E&S Policy Framework (ESPF) and its E&S Performance Standards (ESPSs), building upon the Strategic E&S Assessment (SESA) currently in progress for works in ten communities of the District including other deliverables by following the original ToR and (iii) prepare an E&S scoping report of the proposed 110 kV 131-km transmission line between the Peperpot substation near Paramaribo and Albina.

What you'll do

The consultant must perform all the activities needed to achieve the objectives of the consultancy including but not restricted to:

- Prepare an E&S Management System (ESMS) in accordance with ESPS 1, including an E&S Management Framework (ESMF) for future works outside of the representative sample.
- Conduct a critical habitat assessment in accordance with the Guidelines on ESPS 6 and present lines of actions for achieving net gains, if applicable.
- Perform an in-situ Sociocultural Analysis (**see Annex 1**) of each of the ten (10) communities identified as the representative sample and assist the borrower in achieving free, prior, informed consent (FPIC) and the respective indigenous peoples development plans (IPDP) in accordance with ESPS 7 and national requirements.
- Prepare Resettlement and Livelihood Restitution Plan (PRRMV) in accordance with ESPS 5
- Prepare and E&S Scoping Report of the proposed Peperpot-Albina transmission line, including a rapid site visit (1 or 2 days). This report will identify key risks and impacts related to each of the ten ESPSs and recommendations for the mitigation approach.

The consultant will have 3 missions of 7 days each to Suriname.

Deliverables and Payments Timeline

- **eliverable #**	- **ercentage**	- **lanned Date to Submit**
- . Work Plan, within ten (10) days of signing the contract	- 0%	- February 2024
- . Post-Field Report, within ten (10) days of completing the site visits	- 0%	- March 2024
- .Fit-for-Disclosure Consultation Drafts	- 0%	- April 2024.
- .Consultation Report	- 0%	- August 2024
- .Transmission Line Scoping Report	- 0%	- August 2024
- .Final Documents	- 0%	- August 2024

What you'll need

- **Education:** Master's degree or equivalent in civil or environmental engineering, geography, anthropology, sociology, or other fields relevant to the responsibilities of the role.
- **Experience:** a minimum of 15 years of relevant professional experience or equivalent in E&S impact assessment and management plans in rural settings, preferably in tropical environments and at least 10 years of experience in the preparation of environmental and social management plans designed to meet requirements of the IFC Performance Standards.
- **Languages:** Fluency in spoken and written English, with team members fluent in spoken Dutch and Sranan-Tongo.

Key skills

- E&S management systems, assessment and management of infrastructure projects, biodiversity and critical habitats, indigenous peoples and FPIC, stakeholder engagement.
- Excellent knowledge of recent trends in Energy Sector information systems in Surinam is a must.
- Excellence in Energy Sector design, specifying, and implementation of information systems.
- Excellent experience in information systems design and applications development.
- Proven ability to deliver high quality results under tight deadlines.
- Proven expertise and track record in Energy Sector information management systems design and specification.
- Strong competencies in Energy Sector information management systems design and specification.
- Collaborate and share knowledge.

Requirements

- **Citizenship:** You are a citizen of one of our 48-member countries.
- **Consanguinity**: You have no family members (up to the fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB, IDB Invest, or IDB Lab.
- **COVID-19 considerations:** the health and safety of our employees are our number one priority. As a condition of employment, IDB/IDB Invest requires all new hires to be fully vaccinated against COVID-19.

Type of contract and duration:

- **Type of contract:** Products and External Services Consultant (PEC), Lump Sum.
- **Length of contract:** 6 months.
- **Appointment type:** Remote .

What we offer

The IDB group provides benefits that respond to the different needs and moments of an employee's life. These benefits include:

- A **competitive compensation** package.
- A flexible way of working. You will be evaluated by deliverable.

Our culture

At the IDB Group we work so everyone brings their best and authentic selves to work, willing to try new approaches without fear, and where they are accountable and rewarded for their actions.

Diversity, Equity, Inclusion and Belonging (DEIB) are at the center of our organization. We celebrate all dimensions of diversity and encourage women, LGBTQ+ people, persons with disabilities, Afro-descendants, and Indigenous people to apply.

We will ensure that individuals with disabilities are provided reasonable accommodation to participate in the job interview process. If you are a qualified candidate with a disability, please e-mail us at diversity@iadb.org to request reasonable accommodation to complete this application.

Our Human Resources Team reviews carefully every application.

About the IDB Group

The IDB Group, composed of the Inter-American Development Bank (IDB), IDB Invest, and the IDB Lab offers flexible financing solutions to its member countries to finance economic and social development through lending and grants to public and private entities in Latin America and the Caribbean.

About IDB

We work to improve lives in Latin America and the Caribbean. Through financial and technical support for countries working to reduce poverty and inequality, we help improve health and education and advance infrastructure. Our aim is to achieve development in a sustainable, climate-friendly way. With a history dating back to 1959, today we are the leading source of development financing for Latin America and the Caribbean. We provide loans, grants, and technical assistance; and we conduct extensive research. We maintain a strong commitment to achieving measurable results and the highest standards of integrity, transparency, and accountability.

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GUIDANCE FOR ELABORATION OF SOCIO-CULTURAL ANALYSIS (SCA)

(Annex 1 to the ToR)

The SCA will be based on analysis of all available primary information about indigenous communities in the area of influence of the proposed program, summarizing the following points (description and analysis):

- **Analysis of the Legal Framework on indigenous peoples,** identifying the main international conventions and agreements ratified and subscribe to by Suriname, the principles and guidelines established in the Operational Policy on Indigenous Peoples of the IDB (ESPF7).

- Gather and compile a detailed Social Baseline for the Direct and Indirect Area of Influence of the works, activities, equipment or services to be financed, with new field information This will include an analysis of the culture of each one of the communities or main indigenous groups in the country, the world view, practices, livelihood of each, including demographic data, income, education, and analysis of the traditional leadership structure of each one, and representatives of each indigenous Community. The consultancy will cover local governance (forms of community organization and local organization, existence of traditional indigenous authorities or other authorities in the community, etc.) and complaint mechanisms and mechanisms for decision-making.

- **Analysis of Social Vulnerability.** Situation of the indigenous population in the area of the Operation according to their levels of socioeconomic and cultural vulnerability.

- **Analysis of Community Social Capital**: analyze socio cultural governance and organization, traditional land use systems, social protection and collaboration, and specifically needs for electrification with renewable energy, potable water, and telecommunications and others, that could support as mitigation measures against any negative impact of the Operation.

- **Population Expectations:** aspirations, perception, and attitudes within the indigenous communities toward the activities, works, equipment or services being proposed.

- **Community Structure and Institutional Functioning:** norms, values, customs, behaviors and mechanisms for decision making that have been institutionalized through inter and intra-group relations, relevant for the works, material, equipment or services of the Operation, including an analysis of the legitimate leaders of the communities, such as for example political leaders, traditional leaders, midwives, religious leaders, or leaders of other kinds like women's groups that are responsible for the Community.

- **Gender Aspects:** identify areas and activates in which indigenous women should participate equally with men. These include public consultations, economic activities, access to services and benefits of the program, etc.

- **Sociocultural Aspects:** characterization of values, customs, aspirations and attitudes of the community towards the attention and services of the electrification with renewable energy, potable water, and telecommunications, and how these related to the Operation and the works, materials, equipment or services it finances.

- **Analysis of possible impacts generated by the program activities including the presence of construction workers.** Analyze the possible risks associated with the construction of the building to serve as the Ministry of Energy headquarters, with particular emphasis on the behavior of the employees of the contractors in their interactions with the community, and possible negative gender impacts including sexual harassment or violence towards women or children in the community.

- **Cultural changes or generational disruption:** Analyze the internal cultural changes and tensions that could be generated or identified as a result of the works, materials, equipment, or services of the Operation, in the context of the changes that could be introduced.

- **Analysis of other risks and possible adverse social and environmental impacts,** including direct, indirect, accumulative, induced and/or residual conflicts in indigenous communities.

- **Consultation Plan with Indigenous Communities.** Based on the community structure and institutional functioning, including the traditional and political structure of decision-making, the consultant will elaborate a Consultation Plan for the indigenous communities to be intervened in, that are culturally appropriate, and which reflect the requirements established in the Operational Policy on Indigenous Peoples (ESPF7) of the IDB. Some provisions to take into account in the case of consultations with indigenous communities, is that they should be culturally appropriate, preferably using one or more facilitators belonging to or well-versed in the culture and/or language of the respective Community, ensuring that those community members who don't speak English or Dutch have the opportunity to ask questions and express opinions and concerns; that the consultations are held at a time and in a space which are both accessible to the local indigenous population, particularly for vulnerable groups within the community like women, youth, the elderly, and disabled people, and that the decision-making mechanisms of the indigenous community are respected and honored. The first round of consultations should take place during the preparation of the Operation and this consultancy will support that process in form and content. Thereafter, the Executing Agency should continue commnications with the indigenous communities in an ongoing manner.

- **Indigenous Peoples Plan.** Include the specific measures for ensuring the inclusiveness of indigenous communities that should be implemented to ensure that the activities to be financed by the Operation, including equipment, materials or services, will be socio-culturally appropriate and inclusive. This Plan and the measures included in it should have an estimated Budget, tentative timeline, responsible parties, and other logistical details that will help to implement it.

• **Monitoring of Sociocultural Aspects.** Definition of socio-cultural indicators that serve as baseline for the monitoring of changes generated by the new works, materials, equipment or services to be financed by the Operation, defining a monitoring system for the indigenous communities.

1) Activities to take place as part of the consultancy (in addition to the Socio-cultural Analysis itself)

• Describe what is already being done in this regard in the primary electrification with renewable energy, potable water, and telecommunications system and the non-governmental sector that is supporting it and offering socio-culturally appropriate electrification with renewable energy, potable water, and telecommunications services.

• Support the Executing Agency to carry out the public consultations with the beneficiary communities to present the equipment, materials, or services to be financed, the results of the socio-environmental studies and the respective environmental and social management plan, and document with agreements, reports or photographs, the perspectives of the communities.

• Contribute to improve the capacity of the Executing Agency of the Operation through advising about socio-cultural indicators and adaptation of electrification with renewable energy, potable water, and telecommunications services.

- Coordinate and communicate with the IDB Project team, including particularly the socio-environmental specialist hired to carry out the Strategic Environmental and Social Assessment (SESA) of this Operation, in order to make sure that the present Socio-cultural Analysis and the Environmental and Social Analysis are integrated and meet the standards and policies of the Bank.

Main Socioenvironmental Documents to be Prepared for the Sample Projects.

(Follow the Terms of Reference)

(Annex to the ToR)

Document	Content	Comments
Environmental and social assessments (ESAs)	• Project description, including Analysis of Alternatives • Legal and policy framework • E&S baseline • Identification and evaluation of the probable environmental and social risks and impacts of the subprojects • Identification of mitigations in accordance with the mitigation hierarchy • Summary of public consultation process	These ESAs and ESMPs for the subprojects of the representative sample can be presented collectively in a single document
Environmental and Social Management Plans (ESMPs)	• E&S management programs • Organizational capacity and competency • Emergency preparedness and response • Stakeholder engagement • Monitoring and review.	Actionable plans to mitigate the impacts and risks identified in the ESAs, in accordance with the Mitigation Hierarchy and the ten ESPS
stakeholder engagement plans (SEP)	The SEP will include the following elements: • Stakeholder identification and analysis. • Information Disclosure. • Consultation with stakeholders. • Grievance mechanisms. • Information reporting to stakeholders. The SEP will guide consultation during preparation and execution phases	Stakeholder engagement plan SEP) and information disclosure process will be required throughout the life cycle of the Project. In compliance with ESPS 1 and 10,
Land Acquisition Framework	See ***Annex 2***	Based on SCA, If risks and impacts are identified, the

		Borrower should prepare an IPP outlining the actions to minimize and/or compensate for adverse impacts (for example land acquisition for mini-grids) in a culturally appropriate manner.
Biodiversity Action Plan (BAP)	Actions to achieve net gains for biodiversity values for which critical habitats are designated by the Critical Habitat Assessment, including budget and staffing requirements.	Can be presented during execution viability of net gains should be demonstrated prior to Board.
Environmental and Social Management Framework (ESMF)	• Subproject Screening and Classification • Exclusion Criteria • E&S Eligibility Criteria • E&S Assessment and Management Requirements • Stakeholder Engagement • Resettlement and Livelihood Restitution Framework • Indigenous Peoples Framework • Supervision and Reporting	The ESMF describes how the subprojects outside of the representative sample will be assessed and managed in accordance with the ESPF and the ten ESPS, including exclusion and eligibility criteria to ensure that financed subprojects are limited to E&S impact categories B or C.
Sociocultural Analysis (SCA)	*See **Annex 1***	Preliminarily, according to the information provided, the indigenous population and those in vulnerable situations have been identified in the project area of influence of the projects in the representative sample. Since there is confirmed the presence of indigenous peoples, an ***SCA and an indigenous peoples' plan will be finalized based in all available information, including maps and documentation based on consultations all in accordance with the Bank's NDAS 7***. The vulnerable population will be treated in accordance with the PRRMV (if confirmed)

Disaster risk and climate change	• Qualitative risk assessment and diagnosis based on the available information. • Identification of gaps that need to be addressed. • Risk narrative documenting the diagnosis.	Some of the subprojects in the representative sample are subject to high risk of riverine flooding with the potential to be exacerbated by future climate change scenarios. How, criticality is assumed low due to the small numbers of beneficiaries. However, for all subprojects, the IDB's Disaster Risk and Climate Change Assessment Methodology for Projects must be followed In summary, this diagnosis aims to determine whether the existing project conception includes considerations that are sufficient to reduce existing and future risks. This is documented through a short narrative, called the "risk narrative."
Critical Habitats Assessment	• Evaluation of the criteria and thresholds for critical habitats described in the ESPS 6 Guidelines for the area of influence of each subproject of the representative sample. • Assessment of probability of measurable adverse impact and reductions in populations of EN and CR species, if applicable. • Proposal of actions to achieve net gains for biodiversity values for which critical habitats are identified.	At least two of the communities in the representative sample are located within critical habitat (the Kabalebo/Arapahu Key Biodiversity Area), which requires preparation of a Biodiversity Action Plan designed to achieve net gains for biodiversity values for which the area is designated, in accordance with ESPS 6. The proposed infrastructure and bioeconomy investments must be designed to achieve no net loss of biodiversity in natural habitats and no measurable adverse impacts to critical habitats.

Sociocultural Analysis (SCA) and Indigenous Peoples Plan (IPP)

Generic Outline for the preparation of the SCA Document

(Annex 1 to the ToR)

Guidance:

The following document provides a generic outline for the preparation of a Sociocultural Analysis (SCA) and Indigenous Peoples Plan (IPP). These ToR provide a non-exhaustive list of the content of an SCA and IPP that will need to be adapted to the specific project activities.

A SCA is prepared to identify and manage the risks and impacts of a project on Indigenous Peoples. The SCA can be part of the Environmental and Social Impact Assessment (and integrated into the ESMP) prepared for the project, or it can be an independent document. The complexity of the SCA will depend on the nature and scale of a project and should be proportional to the type and magnitude of the risks and impacts, as well as to the vulnerability of the population.

Whenever an Indigenous Peoples community is identified within the project area of influence (direct and indirect), a SCA should be carried out to determine risks and potential negative and positive impacts on the Indigenous Peoples. If risks and impacts are identified, the Borrower should prepare an IPP outlining the actions to minimize and/or compensate for adverse impacts in a culturally appropriate manner.

The SCA and IPP can be two parts of the same document. It should be considered that in some cases, depending on the nature and scale of risks and impacts, a separate IPP may not be required and that the project ESMP, with some adjustments in a culturally appropriate manner and with the informed consultation and participation of the Indigenous Peoples, may be sufficient to avoid, mitigate and/or compensate the adverse impacts. Thus, the SCA/IPP may be developed as components of the ESIA/ESMP.

Content:

1. Introduction.

[This section should state the purpose of the TORs]

2. Background Information

[Provide background of the specific operation. It should include the background and scope of the operation, including the justification of the need for the project in the context of the local and/or national situation and strategies, as well as the effect the projects will have on IPs]

3. Objectives

[Provide a brief description of the objective of the consultancy (i.e. preparing a SCA and/or IPP for the operation)]

4. Scope of Work

[Describe the scope of work of the consultancy with the specific tasks if necessary (in this case the main task is to prepare the SCA and/or IPP)]

5. SCA and IPP Components

[This section describes what the consultant will need to include in the SCA and IPP]

The SCA and IPP will need to include the following components:

Baseline Information on the Indigenous Peoples in the Project's Area of Influence

The baseline information should include a comprehensive characterization of the Indigenous People's communities (its demographics; socioeconomic conditions; land tenure; resource use, sources of livelihood); means of production (land tenure systems, customary uses of land); community and governance structure, including norms, values, rules, customs, behaviors, and decision-making mechanisms; a description of its worldview and beliefs; gender aspects and dynamics; analysis of symbolic aspects (values, traditions, customs, beliefs); social vulnerability analysis (socio-economic vulnerability and potential risk of exclusion from expected project benefits); aspects related to tangible cultural heritage (sacred groves, rocks, lakes and waterfalls)

- and intangible cultural heritage (innovations and practices of communities embodying traditional lifestyles; effects on continued customary use of biological resources/access to traditional sites; effects on the respect, preservation, protection, and maintenance of traditional knowledge; effects on ritual or ceremonial activities; effects on the exercise of customary laws). Both qualitative and quantitative data and indicators may be used for this baseline. Georeferenced maps of Indigenous Peoples territories and of their cultural resources, when available, should be included.

A Description of the Legal Framework Pertaining to Indigenous Peoples

- An analysis of the applicable international, national, and subnational laws and sector policies (such as health, education, etc.), and international legal and policy framework.
- An analysis that describes any gaps between the applicable international, national, and subnational legal framework and the provisions of ESPS 7 (including those related to the protection of their cultural heritage), and a description of how those gaps will be overcome to grant the highest levels of protection.

A Description of the Risks and Potential Impacts, as well as the Opportunities for Indigenous Peoples Development

- A description of potential project risks and direct, indirect, and cumulative impacts (considering climate change scenarios, when appropriate) on Indigenous Peoples, as well as the opportunities and project benefits for Indigenous Peoples. With particular importance those related to their physical and cultural survival, territorial integrity, social organization and customary laws and economy.

A Description of the Culturally Appropriate Mitigation Measures, Costs, and Timeline (Indigenous Peoples Plan - IPP)

- A description of the culturally appropriate measures that will be undertaken to manage the risks and impacts of the project on Indigenous Peoples, as well as the measures that will be taken to ensure that Indigenous Peoples are equal project beneficiaries.
- A description of the expected costs and budget, a summary of the expected timeline, and the people/roles that will be responsible of executing the risk and impact management measures.

A Description of the Culturally Appropriate Consultation and Stakeholder Engagement Process and Information Disclosure

- A description of the process that was followed to ensure a culturally appropriate, intergenerational, and gender representative good faith negotiation process. It should include the feedback obtained from Indigenous Peoples on how the process should be undertaken. The IPP should be developed with the broad participation of representatives of different groups of Indigenous Peoples communities, to ensure that it responds to their own priorities. In cases where Free Prior and Informed Consent (FPIC) needed to be obtained, this section should describe the agreed upon process to undertake the FPIC process and the agreed upon means to document its outcome(s) (consent and dissenting views). Among other information, this section should summarize the information disclosure process, how issues were raised during consultations/ FPIC process, and how those issues were addressed. It should also include how the consultation requirements in other ESPS such as ESPS 8 (cultural heritage) and ESPS 6 (ecosystem services) related to Indigenous Peoples were addressed.

A Description of the Grievance Mechanism

- A description of the culturally appropriate procedures included in the project's grievance mechanism to address grievances/queries by Indigenous Peoples arising from project implementation and operation. The GM should take into account both the availability of judicial recourse and customary dispute settlement mechanisms applicable to Indigenous Peoples. The grievance mechanism should provide for fair, transparent, and timely redress of grievances without costs, and if necessary, provide for special accommodations for women, youth and the elderly, and other vulnerable groups within the community, to make their complaints.

A Description of Monitoring, Evaluation & Reporting Arrangements

- A definition of sociocultural indicators that serve as a baseline for eventual monitoring of changes generated by the project, defining a monitoring system specifically for Indigenous communities, analyzing the possibility of implementing participatory community monitoring systems, when that is practical. A description of monitoring, evaluation, and reporting mechanisms (including responsibilities, frequencies, feedback, and corrective action processes). A description of the expected costs and budget for implementing monitoring, evaluation and reporting measures, including those of participatory monitoring systems. Monitoring and evaluation mechanisms should include arrangements for ongoing information disclosure, consultation and, where applicable, FPIC with Indigenous Peoples and for the implementation and funding of any corrective action identified in the evaluation process.

Land Acquisition Framework

(Annex 2 to the ToR)

1. Introduction

This Land Acquisition Framework (LAF) should be prepared based on the SCA. The LAF outlines the procedures and guidelines for acquiring land required for the implementation of the project. This framework aims to guide the executing agency to ensure that any land acquisition is conducted in a fair, transparent, and socially responsible, respecting the rights and interests of the concerned Indigenous population and other communities. This LAF should be further developed in compliance with national laws and the ESPF-5 and ESPF 7 of the IDB.

2. Brief Project Overview/objectives

The project aims to finance (description of main components and activities to be financed)

3. Land Ownership and Acquisition

Based on the outcomes of the SCA, and after carefully analysis that land acquisition in unavoidable by the project and since the project activities will be implemented in traditional Indigenous villages, the land to be allocated for project purposes belongs to these communities as customary land.

Although the project will benefit these same communities, if land will be needed/required land, it should be takes place ***with the consent of the community*** and respecting traditional and cultural regulations and characteristics, including allocation, management, and use of land: e.g., boundary markers (special trees, rocks, existence of ancient artefacts, etc.) and sacred places (ancestral gravesites, spiritual significance places, etc.).

4. Principles for Land Acquisition

While the requirements for the land will be justified based on the project scope, selection, and allocation of specific land within the communities will be acquired through consultation with and consent of the communities.

Guiding principles

The following principles will be considered when acquiring land:

1. Prior negotiation/ consultation and Consent – Recording of responses and approval (including the process toward it);
2. Traditional and cultural values – Including Cultural Heritage preservation, protecting and preserving e.g., sacred sites, and any cultural practices associated with the land;
3. Community right to complain and seek independent advice – Establish/enable the Grievance Redress Mechanism to provide individuals and communities with an accessible means to voice their concerns and seek resolution if needed in the process of acquiring land;

4. Community safety – Considering the minimization or elimination of risks and hazards to the well-being and security of the local community that may arise because of land acquisition and subsequent project or development activities;
5. Minimal disturbance of existing living structures - No relocation of households;
6. Long-term Sustainability - Recognizing customary practices of the local community; and
7. Legal compliance - Ensuring compliance with local and international laws, including those related to indigenous land rights and international human rights standards.

5. Compensation with affected families that resulted from the acquisition of land (if any)

If risks and impacts are identified, the Borrower should prepare a compensations measures (as part of the SCA and the IPP) outlining the actions to minimize and/or compensate for adverse impacts in a culturally appropriate manner

6. Reporting and Documentation

Transparent minutes and other documentation of all actions taken during the land acquisition process should be kept and always provided to help ensure accountability and build trust between the project developer and the communities. The documentation can also serve as a valuable tool for involving the various communities, highlighting community ownership and responsibility.

Reporting and documentation tools should be developed and consequently used throughout the Land Acquisition trajectory.