ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

for the
Exploration Drilling Project in the Uitkijk Area

Staatsolie Exploration Drilling Project in the Uitkijk Area
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Table of Contents

List of Tables

List of Figures

Abbreviations

ADP	Appraisal Drilling Program
AOI	Area of Interest
BID	Background Information Document
BO's	Bestuursopzichters
CCU	Corporate Communication Upstream
CP	Communication Plan
DC	District Commissioner
DO	Drilling Operations
ERP	Emergency Response Plan
ERT	Emergency Response Team
ESIA	Environmental and Social Impact Assessment
HSE	Health, Safety and Environment
HSSE	Health, Safety, Security and Environment
IDM	Infrastructure, Development and Maintenance
IMT	Incident Management Team
LBB	's Lands Bos Beheer / National Forestry Service
LVV	Local office of the Ministry of Agriculture, Animal Husbandry and Fisheries
NB	Natuurbeheer
NCD	Nature Conservation Division
NEC	Noordam Environmental consultancy
NIM0S	National Institute for Environment and Development in Suriname
OBO's	Onder Bestuursopzichters
OSRP	Oil Spill Response Plan
RFT	Repeat Formation Testing
RL	Ressortleider
WMP	Waste Management Plan

1 Introduction

1.1 General

One of the Staatsolie Upstream Operation's strategic goals is to find new crude reserves to sustain the 6 million barrels (MM bbls) yearly production and guarantee feedstock for the refinery beyond 2030. The goal of this project is to find at least 10 MM bbls of proved reserves by executing an exploration program outside the proved boundaries of the Staatsolie fields, the so-called Heartland areas. In this regard in-depth geological, geophysical and petrophysical studies have been carried out in the Uitkijk Block to evaluate the geo-bodies, volumes, risks and prospective potential of the study area, however more data is required to acquire pertinent information and to find the mentioned reserves.

As such, Staatsolie intends to carry out an exploration drilling project whereby 2-5 wells will be drilled; further referred as Exploration Drilling Project Uitkijk. The area where the project is planned, is located in the Saramacca district, north of the Wayamboweg (see **Figure 1**). The project area is located in the Uitkijk North Block (formerly the Wayambo Block), about 15-25 km west of the boundary of Paramaribo and immediately east of the Tambaredjo Oil Field that is operated by Staatsolie. The project area can be reached through the existing trails and canals in the area. There are also existing mooring/ landing locations in the area. The existing trails, canals and landing stages are presented in Figure 1. Two of the locations (UEP01 and UEP02) are planned in the north of the project area while the other three (3) locations (UEP03, UEP04 and UEP05) that are further to the south (closer to the Wayamboweg) are back-ups. Depending on the results of the first two (2) wells it will be decided to drill or drop the backup wells (see **Figure 1**).

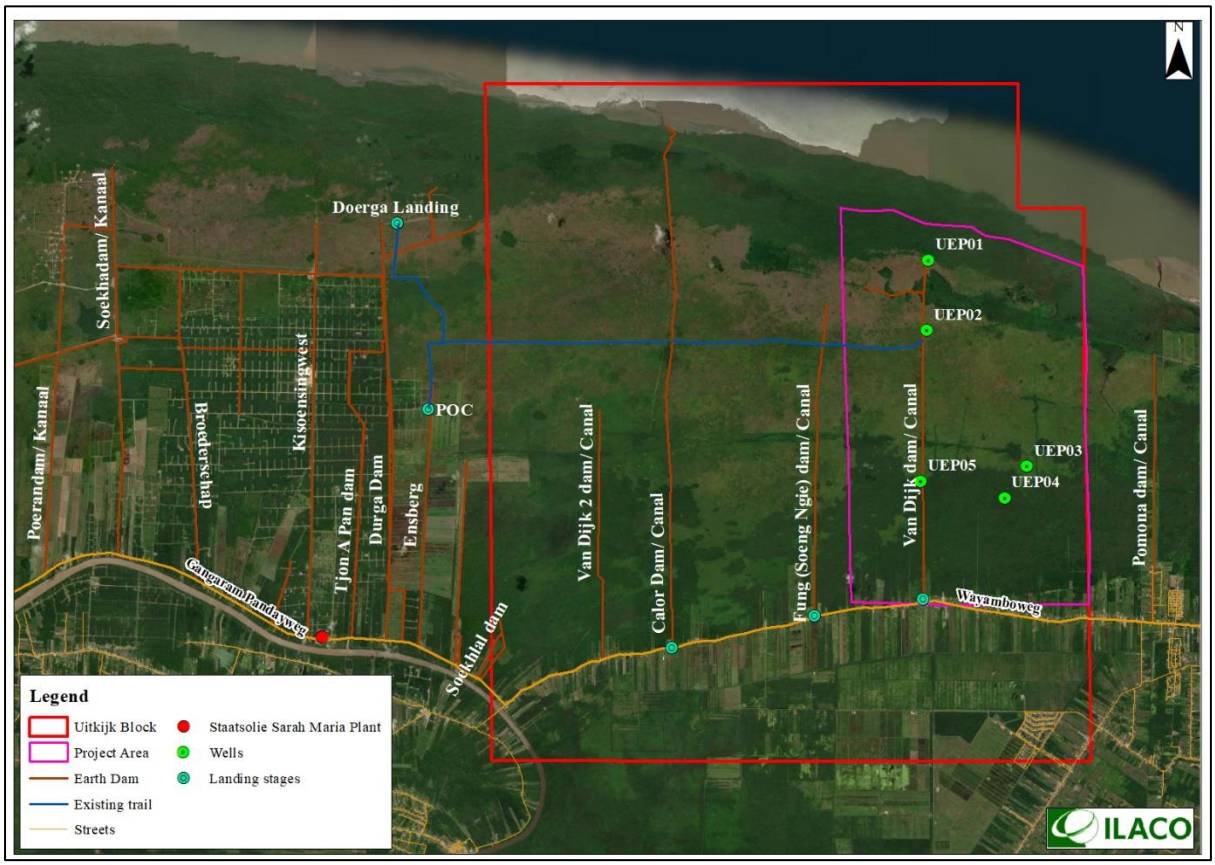

Figure 1: Overview project area and surroundings for the planned exploration drilling program

Typically, an Environmental and Social Impact Assessment (ESIA) is required for such projects. However, several ESIA's and specialist studies have already been conducted within or near the

proposed project area, with the most recent being the Updated ESIA for the Uitkijk Appraisal Drilling Program (ADP) by ILACO (2018), which covers a fairly similar project area. Hence, only an update of the existing Environmental and Social Management Plan (ESMP) is required by NIMOS for the current study (NIMOS, 3 January 2022. Screening report).

The study is executed in compliance with the Generic Environmental Assessment Guidelines of NIMOS (2009). In addition, the international guidelines (IFC/World Bank) and the Staatsolie Corporate Guidelines and Procedures are considered.
For the composition of this ESMP, the following previous similar studies in the area were used:

1. Noordam Environmental Consultancy (NEC), 2011. Review of the Environmental and Social Impact Statement prepared in 2000 for the Uitkijk/Wayambo Exploration Drilling and Validation with respect to proposed exploration drilling and testing in the Uitkijk-North Block;
2. Noordam Environmental Consultancy, 2011. Preliminary Environmental Impact Assessment for proposed exploration drilling and testing in the Uitkijk-North Block: Addendum for five additional wells;
3. Noordam Environmental Consultancy, 2013. Environmental Impact Assessment for the proposed appraisal drilling project in the Uitkijk-North Block Addendum for ten additional wells, Noordam
4. ILACO Suriname N.V., 2018. Updated Environmental and Social Impact Assessment (ESIA) for the Uitkijk Appraisal Drilling Program (ADP).
5. ILACO Suriname N.V., 2020. Environmental and Social Management Plan (ESMP) for the Staatsolie 3D Seismic Data Acquisition Project in the Uitkijk Block.
6. ILACO Suriname N.V., 2019. Study Water Management Buru and Wayambo Swamp District Saramacca.

As part of the study, limited fieldworks were conducted to update the baseline, namely:

1. Noise measurements (three locations, only daytime) alongside the Wayamboweg, since this road will be used for transport of material and personnel.
2. Stakeholder consultation with government organizations, landowners, land users and residents along the Wayamboweg.
3. Site drone survey along the Van Dijk Canal, since the wells are located on the east side of the Van Dijk Dam.

The impacts and proposed actions presented in the most recent ESIA (ILACO, 2018) were evaluated, and shortcomings were identified and supplemented or corrected where necessary. Ultimately, the results were used to prepare and update the environmental and social management plan for the current project.

1.2 Description of the Project

1.2.1 Project Site and Planning

The project site of the Exploration Drilling Project Uitkijk, is located in the Uitkijk Block (formerly the Wayambo Block), about 15-25 km west of the boundary of Paramaribo and immediately east of the Tambaredjo Oil Field operated by Staatsolie. The Uitkijk Block is divided into two parts (North and South) by the Wayamboweg, a section of the 'Oost-West Verbinding' which is a main public road connecting east and west Suriname (Noordam, 2013). The project activities will be executed in the northern part of the Uitkijk Block, known as the Uitkijk Northeast area or Area of Interest (AOI) (**Figure 2**-indicated in red).

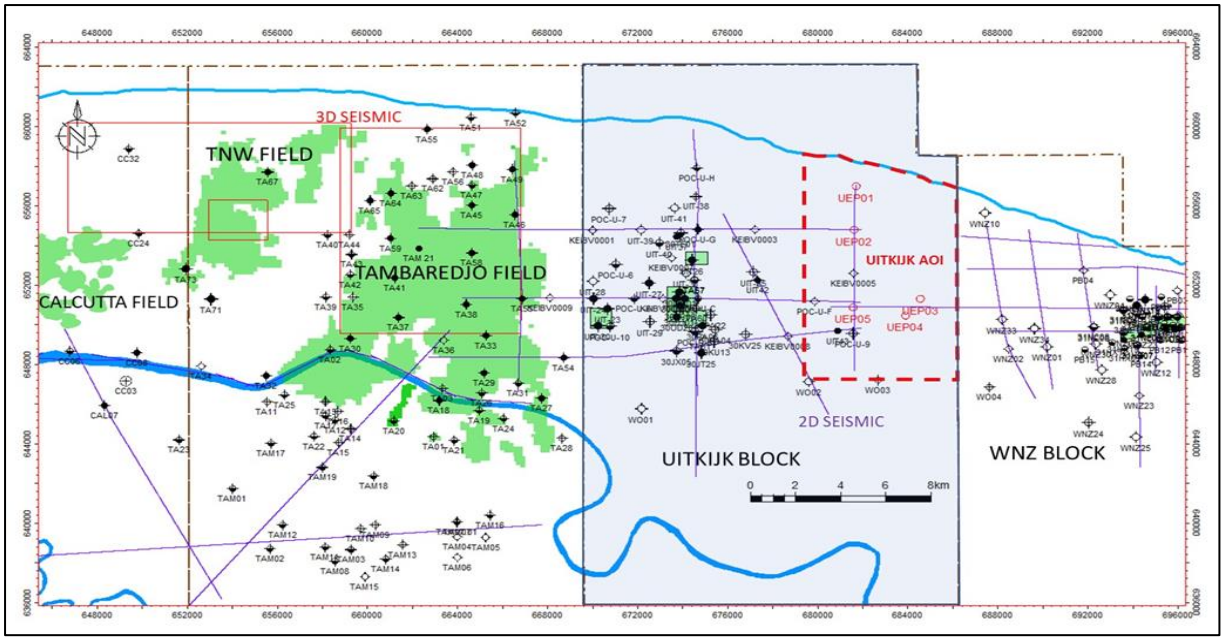

Figure 2: Overview map of the AOI in the Uitkijk Block and the 5 Exploration locations

At least two (2) drilling locations (UEP01 and UEP02) in the North of the AOI will be drilled, while the other three (3) locations more to the South are back-ups (UEP03, UEP04 and UEP05). Depending on the results of the first two (2) wells it will be decided to drill or drop the backup wells. The current ESMP considers all five (5) drilling locations.

Table 1 presents the exploration wells to be drilled. However, the sequence of the wells UEP03 till UEP05 can be changed based on the results of the wells that will be drilled first.

The project period is planned for Q4 2022 till Q3 2023. The wells where an oil column is encountered may be tested by a limited swab- or Repeat Formation Testing (RFT) as part of the standard logging program. The results of the two to five exploration wells will be integrated with old wells in the vicinity in order to evaluate the geological & geophysical data. If the results are promising an appraisal program may be set-up to properly delineate the areal size and volume of the geobody.

Table 1: Overview of the coordinates of the Exploration wells in the Uitkijk Northeast Area

EXPLORATION DRILLING PROGRAM UITKIJK							
#	Location Name	coordinates		Latitude	Longitude	Comments 1	Comments 2
		X-	Y-				
1	UEP02	681610	654833	5°55'18.6270"N	55°21'33.9837"W	1st well to be drilled	Scouting yet to be carried out (Q4 2022)
2	UEP01	681704	657035	5°56'30.3005"N	55°21'30.7143"W	2nd well to be drilled	Scouting yet to be carried out (Q4 2022)
3	UEP03	684550	651350	5°53'24.9598"N	55°19'58.7403"W	Optional	Scouting yet to be carried out (Q4 2022)
4	UEP04	683900	650500	5°52'57.3527"N	55°20'19.9534"W	Optional	Scouting yet to be carried out (Q4 2022)
5	UEP05	681570	650920	5°53'11.2492"N	55°21'35.6589"W	Optional	Scouting yet to be carried out (Q4 2022)

In **Table 2** an overview of the timeline of the project is indicated.

Table 2: Planning of the Exploration Drilling Project Uitkijk (based on five wells)

Phase 1		
Activities	**Timeline**	
Project planning (including consultations with landowners)	1 month	November 2022
Scouting of locations	2 weeks	December 2022
Cleaning of overgrown trails and construction of location (s)	3 months	December 2022
Rig move to first well location	2 months	January 2023 - February 2023
Drilling & wireline logging	1.5 months	March 2023 – April 2023
Repeat Formation Testing (RFT)	Approx. 1 hour per well	March 2023 – April 2023
Decommissioning	6 months	April 2023 – October 2023

Drilling of five (5) wells requires:

- Landing stages: for transportation of personnel and materials.
- Trails and drilling locations: for swamp rig and equipment move (carriers etc.), material transportation, construction, drilling activities via the swamp.
- Transportation of personnel and materials for drilling

1.2.2 Construction phase

Landing stages

The project site will be reached via three (3) already existing locations: Doerga landing, POC and the Soeng Ngie landing stage (**Figure 4**).

The following existing landing stations will be used to transport personnel and materials (**Figure 4**):

1. The Doerga landing will be used to start mobilization of drilling equipment (rig)
2. The POC landing will be used for clearing of existing trails and construction of new trails to the well location north of the Van Dijk dam (mobilization of swamp excavator).
3. The Soeng Ngie landing for transport of personnel and drilling material.

Trails and drilling locations

Two types of trails can be distinguished: access and service trails. Access trails are used for rig move and service trail for transportation of personnel and materials (good and supplies) during each phase of the project.

The project site will be reached through the existing trail from the Doerga or POC landing till the Calor Dam and the currently overgrown trail from the Calor Dam to the van Dijk Dam, which needs to be cleaned (**Figure 4**). The site will also be reached through the existing trail (canal) along Soeng Ngie Dam.

To execute the drilling program, existing overgrown trails will be cleared and one (1) new trail with a length of 900 m from the northern end of the Van Dijk Dam to well location UEP01 will be constructed. Figure 4 provides an overview of the existing trails and the new trail (in blue) that will be constructed. Only the trail along the Soeng Ngie Dam will be used as a service trail.

In order to achieve an effective logistic plan during the clearing of the existing overgrown waterways (access trail) to the AOI, only the service trails along the Soeng Ngie Dam will be used to transport equipment/goods and personnel. The existing trail along the Soeng Ngie Dam is overgrown and must be cleared. The clearing of existing trails and the construction of new access trail (wide 10-12 m) and service trails (wide 6m) and the drilling locations (60m x 70m) will be done with maximum two swamp excavators.

The planned route may change if deep spots identified during clearance of the waterways, especially within the Typha ecosystem where the deepest swamps are found (Noordam, 2010). Deep spots are not favorable for the traction of the excavator that pulls the rig forward.

To allow passage of the rig, an opening of approx. 4-6m wide will be made in the Calor, Van Dijk & the Soeng Ngie dams (**Figure 4**). A U-dam will be constructed on the east site of the Calor and Van Dijk dam, because there is a water level difference of approx. 10 cm east and west of these dams. At the Soeng Ngie Dam, depending on the water level difference between the east and west of the dam, additional measured may be required. Prior to the construction of an opening in the Soeng Ngie dam, the water levels will need to be measured. If the water level difference between the east and west side of the dam is more than 10cm, then it is proposed to construct a U-dam at the east side of the Soeng Ngie Dam as well. The U-dam will be connected to the existing dams (see **Figure 3**). The Calor, Van Dijk & the Soeng Ngie dams at the passage location will be partially lowered to allow the equipment easy passage over the dam.

The following activities will be conducted near the U-dam:

- Creating U-dam, on the east side of the dam
- Lowering of the existing dam (in such a way that airboats can pass over the dam)
- Move/travel drill equipment from west to east and back through the U-dam zone
- Closing the opening in the dam up to the pre-existing height.
- Creating an opening in the U-dam to continue activities.

Upon finalization of drilling and return of the rig, the dams will be returned again to their original state.

Figure 3: Overview constructed U-dam and Calor Canal (ILACO, 2021)

Transportation

Materials and goods for drilling purposes will be transported with a carrier or on a barge through the waterways. The Rig will move from the Doerga landing to the project area (AOI) and the excavator will move from the POC landing to the project area (AOI). Transportation of personnel will be done with vehicles along the Oost-West Verbinding on land and airboats in the swamp area through the service trail along the Soeng Ngie Dam.

Dams

Except the U-dams, no new dams will be constructed.

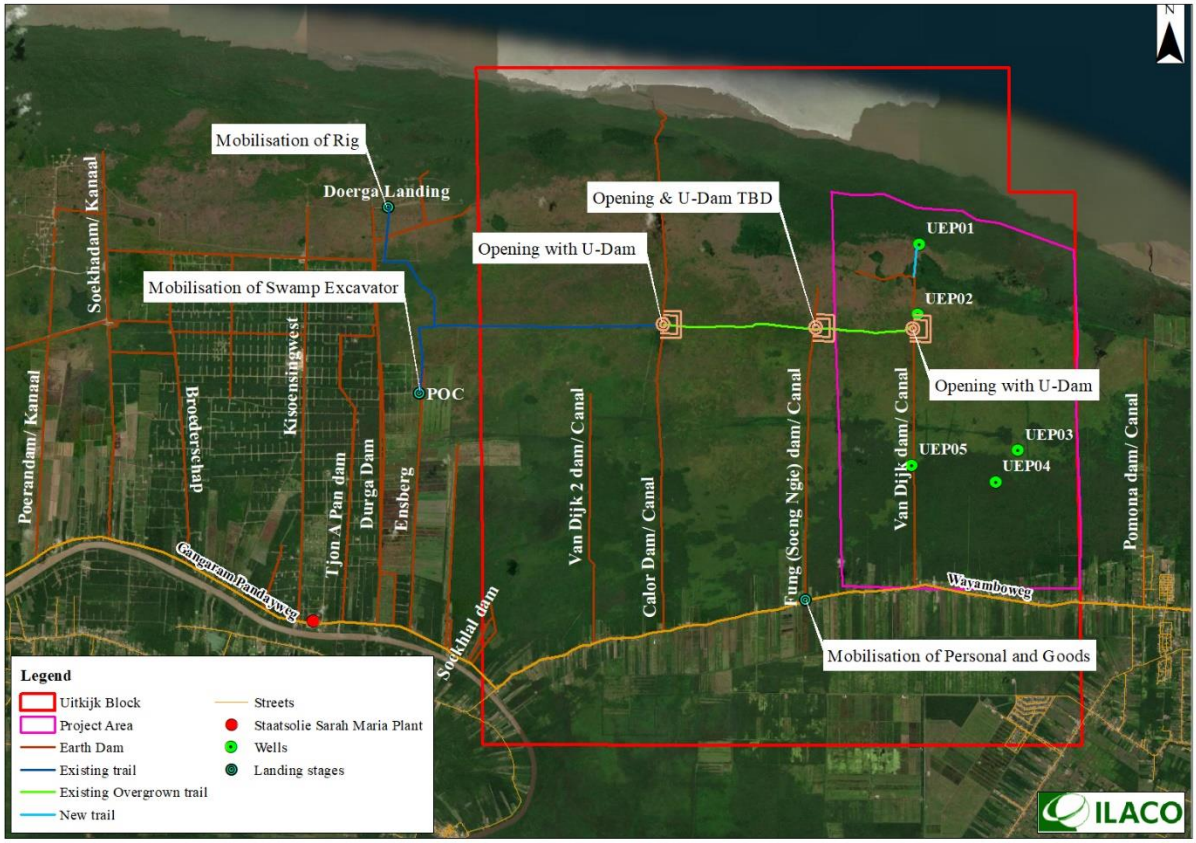

Figure 4: Overview existing trail and one new trail to be constructed and planning construction

1.2.3 Operation Phase

Drilling Operations

Drilling

A Failing 2500 Rig on a barge (6 by 12m) will be utilized to drill the wells. The auxiliary equipment installed on barges (6 by 12m) will be pulled with swamp excavators or carriers to the location.

Drilling is a cutting process that uses a drill bit to cut a hole of circular cross-section in the earth. The drill bit is usually a rotary cutting tool, attached to steel pipes. In an initial stage of the drilling process, a surface steel pipe (casing) is pressed down to a depth of about 24m (80 feet). After the surface casing has been pressed, drilling is resumed to the planned total depth (PTD). When the oil sands are encountered reservoir parameters are measured (see wireline logging).

Drilling fluid

During the drilling process, drilling fluid (also known as “mud”) is pumped down through the drill pipe and exits through the drill bit (Noordam, 2010). For the Saramacca Operations water-based drilling mud is used, mainly composed of water, clay (Bentonite – 5500 kg), Sodium Bicarbonate (85 kg), Barite (1818 kg), Pack LV (568 kg) and calcium carbonate (909 kg) to drill a well.

"Cuttings", consisting of clay, sand and shell fragments generated during drilling, and the remaining mud, will be dumped at the drill site, since no significant impacts were predicted and observed up to now.

Wireline Logging
After finalization of the drilling, the hole is logged with a variety of logging tools that are lowered into the open well hole. Measurements include electrical properties (resistivity and conductivity at various frequencies), sonic properties, and active and passive nuclear measurements. The logging cabin, equipment and tool is placed on a pontoon to log the well. No emissions occur during the logging process. In case of a good oil column (5 – 10m) a sample test of the oil may be taken through a special Repeat Formation Testing (RFT logging tool).

Logistics
The required materials for the drilling process and personnel will be transported via the above mentioned landing sites to the well locations.

Well testing
In case of an oil discovery in the exploration wells, extended production tests will not be performed but only Repeat Formation Testing (RFT). Oil samples will be collected with this special wireline logging tool on site. This will take only 1 hour of sampling. No pollution or spilling of oil is expected since the oil will be collected in chambers in the sub-surface.

1.2.4 Decommissioning
In the decommissioning phase of the project, the surface casing of the well will be removed or cut of 15 ft. below the surface and the sections of the well bore will be filled with cement to isolate the flow path between oil and water zones from each other, as well as the surface. The project area will be abandoned and the trails will be barricaded to prevent access for intruders, unless Staatsolie decides to proceed with further appraisal of the Uitkijk area after acquiring a permit from NIMOS. A close out inspection will be carried out by representatives of HSSE, Drilling operation and CCU department including the project manager.

1.2.5 Equipment and manpower input
Below table provides an overview of the equipment that will be employed for the various project activities. In addition, an overview of personnel is presented

Table 3: Information on planned resources for this project

Equipment	#	Deployment	Activity	Personnel
CONSTRUCTION				
Airboat	2	Daily-workdays	Personnel transport	4
Excavator	2	Daily – workdays	Clearing	
DRILLING OPERATIONS				
Airboat	2	Per tour of 8 hrs.	Transport personnel	50 (total)/ per shift 16
Carrier	2	Per tour of 8 hrs.	Transport supplies and materials	
Excavator	2	Per tour of 8 hrs.	Transport pontoons	
Pontoon	6	Per well	Transport supplies	
Rig	1	Per well	Drilling and Abandonment of wells	
Testing (RFT)		Per well	Wireline logging with a special tool	2
DECOMISSIONING PHASE				
Airboats	2	Daily	Personnel transport	6
Excavator	2	Daily – workdays	Transport	

1.3 Updated Biophysical Environment

1.3.1 Ecosystem and ecological conditions

The project area is in the Young Coastal Plain, which is flat and low-lying. The project area is within the Wayambo Swamp, which is part of the Multiple Use Management Area (MUMA) North Saramacca. The swamp is characterized by the presence of extensive freshwater swamps, which are formed on low-lying clay plates. A peat ("pegasse") layer is present in the swamps. Occasionally there are East-West (E-W) running sand and shell ridges 1-3 m higher than the adjacent swamps. The western part of the swamp has been reclaimed. The reclamation has taken place from Gangaram Pandayweg. The polders have a water management system with discharge on the Saramacca River.

Within the project area, freshwater swamp fish predominate, and the bird life does not exhibit the richness as found in the coastal strip north of the freshwater swamps. In the swamp, no unique, rare, threatened, fragile or biogeographically important plant and animal species have been found in previous baseline studies.

In the Uitkijk North Block four main ecosystems can be distinguished from south (Wayambo road) to north (Atlantic Ocean) in the following order (NEC (2013) :

- Swamp forest and swamp wood
- Freshwater mixed herbaceous swamp (open swamp)
- Brackish water Typha (Langa grasi) swamp
- Mangrove zone

From recent Google images and drone pictures (of 2017, 2020 and 2022) it can be concluded that no significant changes in the vegetation have occurred and that the baseline as described in the ESIA by NEC (2013) is still applicable. See **Appendix 2C** for overview of several drone observations along the Van Dijk Dam.

1.3.2 Hydrology

The project area is situated the Wayambo swamp with three N-S canals (Calor, Soeng Ngie and Van Dijk Canal) and associated dams. The planned boreholes are to the north (UEP01) and east of the Van Dijk Dam. UEP02 and UEP05 are close to the dam, while the other two locations are 2.5-3.0 km to the east of it.

During the rainy season, the swamp has a water layer of 50-90 cm above the clay surface. In normal dry seasons, the swamps have a water depth of 10 to 30 cm, but in very dry seasons, the peat ("pegasse") layer can also dry out completely, making the swamps prone to fire (ILAC0, 2020). The natural hydrology of the Wayambo Swamp is somewhat disturbed by human actions and changing natural influences. During periods of prolonged rainfall, the water level in the swamp can become so high that flooding of the agricultural areas and residential plots along the Wayamboweg takes place.

In 2017, Staatsolie has initiated the "Study Water Management Buru and Wayambo Swamp District Saramacca". The hydrology within the study area has been described based on the results of the above-mentioned study (ILACO, 2019).

In the Wayambo swamp three (3) main hydrological areas have been identified, namely (**Figure 5**):

- Wayambo swamp West (Buru swamp in the west till the Calor Dam)
- Wayambo Swamp Mid (Calor Dam till Van Dijk Dam)
- Wayambo Swamp East (Van Dijk Dam till Pomona Dam in the East)

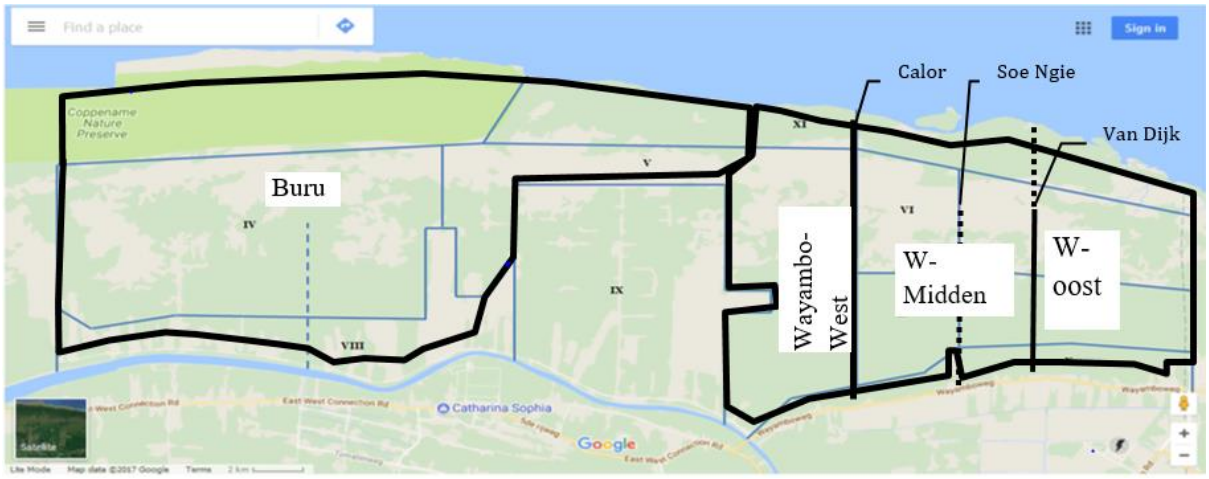

Figure 5: Overview main areas Wayambo swamp

From the registered swamp water levels, analysis of the physical conditions and infrastructure in the Wayambo Swamp and some observations in the field, the following flow pattern could be concluded (**Figure 6**) :

- Water from the Wayambo west area flows towards the sea and Saramacca River
- Water from the Wayambo Swamp Mid and the Wayambo Swamp East flows towards the sea.

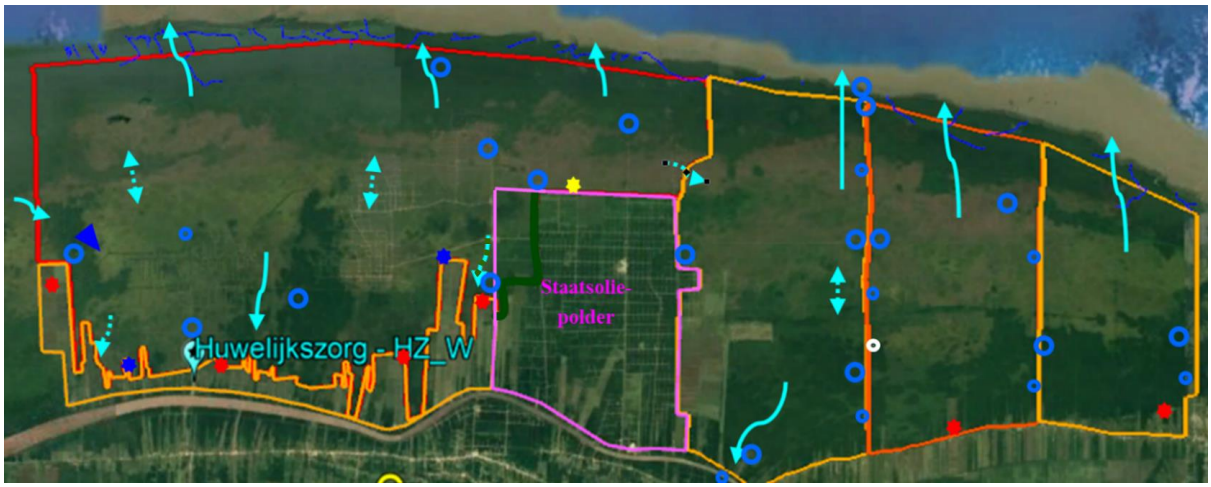

Figure 6: Water flow direction in Wayambo swamp

From the study (ILACO, 2019) it can be concluded that the Calor Dam and Van Dijk Dam form a barrier for water flow to the west, so that water is dammed up at the eastern side of the dams. Measurements made during the above-mentioned study indicate that the difference in water level between the east and the west side of the Calor Dam is 20-30 cm. During the dry months (February-March 2018) the difference in water level is much higher and can mount up to 30cm. On the start of the rainy season (April 2018) the water level difference decreases to about 20 cm. Most recent collected data (ILACO, 2021), show that the water level difference between the east and the west side of the Calor Dam varies between 10 and 30 cm during the rainy season. The drilling locations are all within the Wayambo Swamp East, with elevated water levels when compared to the area to the west of the Calor Dam. The existing trails cross the Wayambo Swamp West and Mid area. At east and west of the Calor Dam there is a difference in water level of 10-30 cm, with the higher levels on the east side, namely in the Wayambo Swamp Mid area. These difference in water levels will have to be considered when constructing an opening in the dams as not to disturbed the natural hydrology.

1.3.3 Water Quality

In the project area all the main ecosystems (see 1.3.1), except the mangrove zone, are encountered. Drilling activities are planned in the other three zones. The first two drilling locations are in the brackish water and the northern Freshwater Herbaceous swamps (**Figure 7**). No fieldworks were conducted for water quality. Instead the results of the most recent in-situ measurements available have been used. These in-situ measurements were conducted on the 29th of November 2021 in the Van Dijk Canal and in the neighboring swamp (**Figure 7)**. A summary of the results (averages per waterbody/ecosystem and their range) are presented in the table below and results sheet in presented in **Appendix 2A**.

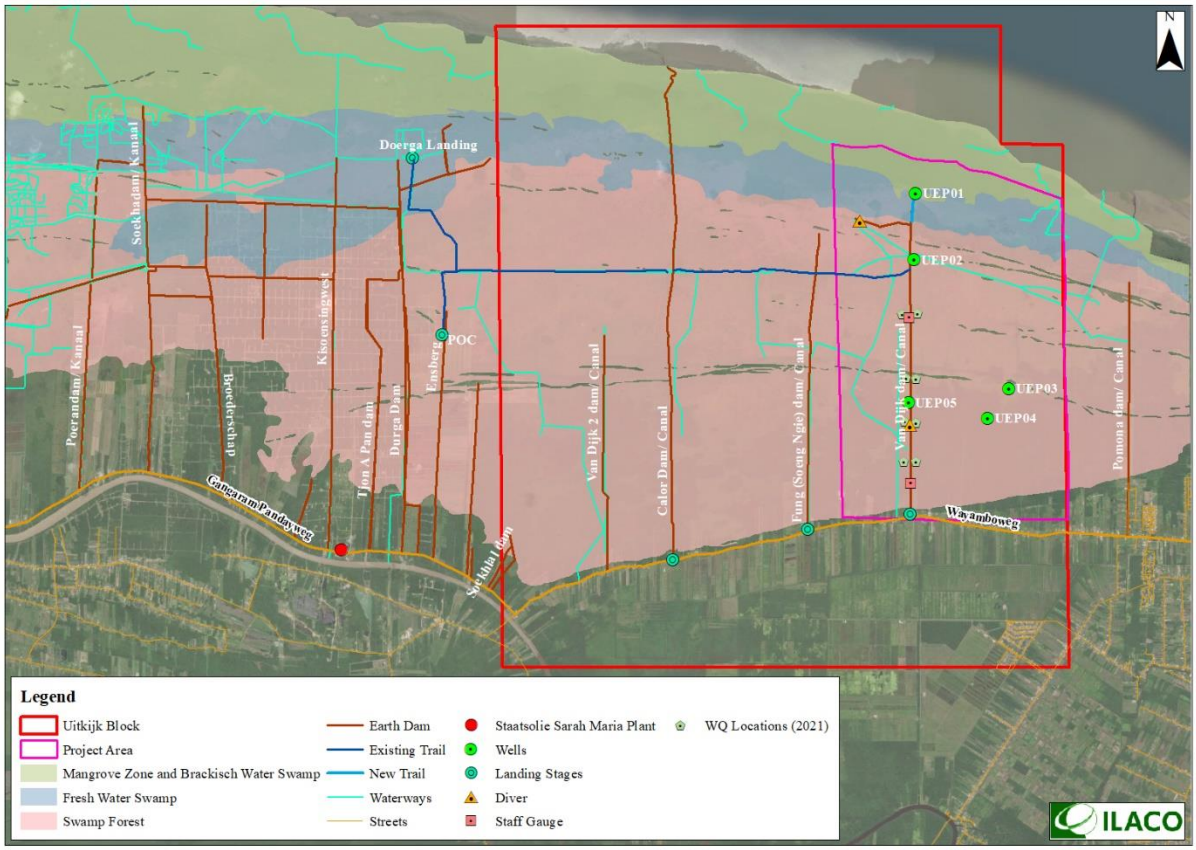

Figure 7: Overview Water Quality measurement locations (ILACO, 2021)

Table 4: Summary of results of water quality measurements Van Dijk area 2021 (ILACO)

	pH	Electrical Conductivity (EC) (µS/cm)	Dissolved Oxygen (DO) (mg/l)	Turbidity (NTU)
Swamp (Ecosystem: swamp forest)	**6.26** (5.97-6.48)	**512** (414-675)	**3.02** (0.15-5.37)	**34.70** (14.3-74)
Canal (ecosystem: swamp forest)	**6.37**(6.26-6.51)	**327** (302-396)	**1.93** (0.14-2.99)	**60.23** (30- 150)

The main conclusions for the in-situ measurements are:

- The pH in the swamp and canal in de Van Dijk Canal indicates slightly acid water. The data are in same range (6.04-6.67) with data measured during the 2000 baseline study in the Long Rainy season (NEC, 2011).

- Electrical Conductivity (EC) in the swamp varies between 414 and 675 µS/cm. This implies that the swamp water is fresh to very slightly brackish.
- The surface water in the project area can be characterized as acid, fresh, and clear to slightly turbid, with a low to fair Dissolved Oxygen content. The water has a dark brown color as a result of the presence of organic matter (in the form of peat (local name '*pegasse*')

1.3.4 Noise

Noise is recognized as a potential pollutant or nuisance during the planned activities in the project area. A noise study has been conducted as part of this assignment. The results are presented in a separate report (**Appendix 2B**). This study has concentrated on the Wayamboweg where receptors are present.

The main findings of the noise measurements are:

- During daytime, the houses along the Wayamboweg experience noise levels (LAeq) that are above the WHO/IFC standard of 55 dBA for residential areas, due to relatively high traffic intensity and higher speed limits (up to 80km/h and higher).
- The data is in line with previous noise results conducted along the Wayamboweg by ILACO (2018).

1.4 Updated Socio- Economic Environment

The socio-economic baseline of the study area has been updated, with focus on the area between the Soeng Ngie Dam and the east border of the project area. The detailed assessment is presented in **Appendix 2D**. The main findings are:

- In terms of District Administration, the DC is now also supported by a labor force in the function of Adjunct Districts Secretaries (ADS).
- The same main economic activities were observed along the Wayamboweg as described in the SIA report of 2018, namely agriculture and animal husbandry activities. These are typified by cattle farming (pigs, cows, sheep, goats, and poultry) and the cultivation of a variety of fruit and vegetable crops such as plantains (Musa spp.), citrus (Citrus spp.), sweet potatoes. Other observed commercial activities are one oil service stations, Construction and Civil engineering Company D&D N.V., a heavy equipment shed, two grocery stores and a roti shop. One new observation concerns beekeeping (honey bees: *Apis mellifera scutellata*) on a dam north of the Van Dijk Dam.
- Within the study area the receptors remain the same as described in 2018. The nearest residents are located along the Wayamboweg.
- The planned developments according to the Saramacca Districtsplan are mainly focused on improvement of infrastructure and utilities, sport, recreation and tourism and education and healthcare. Especially the improvement of the drainage of the area situated north to the Wayamboweg by digging a new canal from Pomona to the Saramacca River is still a point of interest as it was also mentioned in 2018.

1.5 Environmental & Social Sensitivities

Environmental sensitivities (based on exploration ESIA studies in similar environments and updated baseline) are described below.

Air quality

No sensitive receptors are present within the project area, but impacts could occur along the main roads (Wayambo and Gangaram Pandayweg), in particular during transport along the main roads. The overall impacts on air quality are minor, because the impacts will be localized and short-lived.

Noise

No residents are present within the project area, but impacts could occur along the main roads (Wayambo and Gangaram Pandayweg), in particular during transport along main roads and when airboats are being used. The overall noise impacts on residents are minor, because the impacts will be localized and of short duration. Within the project area beekeeping is executed near well UEP01. Impacts on the bees could occur during construction and drilling activities.

Surface water resources

Some degree of water pollution (turbidity) in trails and canals will occur as a result of clearing of overgrown waterways, and transport through the canals and trails. The impact is minor. More serious water contamination could occur due to spills and leakages, and poor waste management (solid and liquid), but such impact will typically be much localized (and minor overall). Significant impacts to aquatic life (see wildlife, ecosystems and habitats) are not foreseen.

Wildlife, ecosystems and habitats

Within the Wayambo Swamp, brackish water, freshwater mixed herbaceous vegetation, swampwood, and low swamp forest are found. Furthermore, East-West (E-W) oriented, narrow and low ridge (former sand beach) are found, covered with a marsh forest. All mentioned ecosystems are common in the Young Coastal Plain and they are not considered "critical habitats" as defined by IFC Performance Standard 6 (2006). There is currently no existing disturbance of the Wayambo Swamp habitats.

Incidental wildlife sightings have been recorded for the vulnerable (IUCN Red List) Giant Anteater (*Myrmecophaga tridactyla*), and the near threatened Jaguar (*Panthera onca*) and Guiana Otter (*Lutra enudris*). Most of these sightings were made in the Tambaredjopolder. These mammals are still rather common in Suriname. However, encounters are not typically expected in the study area during the project, as they avoid contact with humans. Other unique, rare, endangered or biogeographically important plant and animal species have not been observed during previous surveys and are not expected in the area.

Population and living conditions

No residents are encountered within the project area, but only along the main roads (Wayambo and Gangaram Pandayweg). Minor impacts for noise and air quality are expected, during transport and use of air boats starting from the landing stages near the Wayamboweg. No land with actual land-use is found within the project area. However, unused land of third parties will be crossed and proper appointments need to be made prior to the start of the project. Any impacts to population and living conditions are minor at most, because the impacts will be localized and short-lived.

1.6 Environmental and Social Management at Staatsolie

Compliance with the provisions of a number of Staatsolie documents that address Health, Safety, Environmental (HSE) and Community Relations issues is mandatory, principally:

- **Health, Safety Environmental and Quality (HSEQ) Policy**: in which Staatsolie demonstrates a firm commitment to Health, Safety, Environment and Quality (HSEQ) by effectively using an integrated management system **(Appendix 1A)**. The Code of Conduct in which Staatsolie provides the basic rules that serve as a behavioral compass, and reflect their philosophy and mode of operation and Alcohol and Drugs Policy form an integrated part of the HSEQ Policy;
- **Community Relations (CR) Policy**: is aimed at properly considering and managing communities and other stakeholders' socio – environmental interests and expectations while performing its business **(Appendix 1B)**;
- **Risk Management Policy**: explains the principles that Staatsolie will follow for managing risk. The policy also outlines the process for managing risk, and who at Staatsolie is responsible for the different aspects of risk management **(Appendix 1C)**; and
- **Staatsolie procedures**: general procedures to guide Staatsolie's operations so that it complies with the HSEQ policy. Procedures applicable to this project are listed in **Appendix 1D**.

1.7 Description of the Environmental and Social Management Plan (ESMP)

1.7.1 Scope of the ESMP

The ESMP applies to all Staatsolie's activities associated with the Exploration Drilling Project Uitkijk, including operations conducted on Staatsolie's behalf by contractors and sub-contractors. This includes but is not limited to exploration and support operations as well as administrative support.

The ESMP is linked to, and works together with, the following documents which are to be submitted by Staatsolie and contractors: Emergency Response Plan (ERP), the Oil Spill Reponses Plan (OSRP, also taking into consideration the Suriname National Oil Spill Contingency Plan), Communication Plan and Waste Management Plan (WMP) for the project. The Emergency Response Plan (ERP) is addressed in the HSE-plan associated with the risk register that has been established for the project. The Waste Management plan for this project is presented in **Appendix 1H**, the Oil Spill Reponses Plan in **Appendix 1I** and the Communication Plan in **Chapter 3** of this report. All plans should also be in line with Staatsolie procedures as considered relevant.

1.7.2 Purpose of the ESMP

The purpose of this ESMP is to set out the management and monitoring measures required to minimize the environmental impacts of construction, operations and decommissioning the Exploration Drilling Uitkijk project, and to ensure that responsibilities and appropriate resources are efficiently allocated to the project. The ESMP addresses the construction, operational and decommissioning phases.

Emergency planning measures are addressed in the HSE-plan associated with the risk register that has been established for the project activity.

1.7.3 Plan review

This plan will be reviewed and where necessary, updated as required. Further reviews may be required under the following circumstances:

- Company name or activity changes;
- Reviews or audits identify areas for improvement of the ESMP; and
- Changes to legislative and regulatory requirements of the Government of Suriname and
- Changes to Staatsolie's Health Safety, Environment and Quality (HSEQ) policy or relevant HSE procedures and plans.

1.7.4 Structure of this ESMP

This ESMP is made up of six parts:

Part 1: Introduction (chapter 1)

Provides brief background to the project and sets out the corporate environmental (including social) management requirements as well as a brief description of the purpose, scope and structure of the ESMP.

Part 2: Environmental Responsibilities (chapter 2)

Sets out the roles and responsibilities for implementation of the ESMP, for environmental (including social) and training requirements.

Part 3: Stakeholder Engagement (chapter 3)

Explains the results of executed stakeholder engagements and sets out the communication plan, which will enable Staatsolie to engage with the different stakeholders during the execution of the Exploration Drilling Project Uitkijk.

Part 4: Environmental and Social Specifications (chapter 4)

Explains the approach adopted to develop the environmental and social specifications and sets out the actual specifications in tabular form.

Part 5: Monitoring and Reporting Requirements (chapter 5)

Sets out the different monitoring and reporting requirements, which will enable Staatsolie to determine if the mitigation measures are implemented as also the environmental performance of the project.

2 ENVIRONMENTAL RESPONSIBILITIES

2.1 Roles and responsibility

This paragraph is intended to ensure that an accountability process is defined and implemented to make certain that responsibilities are performed effectively. The general roles and responsibilities of various parties are outlined in the section below.

2.1.1 The Owner's team

Different processes will be executed during the project. All processes within Staatsolie are owned by a Process Owner. The following table indicates the different processes that will take place during the project and the responsible Process Owner.

Table 5: Process Owners and responsibilities

Process	Process Owner
Construction of infrastructure and drilling locations	Acting Head Drilling Services
Drilling wells	
Well plug and abandonment	
Decommissioning	
Planning of locations of wells	Functional Subsurface Support Manager
Wireline logging	Head Drilling Services
Repeat Formation Testing of exploration wells	Acting Head Drilling Services

Position	HSE responsibility
Upstream Director	Overall accountability for HSE matters for all upstream operations.
Production Asset Manager	Overall responsibility for HSE matters with regards to activities during the operational and decommissioning phase.
Acting Head Drilling Services	Responsibility for HSE matters related to Construction of infrastructure and drilling locations, drilling, plug and abandonment and decommissioning of the wells.
FSS Manager (Project Sponsor)	Accountable for the execution of the exploration drilling project in the Uitkijk area and HSE matters related to this project
Project owner	Overall accountability for management of the exploration drilling program, including environmental management aspects
Project manager	Responsibility for the execution of the exploration drilling project in the Uitkijk area and HSE matters related to this project
HSSE Upstream Manager	Responsibility to support the operations and monitor the performance with regards to HSE and Community matters.
Environmental Engineer	Overall responsibility for Environmental Support for the project
Corporate Communication Upstream Head	Overall accountability of Community and Public Relations support for all Staatsolie operations and activities.
Corporate Communication Officer	Overall responsibility of Community Relations support for the project
Staatsolie Employees and contractors	Should be aware of the ESMP requirements and adhere to the relevant mitigation measures.

The **Head Drilling Services** shall:

- Ensure that the key on-site staff (contractor-supervisors) are duly informed of the ESMP and associated responsibilities and implications of this ESMP prior to commencement of construction (in order to minimize undue delays);
- Inform key on-site staff through initial environmental awareness training of their roles and responsibilities in terms of the ESMP;
- Ensure that a copy of the ESMP shall be available to all on site Construction and Drilling Contractor Field Supervisors;
- Inform the environmental engineer one week before the date of the commencement of the project (this date being the day on which preparations activities will start);
- Perform weekly HSE inspections based on the weekly ESMP checklist and submit compliance reports every 2 weeks to the Environmental Engineer (based on reporting scheme in paragraph 6.2 Reporting);
- Undertakes a post-decommissioning inspection upon completion of each location, which may result in recommendations for additional clean-up and rehabilitation measures;
- Ensure that method statements are submitted to the Environmental Engineer for a task requiring such;
- Ensure that action items to rectify non-compliance are closed out in a timely and satisfactory manner.

The **HSSE Upstream Manager** shall:

- Identify areas of non-compliance and proposes action items to rectify them in consultation with the Project Manager/Project Leader. Undertakes spot inspections to determine compliance with the ESMP and monitor the activities of the contractor on site with regards to the requirements outlined in this ESMP;
- Alert when action items intended to remedy non-compliance are not closed out in a timely and satisfactory manner;
- Compile compliance reports;
- Submit reports on the implementation of the ESMP and non-compliance to the NIMOS;
- Undertake a post-decommissioning inspection upon completion of the project area, which may result in recommendations for additional clean-up and rehabilitation measures.

2.1.2 Staatsolie Divisions/Process Owner-representatives and Contractors

The Process Owner-representatives and Contractors delivering services to the project have a duty to demonstrate respect and care for the environment in which they are operating. The Process Owner-representatives and Contractors shall comply with the specifications of the ESMP and abide by the instructions of relevant Process Owners and the HSSE Upstream Manager regarding the implementation of this ESMP. The Process Owner-representatives and Contractors shall report to the relevant process owner and the HSSE Manager on all matters pertaining to the ESMP.

The representatives of Process Owners shall:

- Ensure that copies of the ESMP be available at their offices, and shall also ensure that all personnel on site (including Sub-Contractors and their staff, and suppliers) are familiar with and understand the requirements of the ESMP;
- Ensure that all activities under their control are undertaken in accordance with the following:
    - Health, Safety, Environment and Quality Policy,
    - Community Relations Policy,
    - All applicable Staatsolie Procedures,
    - This ESMP.
- Ensure that all employees and sub-contractors comply with this ESMP

- Execute daily HSE inspections and any non-compliance with the specifications of the ESMP should be reported immediately.
- Compile Method Statements as listed hereunder;
- Ensure that any problems and non-conformances are remedied in a timely manner, to the satisfaction of the responsible process owner;
- Ensure that all personnel are aware of the Contingency Plans and are adequately trained therein;
- Compile the required reports (see **Table 11**, to be submitted to the Upstream HSE Head).
- Ensure that after decommissioning the site is signed off by the relevant parties.

Method statements are to be compiled by Process Owner-representatives for approval by their Process Owner, who reviews and endorses them. The HSSE Upstream Manager must receive a copy of the method statement for review 2 weeks before commencement of the activity and if there are any issues regarding the environmental specifications, he/ she shall make these known to the Process Owner within a week. The method statement typically shall cover applicable details including, but not limited to:

- A reference to the Environmental Specifications;
- Description of the activities to be undertaken;
- Location where activities will be undertaken, and if on privately owned land the name of the owner will be placed;
- Construction drawings;
- Map of the location;
- Materials and equipment requirements;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing of activities (start and end dates).
- Assurance that the landowner/user is aware of the planned activity

The following method statements for construction shall be submitted to the Process Owner not less than 14 days prior to the intended date of commencement of the activity:

- Site preparation;
- Construction activities;
- Setting up or changing of access routes;
- Construction of dams and water management structures;
- Changes of dams and water management structures;
- Movement of rig;
- Large transports along clay dams.

The Process Owner Representatives shall abide by these approved method statements. **Appendix 1E** explains method statements and provides a pro forma method statement sheet that must be completed by the process owner for each activity requiring a method statement as specified in here above. A checklist has been included in Appendix B to facilitate the random and weekly site inspection for the project site. These completed checklists must be submitted to the HSSE Upstream Manager at the end of each week.

2.2 Environmental training

Environmental awareness training courses shall be run for all personnel on site. It is incumbent upon the Process Owner to convey the objectives of the ESMP and the specific provisions of the ESMP to all personnel involved in the operation of the Exploration Drilling Project Uitkijk. Environmental training must cover the specific environmental management requirements as set out in the ESMP but must also ensure that all on-site staff are aware of and familiar with the relevant requirements and principles/objectives of the HSE Policy, ER Policy, applicable procedures and the ESMP. The Process Owner will initialize the training sessions for all new or additional staff and the HSE department shall support with Environmental Awareness Courses (Integrated Health, Safety and Environmental Inductions). The Process Owner shall ensure that all his/her staff attends the awareness courses to be held not less than one week before the Commencement Date. Where applicable, the Field Supervisors shall provide job-specific training on an ad hoc basis when workers are engaged in activities that require method statements. A copy of the ESMP shall be available on site, and the Field Supervisors shall ensure that all the personnel on site (including Sub-Contractors and their staff) as well as suppliers are familiar with and understand the specifications contained in the ESMP.

Operation training will include information on:

- Working on privately owned land
- Current land and water use
- Clearing, access and transportation
- Waste minimization, handling and disposal methods
- Fire and spill prevention and control
- Emergency response procedure (Health, Safety and Environmental issues)
- Handling and storage of hazardous materials, fuels and oils
- Reclamation measures.

3 STAKEHOLDER ENGAGEMENT

3.1 General

As part of the updated ESMP study, several stakeholders were consulted to share information about the proposed project and to obtain feedback (issues/concerns) from participants of the meeting. The stakeholder list was provided by Staatsolie. The stakeholder meetings were conducted in the period of 15th June – 23rd of August 2022 and one stakeholder meeting was conducted on the 29th of September 2022. A brochure in Dutch (BID - Background Information Document) was drafted to facilitate the information sharing with stakeholders. In addition to these stakeholder meetings, a verification meeting was also held with Ms. Jacintha Sanches, Corporate Communications (CC) Officer, on the 30th of September 2022

3.2 Stakeholder consultation

The consulted stakeholders and their concern or remarks are presented in table below. See **Appendix 2D** for further information.

Table 6: Overview concerns and remarks stakeholders including verification with Staatsolie

Nr.	Name stakeholder group – Function/ occupation	Interest / position	Key issues/ Concerns about the project	Feedback Staatsolie
1	**Government representatives** - District Commissioner (DC) of Saramacca and her Administrative Managers, (Bestuursopzichters– BO's)	Tasks include: 1. Support government policy at the local level. 2. Communicate or engage with residents of the area under their responsibility. 3. Act as intermediary between the residents and third parties. 4. Deliver or transfer important issues brought forward by the residents to the DC.	• Waterways should not be blocked • Prevent spilling of chemicals into waterways • Possible impact of the project on soil conditions • Two (2) drilling locations are very close to the area where people live Complaints reported to the DC in the past: • Dust: Residents on the Gangaram Pandayweg are dealing with dust blowing up, causing rainwater contamination. Staatsolie sprays the road with water to prevent dust blowing up, but this is said to cause rust on cars because Staatsolie uses water from the river estuary.	• For this project the existing Waterways will be used to reach the AOI. In case overgrown waterways will be cleaned up. Staatsolie implements specific mitigation measures such as providing openings in vegetation and peat dams so that the water flow cannot be obstructed. Moreover, the hydrology of the Buru and Wayambo Swamp District Saramacca is being monitored by Staatsolie since 2017. (There are several water gauges installed at different locations in the Wayambo swamp in which the Uitkijk area/AOI is located). • Staatsolie has plans and measures in place to prevent any water and soil contamination and noise nuisance • The most south well locations are at least 3 km north of the Wayambo weg • Concern of the residents in the Gangaram Pandayweg with regards to dust is not related to this project. However Staatsolie has implemented measures for the Gangaram Pandeyweg such as lower the speeds limit to 30 km/u and spraying is done. To minimize the dust, Staatsolie sprays the road with water collected from an onsite groundwater wells. Also Staatsolie financed the project to build the SWM piping system. This eliminated the issue of rainwater contamination.
	Government representatives - Resort leader Wayambo of Ministry of LVV	Management of the agriculture and animal husbandry activities within the resort.	LVV does not have any objections against the project, however the following concerns were raised: • There is no cooperation between LVV and Staatsolie.	• Water level is being monitored by Staatsolie • The flooding has not proven to be caused by Staatsolie's activities. Staatsolie does communicate with the relevant stakeholders in accordance with its

			• Disturbance of swamp hydrology • (Prolonged) flooding/inundation of the agriculture areas, resulting in decrease of agriculture activities and cattle farming Concerns from farmers (invited by representative Min. of LVV): • Poor communication between Staatsolie and the farmers • Disturbance of swamp systems (drainage and fauna) due to Staatsolie activities • Prolonged flooding/inundation of the agriculture areas, resulting in decrease of agriculture activities and cattle farming • The drainage of the area should be addressed. There are no measures taken by Staatsolie, who is equipped to take the needed measures but doesn't cooperate. To prevent flooding of the area, the farmers propose to construct a new canal from Pomona towards the Saramacca River on a distance of 2-2.5 km north from the East-West corridor.	communication plans for the operational and project areas. • The farmers that raised the issues are not within Staatsolie operational area. • The proposal to construct a new canal from Pomona towards the Saramacca River at a distance of 2 - 2.5 km north from the East-West corridor, should be discussed by the respective farmers with the government.
	Government representatives - Ministry of Land Policy and Forest Management (Grondbeleid en Bosbeheer), specifically the Nature Conservation Division of the	Execute nature protection and conservation activities. Perform law enforcement tasks.	• Accessibility for illegal hunters as waterways will be cleaned. • Disturbance of animal species in the project area example: the trapoen can be disturbed due to the project activities	• Agreements will be made with the landowners (Calor, Fung You Kee and Van Dijk) about the accessibility to the swamp • Special mitigation measures will be taken upon closure of this project; make the access paths (such as trails) created under this project inaccessible when they are no longer needed for the program

	Forestry Service Suriname. (Afdeling Natuurbeheer van Dienst 's Lands Bosbeheer – NB-LBB)	Formally in charge of the overall management of Protected Areas on behalf of the Government	• The jaguar's conflict with the community (farmers), as their livestock is prey for the jaguars. The jaguars are a protected animal species in the area.	(such as restoring (closing) of the opening in the Van Dijk and Calor dams
	Government representatives - NIMOS	NIMOS' mission statement: To initiate the development of a national legal and institutional framework for environmental policy and management in the interest of sustainable development in the Republic of Suriname.	No concerns were listed. Include Waste Management plan as part of ESMP	
2	**Inhabitants/ residents** - Residents of the Wayamboweg	Residents and property owners (land used for agriculture activities or currently not in development), within study area	• None of the residents (11) who have been consulted physically or by e-mail have any objections to the proposed project. Developments are required, but there should be no environmental damage or damage for the residents or farmers. • Risk of flooding, as this is already a main problem for several residents (north and south of the Wayamboweg) whose main income is the agriculture and husbandry sector. • The drainage of the area should be improved prior to the start of the project. • Increase in human- wildlife conflict (encounters) (snakes, jaguars).	• ESMP lists the measures to mitigate the environmental and community impact

3	**Landowners** 1. Mr. Calor 2. Mr. Van Dijk 3. Mr. Timmer, the representative of the Soeng Ngie property (owner: Mr. Fung You Kee) Note: Staatsolie has identified one more potential landowner. Details still to be sorted out by Staatsolie.	Staatsolie will make use of the Soeng Ngie Canal and Soeng Ngie landing stage for transport of goods and personnel. Further an opening will be made in the Calor dam, Soeng Ngie dam and the Van Dijk dam to allow passage of the rig. The properties are for private use (used as a weekend home for leisure): • Some low intensity agriculture is practiced (fruit trees) near the road, and recreational fishing in the back of the Calor property. • Currently no activities take place at the Soeng Ngie property. Only a little bit of recreational fishing in the canal during the fishing season. • The Van Dijk property is used for beekeeping and recreational purposes e.g., fishing.	• There are no concerns listed by the landowners. • They have a good cooperation with Staatsolie. • Regarding water management, Mr. Calor proposed to monitor the water level during execution of the project to see if a permanent opening in the Calor Dam would stimulate drainage to the Ocean, hence minimizing the flooding problem. Currently (comm. 3 Aug 2022) the water level east of the Calor Dam is higher than west of the dam.	Water level will be monitored. However, the focusof the monitoring will not be on permanent opening of the dam. Staatsolie will implement the mitigation measures associated with opening the dam. Only the government is authorized to take decisions with regards to the permanent openings in the Calor dam.
4	**Land user (Beekeeping)**	Execution of beekeeping activities at the end of the Van Dijk dam	On a dam (approx. 950m long), North of the Van Dijk dam several beehives are present on several locations. The proposed location of one well (UEP_01) is projected on/ near this dam. On a distance of approx. 175m south from UEP_01, there is a camp with beehives and approx. 50m north from UEP_01,	Staatsolie had a meeting with the beekeeper to discuss alternatives to execute the project: After the meeting with Staatsolie, the beekeeper is willing to relocate the beehives rafts as long as Staatsolie provides the necessary support and a suitable location is found. But it is a time-consuming activity. Staatsolie is willing to, in full cooperation with the beekeeper, help relocate the beehives to another suitable location.

			there are beehives which are not under a camp. The concerns indicated are: • Beekeeping is her main source of income, and the Van Dijk area is a main production site. • The main production time of the honey bees is in the dry season. • Temporary removal of the beehives is feasible if a new location is found and she gets help for this relocation and come back after the project is completed. • What could the possible follow-up activities and effects be in case of an oil discovery at the nearby wells (UEP_01 and UEP_02)?	

Summary key issues raised by stakeholders during the consultation process:

- Prolonged flooding of the farming lands located along the Wayamboweg.
- Increased hunting and poaching activities in the area due to increased accessibility.
- Impact of the project on beekeeping activities within the project area, north of the Van Dijk Dam.

Based on the above-mentioned issues raised by stakeholders, it is of the utmost importance that Staatsolie ensures compliance with, and the proper application of social procedures and measures prescribed in the communication plan (see **Table 7** below) and the social specification table (Error! Reference source not found.). This is for maintaining Staatsolie's social license to operate, to accomplish objectives stated in the CR policy, and to avoid or minimize the occurrence of additional social conflicts.

3.3 Community Engagement and Grievance Redress Mechanism of Staatsolie

Staatsolie has a Community Relation Policy that aims to perform business activities in such a way that communities' interest and expectations with regards to socio-environmental aspects are properly considered. The community engagement is the responsibility of the Corporate Communication Upstream (CCU) department of Staatsolie.

The following activities are undertaken by Staatsolie to achieve active participation of stakeholders (comm Staatsolie, 30 September 2022):

- Staatsolie has at least one meeting per quarter with the District Commissioner. If required (example request for permits), additional meetings are planned.
- Communication plan for this project

Staatsolie also maintains good communication with other stakeholders as part of its stakeholder engagement process.
According to the CC Officer, there is regular (at least one-time per week) communication with landowners on whose property activities are ongoing. As part of the Exploration Drilling Project Uitkijk, initial communication between Staatsolie and the landowners (Mr. Calor, Mr. Van Dijk and Mr. Timmer, the representative of the Soeng Ngie property) has been conducted in the week of 25th of July 2022. One more potential landowner has been identified, but details still need to be figured out by Staatsolie (comm Staatsolie, 29 September 2022). As part of this project, Staatsolie also had a communication with LBB as requested by LBB (letter sent on the 2 September 2022)

In addition, the communication plan outlined in the section below will assist the stakeholder engagement process during the execution of the project, by enabling the disclosure and dissemination of important information about the project (activities) to all relevant stakeholders that may be impacted. Key objectives of the communication plan are:

- to maintain or strengthen productive relationships with stakeholders identified during the consultation process, conducted prior to the start of the project;
- to ensure that any additional stakeholder that may be impacted by the project is identified and included in the communication for the remainder of the project lifecycle;
- to ensure transparent, efficient, and regular dispersal of key project information;
- to provide stakeholders with an opportunity to raise issues or concerns about the project and to ensure that such feedback is addressed in a suitable manner; and
- to avoid conflicts or conflicting situations from emerging.

Table 7: Communication Plan for the Exploration Drilling Project Uitkijk

Who	When	What	How
DC, relevant stakeholders (land users) and landowners	• Prior to the start (one time) • During the life of the project (as required) • Project closure (with the landowners)	Announcement regarding general information and/ or planning about the project Posters/ flyers	• Regular communication with the DC. • Posters/ flyers showing the work schedule and locations placed at relevant sites, e.g., at the entrance to fishing holes. • Phone calls • Field visits • Staatsolie website/ Facebook page

Grievance Redress Mechanism

Staatsolie has a Grievance Redress Mechanism/ complaint procedure that is followed in case of complaints. Complaints can be reported to all personnel of Staatsolie, who should report this within one working day to the CCU department. All complaints are registered in a software (Topdesk), which has been renewed since 2019. With this improvement, complaints can be registered in the system at any time. There are also complaint forms available at the security posts for registrations of complaints after working hours, which are later shared with CCU for registration in the system.

4 ENVIRONMENTAL AND SOCIAL SPECIFICATIONS

4.1 Approach to the ESMP and Environmental Specifications

The general principles contained within this section shall apply to all activities for the duration of the Project. An environmental or social impact is defined as any change to the existing environment or social conditions, either adverse or beneficial, that is directly or indirectly the result of the seismic acquisition and its associated activities. Certain aspects of those activities generate impacts. In the context of this document, an aspect is defined as "an action, event, product or service, occurring as a component or result of an activity, which interacts with the existing environment". The fundamental approach adopted in the compilation of this ESMP is that management effort should be focused on environmental and social aspects to prevent impacts from occurring, i.e., a proactive approach. Proactive measures are then backed up with reactive measures, which serve to minimize the severity or significance of the impact, if it cannot be prevented at source. A series of tables incorporating management measures has been developed and grouped to cover the main activities that give rise to potential impacts during the different project phases. Each table provides further details of the following:

- Impacts arising from aspects (components);
- Prescribed mitigation measure(s);
- Environmental control objectives for each impact (or cluster of impacts);
- Compliance reporting requirements, including method and frequency of reporting.
- Monitoring and performance evaluation, including performance indicators and monitoring methods; and
- Identification of the person(s) responsible for implementation of the mitigation measure(s).

The Environmental and Social specification tables are adapted from the most recent ESMP as part of the Updated ESIA for the Uitkijk Appraisal Drilling Program (ILACO, 2018). Updates regarding this project are highlighted in green.

Table 8: Environmental Specifications table

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
Surface Water Resources	Changes in the hydrology of the Wayambo Swamp	To minimize alteration of water level and flow and disturbance of swamp vegetation and animals	Avoid creating unnatural dikes, channels and drainage routes.	Acting Head Drilling Services)	Breaks present. Change of water level upstream and downstream of dams. Method statements	Visual inspection of water level and excavated material after construction	Complete weekly ESMP checklist
		Prevent blockage of water flow towards the north (mainly of the Wayambo Mid and East	Place excavated pegasse material from the trails during cleaning with breaks, every 100 meters in order to preserve the existing drainage patterns, as much as possible				
		Prevent excess water flowing into the relatively small catchment found to the west of the Calor Dam, Soeng Ngie and Van Dijk dams that could result in flooding of agricultural land along the Wayamboweg	Limit the width of the opening in the Calor, Soeng Ngie and Van Dijk dam for passage of the rig to a minimum as indicated 4-6m. Construct near the opening, a U-dam east side of the Calor and Van Dijk canal. Measure water level east and west side of the Soeng Ngie canal, prior opening the dam. If the water level difference is more than 10cm, a U-dam should be constructed. Conduct frequent monitoring on the temporary closing, and prevent any collapse.				

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			Restore the dams as much as possible in its original state upon finalization of the project and this does not cause any significant environmental impacts. Restored dams should have an over-height of 30% (if original dam height is 1m, restore dam till 1.30m, which will settle with the years to 1m)				
	Water pollution with spilled and leaked oil and/or grease during construction and drilling	To prevent the pollution of surface water and negative impacts to vegetation and animals	Use leak proof containers and storage tanks	Acting Head Drilling Services	Number of spills	Visual inspection	Complete weekly ESMP checklist
			Fuel and oil tanks and pipelines will be inspected routinely for leaks		Number of leaks	Visual inspection	Complete weekly ESMP checklist
			Have the oil spill contingency plan in place for the area under consideration		Plan in place and awareness among field staff	Field inspections	Complete weekly ESMP checklist
			Appropriate spill response equipment will be available with all oil and fuel transfer and storage facilities and equipment.		Number of spills	Visual inspection	Complete weekly ESMP checklist
			Containment equipment e.g. booms, and other response equipment and materials will be carried on the drilling rig for deployment in case of a spill.		Number of spills	Visual inspection	Complete weekly ESMP checklist

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			Follow the Staatsolie procedures for maintenance and clean - up		Awareness among field staff - no residues found after clean-up	Field inspections	Complete weekly ESMP checklist
	Increased turbidity in fish holes due to rig, carrier and airboat travelling	To limit the increase of turbidity to a minimum	Do not travel in privately owned fish holes, unless permission has been given.	Acting Head Drilling Services	Signed permission of owner	Inspection	Complete weekly ESMP checklist
Vegetation	Loss of vegetation (general)	To minimize biodiversity loss in the area	Limit the footprint of disturbance to the minimum through optimized planning	Acting Head Drilling Services	Actual clearance not exceeding planned clearance	Visual inspection	Weekly progress report on construction of trails and drilling locations, Method Statement, Weekly ESMP checklist
	Loss of ridge wood and ridge forest, also as a habitat	To protect sand ridges ecosystems	Do not project large trails and infrastructure on top, or near ridges; keep a distance of 50m at least (when traveling toward UEP_03 and UEP_04)		Number of disturbed sand ridges	Track actual clearance on maps with sand ridges indicated	Weekly progress report on construction of watertrails and drilling locations, Method Statement
	Damage to ecosystems (and to project personnel, infrastructure and equipment) due to fire	To prevent biodiversity loss due to fires (and to avoid damage to personnel, oil infrastructure and equipment). In particular important in the Dry Seasons	Develop and implement a fire contingency plan	Acting Head Drilling Services	Plan in place and awareness among field staff	Field inspections	Complete weekly ESMP checklist
			Develop and implement strict fire control procedures and measures		Awareness among field staff	Field inspections	
			Implement a fire risk awareness program for Staatsolie personnel and contractors working on this project		Awareness among field staff	Training records	

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			Only when working in the Long Dry Season: Discuss the risks of vegetation and peat fires to Staatsolie personnel, materials and equipment in stakeholders' meetings and organize special meetings during extremely dry periods to point out the fire risk again Conduct fire patrols in extremely dry periods.		Awareness among field staff	Training records	
		To prevent grass and brush fires in order to prevent injury to personnel, and damage to oil infrastructure and equipment)	Remove any combustible vegetation or vegetation debris within 10 meters from the rig (only in dry season).		Number of incidents	Method statement; field inspections	Complete weekly ESMP checklist
Fish and wildlife	Decrease in fish and wildlife abundance due to the Uitkijk project or project-induced activities'	Prevent loss of biodiversity resulting from increased ecological pressure	Any access created under this project will be located and constructed in such a way that use by unauthorized persons can be controlled e.g. provision of security at at the Soeng Ngie landing. Put up clearly marked signs indicating "No Entry" or "Trespassing on Private Land"	Acting Head Drilling Services Acting Head Drilling Services	Number of trespassers	Access control and security inspections	Incident reports
			Impose the Staatsolie Waterway Regulations also for the Wayambo Swamp		Number of incidents	Safety inspections	Incident reports

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			When traveling in water, care will be exercised to reduce the risk to aquatic life. Speeds will be adjusted to allow sufficient reaction time to avoid collisions with wildlife.		Number of incidents Awareness	Inspection Training records	Incident reports
			Continue to impose a ban on wildlife harvesting at the project area for all Staatsolie personnel, contractors and authorized visitors.	Acting Head Drilling Services	Number of violators	Security inspections	Incident reports
			Prohibit travelling outside the designated waterways, unless permission has been obtained for special reasons.		Number of trespassers Awareness	Inspection	Method statement Complete weekly ESMP checklist
			Upon Closure: destroy all the created u-dams and close the opening in existing dams (Calor, Soeng Ngie and Van Dijk) This will also prevent that others have access from east to west or vice versa and thus can easily travel from the Calor canal towards the Van Dijk area, and other areas. On domain property everything must be brought to the original as far as possible (state before activities were carried out). On property of third parties consultation with	Acting Head Drilling Services	Closure completion criteria	Visual inspection on compliance with set criteria	Closure report and sign off

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			the party may take place, but any agreement should not cause other environmental concerns.				
			Undertake a continuous environmental awareness and education program for Contractors and Staatsolie Employees focusing on the importance of minimizing harm to the environment	Acting Head Drilling Services	Awareness among field staff	Training records, number of safety talks	
	Effect on behavior (aggressive and/ or immobile) of bees due to increased noise levels from equipment (airboats, swamp excavator and rog)	Prevent impact behavior of the bees	Have an agreement with beekeeper to relocate the beehives. The bees need to be relocated at a new location, which is at least 3 km away from the previous location. This will ensure that the bees will not return to their previous location. The following safe distance measures should be followed when working/ traveling near beehives (personal communication with Mr. Kodabaks): 1. In case the presence of high/ dense forest, a min.		Number of complaints Number of safety trainings/talks	Visual observation	Signed agreement

Component	Impacts Assessment	Environmental management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			of 150m should be maintained. 2. In case of less dense forest, a distance of 250m should be maintained and 3. 350m should be maintained for an open area. Awareness of personnel on the presence of bees and how to handle in case of attacks.				
Solid Waste and Sewage	Pollution of the environment. Entrapment and poisoning of animals. Spread of disease and illness.	To minimize waste generation and recycle as much waste as possible. To dispose of waste in line with accepted international practice.	Store solid waste in a designated area in covered drums for collection and disposal		Housekeeping incidents	Waste management procedure	Weekly waste reports/Weekly checklist
			Provide rubbish bins for litter at appropriate locations and arrange for regular collection				
			Depending on the waste type, this will be recycled, reused or disposed at a suitable facility.				
			All hazardous materials, including oil and contaminated soil, will be stored separately and disposed of according to Staatsolie requirements				

Table 9: Social Specifications table

Component	Impacts Assessment	Social management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
Social	Complaints of landowners/users or other parties	To avoid all conflicts and to maintain the good name of the company	Enter into a land use agreement (contract) with landowners.	FSS Manager Corporate Legal Affairs (CLA)/ CCU Head	# of complaints	Records	Signed landuse agreement at start of project (see an example of such an agreement in **Appendix 1 F**)
			Register and address complaints according to Grievance Redress Mechanism which is in place and operational	CCU Head			Monthly complaints report
			Close-out inspection	HSSE Upstream Manager/ CCU Head			Close-out-inspection report signed by owner
	Nuisance caused by noise/traffic to the people living near airboat landing stages along the Wayamboweg	To avoid all conflicts and to maintain the good name of the company	Locate the landing as far away from the road as feasible When using airboats: operate at a moderate speed (2500-3000 RPM) during the first 500 meters in order to reduce noise levels, if conditions allow such. Efficient management of logistics to minimize traffic and shorten construction time. Inform nearby residents and businesses in a timely manner of anticipated airboat traffic schedules. Try to avoid or minimize airboat traffic at night.	Acting Head Drilling Services	# of complaints	Records	Monthly complaints report

Component	Impacts Assessment	Social management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			Limit construction activities conducted at nighttime hours. Include safety measures such as: 1. safety awareness campaigns for personnel, contractors and area users (landowners) 2. Improve road safety by increase in frequency of speed control activities to record and monitor vehicle speed.				
	Attack by honey bees	To avoid attack of personnel	Have good communication with the honey beekeeper to identify the exact operation areas near de Van Dijk dam. Efficient management of logistics to minimize frequent passage near operational area of the honey beekeeper. Have an agreement with beekeeper to relocate the beehives. The bees need to be relocated at a new location, which is at least 3 km away from the previous location. This will ensure that the bees will not	Superintendent IDM- Drilling Operation + Operation coordinator-Drilling Operation	Awareness among field staff	Training records, number of safety talks	Incident reports

Component	Impacts Assessment	Social management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
			return to their previous location. The following safe distance measures should be followed when working/ traveling near beehives (personal communication with Mr. Kodabaks): 1. In case the presence of high/ dense forest, a min. of 150m should be maintained. 2. In case of less dense forest, a distance of 250m should be maintained and 3. 350m should be maintained for an open area. Make safety awareness regarding bees' part of the regular toolbox meetings & safety talks. Provide the area users (landowner) with a folder about safety around bees. Use required PPE (beekeeper suits) to protect personnel.				

Component	Impacts Assessment	Social management objective	Mitigation Measures	Responsibility	Monitoring & Performance Evaluation		Compliance reporting
					Performance indicators	Monitoring Methods	
	Impact on livelihood beekeeper at Van Dijk Dam	To avoid impact on livelihood beekeeper	Have an agreement with beekeeper to relocate the beehives.	CCU Head Superintendent IDM- Drilling Operation + Operation coordinator-Drilling Operation	Number of complaints	Inspection	Signed agreement

5 MONITORING AND REPORTING REQUIREMENTS

This section provides a description of the methods that will be used to monitor performance against ESMP commitments and the way the monitoring results will be reported.

5.1 Monitoring

Respective Process Owners together with the HSSE Upstream Division are responsible for monitoring the performance of on-site personnel against the commitments of the ESMP. Overall control of this function will lie with the HSSE Manager, and responsibility for day-to-day monitoring will lie with the Process Owner representatives. The Process Owner is obliged to and will have the power to suspend activities if they do not comply with the performance standards specified in the ESMP. The following principal items will be monitored:

- Correct implementation of ESMP;
- Compliance with Method Statements; and
- Physical parameters and indicators, e.g., water quality and hydrology.

5.1.1 Physical monitoring framework

Staatsolie is committed to the implementation and completion of the Exploration Drilling Project Uitkijk, in accordance with the highest environmental standards. Our goal is to maintain this throughout the duration of the Project by implementing an environmental monitoring program. The objectives of the monitoring framework are:

- To assess the actual impacts of the proposed Project;
- To evaluate the effectiveness of the inherent and additional mitigation measures that have been proposed to minimize the environmental impact of the Project;
- To ensure environmental compliance with relevant local, international and company requirements; and
- To provide feedback to Staatsolie on learnings for other future projects.

To achieve these objectives, Staatsolie will undertake Environmental Inspections and Audits. The monitoring framework is presented in **Table 10**.

Table 10: Monitoring framework program for the Exploration Drilling Project Uitkijk

Aspect	Parameters	Frequency	Monitoring locations
Water quality	EC (field meter) or chlorides[1], TSS[2] or turbidity[3], and Secchi Colour and clarity	At accessible locations: before any activity, meaning also before clearance. At inaccessible locations: one week after clearing activities. During and after drilling till reference / standard is met	1. At three fixed locations along the Van Dijk and Soeng Ngie Canal, north-mid- south 2. All wells: two locations in near the drilling locations. One location east and one location west near the drilling locations. 3. Reference locations in each zone
	Check for oil spills and oil films (visual)	Daily during project	At all activity areas
Water levels (Hydrology)	Check the water levels in the swamp (visually) Monitor a local reference water level	Daily During sampling	East and west site of the Calor, Soeng Ngie and Van Dijk dams, near the opening of the dams. Upstream and downstream of dams, data can be acquired from the installed divers (under the project "Study Water management Buru and Wayambo Swamp, District Saramacca") in the Calor Canal (DZS- 11 DZS-12, DZS-13, DZS-14) and the Van Dijk Dam (DZS-16, DZS-17). Collect rainfall data from nearby weather station (install rain gauge within Wayambo swamp area, as current working rainfall meter is at Weg naar Zee).
Vegetation	Width and location of trails in forested parts – according to design	Directly upon completion of trails	All new trails
Presence of honeybees	In case of temporary relocating beehives within project area, visual observation of presence of honey bees within working area	Daily	Working area near beehives
Waste	Check if landing sites and station yards are clean Check proper storage of waste Check proper disposal of waste Log on waste	Daily Weekly Weekly Daily at collection of waste	All working locations

[1] For the water of the Buru Swamp the following relation has been found: EC [µS] = 2.95 x Cl [mg/l]. The standards for chloride are 600 mg/l (average), 1200 mg/L (maximum). Expressed into EC this becomes 1765 and 3540 µS respectively. For the Typha swamp and the Parwa zone higher figures are allowed.

[2] Total Suspended Solids

[3] Using a turbidity meter (or Secchi disk) in the field is more practical, less time-consuming and less costly

Noise	Noise levels along the road and near the closest residents	During noisy project activities, based on filed complaints	Along the road near the closest residents

5.1.2 Environmental and Social Inspections

To determine the compliance with the Environmental and Social Specifications as indicated in Chapter 4, environmental inspections will be undertaken throughout the duration of the project by the contractors that are executing project activities on behalf of Staatsolie, as well as by the Process Owners. To facilitate these inspections a checklist has been developed, see **APPENDIX G**: Weekly Checklist.

5.1.3 Data and information management

Environmental data is stored in a respective databases, which allows systematic storage and manipulation of data, and will permit rapid retrieval for the purposes of internal and external reporting. The Staatsolie HSSE Representative will ensure that relevant environmental data of the Exploration Drilling Project Uitkijk is provided for this database. In order to ensure a consistent and coherent system for documenting the implementation of the ESMP, all written records and other information will be stored in a filing system that is compatible with the requirements of the existing HSE Management System. This comprises standardized forms, documents and reporting procedures.

5.2 Reporting

The frequency and nature of reporting of environmental management performance will depend upon the nature of the activity and aspect that is being managed.
The table below summarizes the formal reporting schedule that will be used for this exploration drilling project.

Table 11: Regular reports and report lines

Report Name	Description	Frequency	Responsibility of	Receiver
Land use Agreement	"Overeenkomst toegang terreinen voor het verrichten van mijnbouwwerkzaamheden"	Prior to start of project activities at locations, if applicable	Officer Sr. Legal	Project Manager
Weekly report of safety talks	Reports of talks	Weekly	All Process Owners	HSSE Upstream Manager
Weekly HSE Inspection	Compliance with ESIA and ESMP	Weekly	All Process Owners	HSSE Upstream Manager
Incidents	Report type and consequences for loss of days	When accidents happen	All Process Owners	HSSE Upstream Manager
Reports of ERP-drills held.	Drills as emergency response etc.	Monthly	Drilling Operations Manager	HSSE Upstream Manager
Method statement	Method statements	Two weeks before commencement	All Process Owners	HSSE Upstream Manager

Water quality monitoring reports	Reports of water quality monitoring done for the project	1 week after monitoring has taken place.	Drilling Operation	HSSE Upstream Manager
CR report	Report on implementation of Communication Plan, and compliance with ESIA and ESMP	Quarterly	Corporate Communication Officer	HSSE Upstream Manager /
Complaints	Report each complaint in the database and its settlement	Directly after complaint is received	Corporate Communication Officer	HSSE Upstream Manager

Based on data from the above reports, HSSE Representative will compile a quarterly Environmental and Social Compliance Report that will be sent to NIMOS.

5.2.1 Feedback

Feedback on performance will be communicated to the appropriate parties (including NIMOS) concerned. Any substandard performance will trigger a process that notifies the responsible party of the nature of the issue and indicates the actions that are required to rectify the situation. This will be followed up by further monitoring to ensure that the substandard performance has been corrected.

Appendices

APPENDIX 1A: HEALTH, SAFETY, ENVIRONMENT AND QUALITY (HSEQ) POLICY STAATSOLIE

HSEQ BELEID

Wij zijn sterk toegewijd aan gezondheid, veiligheid en een schoon milieu voor al onze werknemers, contractors en de gemeenschappen waarin wij actief zijn. Bovendien streven wij naar klanttevredenheid door voortdurende verbetering van onze producten en diensten.

Dit zal worden bewerkstelligd door naleving van de volgende principes:

WET- EN REGELGEVING
Voldoen aan alle toepasselijke wet- en regelgeving en standaarden, rekening houdende met de behoeften van onze stakeholders en de bedrijfsomgeving waarin wij actief zijn.

VEILIGE EN GEZONDE|WERKPLEK
Zorgdragen voor een veilige en gezonde werkplek en het beschermen van het milieu, door de kans op incidenten of onveilige omstandigheden te voorkomen of te minimaliseren. We zijn continu bezig met het identificeren, analyseren en evalueren van risico's, gevaren en milieu-aspecten, om deze effectief te beheren door middel van eliminatie of mitigatie.

EXCELLENTE PRESTATIES
Behalen van excellente prestaties op een veilige en verantwoorde manier, waarbij de medewerkers betrokken en geraadpleegd worden bij de ontwikkeling en implementatie van de HSEQ-processen. We houden onze medewerkers en contractors verantwoordelijk voor het naleven van de kernwaarden, het beleid en de procedures van Staatsolie.

OPTIMALISATIE VAN PROCESSEN
Continu verbeteren van onze HSEQ-prestaties en -managementsystemen door het optimaliseren van processen, diensten en de productkwaliteit. Middels procesmonitoring, periodieke evaluaties en geplande acties, realiseren we gestelde doelen en signaleren we kansen.

TRAINING
Zorgdragen dat elke werknemer en contractor goed getraind en bekwaam is om desbetreffende werkzaamheden uit te voeren conform de vereisten van het Staatsolie HSEQ-managementsysteem.

Oktober 2021
Annand Jagesar

Managing Director

STAATSOLIE GO2 STAATSOLIE SPCS

APPENDIX 1B: COMMUNITY RELATIONS POLICY STAATSOLIE

MAATSCHAPPIJ SURINAME N.V.
STATE OIL COMPANY SURINAME N.V.

COMMUNITY RELATIONS POLICY

Staatsolie performs its business activities in such a way that communities' interests and expectations with regard to socio-environmental aspects are properly considered.

Staatsolie is committed to this policy by taking into consideration the following key elements:

1. Establish and encourage relationships of trust with the communities and their representatives, based on continuous dialogue.
2. Conduct business activities in accordance with applicable local laws, regulations and international treaties, ratified by the Government of the Republic of Suriname, with special emphasis on Human Rights and cultural values of a multi-ethnic community.
3. Conduct socio-environmental baselines studies and develop and implement an effective socio-environmental management system to minimize socio–environmental impacts.
4. Maximize positive impacts through initiatives and social alliances aiming at mutual benefits, value creation, and sustainable local development.
5. Ensure community participation and engagement with impacted communities and other stakeholders, during the full lifecycle of projects.
6. Communicate and disseminate the contents of this Community Relations Policy to our various stakeholders, including contractors and suppliers.
7. Communicate and report periodically, publicly the results of community relations management.

To ensure the effectiveness, the Community Relations Policy will be reviewed bi-annually.

December 13, 2011

M.C.H. Waaldijk
Managing Director

APPENDIX 1C: RISK MANAGEMENT POLICY STAATSOLIE

STAATSOLIE **MAATSCHAPPIJ SURINAME N.V.**

STATE OIL COMPANY SURINAME N.V.

Staatsolie Risk Management Policy

As an integrated oil company, Staatsolie is exposed to a wide range of risks with the potential to impact health, safety, environment, reputation, community, legal and the financial performance of Staatsolie and thereby the achievement of our objectives.

It is therefore the policy of Staatsolie to implement Enterprise Risk Management (ERM) to create a consolidated view of risk throughout our organization.

Risks faced by Staatsolie shall be managed on an enterprise-wide basis which means that we evaluate significant risk exposure related to our corporate goals and that we manage risk at corporate level.

Roles and responsibilities, and accountabilities will be clearly defined in our ERM process, which will contribute to a transparent and clearly understood ERM process. By understanding and managing risk we provide greater assurance and confidence for our shareholders, employees, customers and suppliers, and the community in which we operate. The ERM process consists of the following key steps:

- Risks will be identified, analyzed and scored in a consistent manner for all business processes, projects and functions. Common systems and methodologies will be used.
- Risk controls will be designed and implemented to reasonably assure the achievement of our objectives. The effectiveness of these controls will be systematically reviewed and, where necessary, improved.
- Risks will be monitored, reviewed and reported.

The ERM process will be evaluated on a regular basis to ensure its continuing contribution to the success of our organization achieving its business objectives.

1 April 2013,

M.C.H. Waaldijk
Managing Director

APPENDIX 1D: LIST OF APPLICABLE GFIs AND PROCEDURES

Listing of applicable GFIs and Procedures

GFI No/ Procedure/plan	Subject	Scope
Section 1 ADMINISTRATIVE		
GFI 104N	**Security Rules for Saramacca Operations** Dutch	This instruction outlines the security rules and regulations applicable to the Saramacca Operations for the different groups concerned.
Procedure HSSE-G-Routine Safety Talks	**Routine Safety Talks.** English/Dutch	This instruction formalizes the dissemination of information through regular meetings, approximately ten minutes long, commonly called "Toolbox Meetings" or "Safety Talks".
GFI 106	**HSE and Security Induction for New Arrivals.** English	This instruction describes the management of the system that controls HSE and Security Induction through which every new arrival is made familiar with the company's health, safety, environmental and security requirements as they relate to the activity that they are about to undertake.
GFI 110C	**Incident Reporting and Investigation** English	This instruction details the process for investigation according to the incident type in accordance with Staatsolie policy and legislation. This will help to control further losses of human and material resources by identifying and correcting unsafe acts and conditions that can lead to an incident.
GFI 119C	**Personal Protective Equipment and Dress Code.** English/Dutch	This GFI identifies the most common types of personal protective equipment for the various locations on the Saramacca Field.
GFI 120C	**General traffic rules.** English/Dutch	This GFI defines the general traffic rules to guide the performance of company employees, contractor's employees, and visitors while on company roads. It also defines rules for the behavior of drivers of company owned and rented vehicles on public roads.

GFI 126	**Safe Use of Mobile Communication Devices.** English	This instruction provides guidance to the safe use of mobile Communication Devices in order to minimize hazards that are introduced with it.
Procedure ISoW	Procedure Integrated System of Work English	This procedure enables all Staatsolie and contractor employees to systematically manage operating risks by adhering to the elements of the Integrated system of Work.
GFI 131	**Guidelines for Departmental HSE Teams.** English	This GFI outlines the terms of reference and composition of the Departmental HSE Teams which are intended to assist the departmental head in the execution of the departmental HSE program and to achieve workers participation.
GFI 132	**Contractor Health, Safety and Environmental Management** English	This GFI provides guidance to Staatsolie staff in promoting and managing HSE performance of Contractors.
Section 2 **JOB SAFETY INSTRUCTIONS**		
GFI 210(N)	**Handling of Hazardous Chemicals.** English/Dutch	This instruction describes the management system for the selection, handling and disposal of all hazardous chemicals used by Staatsolie.
Procedure PTW	Permit to Work (PTW)	This procedure describes the management system managing work activities that have inherently higher risks or unique aspects that could lead to a higher level of risk than routine or daily work activities. It is supported by other procedures and processes to regulate all work activities and manage risk.
Procedure MOC	**Management of Change Procedure** English	This procedure manages all proposed changes that might have adverse economic, health and safety or environmental consequences within the Upstream Operations, by defining the steps used to identify and manage change-associated risks and their effects within the Operations.
GFI 225(N)	**Storage, Transportation and handling of** **Compressed, liquefied and pressurized gasses.** English/Dutch	This GFI handles the general guidelines for safe storage, transportation and the handling of gas bottles. The most common industrial gasses, which are used by Staatsolie, are oxygen, acetylene, nitrogen, propane (LPG), butane and carbon dioxide.

Procedure Abrasive Blasting	Abrasive Blasting Procedure. English/Dutch	This procedure provides guidelines for the protection of personnel engaged in abrasive blasting and others who may be in the surrounding areas where abrasive blasting is conducted.
Procedure Spray Painting	Spray painting Procedure. English/Dutch	This procedure provides guidance for the safe use of spray painting whereby care must be taken to protect the workers involved, other personnel in the vicinity, nearby equipment and the environment.
Housekeeping	**Housekeeping Guidelines** English	This guideline provides guidance to employees to ensure that proper housekeeping is maintained.
GFI 232	**Job Safety Analysis** English	Job Safety Analysis is a proven method that evaluates a sequence of job steps or tasks to identify and document potential hazards and to take countermeasures to protect workers' health and safety against those hazards. This instruction provides guidance for conducting a Job Safety Analysis.
Procedure Safety Color Codes	**Safety Color Codes Procedure**	This procedure establishes the requirements for a uniform visual system for marking potential hazards and provides an effective means of communicating hazard information to the employees & contractors, in order to reduce the likelihood of injury from potential hazards in the work environment. It defines the color codes of signs, tags and barricades to be used in controlling exposure to potential hazards and specifies requirements for design uniformity to promote employees recognition and avoidance of hazards.
Section 3 **EMERGENCY RESPONSE**		
Emergency Response plan	**Emergency Response** Plan Upstream Saramacca	This plan describes the procedure that needs to be followed when an emergency situation at the Staatsolie Saramacca Location turns up.

Section 4 **EQUIPMENT STANDARDS AND SPECIFICATIONS**		
GFI 400	Inspection of Fire Protection and Emergency Equipment. English	This GFI provides departments and divisions of the Saramacca Operations with procedures for the inspection of Fire protection and Emergency Equipment, which must be in good condition at all time.
Procedure Scaffolding Rules	**Scaffolding Rules Procedure** English	This procedure provides the guidelines of erecting tubular scaffolding.
Section 5 **ENVIRONMENT PROTECTION**		
Waste Management Plan	Waste Management Plan Onshore	This plan provides guidance for solid waste handling and disposal requirements for waste listed in the appendix of this field instruction.

APPENDIX 1E: METHOD STATEMENT

SOM DEPARTMENT:…….. **DATE:**……

PROPOSED ACTIVITY (give title of method statement and reference to Environmental specification):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF WORKS FOR WHICH METHOD STATEMENT IS REQUIRED:

Start Date:	End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

In case on private land: include signature of owner/user to show that he/she is aware

Please attach extra pages if more space is required

APPENDIX 1F: PRO FORMA LANDUSE AGREEMENT

Contractnummer:
OVEREENKOMST

TOEGANG TERREINEN VOOR HET VERRICHTEN VAN MIJNBOUWWERKZAAMHEDEN

De ondergetekenden:

Staatsolie Maatschappij Suriname N.V., gevestigd aan de Dr. Ir. H.S. Adhinstraat 21 te Paramaribo, hierna te noemen **"Staatsolie"**

en

, houder van ID kaart nummer …… en wonende aan de te , hierna te noemen **"Gerechtigde"**

In overweging nemende:

- dat bij Decreet E-8B (S.B. 1981 nr. 59) aan Staatsolie concessie is verleend tot het verrichten van werkzaamheden verband houdende met de opsporing en ontginning van koolwaterstoffen,

- dat in gevolge het Decreet Mijnbouw (S.B. 1986 no. 28), Gerechtigde en derde-belanghebbende werkzaamheden die hiermee verband houden moeten gedogen,

Verklaren het volgende overeen te komen:

Artikel 1
Gerechtigde is het perceelland aan de , gelegen in het district . Gerechtigde zal een deel van dit perceelland ter beschikking stellen aan Staatsolie voor het verrichten of doen verrichten van werkzaamheden voortvloeiende uit het recht verkregen door Staatsolie vanwege Decreet E-8B, gedurende de periode .

Artikel 2
Staatsolie zal Gerechtigde indien van toepassing vergoeden de schade onmiddellijk veroorzaakt door de bovengenoemde werkzaamheden. Deze vergoeding is, afhankelijk van het geval, gebaseerd op taxatie van LVV of andersoortige uit te voeren taxaties, en zal indien van toepassing in een nadere overeenkomst vastgelegd worden.

Artikel 3
Partijen zullen indien nodig tijdens de uitvoering van de werkzaamheden met elkaar in overleg treden voor nadere afspraken met betrekking tot de uitvoering van bovengenoemde werkzaamheden.

Artikel 4

Visuele oriëntatie van de staat van bovengenoemd perceelland vóór de aanvang van de werkzaamheden heeft het navolgende doen constateren:

Artikel 5
Staatsolie zal ten behoeve van de mijnbouwwerkzaamheden de volgende aanpassingen plegen op bovengenoemd perceelland:
- Er zullen geen aanpassingen .

Artikel 6
Staatsolie is gehouden om conform de door het Nationaal Instituut voor Milieu en Ontwikkeling in Suriname (NIMOS) goedgekeurde Environmental management Plan bij beëindiging van de werkzaamheden het perceelland te rehabiliteren, zulks in overleg met Gerechtigde.

Artikel 7
Na het verrichten van de werkzaamheden zal Staatsolie het terrein als volgt overdragen:
- Het terrein zal met de verbeteringen die door Staatsolie zijn aangebracht ten behoeve van de werkzaamheden worden overgedragen.

Aldus overeengekomen en in tweevoud opgemaakt en ondertekend te Paramaribo op
…… .....

Staatsolie Maatschappij Suriname N.V. Gerechtigde

_____ _____

Managing Director

Datum:

APPENDIX 1G: WEEKLY CHECKLIST

To be submitted to the HSSE-U Division
Area:

Coordinates:

Mitigation measure	Comp-liance Yes/No	Responsible	Remarks
A copy of the following documents is available onsite: ESMP, WMP, OSRP and ERP			
A traffic management plan is developed and implemented			
All personnel on site are aware of the contents of the ESMP and were made aware of environmental issues			
All personnel on site are aware of the ERPs (spill response, medevac, fire contingency plan)			
Have any drills been held?			
MSDS's are available for all hazardous substances on site			
All equipment is regularly maintained and are kept in optimum condition			
All equipment has been certified			
Fuel is stored in tanks within a bunded area (with 110% of the stored fuel volume) and storage tanks are leak proof			
All containers and storage tanks are leak proof			
There are no spills or leakages			
Drip trays are being used where there is a risk of spillage (i.e. fueling of equipment).			

Spill response equipment and materials are present, functional and accessible			
Minimal clearance of vegetation, and clearing of high forest is limited to the minimum.			
Waste handling conform WMP: no waste lying around, waste bins available, , etc.			
Firefighting equipment is functional and accessible			
No complaints have been received about project activities			
Have any encounters with wildlife (e.g. jaguars, snakes) been reported. Please describe and provide date/time.			
Any accidents registered, including snake bites, bee stings?			
Any other observations or comments			

Department Delegate

Completed by: ……

Date: ……..

Sign: ……..

Project Manager or his delegate

Received and checked by: ……

Date: ……..

Sign: ……..

APPENDIX 1H: PROJECT WASTE MANAGEMENT PLAN

Table of Contents

1.0 Introduction

In order to manage the waste generated during the project the Waste Management Plan of Staatsolie Upstream operation is applicable. This additional project waste management plan has been prepared to handle the waste from the project which will be executed outside the oilfield boundaries of Staatsolie. All employees, including Staatsolie and contractors, shall manage waste generation through implementation of the waste hierarchy, where avoidance and minimization of waste are the mostly preferred.

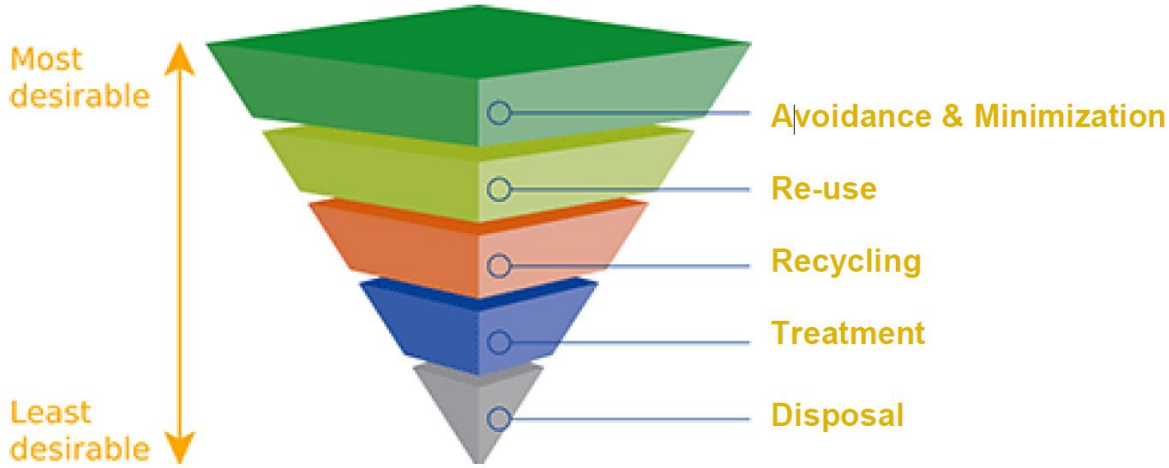

Figure I-1: Waste Management Hierarchy

This waste management plan applies to the activities carried out for the Exploratie drilling activities in the Uitkijk North Area.

2.0 Terms and Definitions

Waste Generator	The department/employee carrying out the activity, which results in the material becoming surplus and being designated for discarding.
Hazardous waste	Any wastes, which because of its quantity, physical, chemical or infectious characteristics have the potential to cause harm to human health or the environment.
Waste Avoidance and minimization	Waste avoidance and minimization are at the top of the waste hierarchy. Avoidance is mostly preferred in the list of waste hierarchy where zero waste is generated. Slight modifications in activities can improve efficiencies in utilizing to reduce waste generation e.g. reducing paper waste by printing double sided.
Reuse	The action or practice of using something again, whether for its original purpose (conventional reuse) or to fulfill a different function (creative reuse or repurposing).
Recycling	Involves processing used waste materials into new products.
Treatment	Waste treatment refers to the activities required to ensure that waste has the least practicable impact on the environment.
Disposal	Wastes that cannot be reused, recycled or treated will be segregated and stored in designated waste storage areas for incineration, disposal in a landfill or for collection by a waste transporter.
Landfill	Site for the disposal of waste materials by burial.

3.0 Responsibilities

Functionary	Responsibility
Employees/Departments Staatsolie (Waste Generator)	• Ensure that practices are conducted to avoid unnecessary waste generation by prevention, minimization and reuse of waste. • Separate reusable, recyclable and other waste by placing them in therefore labeled waste bins. • Remove all waste from the Uitkijk North Area.
Drilling operations Manager	• Implementation of mitigation measures as provided in chapter 3 of the ESMP.
HSSE Upstream Manager	• Advice on the management of waste that are not covered by this plan. • Manage and analyze waste data and provide advice on improvements of waste management within the company. • Monitor and report on the implementation of this plan.

4.0 Waste management

Waste segregation
To effectively implement the waste management hierarchy, segregation of waste streams at the source is essential. Therefore the appropriate and clearly labeled waste bins have to be provided at strategic locations.

Waste collection, transport, storage and handling
The waste will be stored temporary on the rig and transported with an airboat to the nearest landingstages that will be used during this project. From the landing the separated waste will be collected and transported to the waste handling facilities of Staatsolie, including the Sarah Maria dumpsite and the landfarm.

Waste Management (disposal/treatment)

Waste category	Waste Type	Waste Management
Office	PET bottles	Clear Packaging Recycling N.V.
	Paper	
Industrial	Packaging material	Open burning; Staatsolie is in the process to construct a landfill, including an incinerator
	Metal scrap	Recycling (COBO)
	Drilling waste (cuttings, water based mud)	Reuse as much as possible, discharge in the swamp or at the Landfarm when oil polluted
	Batteries	Export (BAP)
	Waste oil (lubricating oil, hydraulic oil)	Oil is currently stored in portafeeds at the Landfarm of Staatsolie. Staatsolie is in the process to check if the waste can be send to EQ Recycling. On the other hand Staatsolie plans to construct a treatment system (centrifuge + decanter) to treat the oil at the landfarm.
	Rags/gloves contaminated with oil	Open burning; Staatsolie is in the process to construct a landfill, including an incinerator

Special waste:

- Sewage waste from the portable toilets is collected and dumped in a septic tank on dry land. This waste is handled by a contractor of Staatsolie (Uitzendbureau Sarah Maria).

APPENDIX 1I: HANDLING OF SPILLS AND LEAKAGE

1.0 Introduction and scope

Oil spill is a risk associated with production and transportation of crude oil. Oil spills can occur due to human errors, equipment failures and bypassing maintenance procedures.

This plan is applicable for the ADP Uitkijk Project and is based on the existing procedures and plans of Staatsolie with regards to oil spill preparedness and response.

2.0 Prevention of oil spills

Prevention of oil spills has a lot to do with operational procedures. Following the maintenance procedures and operations protocols ensures a safe operation. The latter aids in the goal to prevent occurrence of oil spills within the implementation process of the company's HSEQ policy and core values.

3.0 Minimize impact on the environment

In order to minimize the impact on the environment, in case of an oil spill, the following measures will be implemented:

- Bund walls for the test tank facility and loading station.
- Bin to collect the oil from the hoses that will be used for loading.
- Daily monitoring by operators.
- Markings and signs will be placed to indicate the locations of the pipelines. Guards will be placed for the protection of the manifolds.
- Maintenance activities as required.
- The project area will be provided with booms that can be used for demarcation of oil spills.

4.0 Response

In case of an oil spill in the Uitkijk project area the response will be done as follows:

- Notification
    - Notify relevant parties (in accordance with the "Melding procedure" – Figure J-1).

- Containment activities
    - Assess where the spill will drift to by the wind and guide spill with booms to an accessible site for recovery with skimmer.
    - Place sorbents for later removal.

- Reclaiming and clean-up activities
    - Skim the oil and contaminated soil/vegetation in a bin on a barge.
    - Transport the oil and contaminated material to the landing.
    - Transport oil and contaminated soil to the Landfarm facility of Staatsolie, for treatment.
- Monitoring
    - Monitor the oil spill location (e.g. water quality).

MELDINGSPROCEDURE

Staatsolie Oil Spill Response Team
t.b.v.
Upstream

1. Indien U melding krijgt van een oil spill, handel dan als volgt:

Vraag de melder naar:

- Locatie en omvang van de olievlek
- Naam, adres en telefoonnummer van de melder in geval van een buitenstaander
- Naam en afdeling in geval van een Staatsolie employee
- Overige bijzonderheden zoals: eventuele schade of persoonlijke ongelukken, de richting waar de olie naartoe gaat en of de spill toeneemt

2. Indien het een spill betreft op Saramacca, bel of meld de Head Guard van Saramacca en geef de informatie door:

Head Guard:

- Internelijn: 444#
- Buitenlijn: 375222 tst 444#

3. De Head Guard meldt vervolgens de desbetreffende afdeling en vraagt voor verificatie van de informatie:

- Gedurende werktijd, via het kantoor van de desbetreffende afdeling
- Na werktijd en in het weekend, de desbetreffende afdelings standby operator (zie lopende roosters)

OPERATIONELE AFDELINGEN

Locatie	Telefoon Kantoor
CS	68847, 63217, 63217
JS	67870, 67871, 67874, 67877
SM & LP	65840, 65846
CT TA-58	65870, 65873, 65876
FP TA-58/45	65840, 65844, 65843
Calcutta/ Huwz	68840, 68844, 68856, 68857
TNW	68848, 68849, 68872, 68873

4. Na verificatie wordt in geval van:

- Een kleine spill, deze door de operationele afdeling direct aangepakt
  Actie: Afdelingsleiding of Shift Foreman

- Een grote spill in openbaar water of op de openbare weg, door een Strike Team lid , of de afdelingsleiding aan de Guard gevraagd om het SORT lid conform het wachtdienstrooster te melden. Bij geen response van dit lid, moet steeds het volgend SORT-lid op het wachtdienstrooster worden gebeld.
  Actie: SORT leden

SORT-LEDEN

Functionaris	Telefoon Kantoor	Thuis
P. Brunings	66502	08515353
H. Chin A Lien	66480	08583122
R. Parran	68844	08923766
S. Gopal	65843	0374072 / 08683973
A. Schuitemaker	66850	431974 / 08660070
S. Cheuk A Lam	65873	400275 / 08749000
D. Riedewald	65840	08814953
C. Monsels	65220	08727224
S. Oedit	66553	08854311
A. Entingh	68847	328998 / 08591345
S. Mangalsing	66714	08710554

5. Indien het een spill betreft op TLF of bij de pipeline TLF-Paranam wordt de Guard van TLF door de Head Guard van Saramacca hiervan op de hoogte gebracht.

Head Guard TLF: - Telefoon: 480501 tst 62235
- Telefoon: 486294 tst 62235

APPENDIX 2A: WATER QUALITY RESULTS

General		Comments
Project	Studie Waterhuishouding Buru- en Wayambozwamp	
Requester:	Staatsolie Maatschappij Suriname N.V.	
Sampling date:	29-Nov-21	
Number of measurements:	8	
Type of water body:	Surface water	
Measured by:	ILACO	
Sampling locations:	Van Dijk Canal and nearby Swamp	
Weather:	See Below	

ID	Lokatie beschrijving	Datum/ Tijd/ Weersomstandigheden	GPS coordinaten (UTM21N/WGS 84)	Temp (°C)	pH	DO (mg/L)	EC (uS/cm)	TDS (mg/L)	SAL (ppt)	Turbidity (NTU)	Kleur	Opmerkingen
WQ01	In de kanaal aan de westelijke zijde van de Van Dijk dam. De kanaal is aan de linkerzijde begroeit met Moko-Moko en hoog vegetatie. De dam is begroeit met lage vegetatie (gras).	29-Nov-2021 9:51 AM Zonnig met bewolking	21 N 681616 649196	29.3	6.51	2.03	396	257	0.13	30	Helder lichtbruin	Eendekroos (grote) geobserveerd op het water in het kanaal.
WQ02	In de goot aan de oostelijke zijde van de Van Dijk dam. De goot is begroeit met gras.	29-Nov-2021 10:01 AM Zonnig met bewolking	21 N 681625 649177	26.8	6.39	1.36	477	310	0.15	0	Helder lichtbruin	
WQ03	In het verlengde van diver DZS-16. In de kanaal aan de westelijke zijde van de Van Dijk dam. De kanaal is aan de linkerzijde begroeit met Moko-Moko en hoog vegetatie. De dam is begroeit met lage vegetatie (gras).	29-Nov-2021 10:28 AM Zonnig met bewolking	21 N 681619 650362	28.5	6.44	2.55	308	200	0.10	150	Troebel lichtbruin	
WQ04	Bij diver DZS-16. In de zwamp aan de oostelijke zijde van de Van Dijk dam. De zwamp is begroeit met Moko-Moko en hoog vegetatie.	29-Nov-2021 10:22 AM Zonnig met bewolking	21 N 681635 650358	**26.23**	6.48	0.15	675	438	0.28	15.8	Helder donker bruin	
WQ05	In de kanaal aan de westelijke zijde van de Van Dijk dam. De kanaal is aan de linkerzijde begroeit met Moko-Moko en struikgwassen (o.a. Brantimaka). De dam is begroeit met lage vegetatie (gras).	29-Nov-2021 10:39 AM Geen zon/ Bewolkt	21 N 681613 651648	29.3	6.26	2.99	302	196	0.10	28.2	Helder licht bruin	
WQ06	In de zwamp aan de oostelijke zijde van de Van Dijk dam. De zwamp is begroeit met Moko-Moko en laag vegetatie.	29-Nov-2021 10:49 AM Zonnig met bewolking	21 N 681622 651650	26.6	6.32	3.53	448	291	0.14	14.3	Helder donker bruin	Eendekroos (grote) geobserveerd in de zwamp.
WQ07	Nabij peillat PZS-08. In de kanaal aan de westelijke zijde van de Van Dijk dam. De kanaal is begroeit met gras gras en waterplanten. Aan de linkerzijde is de kanaal begroeit met Moko-Moko en struikgwassen (o.a. Brantimaka). De dam is begroeit met lage vegetatie (gras).	29-Nov-2021 11:24 AM Zonnig met bewolking	21 N 681608 653463	**27.73**	6.28	0.14	303	196	0.10	32.7	Helder lichtbruin	
WQ08	In het verlengde van peillat PZS-08. In de zwamp aan de oostelijke zijde van de Van Dijk dam. De zwamp is begroeit met Moko-Moko en laag vegetatie.	29-Nov-2021 11:33 AM Zonnig met bewolking	21 N 681615 653477	28.6	5.97	5.37	414	269	0.13	74	Helder lichtbruin	

APPENDIX 2B: NOISE BASELINE RESULTS

Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area

Final Draft

Noise Baseline Report

Prepared for

Staatsolie Maatschappij Suriname

By

ILACO

Project Title: Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Number: IS-411
Document: Noise Baseline Report

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2.0	Final Draft	Welzijn B./ Fortune M.	Koenjbiharie S/ Noordam, D.		22 November2022

Table of Contents

List of Figures

List of Tables

Abbreviations and Terminology

Abbreviation	Definition
A-weighted sound level	A measure of sound pressure level designed to reflect the acuity of the human ear, which does not respond equally to all frequencies.
dBA	Decibel using the A-weighting setting
dBL	Linear decibel level
Decibel (dB)	A measure of sound. Equal to 10 times the logarithm (base 10) of the ratio of a given sound pressure to a reference sound pressure. The reference sound pressure used is 20 micro Pascal, which is the lowest audible sound for the human ear.
ESMP	Environmental and Social Management Plan
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
L_{10}	L_{10} is the level exceeded for 10% of the time. For 10% of the time, the sound or noise has a sound pressure level above L_{10}. For the rest of the time, the sound or noise has a sound pressure level at or below L_{10}.
L_{90}	See L_{10} but read 90% instead of 10% and L_{90} instead of L_{10}.
LAeq	Equivalent Sound Pressure Level using the A-weighting setting
Lmax	Maximum RMS (root mean squared) level of a sound source or environment.
Lmin	Minimum RMS (root mean squared) level of a sound source or environment.
NIMOS	Nationaal Instituut voor Milieu en Ontwikkeling in Suriname
WHO	World Health Organization

1. Introduction

ILACO Suriname N.V. (ILACO) has been contracted by Staatsolie Maatschappij Suriname N.V. (Staatsolie) to conduct an update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area. As part of the ESMP daytime baseline noise measurements were carried out on the 17th of August 2022.
This report presents the methodology and the results of the noise baseline study.

1.1 Background and objective

One of the Staatsolie Upstream Operation's strategic goals is to find new crude reserves to sustain the 6 million barrels (MM bbls) yearly production and guarantee feedstock for the refinery beyond 2030. The goal of this project is to find at least 10 MM bbls of proved reserves by executing an exploration program outside the proved boundaries of the Staatsolie fields, the so-called Heartland areas (**Figure 1**). In this regard in-depth geological, geophysical and petrophysical studies have been carried out in the Uitkijk Block to evaluate the geo-bodies, volumes, risks and prospective potential of the study area, however more data is required to acquire pertinent information and to find the mentioned reserves.

As such, Staatsolie intends to carry out an exploration drilling project whereby 2-5 wells will be drilled; further referred as Exploration Drilling Project Uitkijk. The area where the project is planned, is located in the Saramacca district, north of the Wayamboweg (see **Figure 1**). The project area is located in the Uitkijk North Block (formerly the Wayambo Block), about 15-25 km west of western boundary of Paramaribo and immediately east of the Tambaredjo Oil Field that is operated by Staatsolie. The project area can be reached through the existing trails and canals in the area. There are also existing mooring/ landing stages in the area. The existing trails and landing stages are presented in **Figure 1**.
Two of the locations (UEP01 and UEP02) are planned in the north of the project area while the other three (3) locations (UEP03, UEP04 and UEP05) that are further to the south (closer to the Wayamboweg) are back-ups (see **Figure 1**). Depending on the results of the first two (2) wells it will be decided to drill or drop the backup wells.

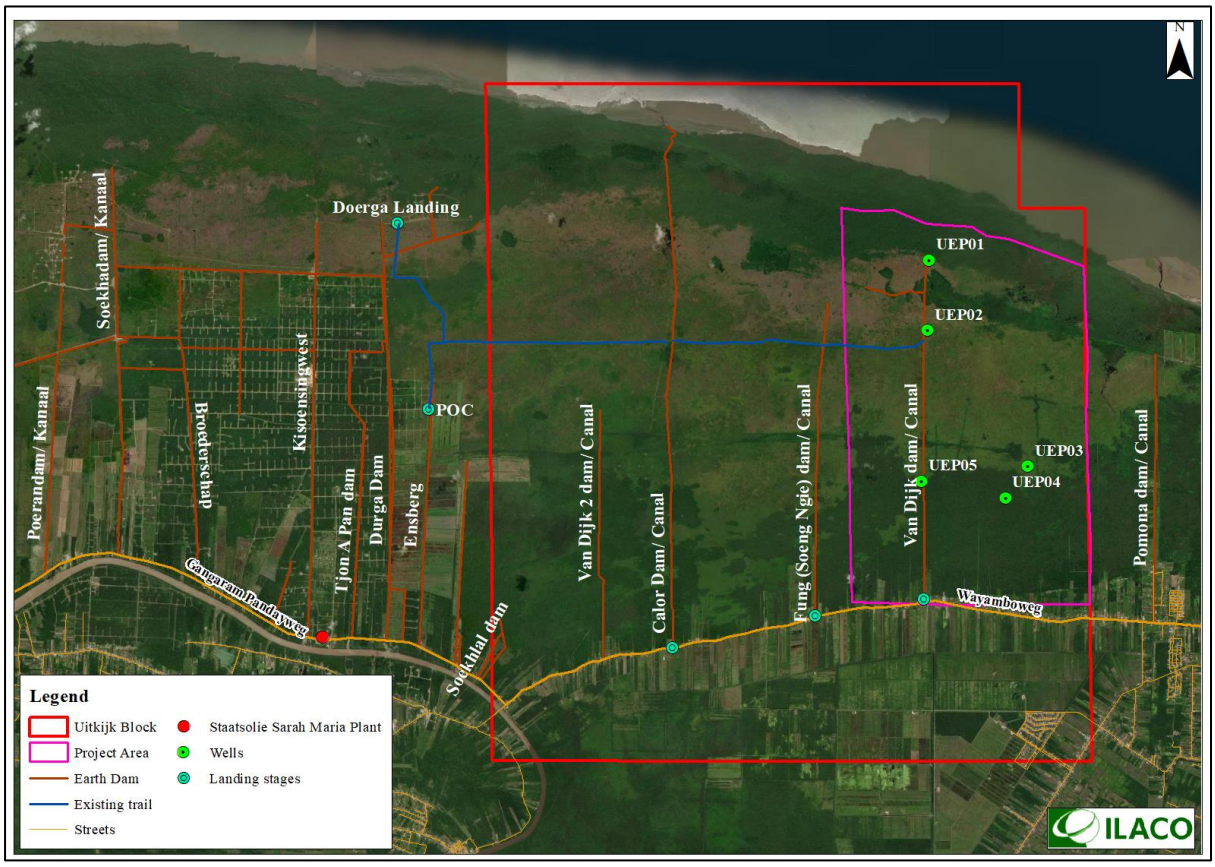

Figure 1: Overview of the Uitkijk Block and the project area (aligned in purple)

1.2 Objective and Scope of Work

The objective of the noise baseline study is to determine the baseline noise levels, with the study area. The study area includes the project area and access routes (Wayamboweg and the Gangaram Pandayweg), where potential impacts may occur.
As previous noise baseline information was available (ILACO, 2018) for the area along the Gangaram Pandayweg till the Wayamboweg near the Soeng Ngie Dam, noise measurements were only conducted along the Wayamboweg near the Van Dijk Dam.

1.3 Land use and receptors

The project area within the Uitkijk block is located in a rural area with presence of receptors such as small farms and individual residences along the Wayamboweg (main road).
Agriculture land-use along the Wayamboweg include stock breeding (cattle and poultry), field crops (banana) and vegetables. Along the Wayamboweg few other commercial activities were observed. A detailed overview of the economic activities near the project area is presented in **Figure 2** and the receptors in **Figure 3**. A general overview of land use within the study area is presented in **Figure 4**. The area along the Van Dijk Dam (near the Wayamboweg) is used for cattle stock and nearby agriculture field and a gas station was observed. In the swamp area along the Van Dijk Dam honey beekeeping is executed.

Figure 2: Overview locations of Economic activities within project area

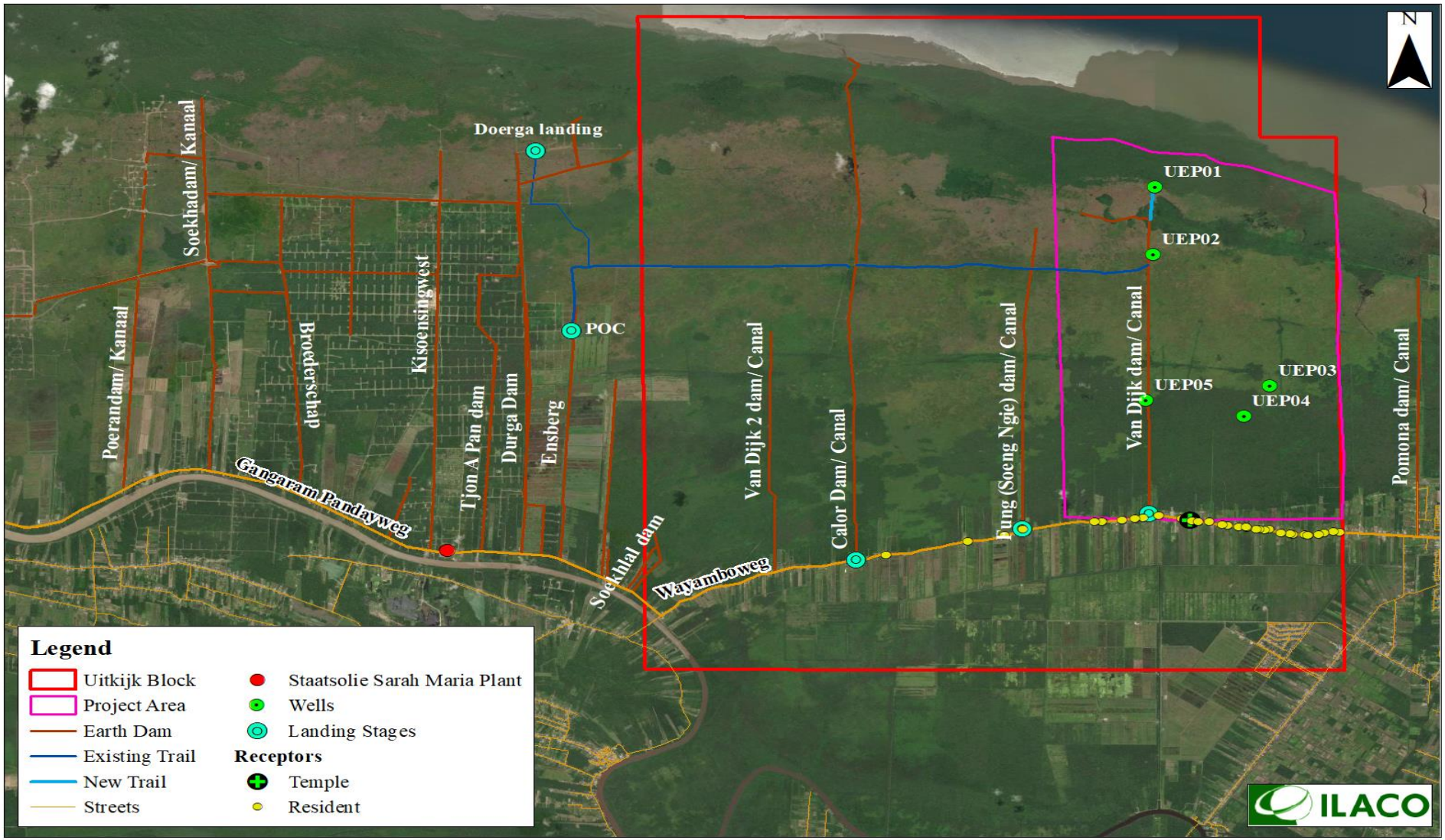

Figure 3: Overview receptors within project area

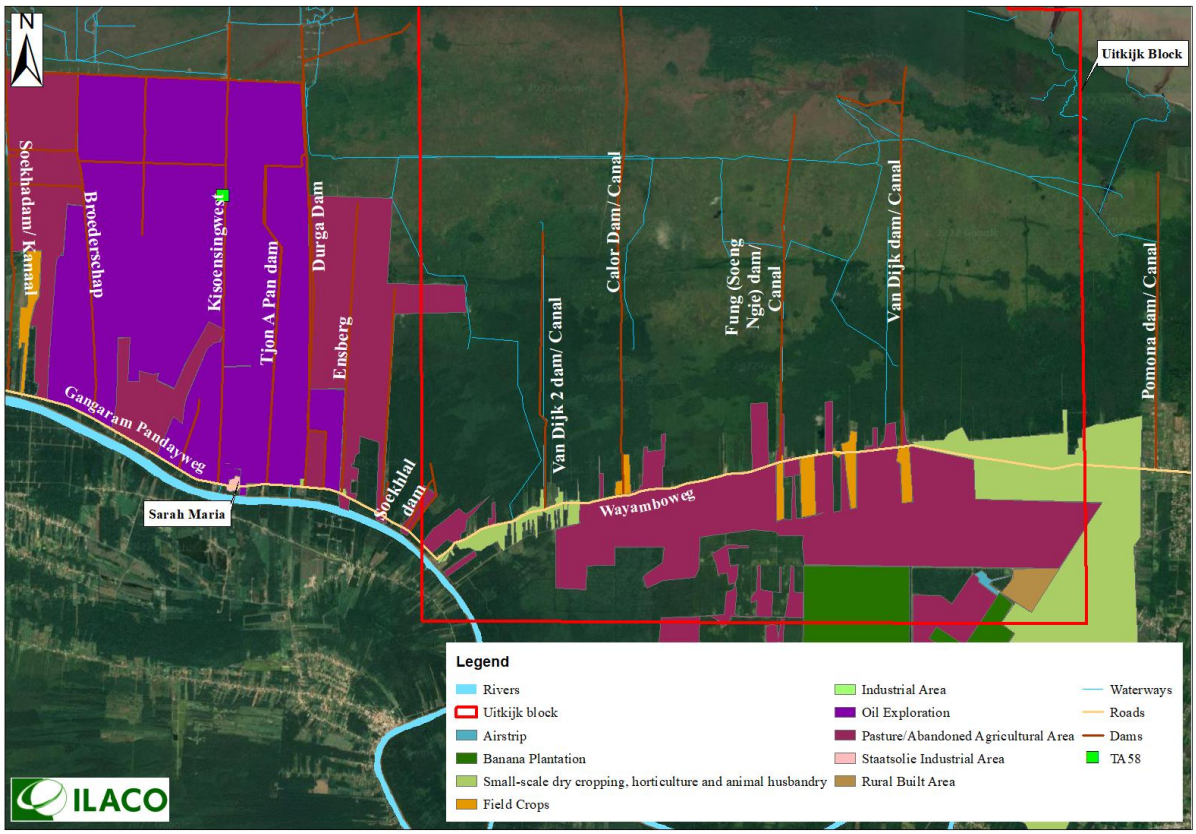

Figure 4: Overview Land use within study area and surroundings (ILACO, 2018)

1.4 Applicable noise standards

In the absence of specific national guidelines for noise levels, the international standards (WHO/IFC) for community-based noise limits, also used by NIMOS, are applied (see **Table 1**). Only daytime standards are presented, as no project activities will be undertaken within 3 km of receptors during night hours.

Table 1: Applicable Outdoor Noise Standards for Community-based noise (WHO/IFC).

Receptor	**Maximum Allowable Ambient Noise Levels 1-hour LAeq (dBA)**
	Daytime 07:00-22:00
Residential; institutional; educational	55
Industrial; commercial	70

The IFC states that noise impacts should be limited to a maximum increase above background levels of 3dBA at the nearest receptor location off-site (IFC 2007). For a person with average hearing acuity an increase of less than 3 dBA in the general ambient noise level is not detectable.

2. Methodology

For the Noise Baseline study, noise levels were measured along the Wayamboweg within the project area at the entrance of the Van Dijk property, and at the entrance of a resident located both on the east and west side of the Van Dijk property. The noise measurements were carried out according to the General EHS Guidelines of the WHO/IFC for Noise monitoring (2007). At other locations within the study, recent noise baseline information is available, which will be used for description of the baseline situation in the ESMP report.

2.1 Measurement instruments

Noise measurements were performed with a sound level meter and analyzer SVAN 977c (#98852) mounted on a tripod. The MK 255 pre-polarised microphone is provided with a SA22 windscreen, through which the measurements are performed.
The measurements were done with Class 1 IEC 61672:2013 accuracy in the frequency range of 20Hz to 20 kHz with an MK 255 microphone. A FAST detector was used for the measurements with A, C and Z filters. Also, an 1/1 OCTAVE analysis with 10 filters with center frequencies 31.5 Hz ÷ 16 kHz, Class 1 IEC 61260-1:2014 were logged. Before each measurement period, a calibration was done with an SV 33B Acoustic Calibrator (serial # 125676) with IEC 60942:2003 standard, Type 1 accuracy. The logged data was analyzed with the software SVANPC++ version 3.3.16. See **Appendix 1** for the specifications of the SVAN 977c. The calibration overview of the SVAN 977c Sound Analyser is described in **Table 2**.

Table 2: Dates of calibration

Calibrated on	Measurement took place on
16th of August 2022	17th of August 2022

2.2 Measurement Parameters

At every measurement the following was recorded:
- Time and date;
- Location and GPS;
- Name of person carrying out the monitoring;
- Serial number of equipment used;
- Noted noise sources and noise levels and direction from source of interest;
- Duration of monitoring;
- Weather conditions such as wind direction, cloud cover etc.
- SVAN 977c measures noise levels in L linear peak (dBL), and LAeq, L10, L50, L90, Lmax and Lmin, all provided in dBA.
- Audio recordings

The LAeq provides information on the nature and extent of the noise sources. The L10 represents the higher noise levels during the measurement period and together with L50 and L90 are generally utilized for traffic noise levels. The L90 gives an indication of the underlying noise level or the noise level that is present 90% of the measurement time. It is generally used to represent background noise levels i.e., the noise levels without the influence of infrequent transient sources.

2.3 Measurement locations

In the field two of the measurement locations were adjusted from the proposed measurement locations. The measurement locations were chosen such that representative baseline noise levels of the study are collected, namely at:
- The Van Dijk landing area: N1
- Along the Wayamboweg- resident east of the Van Dijk property: N2
- Along the Wayamboweg- resident west of the Van Dijk property: N3

In **Figure 5** an overview map is presented of the actual measurement locations.

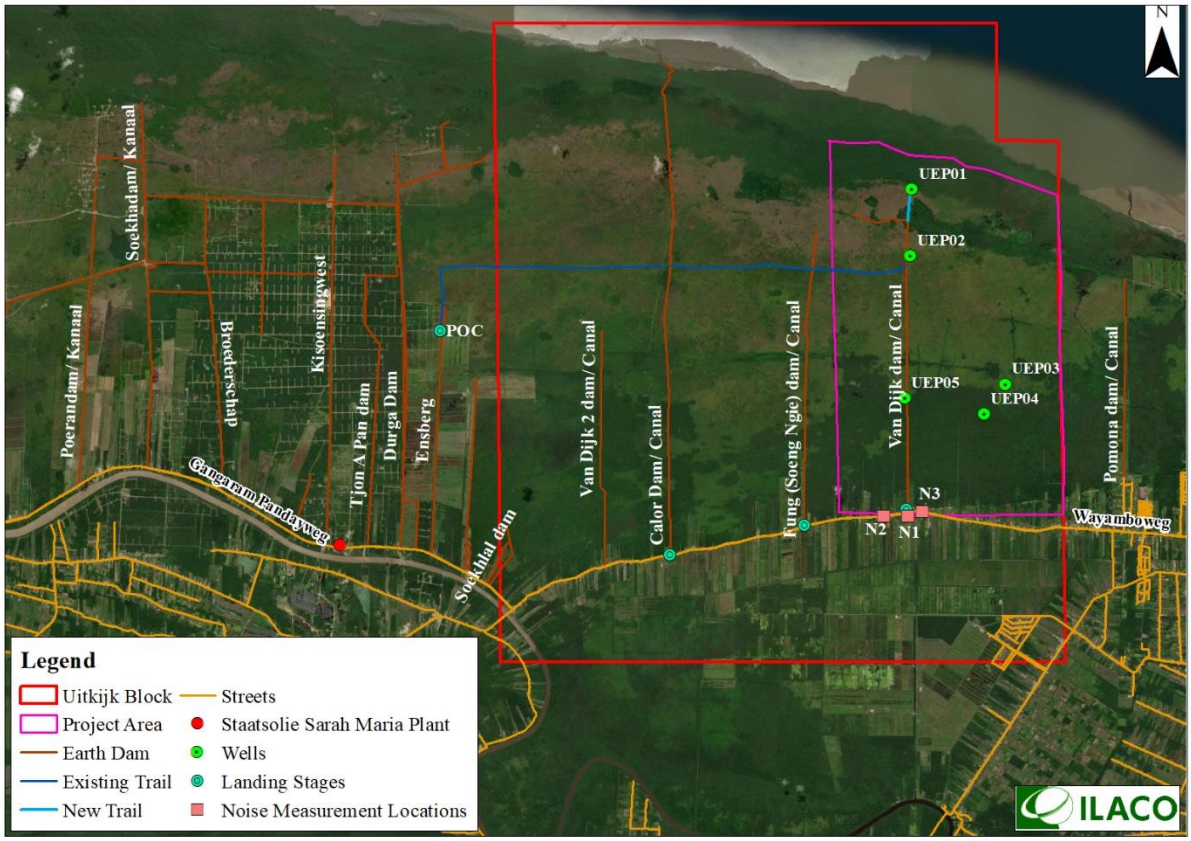

Figure 5: Overview of actual noise measurement locations

2.4 Measurement procedures

All measurements have been carried out by a survey team of 2 persons, with the SVAN meter placed on a tripod at approximately 1.5 m above the surface level and at least 3-4 m away from obstacles or reflecting surfaces. Audio recordings have also been made during all measurements by attaching an audio recorder to the sound meter. The noise measurements have been carried out for 30 minutes continuously during daytime (07:00 – 22:00 hrs.). See **Table 3** for description of the locations and measurement date.

Table 3: Overview of noise measurement locations

Type	Relevance	Location	Description	Date (Daytime)
Baseline	Current traffic noise levels	N1	At the entrance of the Van Dijk canal approx. 6.5 m from axis of the road. Along the road there is a strip of approx. 3 m wide low grass vegetation, bordered by low shrubs and trees.	17th of August 2022
		N2	At the entrance of a resident along the north side of the Wayamboweg, approx. 6.5 m away from the axis of the road.	
		N3	At the entrance of a resident along the south side of the Wayamboweg, approx. 6.5 m away from the axis of the road.	

The pictures below give an illustration of the measurements carried out**.**

17 August 2022	
 N1: At the entrance of the Van Dijk canal approx. 6.5 m from axis of the road.	 N2: At the entrance of a resident along the north side of the Wayamboweg, east from the Van Dijk property.
 N3: At the entrance of a resident along the south side of the Wayamboweg, west from the Van Dijk property.	

3. Results

3.1 Introduction

The baseline noise measurements were conducted on the 17th of August 2022. During the noise measurements all noise sources were recorded in a field observation sheet (**Appendix 2).** The logger results of all measurements are presented in **Appendix 3**, together with general information.

3.2 Baseline conditions of the study area

3.2.1 Weather conditions

Noise measurements have been carried out during day time. The weather conditions during daytime measurements consisted mainly of sun with cloud cover. The wind speed varied from calm till moderate breeze. A predominant northeast wind direction was observed.

3.2.2 Traffic Intensity

All three measurement locations were carried out along the Wayamboweg. The Wayamboweg is part of the Oost-Westverbinding and therefore is a very busy road during daytime. The daytime traffic is dominated by cars (52%), followed by light truck (25%), heavy truck (21%), and 1% for both moped and buses.

3.3 Baseline noise levels

The results of the day time measurements are summarized in **Table 4**.

Table 4: Results of day time noise measurements

ID #	Location / Observation	Measurement time	Daytime (07:00-22:00)		
			L10	L90	LAeq
			dB(A)		
N1	At the entrance of the Van Dijk canal approx. 6.5 m from axis of the road. Along the road there is a strip of approx. 3 m wide low grass vegetation, bordered by low shrubs and trees. Continues noise of traffic (256 vehicles/hour).	10:10- 10:40 AM	71.3	33.8	68.97
N2	At the entrance of a resident along the north side of the Wayamboweg, east from the Van Dijk property. Agriculture activities have been observed on both sides of the road. Continues noise of traffic (272 vehicles/hour)	10:51 -11:21 AM	72.3	40.1	68.43
N3	At the entrance of a resident along the south side of the Wayamboweg, west from the Van Dijk property. Agriculture activities have been observed on both sides of the road. Continues noise of traffic (218 vehicles/hour)	9:20 -9:50 AM	73.3	39.4	70.19
	Exceeded the noise standards of 55 dBA for daytime for residential areas.				

The background levels (L90) at all three locations indicate quiet environments. Daytime background levels vary between 33.8 and 40.1 dBA. The daytime LAeq values at all three locations are above the WHO daytime standard of 55 dBA for residential areas. The main source of noise is continuous traffic, as can be concluded from the traffic intensity and the noise logs (Appendix 3). During the measurement period at all locations (9:20- 11:20), around 21% (80 trucks) of the traffic were heavy trucks.
The measurements were made at a distance of 6.5 meter from the road axis.
Houses are further away at 10 to more than 25 meter from the road axis and noise levels will be lower at the houses. However, by using the Inverse Square Law for Sound Attenuation it can be calculated that during the day, the majority of houses within 0-25 meter from the road axis will still experience noise levels above the WHO daytime standard due to the current/ existing high traffic intensity and high speed.

4. Conclusion

From the results it can be concluded that:

- The background levels (L90) at all three locations indicate quiet environments (vary between 33.8 and 40.1 dBA during daytime.
- The LAeq values at all three locations (N1, N2, and N3) are above the WHO daytime standard of 55 dBA for residential areas. The main source of noise is from continuous traffic along the Wayamboweg.
- During the day, the majority of houses within 10-25 meter from the road axis will still experience noise levels above the WHO daytime standard 55 dBA for residential areas, due to current/existing relatively high traffic intensity and high traffic speed, which often surpasses the allowed limit of 80km/h.

References

- IFC 2007. Environmental, Health, and Safety (EHS) Guidelines. General EHS Guidelines. International Finance Corporation / World Bank Group, April 30, 2007.

- ILACO 2018. Update Environmental and Social Impact Assessment (ESIA) for the Uitkijk Appraisal Drilling Program (ADP) 2018- Baseline Noise Report.

Appendices

Appendix 1 Specifications SVAN 977c

SVAN 977C

Sound & Vibration Level Meter and Analyser

SVANTEK

sound and vibration

What's inside the SVAN 977C kit?

The kit consists of SVAN 977C Class 1 sound & vibration level meter with a detachable preamplifier SV 12L and high quality MK 255 microphone. The list of accessories includes: SA 143 carrying case, SA 22 windscreen, 16 GB microSD card, four AA batteries, USB cable, and CD with user manual. Each SVAN 977C has its factory calibration certificate and 36 months warranty card.

SVAN 977C Technical Specifications

Sound Level Meter & Analyser

Standards	Class 1: IEC 61672-1:2013; Class 1: IEC 61260-1:2014
Weighting Filters	A, B, C, Z, LF, U, AU
Time Constants	Slow, Fast, Impulse
Microphone	Microtech Gefell MK 255, 50 mV/Pa, prepolarised 1/2" condenser microphone
Preamplifier	SV 12L detachable (TNC)
Linear Operating Range	23 dBA RMS ÷ 140 dBA Peak (in accordance to IEC 61672)
Total Dynamic Measurement Range	16 dBA RMS ÷ 140 dBA Peak (typical from noise floor to the maximum level)
Internal Noise Level	Less than 16 dBA RMS
Dynamic Range	>110 dB
Frequency Range	3 Hz ÷ 20 kHz with Microtech Gefell MK 255
Meter Mode Results	Elapsed time, Lxy, Leqx (LEQ), Lxpeak (PEAK), Lxymax (MAX), Lxymin (MIN), LR (ROLLING LEQ), Ovl (OVERLOAD), Lxye (SEL), LN (LEQ STATISTICS), Lden, LEPd, Ltm3, Ltm5
Measurement Profiles	Simultaneous measurement in three profiles with independent set of filters (x) and detectors (y)
Analyser[1] (optional)	1/1 octave or optional 1/3 octave real-time analysis, up to 40.0 kHz band meeting Class 1: IEC 61260-1 FFT analysis 1600 lines, up to 40.0 kHz band (optional) RPM rotation speed measurement parallel to the vibration measurement (optional) RT60 reverberation time measurement (optional)
Statistics	L_n (L_1-L_{99}), complete histogram in meter mode and 1/1 or 1/3 octave analysis
Data Logger[1]	Time-history logging of summary results, spectra with adjustable double logging steps down to 2 ms
Audio Recording[1] (optional)	Audio records to time-history data or WAV format with selectable band and recording period

Vibration Level Meter & Analyser

Standards	ISO 20816-1
Meter Mode	RMS, Max, Peak, Peak-Peak Simultaneous measurement in three profiles with independent filter sets and detectors
Filters	HP1, HP3, HP10, Vel1, Vel3, Vel10, VelMF, Dil1, Dil3, Dil10, Wh
Accelerometer	SV 80 (100 mV/g) or any IEPE accelerometer (optional)
Analyser[1] (optional)	1/1 octave or optional 1/3 octave real-time analysis, up to 40.0 kHz band meeting Class 1: IEC 61260-1 FFT analysis 1600 lines, up to 40.0 kHz band (optional) RPM rotation speed measurement parallel to the vibration measurement (optional)
Data Logger	Time-history logging of summary results, spectra with two adjustable logging steps
Time-domain Signal Recording[1]	Continuous or triggered time-domain signal recording to WAV format (optional)

General information

Input	IEPE with TNC connector	
Memory	MicroSD card 16 GB (removable & upgradeable)	
Display	Super contrast (10000:1) OLED 2.4" colour display (320 x 240 pixels)	
Interfaces	USB 2.0 Client, Bluetooth®, RS 232 (with optional SV 55)	
	External I/O - AC output (1 V Peak) or Digital Input/Output (Trigger – Pulse)	
Power Supply	Four AA batteries	operation time > 12 h (6 V / 2 Ah)[2]
	Four rechargeable AA batteries	operation time > 16 h (4.8 V / 2.6 Ah)[2] (not included)
	External power supply	6 V/500 mA DC ÷ 15 V/250 mA DC
	USB interface	500 mA HUB
Environmental Conditions	Temperature	from -10 °C to 50 °C
	Humidity	up to 90 % RH, non-condensed
Dimensions	343 x 79 x 39 mm (with microphone and preamplifier)	
Weight	Approx. 0.6 kg with batteries	

[1]works together with the meter mode
[2]dependent on instrument operation mode

The policy of our company is to continually innovate and develop our products. Therefore, we reserve the right to change the specifications without prior notice.

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SVANTEK

EU Declaration of Conformity

No. SVAN977C-CE-EN/07/2020

Manufacturer:	**SVANTEK Sp. z o. o**
Address:	Strzygłowska 81 04-872 Warszawa Poland
Kind of product:	SOUND LEVEL METER – ANALYSER, VIBRATION LEVEL METER – ANALYSER
Type:	**SVAN 977C**
Directive:	**Low Voltage Directive** (LVD) 2014/35/EU
Standard:	EN 61010-1: 2010 *Safety requirements for electrical measurement equipment*
Directive:	**Electromagnetic Compatibility Directive** (EMC) 2014/30/EU
Standards:	EN 61326-1:2006 *Measurement equipment: EMC emission and immunity*
Directive:	**Radio and Telecommunication Directive** (RTTE) 1999/5/EC
Standards:	
a.3.1a: SAFETY	EN 61010-1: 2010 *Information technology equipment*
art.3.1b: EMC	ETSI EN 301 489-1 V1.9.2:2011 *Radio transmission systems* ETSI EN 301 489-17 V2.2.1:2012 *Broadband transmission systems*
art.3.2: RADIO	ETSI EN 300 328 V1.9.1:2015 *Wideband transmission systems (2.4 GHz)*

Auxiliary industry standards:

EN 61672-1:2013	*Electroacoustics - Sound level meters: Class 1*
EN 61260-1:2014	*Octave-band filters*
EN ISO 8041:2005	*Human response to vibration - Measuring instrumentation*

I, the undersigned authorized manufacturer representative, declare that this declaration is issued under the sole responsibility of the manufacturer, and that the object of the declaration described above is in conformity with the relevant Union harmonization legislation.

Place of issue: **Warsaw, Poland**

Date of issue: **01. 07. 2020**

Bogdan Żmuda, CEO

.....
(signature)

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Registered in
the Warsaw District Court
XIII Economic Department
Initial Capital 100 000 zł

KRS 0000192065
REGON 002175672
VAT PL 5270105272

Appendix 2 Field observation sheet

Daytime Baseline Measurements			
Measuring date:	17 August 2022	**Legend**	
Number of measurements:	3	1x	Counts of observations
Measured by:	Fortune M. / Welzijn B.	x	Observed noise (not countable)
Noise measurement locations:	See below		

No #	**Locations**	**Coordinates (UTM21N/ WGS84)**	**Date / Time/ Weather**	**Provide numbers**								**Birds**	**Insects**	**Leaves/ Grass**	**Dogs**	**Music**	**Claxon**	**Alarm**	**Talking**	**See wind table**	**Estimate**	**Remarks**
				Cars	**Light truck**	**Bus**	**Cargo truck**	**Heavy truck**	**Moped**	**Bike**	**Overfly**									**Wind speed (m/s)**	**Wind direction**	
N1	At the entrance of the Van Dijk canal approx. 6.5 m from axis of the road. Along the road there is a strip of approx. 3 m wide low grass vegetation, bordered by low shrubs and trees.	21N 680952.00 647473.00	10:10:-10:40hrs. (30 min) / Sunny with few clouds	67x	33x			29x	2x		1x	x	x			x				0.3–1.5	North-East	Continuous noise of traffic. Frequent noise of birds. Noise of goats.
N2	At the entrance of a resident along the north side of the Wayamboweg, approx. 6.5 m away from the axis of the road.	21 N 682085.00 647598.00	10:51 -11:21 hrs. (30 min)/ Sunny with few clouds	76x	43x	2x		18x	2x			x					x			1.5–3.3	North-East	Continuous noise of traffic. Frequent noise of birds. Noise of rooster. Noise of howler monkeys at distance.
N3	At the entrance of a resident along the south side of the Wayamboweg, approx. 6.5 m away from the axis of the road.	21 N 681620.00 647590.00	9:20 -9:50 hrs. (30 min) Sunny with few cloud	48x	14x			28x				x		x	x		x		x	0.3–1.5	North-East	Continuous noise of traffic. Frequent noise of birds. Talking persons. Noise of dog barking.

Baseline daytime measurements				A filter					
ID #	**Location**	**Date**	**Time**	**LAeq**	**L10**	**L50**	**L90**	**Lmax**	**Lmin**
N1	At the entrance of the Van Dijk canal approx. 6.5 m from axis of the road. Along the road there is a strip of approx. 3 m wide low grass vegetation, bordered by low shrubs and trees.	4/11/2022	2:11 PM	69.0	71.3	49.0	33.8	89.1	28.3
N2	At the entrance of a resident along the north side of the Wayamboweg, approx. 6.5 m away from the axis of the road.	4/13/2022	10:49 AM	73.9	64.3	49.7	73.9	95.8	40.8
N 3	At the entrance of a resident along the south side of the Wayamboweg, approx. 6.5 m away from the axis of the road.	4/11/2022	1:22 PM	70.2	73.3	54.1	39.4	91.4	30.9

Wind Beaufort scale

#	Description	Conditions	Wind speed
0	Calm	Calm. Smoke rises vertically.	<0.3 m/s
1	Light air	Smoke drift indicates wind direction. Leaves and wind vanes are stationary.	0.3–1.5 m/s
2	Light breeze	Wind felt on exposed skin. Leaves rustle. Wind vanes begin to move.	1.5–3.3 m/s
3	Gentle breeze	Leaves and small twigs constantly moving, light flags extended.	3.3–5.5 m/s
4	Moderate breeze	Dust and loose paper raised. Small branches begin to move.	5.5–8 m/s
5	Fresh breeze	Branches of a moderate size move. Small trees in leaf begin to sway.	8–10.8 m/s
6	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic bins tip over.	10.8–13.9 m/s
7	High wind	Whole trees in motion. Effort needed to walk against the wind.	49.9–61.8 km/h

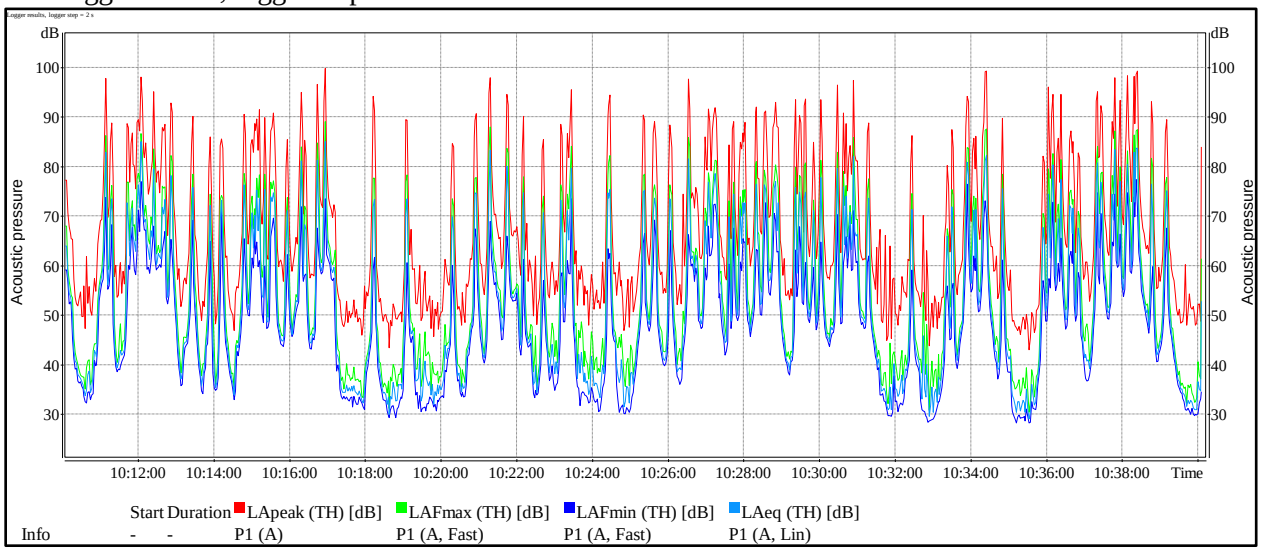
Appendix 3 Logger Results

Daytime Baseline Noise Measurements (N1-N3)
7:00 a.m. – 10:00 p.m.

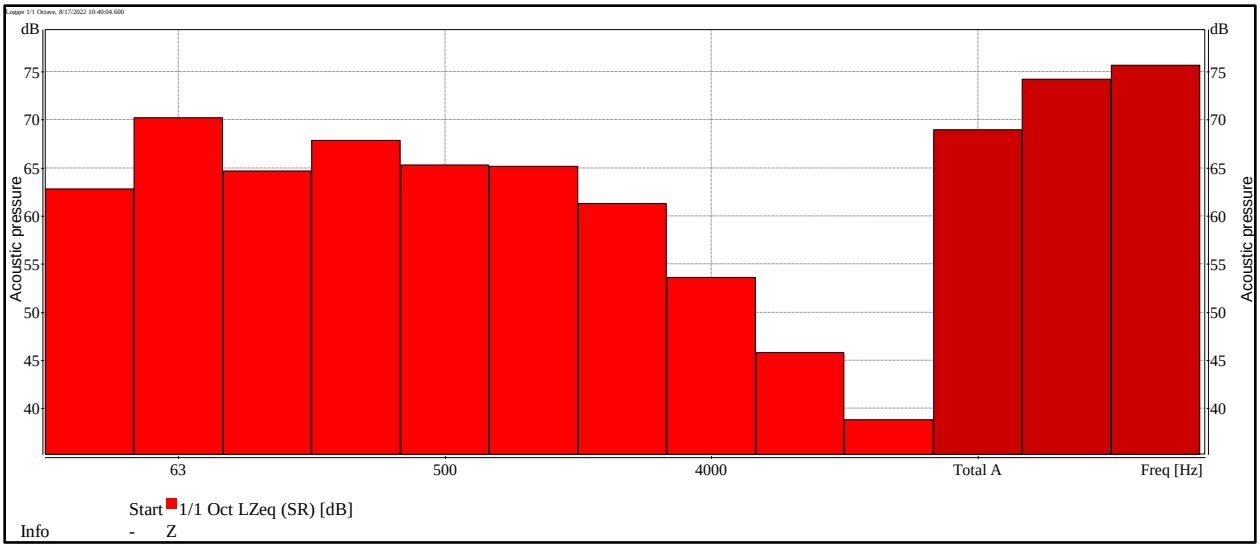
Location N1

Log number:	L8
Date:	17 Augustus 2022
Time:	10:10 – 10:40 hrs. (30 min)
Description of the location:	At the entrance of the Van Dijk canal approx. 6.5 m from axis of the road. Along the road there is a strip of approx. 3 m wide low grass vegetation, bordered by low shrubs and trees.
Observation during measurement:	Continuous noise of traffic. Frequent noise of birds. Noise of goats. Wind speed: 0.3–1.5 m/s Wind direction: North-East
Position of the noise meter:	Approx. 6.5 m from the axis of the road.

L8: Logger results, logger step = 2 s



L8: Logger 1/1 Octave



Causes of exceedance of the background level.

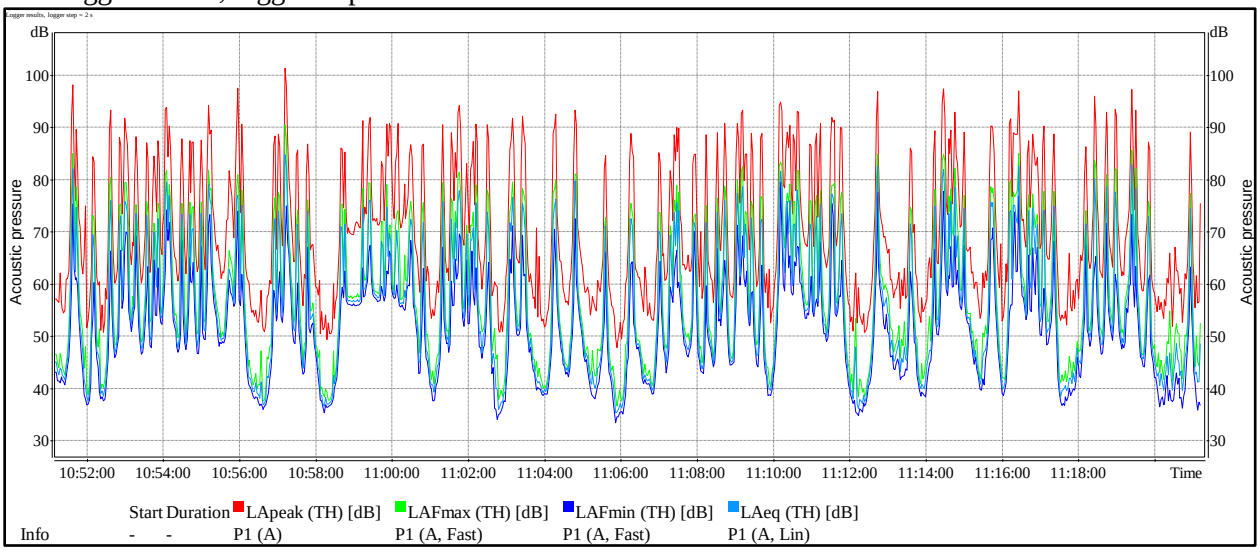
Nr.	Time	Cause
1.	10:10 – 10:11	Noise of a goat; noise of leaves rustling by wind
2.	10:11 – 10:12	Car passing by (2x); heavy truck passing by (1x); noise of birds
3.	10:12 – 10:13	Car passing by (5x); heavy truck passing by (3x);light truck passing by (3x);moped
4.	10:13 – 10:14	Car passing by (1x); heavy truck passing by (2x)
5.	10:14 – 10:15	Car passing by (3x); Noise of goat
6.	10:15 – 10:16	Car passing by (5x); heavy truck passing by (1x); light truck passing by (3x); moped; claxon
7.	10:16 – 10:17	Car passing by (1x); heavy truck passing by (1x);light truck passing by (1x); noise of insects; birds
8.	10:17 – 10:18	Heavy truck passing by (1x); light truck passing by (1x); birds at distance; noise of goat
9.	10:18 – 10:19	Light truck passing by (1x); noise of birds
10.	10:19 – 10:20	Car passing by (1x), noise of birds; noise of car passing by with music; noise of insects; hammering at distance
11.	10:20 – 10:21	Car passing by (1x);); noise of birds
12.	10:21 – 10:22	Car passing by (1x); heavy truck passing by (2x); light truck passing by (1x); hammering on zinc plate
13.	10:22 – 10:23	Car passing by (2x);); noise of birds
14.	10:23 – 10:24	Car passing by (3x);); noise of birds; moped passing by
15.	10:24 – 10:25	Car passing by (1x); light truck passing by (1x); noise of group of birds
16.	10:25 – 10:26	Car passing by (1x); heavy truck passing by (1x); light truck passing by (2x)
17.	10:26 – 10:27	Car passing by (2x); heavy truck passing by (1x); light truck passing by (1x)
18.	10:27 – 10:28	Car passing by (7x); heavy truck passing by (2x); light truck passing by (2x); overfly(1x)
19.	10:28 – 10:29	Car passing by (6x); heavy truck passing by (1x); light truck passing by (3x)
20.	10:29 – 10:30	Car passing by (2x); heavy truck passing by (1x); light truck passing by (3x); falling object
21.	10:30 – 10:31	Car passing by (3x); light truck passing by (3x)
22.	10:31 – 10:32	Car passing by (2x); heavy truck passing by (1x); light truck passing by (2x)
23.	10:32 – 10:33	Light truck passing by (1x);noise of goat; noise of birds
24.	10:33 – 10:34	Car passing by (2x); noise of birds (parrots)

25.	10:34 – 10:35	Car passing by (2x); heavy truck passing by (2x); light truck passing by (3x); noise of goat
26.	10:35 – 10:36	Car passing by (1x); noise of birds at distance
27.	10:36 – 10:37	Car passing by (5x); heavy truck passing by (1x); light truck passing by (2x); noise of goat
28.	10:37 – 10:38	Car passing by (5x); heavy truck passing by (1x)
29.	10:38 – 10:39	Car passing by (2x); heavy truck passing by (6); light truck passing by (1x)
30.	10:39 – 10:40	Car passing by (1x); heavy truck passing by (1x); noise of birds
31.	10:40 – 10:41	Noise of birds

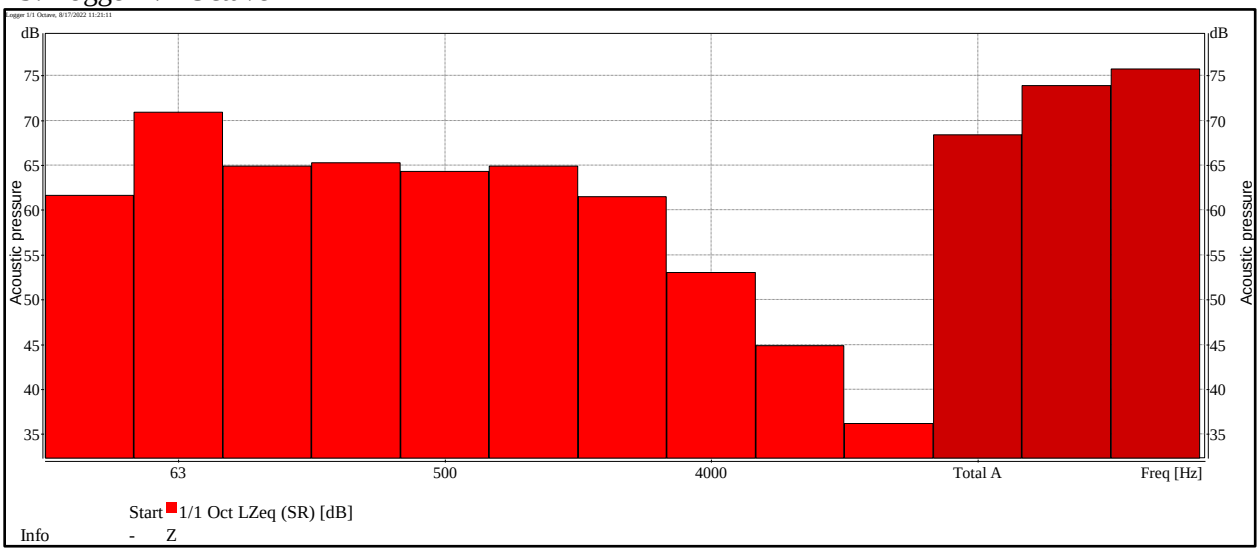
Location N2

Log number:	L9
Date:	17 Augustus 2022
Time:	10:51 -11:21 hrs. (30 min)
Description of the location:	At the entrance of a resident along the north side of the Wayamboweg, approx. 6.5 m away from the axis of the road.
Observation during measurement:	Continuous noise of traffic. Frequent noise of birds. Noise of rooster. Noise of howler monkeys at distance. Wind speed: 0.3–1.5 m/s Wind direction: North-East
Position of the noise meter:	Approx. 6.5 m from axis of the road.

L9: Logger results, logger step = 2 s



L9: Logger 1/1 Octave



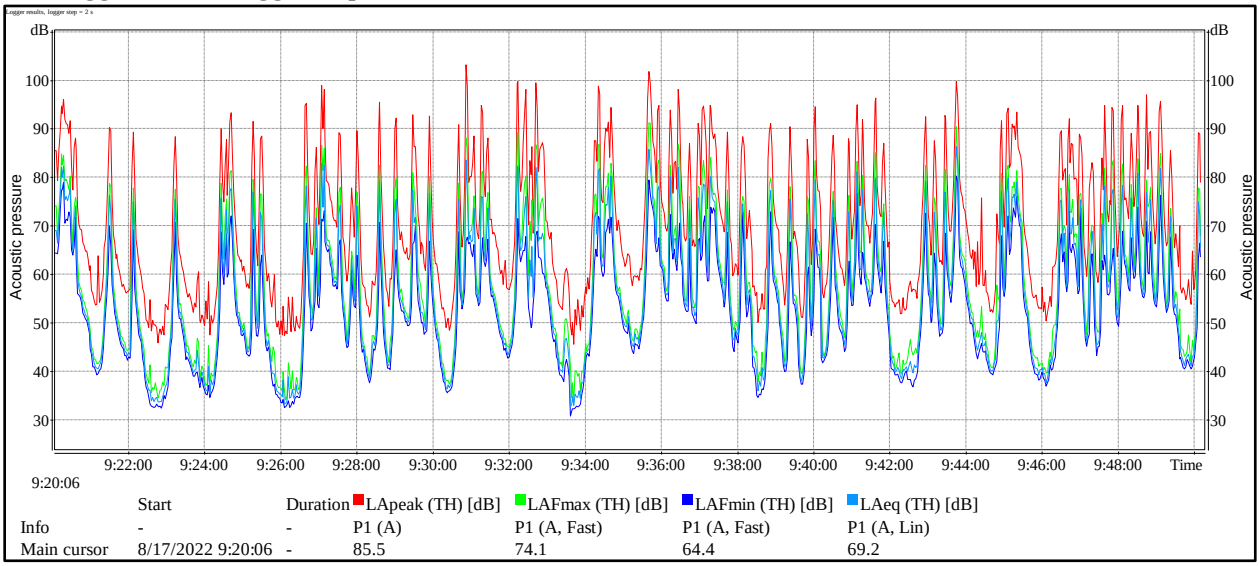
Causes of exceedance of the background level.

Nr.	Time	Cause
1.	10:51 – 10:52	Heavy truck passing by (1x); light truck passing by (1x); noise of rooster
2.	10:52 - 10:53	Car passing by (2x); noise of rooster
3.	10:53 – 10:54	Car passing by (4x); heavy truck passing by (1x); light truck passing by (2x)
4.	10:54 – 10:55	Car passing by (3x); heavy truck passing by (2x); light truck passing by (1x); noise of rooster
5.	10:55 – 10:56	Car passing by (3x); heavy truck passing by (1x); Light truck passing by (1x) ;rooster
6.	10:56 – 10:57	Car passing by (3x); light truck passing by (2x); talking person; car entire at entrance; car engine on;
7.	10:57 – 10:58	Car passing by (3x);heavy truck passing by (1x);light truck (2x);claxon on truck
8.	10:58 – 10:59	Light truck passing by (2x);talking person
9.	10:59 – 11:00	Car passing by (4x);heavy truck passing by (1x);car stopping nearby
10.	11:00 – 11:01	Car passing by (3x);light truck passing by (1x);moped, closing car door(2x);talking person; pull up the car; rooster
11.	11:01 – 11:02	Car passing by (2x);light truck passing by (1x);talking person; bus
12.	11:02 – 11:03	Car passing by (6x);heavy truck passing by (1x);light truck passing by (1x);rooster; birds
13.	11:03 – 11:04	Car passing by (3x);light truck passing by (1x);bus; birds; noise of a chicken ;claxon
14.	11:04 – 11:05	Car passing by (3x);light truck passing by (2x);moped
15.	11:05– 11:06	Car passing by (1x);talking person
16.	11:06 – 11:07	Car passing by (1x);light truck passing by (1x);talking person
17.	11:07 – 11:08	Car passing by (3x);light truck passing by (2x);talking person
18.	11:08 – 11:09	Car passing by (2x);light truck passing by (3x);closing car door
19.	11:09 – 11:10	Car passing by (3x);heavy truck passing by (1x);light truck passing by (1x);
20.	11:10 – 11:11	Car passing by (6x);heavy truck passing by (4x);
21.	11:11 – 11:12	Car passing by (4x);light truck passing by (2x);rooster; birds
22.	11:12 – 11:13	Car passing by (1x);birds; rooster
23.	11:13 - 11:14	Car passing by (2x);heavy truck passing by (1x); Light truck passing by(2x) rooster; birds
24.	11:14 – 11:15	Car passing by (3x);heavy truck passing by (2x);
25.	11:15 – 11:16	Car passing by (2x);light truck passing by (2x);claxon; hammering at chicken farm
26.	11:16 – 11:17	Car passing by (4x);heavy truck passing by (1x);light truck passing by (3x)
27.	11:17 – 11:18	Car passing by (3x);light truck passing by (4x);Noise of howler monkeys at distance
28.	11:18 – 11:19	Heavy truck passing by (1x);light truck passing by (1x);howler monkeys at distance; chicks on the chicken farm; birds
29.	11:19 – 11:20	Light truck passing by (5x);howler monkeys; falling object
30.	11:20 – 11:21	Car passing by (1x);howler monkeys; birds; dogs ;hammering; at chicken farm
31.	11:21 – 11:22	Car passing by (1x);howler monkeys; hammering; dog

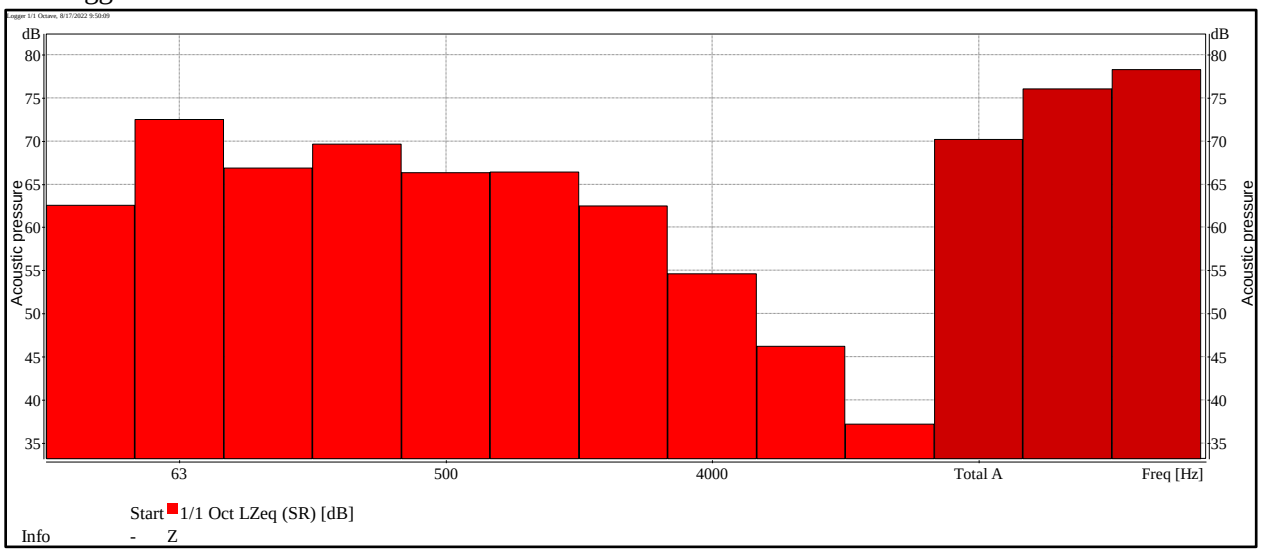
Location N3

Log number:	L7
Date:	17 Augustus 2022
Time:	9:20 -9:50 hrs. (30 min)
Description of the location:	At the entrance of a resident along the south side of the Wayamboweg, approx. 6.5 m away from the axis of the road.
Observation during measurement:	Continuous noise of traffic. Frequent noise of birds. Talking persons. Noise of dog barking. Wind speed: 0.3–1.5 m/s Wind direction: North-East
Position of the noise meter:	Approx. 6.5 m from axis of the road.

L7: Logger results, logger step = 2 s



L7: Logger 1/1 Octave



Causes of exceedance of the background level.

Nr.	Time	Cause
1.	9:20 - 9:21	Car passing by (3x);heavy truck passing by (3x);light truck passing by (1x)
2.	9:21 - 9:22	Heavy truck passing by (1x)
3.	9:22 - 9:23	Car passing by (1x)
4.	9:23 - 9:24	Birds at distance; light truck passing by (1x)
5.	9:24 - 9:25	Noise of birds; talking person at distance ;heavy truck passing by (1x);light truck passing by (2x);
6.	9:25 - 9:26	Car passing by (3x);birds
7.	9:26 - 9:27	Talking person at distance; traffic distance
8.	9:27 - 9:28	Car passing by (2x);Light truck passing by (2x);talking person
9.	9:28 - 9:29	Car passing by (2x);light truck passing by (1x);birds
10.	9:29 - 9:30	Car passing by (1x);heavy truck passing by (2x);walking person; birds
11.	9:30 - 9:31	heavy truck passing by (1x);birds
12.	9:31 - 9:32	Car passing by (4x);heavy truck passing by (2x)
13.	9:32 - 9:33	Car passing by (1x);light truck passing by (1x);car engine; opening gate; dog
14.	9:33 - 9:34	heavy truck passing by (1x);dog; birds
15.	9:34 - 9:35	Car passing by (1x);heavy truck passing by (3x);light truck passing by (1x);birds
16.	9:35 - 9:36	Heavy truck passing by (3x);light truck passing by (1x);rustling leaves due wind
17.	9:36 - 9:37	Car passing by (1x);heavy truck passing by (3x);claxon; birds
18.	9:37 - 9:38	Car passing by (7x);heavy truck passing by (1x);light truck passing by (2x);moped
19.	9:38 - 9:39	Car passing by (3x);birds at distance
20.	9:39 - 9:40	Car passing by (2x);light truck passing by (1x);claxon; birds
21.	9:40 - 9:41	Car passing by (2x);light truck passing by (1x);birds; noise of hydrophore
22.	9:41 - 9:42	Car passing by (1x);heavy truck passing by (2x); noise of hydrophore
23.	9:42 - 9:43	Car passing by (1x); noise of hydrophore; noise birds
24.	9:43 - 9:44	Car passing by (2x);heavy truck passing by (3x); moped; claxon; talking person
25.	9:44 - 9:45	heavy truck passing by (1);
26.	9:45 - 9:46	Car passing by (7x);heavy truck passing by (4x);
27.	9:46 - 9:47	Car passing by (1x);light truck passing by (2x);coughing person, claxon(distance);rustling noise of parrots; barking dog
28.	9:47 - 9:48	Car passing by (7x); moped; closing gate; dog; pull up bus; coughing person

29.	9:48 - 9:49	Heavy truck passing by (1x);light truck passing by (3x);coughing person
30.	9:49 - 9:50	Car passing by (4x);heavy truck passing by (1x);birds; dogs; closing door
31.	9:50 - 9:51	Car passing by (1x);talking person

APPENDIX 2C: DRONE FIELD OBSERVATIONS

Drone photo September 2017

North-west side of the Van Dijk Dam

West side of the Van Dijk dam (by the bend)

Arrow (red) pointing towards the south

Arrow (red) pointing towards the south

Drone photo's October 2020

Near the bend at Van Dijk dam

Drone photo's August 2022

At the beginning, near Wayamboweg, of the Van Dijk dam

Towards the north (see red arrow) of the Van Dijk dam

West side of the Van Dijk dam

Excavator observed in the Van Dijk Canal

Towards the north (see red arrow) of the Van Dijk dam

Towards the north (see red arrow) of the Van Dijk dam

Towards the north (see red arrow) of the Van Dijk dam

APPENDIX 2D: SOCIAL IMPACT ASSESSMENT AND BASELINE REPORT

Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area

Update Social Baseline and Impact Assessment (SIA)

Final Draft Report

Prepared for

Staatsolie Maatschappij Suriname N.V.

By

ILACO

ISO 9001:2015 certified

Project Title: Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
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Table of Contents

List of Figures

List of Tables

List of Abbreviations

BIC	Citizens Information Center (*Burger Informatie Centrum*)
BO	Government Manager (*Bestuursopzichter)*
BOPD	Barrels of Oil Per Day
CCU	Corporate Communications Upstream
CR	Community Relations
DC	District Commissioner (*Districtscommissaris*)
DR	District Council (*Districtsraad*)
GoS	Government of Suriname
HSEQ	Health, Safety, Environment and Quality
LVV	Agriculture, Animal Husbandry, and Fisheries (*Landbouw, Veeteelt en Visserij*)
NB-LBB	Nature Conservation Division of the Forestry Service Suriname (*Afdeling Natuurbeheer van Dienst 's Lands Bosbeheer*)
NEC	Noordam Environmental Consultancy
NIMOS	National Institute for Environment and Development in Suriname (*Nationaal Instituut voor Milieu en Ontwikkeling in Suriname*)
OBO	Assistant Government Manager (*Onder Bestuursopzichter*)
SIA	Social Impact Assessment

1. Introduction

1.1 General

ILACO Suriname N.V. (ILACO) has been contracted by Staatsolie Maatschappij Suriname N.V. (Staatsolie) to conduct an Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area. As part of the ESMP an update of the existing Social Baseline and Impact Assessment Study has been conducted.

This report presents the methodology and results of the desktop study, stakeholder engagements and consultations as well as potential socio-economic impacts that may occur from the execution of the proposed project.

1.2 Project justification and background

One of the Staatsolie Upstream Operation's strategic goals is to find new crude reserves to sustain the 6 million barrels (MM bbls) yearly production and guarantee feedstock for the refinery beyond 2030. The goal of this project is to find at least 10 MM bbls of proved reserves by executing an exploration program outside the proved boundaries of the Staatsolie fields, the so-called Heartland areas (**Figure 1**). In this regard in-depth geological, geophysical and petrophysical studies have been carried out in the Uitkijk Block to evaluate the geo-bodies, volumes, risks and prospective potential of the study area, however more data is required to acquire pertinent information and to find the mentioned reserves.

As such, Staatsolie intends to carry out an exploration drilling project whereby 2-5 wells will be drilled; further referred as Exploration Drilling Project Uitkijk. The area where the project is planned is in the Saramacca district, north of the Wayamboweg (see **Figure 1**). The project area is in the Uitkijk North Block (formerly the Wayambo Block), about 15-25 km west from the western boundary of Paramaribo and immediately east of the Tambaredjo Oil Field that is operated by Staatsolie. The project area can be reached through the existing trails and canals in the area. There are also existing mooring/ landing stages in the area. The existing trails and landing stages are presented in Figure 1.

Two of the locations (UEP01 and UEP02) are planned in the north of the project area while the other three (3) locations (UEP03, UEP04 and UEP05) that are further to the south (closer to the Wayamboweg) are back-ups (see **Figure 1**). Depending on the results of the first two (2) wells it will be decided to drill or drop the backup wells.

The project period is planned from Q4 2022 till Q3 2023. The wells where an oil column is encountered may be tested by a small swab- or Repeat Formation Testing (RFT) as part of the standard logging program. The results of the two to five exploration wells will be integrated with old wells in the vicinity in order to evaluate the geological & geophysical data. If the results are promising, an appraisal program will be set-up to properly delineate the areal size and volume of the geology.

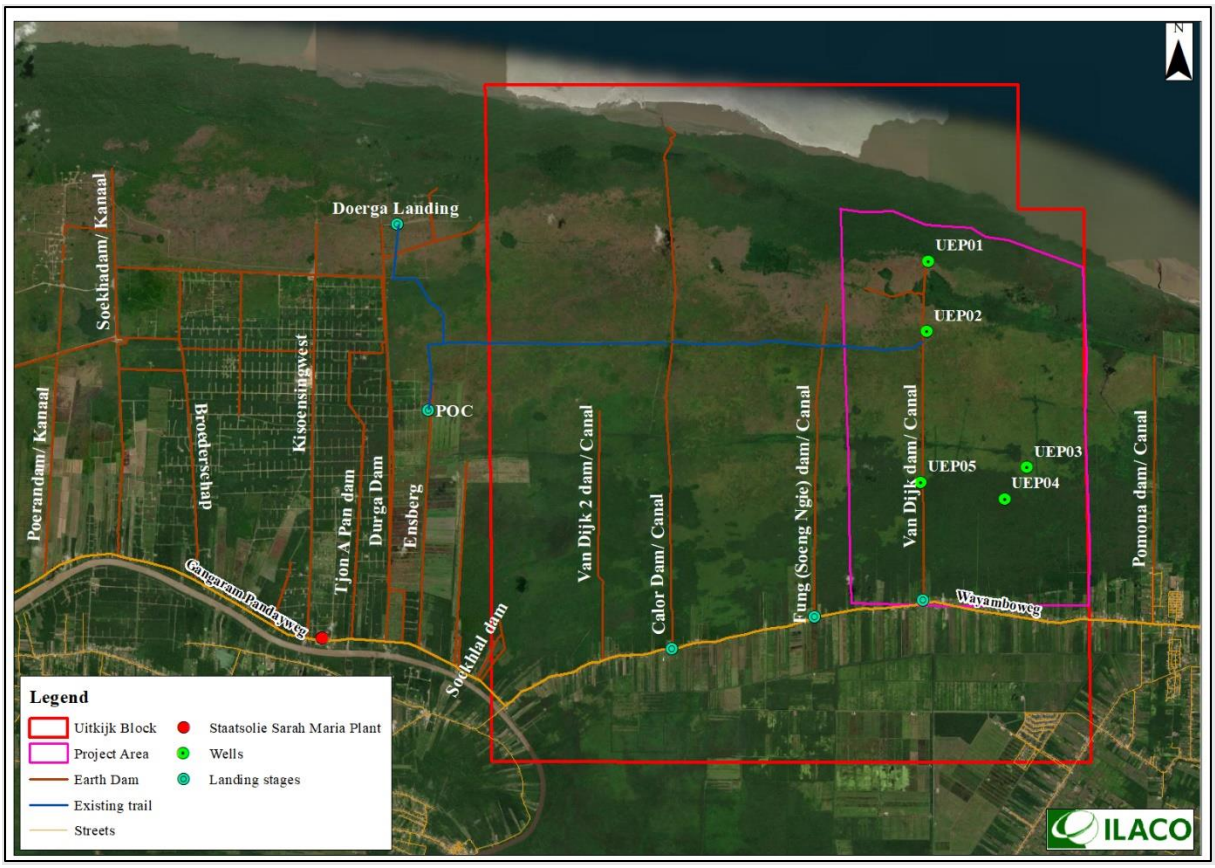


Figure 1: Overview of the Uitkijk Block and the project area (aligned in purple)

1.3 Objectives and Scope of Work

The main objectives for this specialist study are to:

1. Conduct stakeholder consultation sessions
2. Update current baseline characteristics of the study area
3. Update the potential socio-economic impacts associated with the current project activities
4. Recommend mitigation measures to avoid and/or minimize impacts and/or optimize concomitant benefits of the proposed Project.

The study area includes the project area and access routes (Wayamboweg and the Gangaram Pandayweg), where potential impacts may occur.

Legal and regulatory framework

Although there is no statutory basis for conducting Environmental Social Impact Assessments (ESIAs) for development proposals in Suriname, the National Institute for Environment and Development in Suriname (NIMOS) has published national Guidelines for Social Impact Assessment (NIMOS, 2005) in Suriname.

This specialist study will be guided by national and international standards, specifically:

- NIMOS' Generic Environmental Assessment Guidelines (NIMOS, 2009)
- World Bank Group (WBG) / International Finance Corporation (IFC) Performance Standards (PS) and Environmental, Health, and Safety (EHS) guidelines (2007).
- Staatsolie Corporate Standards regarding Health, Safety, Environment and Quality (HSEQ) and Community Relations (CR).

According to NIMOS screening advice (see Screening report, 3rd of January 2022), only an update of the most recent ESMP is required as part of the Updated ESIA for the Uitkijk Appraisal Drilling Program (ADP) in December 2018, which covers practically the same project area.

1.4 Report outline

This report is structured as follows:

- Chapter 2 states the methodology used for data collection, provides a listing of consulted stakeholders, and describes sources of secondary data.
- Chapter 3 delivers an updated description of the socio-economic environment present in the study area such as economic activities undertaken by the local community.
- Chapter 4 discusses the stakeholder engagement and the consultation sessions carried out for the updated SIA in order to obtain stakeholder views and concerns regarding the proposed project.
- The potential socio-economic impacts that may result from the execution of the proposed Project are identified and assessed in Chapter 5 and presented together with proposed mitigation measures.

2. Methodology

The update SIA study has been conducted by doing a desk review of existing studies, supplemented by field visits, and one- on -one stakeholder consultations. Description and rating of the potential social impacts using the impact rating methodology are outlined in Chapter 5 of this report.

2.1 Desk Review

For the update SIA study, previous studies concerning similar investigations in the area have been used, such as:

- Noordam Environmental consultancy (NEC), 2011. Review of the Environmental and Social Impact Statement prepared in 2000 for the Uitkijk / Wayambo Exploration Drilling and Validation with respect to proposed exploration drilling and testing in the Uitkijk Block.
- NEC, 2013. Environmental Impact Assessment for the proposed appraisal drilling project in the Uitkijk-North Block Addendum for ten additional wells
- ILACO, 2018. Update Environmental and Social Impact Analysis for the Appraisal Drilling Program (ADP), including the Updated Social Impact Assessment (SIA)

Apart from the above listed, secondary sources as the 'Districtsplan Saramacca 2023' have also been consulted.

2.2 Stakeholder Meetings

Prior to the start of the stakeholder meetings, Staatsolie published a notification in the media (newspaper and social media) for registration of landowners in the project area (Appendix 3). With information gathered through this notification, Staatsolie provided a preliminary stakeholder list to ILACO.
To facilitate the information sharing with the stakeholders, a Background Information Document (BID) was prepared (Appendix 4). This document included background information of the project, the ESMP process and the option for stakeholders to provide their feedback or concerns on the project.

The stakeholder meetings were mainly conducted in the period of 15th June – 23rd of August 2022. One stakeholder meeting was conducted on the 29th of September. In addition to these stakeholder meetings, a verification meeting was also held with Ms. Jacintha Sanches, Corporate Communications (CC) Officer of Staatsolie, on the 30th of September 2022.

An overview of the consulted stakeholders is presented in the **Table 1**. See **Appendix 1** for further stakeholder information.

Table 1: List of consulted stakeholders

Nr.	Stakeholder	Consultation/ Contacted Date (s)	Time	Mode of contact
1	National Institute for Environment and Development in Suriname (NIMOS)	15 June 2022	14 :00-14 :20	Online and mail communication
2	Representatives of the local government in the district of Saramacca: • District Commissioner (DC), • Adjunct Districts Secretaries (ADS) and the • Government Managers, (Bestuursopzichters– BO's)	15 July 2022 and 8 September 2022 (with ADS)	10:00- 11:30	Physical meeting and Phone communication

3	Ministry of Agriculture, Animal Husbandry and Fisheries (LVV)- Resort Leader Wayambo Note: 3 farmers were invited by LVV to attend this meeting	15 July 2022	12:00- 14:00	Physical meeting
4	Representatives of the Ministry of Land Policy and Forest Management (Grondbeleid en Bosbeheer), specifically the Nature Conservation Division of the Forestry Service Suriname. (Afdeling Natuurbeheer van Dienst 's Lands Bosbeheer – NB-LBB)	03 August 2022	08:00-09:00	Physical meeting
5	Landowner (Mr. Calor)	03 August 2022	12:00-12:45	Physical meeting
6	Landowner (Mr. Timmer)	04 August 2022	09:00- 09:30	Physical meeting
7	Landowner (Mr. Van Dijk)	05 August 2022 and 07 September 2022	11:30-12:00	Physical meeting and phone communication
8	Residents	03 August 2022	09:30-11:30	Physical meetings
		04 August 2022	09:30-14:00	Physical meetings
		05 August 2022	10:00-11:00	Physical meeting
		11 August 2022	-	Mail communication
		16 August 2022	09:30-10:00	Phone communication
9	Land user (Beekeeping)	29 September 2022 and 6 October 2022	09:00- 10:00	Physical meeting and Phone communication
10	Staatsolie CC Officer	30 September 2022	13:00- 13:30	Online meeting

2.3 Limitations and assumptions

The information of the study area is updated based on information provided by stakeholders during the consultation meetings. We cannot judge in the context of this project whether the perceptions of the stakeholders are justified. Assumed is that the truth has been indicated and has no further influence on the outcome of the SIA.

3. Updated socio-economic baseline

The updated socio-economic baseline has been described in the sections below. There are no updates regarding the aspects ethnicity and religion, cultural and archaeological resources, and archeological sites. The information as described in updated SIA report (ILACO, 2018) is still applicable.

3.1 Administrative Structure

The project site is situated in the Uitkijk Block, which is located in the Wayambo resort, one of six resorts belonging to the District of Saramacca. Each district is led by a District Commissioner (DC) who is selected by the government and is assigned to the Ministry of Regional Development and Sport (www.gov.sr). The DC is supported by an advisory council consisting of elected civil servants at District level (so-called District Council members – *districtraadsleden*) and at the resort level (Resort Council members – *ressortraadsleden*). Locally, the DC is supported by a labor force of Bestuursopzichters (BOs). An update compared to the SIA 2018, is that the DC is now also supported by a labor force in the function of Adjunct Districts Secretaries (ADS). The DC's Office is located at Groningen, the capital of the Saramacca district where most of the state's administrative services are located.

3.2 Demography and Population

According to the Districtsplan of Saramacca (2023), the resort of Wayambo has a population of 1418 residents per 2020 (**Figure 2**).

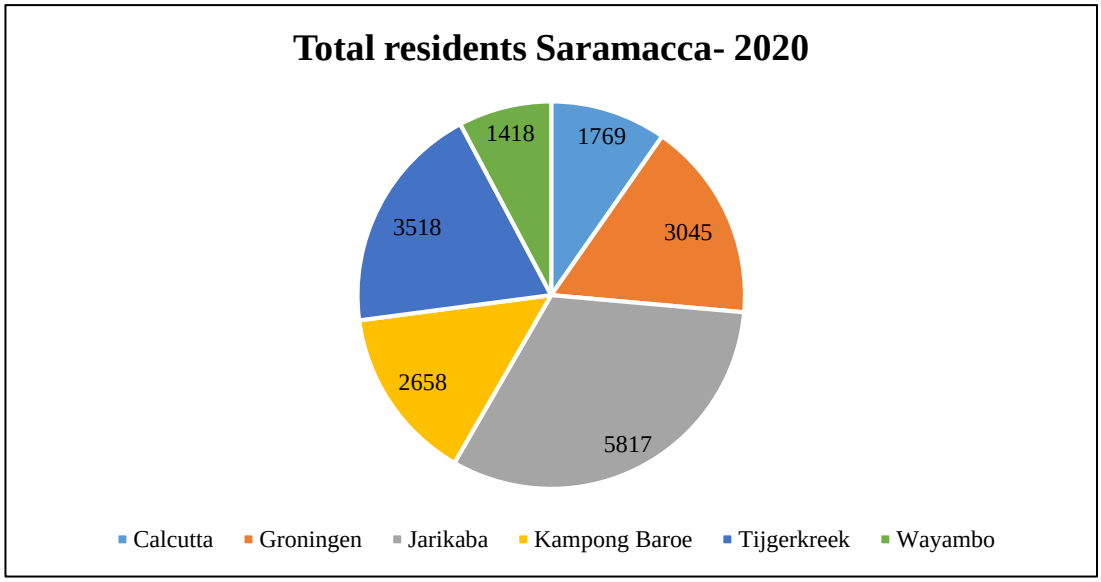


Figure 2: Overview population per resort in Saramacca (2020)

3.3 Economic Activities

The same main economic activities as presented in the SIA (ILACO, 2018) are observed along the Wayamboweg, namely agriculture and animal husbandry. These are typified by cattle farming (pigs, cows, sheep, goats, and poultry) and the cultivation of a variety of fruit and vegetable crops such as plantains (Musa spp.), citrus (Citrus spp.), and sweet potatoes (**Figure 3**). Observed commercial activities are one oil service station, Construction and Civil engineering Company D&D N.V., a heavy equipment shed, two grocery stores and a roti shop.

One new observation is that on the north of the Van Dijk Dam (on approx. 950m long dam), beekeeping (honey bees: *Apis mellifera scutellata*) is executed (personal communication with Mr. D. Van Dijk on

the 7th of September 2022 and with Miss E. Fung A Foek on the 29th of September 2022). The location of the economic activities is presented on a map in **Figure 4**.

Cattle farming (cows)

Cattle farming (poultry)

Agricultural activities (sweet potatoes)

Heavy equipment shed

Figure 3: Economic activities along the Wayamboweg

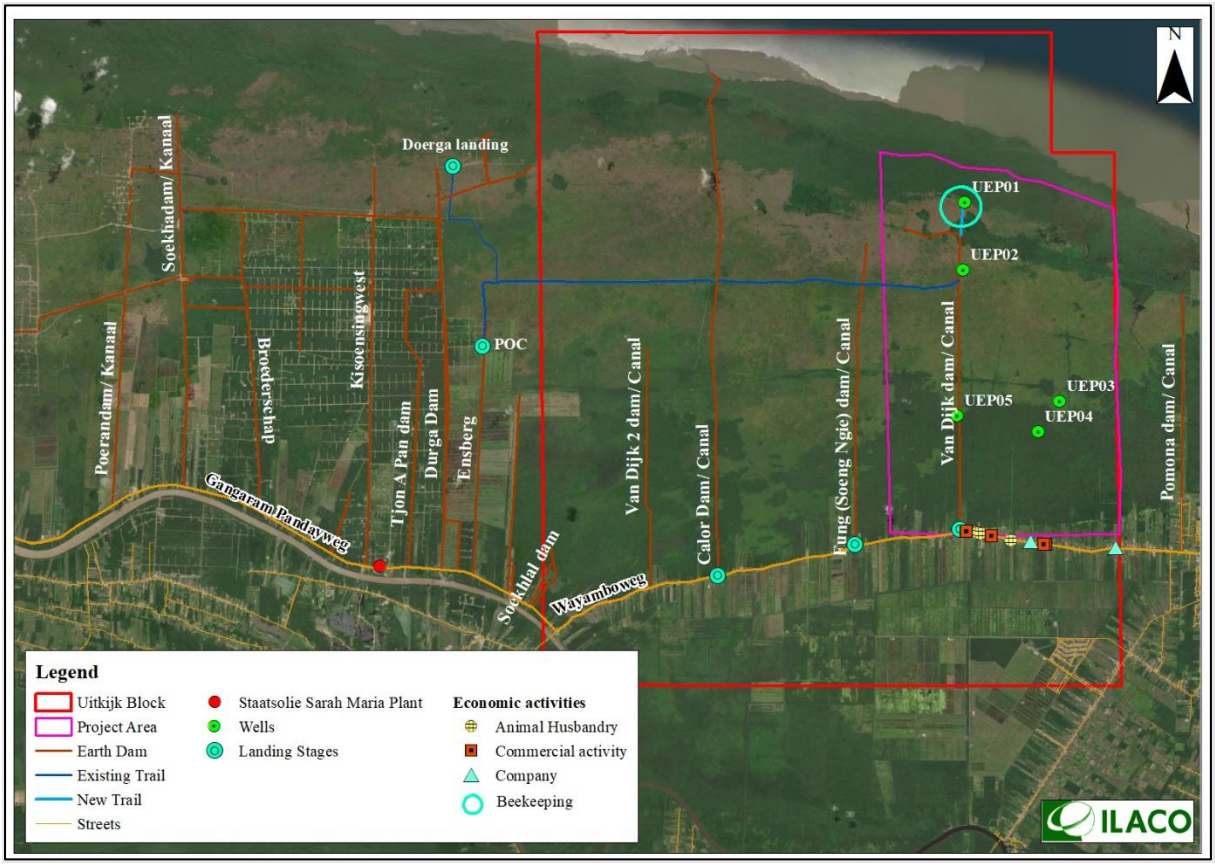


Figure 4: Overview locations of Economic activities within project area

3.4 Receptors

The receptors observed during field visit on the 15 July 2022 are presented in **Figure 5**. These consist of residents along the Wayamboweg and a place of worship (temple)

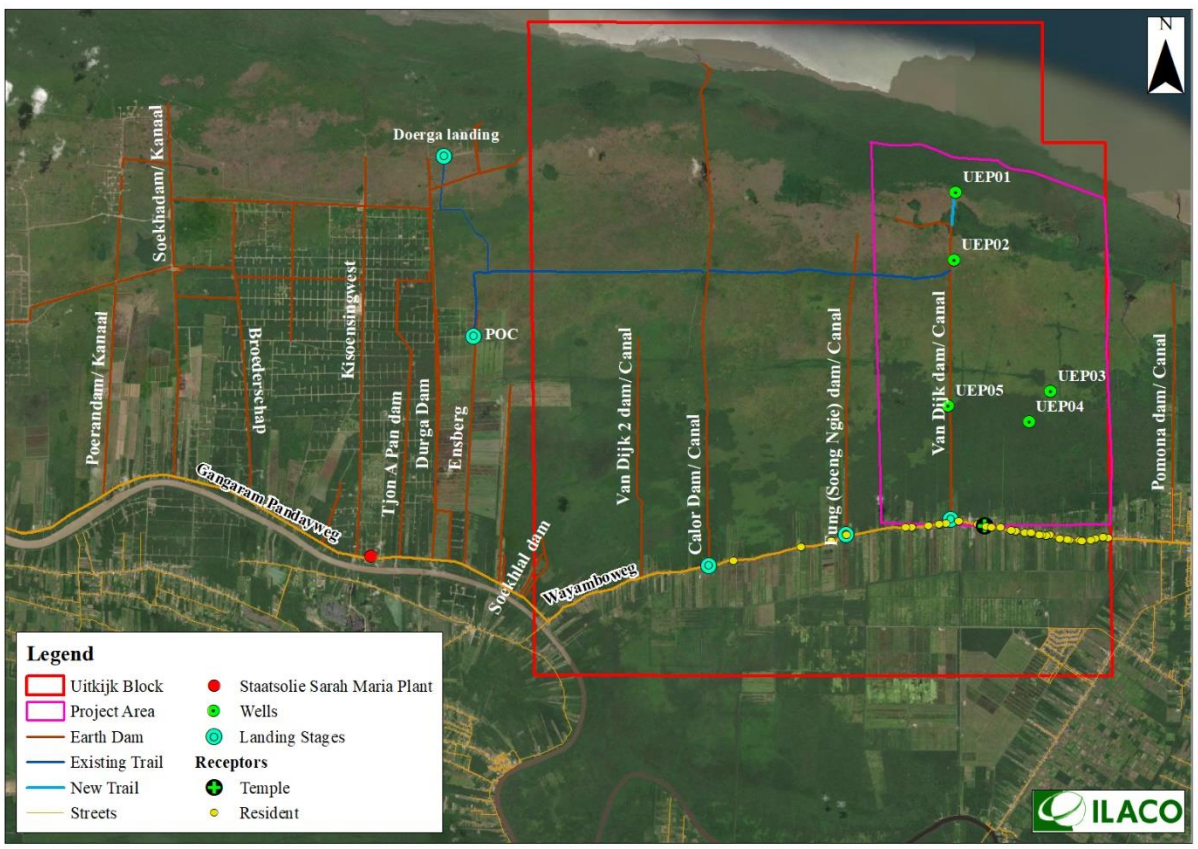


Figure 5: Overview receptors within project area

3.5 Proposed Developments

In the Districtsplan of Saramacca 2023 (March, 2022) the local community expressed a great need for the following developments:

<u>Sports and recreation and tourism</u>

Sport is an important element in the development of people and society. Practicing sports contributes to the mental and physical well-being of the individual. The following items are planned:

- Expansion of recreational accommodations (e.g., at Pomona)
- Expansion of sports accommodations
- Construction of a vacation resort to develop tourism activities for locals and non-locals

<u>Infrastructure and utilities</u>

Economic development and infrastructure are dependent on each other. Improvements in the physical infrastructure enable companies to operate more efficiently and reliably, which has a direct effect on the production of goods and services. In addition to its importance for business, the physical infrastructure also has an important function in daily life, especially when it comes to accessibility within the districts area. Utilities also form the basic conditions for development. Energy supply is an important input factor for production and development. Water supply must be good and clean, but above all accessible to everyone. The utilities are important for both the health and the socio-economic development of the district.

Furthermore, there is great need for the improvement of the physical infrastructure and utilities. These following needs/ aspects are highlighted:

- Excavation of canals and discharges

- Asphalt paving of the Pomona project and the Gangaram Pandayweg
- Replacing malfunctioning street light fixtures and installing streetlights in the front section of the Gangaram Pandayweg.
- Improving the Bisnerieweg and the Zesde Rijweg with sand material
- Raising the dam along the river shore near the Gangaram Pandayweg
- Improve drainage of the area situated north to the Wayamboweg by digging a new drainage canal extending from Pomona towards the Saramacca River. It is estimated that the canal will have a length of 23km and a width of 20m.

Education

Knowledge in a globalizing world is an important production factor and determines the competitive position of the country in general and the district in particular. The schools also have a strong social character and should therefore function optimally. The actions to be taken to ensure a proper alignment of the education system with the needs of the district are:

- Construction of an auxiliary office of social affairs
- Construction of a library
- Renovate OS Pomona school

Healthcare

Health is the core of sustainable development. The policy must be aimed at realizing optimal, accessible, available, reliable and above all affordable healthcare for every citizen. To achieve this, the construction of a policlinic is on the agenda.

Summarizing, it can be concluded that: improvement of the drainage of the area situated north to the Wayamboweg by digging a new canal from Pomona to the Saramacca River, is still a point of interest as it was also mentioned in 2018.

4. Stakeholder Engagement

4.1 Stakeholder consultation

Table 2 provides a description of the stakeholders engaged and their main concerns about the project. The feedback from Staatsolie during the verification meeting is also included in **Table 2**. The minutes of the stakeholder consultations are included in **Appendix 2.**

Table 2: Description of concerns and remarks stakeholders including verification with Staatsolie

Nr.	Name stakeholder group – Function/ occupation	Interest / position	Key issues/ Concerns about the project	Feedback Staatsolie
1	**Government representatives** - District Commissioner (DC) of Saramacca and her Administrative Managers, (Bestuursopzichters– BO's)	Tasks include: 1. Support government policy at the local level. 2. Communicate or engage with residents of the area under their responsibility. 3. Act as intermediary between the residents and third parties. 4. Deliver or transfer important issues brought forward by the residents to the DC.	• Waterways should not be blocked • Prevent spilling of chemicals into waterways • Possible impact of the project on soil conditions • Two (2) drilling locations are very close to the area where people live Complaints reported to the DC in the past: • Dust: Residents on the Gangaram Pandayweg are dealing with dust blowing up, causing rainwater contamination. Staatsolie sprays the road with water to prevent dust blowing up, but this is said to cause rust on cars because Staatsolie uses water from the river estuary.	For this project the existing waterways will be used to reach the AOI. In case overgrown waterways will be cleaned up. Staatsolie implements specific mitigation measures such as providing openings in vegetation and peat dams so that the water flow cannot be obstructed. Moreover, the hydrology of the Buru and Wayambo Swamp District Saramacca is being monitored by Staatsolie since 2017. (There are several water gauges installed at different locations in the Wayambo swamp in which the Uitkijk area/AOI is located). • Staatsolie has plans and measures in place to prevent any water and soil contamination and noise nuisance • The most south well locations are at least 3 km north of the Wayambo weg • Concern of the residents in the Gangaram Pandayweg with regards to dust is not related to this project. NOTE: Staatsolie has implemented measures for the Gangaram Pandeyweg such as lower the speeds limit and spraying is done. To minimize the dust, Staatsolie sprays the road with water collected from an onsite groundwater wells. Also, Staatsolie financed the project to build the SWM piping system a. This eliminated the issue of rainwater contamination.
	Government representatives - Resort leader Wayambo of Ministry of LVV	Management of the agriculture and animal husbandry activities within the resort.	LVV does not have any objections against the project, however the following concerns were raised: • There is no cooperation between LVV and Staatsolie. • Disturbance of swamp hydrology	• See feedback provided on concerns District Commissioner (DC) of Saramacca and her Administrative Managers, (Bestuursopzichters– BO's) • The flooding has not been proven to be caused by Staatsolie's activities. Staatsolie does communicate

			• (Prolonged) flooding/inundation of the agriculture areas, resulting in decrease of agriculture activities and cattle farming Concerns from farmers (invited by representative Min. of LVV): • Poor communication between Staatsolie and the farmers • Disturbance of swamp systems (drainage and fauna) due to Staatsolie activities • Prolonged flooding/inundation of the agriculture areas, resulting in decrease of agriculture activities and cattle farming • The drainage of the area should be addressed. There are no measures taken by Staatsolie, who is equipped to take the needed measures but doesn't cooperate. To prevent flooding of the area, the farmers propose to construct a new canal from Pomona towards the Saramacca River on a distance of 2-2.5 km north from the East-West corridor.	with the relevant stakeholders in accordance with its communication plans for the operational and project areas. • The farmers should discuss any proposal regarding drainage of the area with the government.
	Government representatives - Ministry of Land Policy and Forest Management (Grondbeleid en Bosbeheer), specifically the Nature Conservation Division of the Forestry Service Suriname. (Afdeling Natuurbeheer van	Execute nature protection and conservation activities. Perform law enforcement tasks. Formally in charge of the overall management of Protected Areas on behalf of the Government	• Accessibility for illegal hunters as waterways will be cleaned. • Disturbance of animal species in the project area for example: the trapoen can be disturbed due to the project activities • The jaguar's conflict with the community (farmers), as their livestock is prey for the jaguars. The	• Agreements will be made with the landowners (Agreements will be made with the landowners (Calor, Fung You Kee and Van Dijk) about the accessibility to the swamp • Special mitigation measures will be taken upon closure of this project, make the access paths (trails) created under this project inaccessible when they are no longer needed for the program (such as restoring (closing) of the opening in the Van Dijk and Calor dams)

	Dienst 's Lands Bosbeheer – NB-LBB)		jaguars are a protected animal species in the area.	
	Government representatives - NIMOS	NIMOS' mission statement: To initiate the development of a national legal and institutional framework for environmental policy and management in the interest of sustainable development in the Republic of Suriname.	No concerns were listed. Include Waste Management plan as part of ESMP	
2	**Inhabitants/ residents** - Residents of the Wayamboweg	Residents and property owners (land used for agriculture activities or currently not in development), within study area	• None of the residents (11) who have been consulted physically or by e-mail have any objections to the proposed project. Developments are required, but there should be no environmental damage or damage for the residents or farmers. • Risk of flooding, as this is already a main problem for several residents (north and south of the Wayamboweg) whose main income is the agriculture and husbandry sector. • The drainage of the area should be improved prior to the start of the project. • Increase in human- wildlife conflict (encounters) (snakes, jaguars).	• ESMP lists the measures to mitigate the environmental and community impact
3	**Landowners** 1. Mr. Calor 2. Mr. Van Dijk	Staatsolie will make use of the Soeng Ngie Canal and Soeng Ngie landing stage for transport of goods and personnel.	• There are no concerns listed by the landowners. • They have a good cooperation with Staatsolie.	Water level will be monitored. However, the focus of the monitoring will not be on permanent opening of the dam. Staatsolie will implement the mitigation measures associated with opening the dam. Only the government

	3. Mr. Timmer, the representative of the Soeng Ngie property (owner: Mr. Fung You Kee) Note: Staatsolie has identified one more potential landowner. Details still to be sorted out by Staatsolie.	Further an opening will be made in the Calor dam, Soeng Ngie dam and the Van Dijk dam to allow passage of the rig. The properties are for private use (used as a weekend home for leisure): • Some low intensity agriculture is practiced (fruit trees) near the road, and recreational fishing in the back of the Calor property. • Currently no activities take place at the Soeng Ngie property. Only a little bit of recreational fishing in the canal during the fishing season. • The Van Dijk property is used for beekeeping and recreational purposes e.g., fishing.	• Regarding water management, Mr. Calor proposed to monitor the water level during execution of the project to see if a permanent opening in the Calor Dam would stimulate drainage to the Ocean, hence minimizing the flooding problem. Currently (comm. 3 Aug 2022) the water level east of the Calor Dam is higher than west of the dam.	is authorized to take decisions with regards to the permanent openings in the Calor dam.
4	**Land user (Beekeeping)**	Execution of beekeeping activities at the end of the Van Dijk dam	On a dam (approx. 950m long), North of the Van Dijk dam several beehives are present on several locations. The location of one well (UEP_01) is projected on/ near this dam. On a distance of approx. 175m south from UEP_01, there is a camp with beehives and approx. 50m north from UEP_01, there are beehives which are not under a camp. The concerns indicated are: • Beekeeping is her main source of income, and the Van Dijk area is a main production site. • The main production time of the honey bees is in the dry season.	Staatsolie had a meeting with the beekeeper to discuss alternatives to execute the project: After the meeting with Staatsolie, the beekeeper is willing to relocate the beehives rafts as long as Staatsolie provides the necessary support and a suitable location is found. But it is a time-consuming activity. Staatsolie is willing to, in full cooperation with the beekeeper, help relocate the beehives to another suitable location.

			• Temporary removal of the beehives is feasible if a new location is found and she gets help for this relocation and come back after the project is completed. • What could the possible follow-up activities and effects be in case of an oil discovery at the nearby wells (UEP_01 and UEP_02)?	

In summary, the stakeholders revealed the following key issues/concerns about the following topics:

Surface water resources
- Risk of blocking of the waterways
- Disturbance of swamp systems
- Prolonged flooding/ inundation of the agriculture areas, resulting in decrease of agriculture activities and cattle farming

Wildlife and habitats
- Accessibility for illegal hunters and fishermen as waterways will be cleaned
- Disturbance of wildlife, such as trapoen species in the project area, due to the drilling activities

Air quality and noise
- Two (2) drilling locations are very close to the area where people live
- Residents on the Gangaram Pandayweg are dealing with dust blowing up, causing rainwater contamination. The roads are sprayed with water to prevent dust blowing up but this causes rust on cars, as Staatsolie uses water from the river estuary.

Impact on livelihood
- On a distance of approx. 175m south from UEP_01 and 50 m north from UEP_01, beehives are present.
- Beekeeping is the main source of income of the beekeeper, and the Van Dijk area is a main production site.
- For temporary removal of the beehives, a new accessible location is required and financial compensation for manpower and logistical cost.
- Possible follow-up activities and effects in case of an oil discovery at the nearby wells (UEP_01 and UEP_02)

The key concerns as reported above, have been previously raised with Staatsolie and are being investigated/ considered/ have been addressed outside of this process. It is acknowledged that some may not be directly relevant to this particular project.

During the stakeholder consultations, the following recommendations were made:
- Prevent spilling of chemicals into waterways
- Improvement of the drainage in the area
- Monitoring of water level during execution of the project
- Creating a permanent opening in de Calor Dam for stimulating the drainage to the Ocean
- Initiation of sustainable development projects by Staatsolie in the Wayambo resort (such as sport and recreation facility at Pomona, contribution to improve drainage of the Wayambo north area through an East-West canal from Pomona towards the Saramacca River, research regarding the proposed East-West canal)

4.2 Community Engagement and Grievance Redress Mechanism of Staatsolie

Staatsolie has a Community Relation Policy that aims to perform business activities in such a way that communities' interest and expectations about socio-environmental aspects are properly considered. Community engagement is the responsibility of the Corporate Communication Upstream (CCU) department of Staatsolie.
The following activities are undertaken by Staatsolie to achieve active participation of stakeholders (comm Staatsolie, 30 September 2022):
- Staatsolie has at least one meeting per quarter with the District Commissioner. If required (example request for permits), additional meetings are planned.
- Staatsolie also maintains good communication with other stakeholders.

According to the CC Officer, there is regular communication with landowners on whose property activities are ongoing. As part of the Exploration Drilling Project Uitkijk, initial communication between Staatsolie and the landowners (Mr. Calor, Mr. Van Dijk and Mr. Timmer, the representative of the Soeng Ngie property) has been conducted in the week of 25th of July 2022. One more possible landowner has been identified, but details still need to be figured out by Staatsolie (comm Staatsolie, 29 September 2022).

In addition, the communication plan outlined in **Table 3** will assist the stakeholder engagement process during the execution of the project, by enabling the disclosure and dissemination of important information about the project (activities) to all relevant stakeholders that may be impacted. Key objectives of the communication plan are:

- to maintain or strengthen productive relationships with stakeholders identified during the consultation process, conducted prior to the start of the project;
- to ensure that any additional stakeholder that may be impacted by the project is identified and included in the communication for the remainder of the project lifecycle;
- to ensure transparent, efficient, and regular dispersal of key project information;
- to provide stakeholders with an opportunity to raise issues or concerns about the project and to ensure that such feedback is addressed in a suitable manner; and
- to avoid conflicts or conflicting situations from emerging.

Table 3: Communication Plan for the Exploration Drilling Project Uitkijk

Who	When	What	How
DC, relevant stakeholders (land users) and landowners	• Prior to the start (one time) • During the life of the project (as required) • Project closure (with the landowners)	Announcement regarding general information and/or planning about the project Posters/ flyers	• Regular communication with the DC. • Posters/ flyers showing the work schedule and locations placed at relevant sites, e.g., at the entrance to fishing holes. • Phone calls • Field visits • Staatsolie website/ Facebook page

Grievance Redress Mechanism Staatsolie has a Grievance Redress Mechanism/ complaint procedure that is followed in case of complaints (see **Figure 6**). Complaints can be reported to all personnel of Staatsolie, who should report this within one working day to the CCU department. All complaints are registered in a software (Topdesk), which has been renewed in 2019. With this improvement, complaints can be registered in the system at any time and from anywhere. There are also complaint forms available at the security posts for registration of complaints after working hours, which are later shared with CCU for registration in the system.

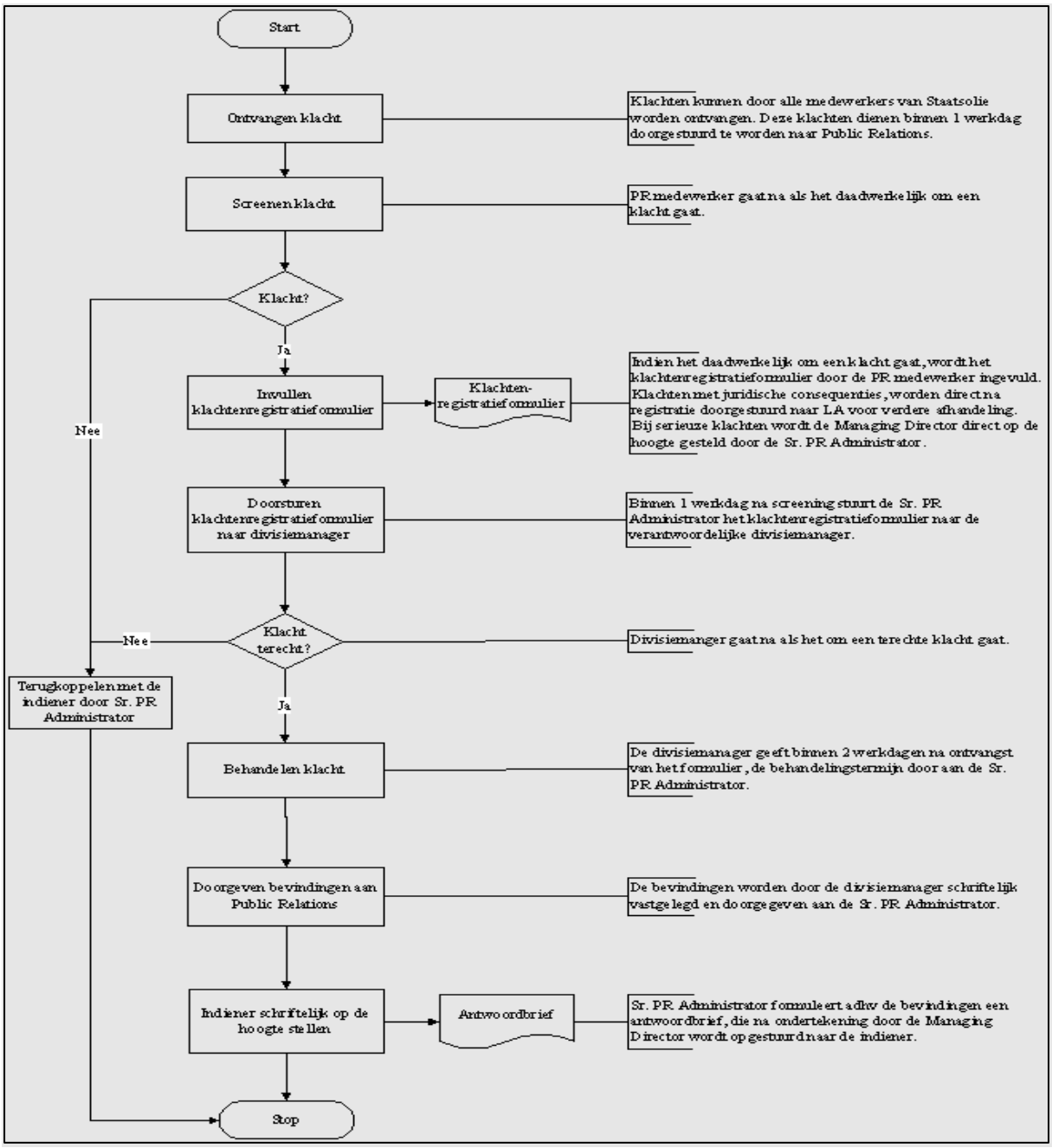


Figure 6: Overview Grievance Redress Mechanism of Staatsolie

5. Updates Social impact assessment

This section discusses the SIA conducted to identify the potential social impacts, positive and negative, which may occur as a result of the project being executed. By predicting socio-economic effects of the anticipated project, the SIA may guide the project team in key decision-making. The impact analysis will concentrate on the social groups that inhabit or make use of the project area and are most likely to be affected (either directly or indirectly) by the planned Exploration Drilling Project Uitkijk.

For impact identification and rating the consultant utilized the following resources:

- Social baseline data
- Information derived from stakeholder consultations
- Project descriptions supplied by Staatsolie
- Previous ESIA studies conducted

5.1 Impact Identification and rating

The identified impacts in the SIA report (ILACO, 2018) are summarized in **Table 4** below. The descriptions of the impacts are updated. Updated mitigation measures to address the impacts assessed are highlighted in green. The potential social impacts were determined using the same impact rating system as in the SIA report (ILACO, 2018).

Table 4: Overview social impacts as per SIA 2018 and current updates

Identified Impacts	Description and proposed mitigation measures	Impact significance (without mitigation)	Residual impact significance (with mitigation)
1. Impact from noise generated by transport vehicles, especially airboats, and construction activities	During all phases of the proposed project transport of personnel, materials and supplies will be necessary. Transportation of personnel will be done with vehicles on land and airboats in the swamp area. Airboats will be deployed on a daily basis, from the Soeng Ngie landing stage along the Wayamboweg. This will lead to locally increased noise levels near the landing stage which may disturb local area users, including the residents living along the Wayamboweg. However, the disturbance of local people is anticipated to be minimal, as noise levels at the residences are usually exceeded by noise generated by passing traffic on the Wayamboweg. The wells are located in the Wayambo swamp, which is uninhabited. Hence no human receptors are to be found there. Mitigation measures may include: 1. Efficient management of logistics to minimize traffic and shorten construction time. 2. Inform nearby residents and businesses in a timely manner of anticipated airboat traffic schedules. 3. Try to avoid or minimize airboat traffic at night. 4. No construction activities conducted at nighttime hours.	Existing direct impact localized and of temporary duration. Very low significance	Existing direct impact localized and of temporary duration. Negligible
2. Impact on safety from traffic on the Wayambo and Gangaram Pandayweg	During the stakeholder consultation, road safety on the Wayamboweg and Gangaram Pandayweg was not indicated as a main concern as it was in 2018. During the execution of the project, only transport from personnel will be conducted from the roads. There will be no transportation of crude oil towards a treatment plant, as only Repeat Formation Testing (RFT) will be conducted onsite of the wells. But mitigation measures still apply. Mitigation measures may include: 1. Project proponent must organize road safety awareness campaigns for their own personnel, contractor personnel, and area users (residents and other frequent users of the area). 2. To improve road safety: increase the frequency of speed control activities to record and monitor vehicle speed.	Existing direct impact localized and of medium-term duration. Low significance	Existing direct impact localized and of medium-term duration. Negligible

3. Impact on farm infrastructure or other property of landowner due to project activities	Proposed Project activities include opening of the Calor, Soeng Ngie and Van Dijk dams to allow passage of the Drilling Rig and airboats. The property of the landowners can be impacted also as a result of oil spills or leakages occurring. Also, in case infrastructure is built (e.g., dams, trails) this may affect the surface water resources (e.g., flooding) as normal water movement patterns are hindered. Residents have repeatedly voiced their concerns about flooding of their lands as their livelihoods are affected by this. However, no activities will be conducted on agricultural land. Mitigation measures may include: 1. Proponent must comply with the HSSE guidelines regarding procedures for inspections and maintenance schedules (of equipment). 2. Ensure that waste management is carried out strictly according to the waste management plan. In case contractors are hired to execute jobs for Staatsolie then monitoring of the compliance with Staatsolie procedures must take place. 3. During the lifetime of the project, properly inform the landowner of progress made with the project and eventual damages caused to the property. Take care to repair any damage caused (or provide compensation for the damage incurred) to the satisfaction of the landowner. 4. Monitor water levels in the swamp prior and during the execution of the project as described under the monitoring framework in the ESMP.	Existing direct impact, localized and of medium-term duration. Medium significance	Existing direct impact, localized and of medium-term duration. Low significance

4. Nuisance to local residents due to third party activities in the swamp area.	Trails constructed by project proponent allow access to third parties. Some nuisance may occur to local residents as a result of third parties gaining entry to the swamp area, possible entering on lands that are privately owned and engaging in activities that are unwanted and possibly illegal. LBB expressed their concern related to the planned project, namely an increase in hunting and poaching activities in the area due to increased accessibility of the area. Mitigation measures may include: 1. Project proponent must take care to block all entrances to the premises e.g., fence off the entrance location to the landing stage to avoid third party entry. 2. Put up clearly marked signs indicating 'No entry allowed/ trespassing on private land'.	Existing indirect impact localized and of temporary duration Very low significance	Existing indirect impact localized and of temporary duration Negligible
5. Attacks by honey bees (on Staatsolie personnel)	On a dam (approx. 950m long), North of the Van Dijk Dam several beehives are present on several locations (under 7-8 camps). The location of well UEP_01, is projected on/ near this dam. On a distance of approx. 175m south from UEP_01, there is a camp with beehives and approx. 50m north from UEP_01, there are beehives which are not under a camp (free). Mitigation measures may include: • Have good communication with the honey beekeeper to identify the exact operation areas near the Van Dijk Dam. • Efficient management of logistics to minimize frequent passage near operational area of the honey beekeeper. • Have an agreement with beekeeper to relocate the beehives and keep a safe distance. • Make safety awareness regarding bees' part of the regular toolbox meetings & safety talks. Provide the area users (landowner) with a folder about safety around bees. • Use required PPE (beekeeper suits) to protect personnel.	Existing direct impact, localized and of during the duration of the project High significance	Existing direct impact, localized and during the duration of the project. Medium significance
6. Impact on livelihood beekeeper	The beekeeping activities is the main source of income of the beekeeper. The activity at the north of the Van Dijk Dam area, is a main production site. Mitigation measures may include: • Have an agreement with beekeeper to relocate the beehives.	Existing direct impact, Localized and of medium-term duration. High significance	Existing direct impact, Localized and of medium-term duration. Medium significance

Appendices

Appendix 1. Stakeholders List

Nr.	Stakeholder	Contact person(s)	Contact Information
1	National Institute for Environment and Development in Suriname (NIMOS)	Sewnath, M. Danoe, M.	490044
2	Representatives of the local government in the district of Saramacca: • District Commissioner (DC), • Adjunct Districts Secretaries (ADS) and the • Government Managers, (Bestuursopzichters– BO's)	DC: Bansi-Durga S. Bhairo, L. Biharie, R. Arrias, I. Sadiwirja, J. Vreedzaam, A.	sherindurga@hotmail.com lalita-bhairo@hotmail.com riteshbiharie@gmail.com 8866946 / imroarrion@gmail.com 8967520 8429739
3	Ministry of Agriculture, Animal Husbandry and Fisheries (LVV)-Resort Leader Wayambo Farmers (on request of LVV)	Van Dams, P. Debipersad, O. Sardjoe, R. Sukhraj, N. Bakker	7123863 8723251 328495 8553788
4	Representatives of the Ministry of Land Policy and Forest Management (Grondbeleid en Bosbeheer), specifically the Nature Conservation Division of the Forestry Service Suriname. (Afdeling Natuurbeheer van Dienst 's Lands Bosbeheer – NB-LBB)	Somaroe, K Sanredjo, E Ho Bol, R Sakimin, C	8713546 8890567 7215106 471316 / 8851046 / claudinesakimin@yahoo.com
5	Landowner	Mr. C. Calor	Phone: 473892 / 8596067 Email:notcal@sr.net/chriscalor@hotmail.com
6	Landowner	Mr. T. Timmer (Represents Mr. Fung You Kee)	8664077
7	Landowner	Mr. R. van Dijk	432200 / 8816005 edson@sr.net
8	Resident	Balesar R	530562 r.balesar@gmail.com
9	Resident	Sitaram	8527272 mcpsitaram@yahoo.com
10	Resident	Jhingur A	8881479 / 8911710 jhingursherani@gmail.com
11	Resident	Sardjoe D	8939003 / 8769975 vikramsardjoe@gmail.com
12	Resident	Imamdi A	8702499 malaikaimamdi@gmail.com
13	Resident	Bihari A	8761836 / 8720734
14	Resident	Jhagroe B	851660 ronjhagroe@gmail.com
15	Resident	Brown R	8535806 17rsecure@hotmail.com
16	Resident	Bikhie D	8749136 radj-66@hotmail.com
17	Resident	Ramsaran	shaiyen.ramsaran@ramexgroup.com
18	Resident	Manurath, A	anielmanurat@gmail.com

19	Resident	Ramawadhdoebe, S (NV NUB)	8805887 surindoebe@gmail.com
20	Resident	Ramdhan, D	+31653113852 dennisramdhan49@gmail.com
21	Resident	Ramlal	+31642120668 soemant.ramlal@gmail.com
22	Resident	Lo A Joy, Ken	kenny201002@hotmail.com
23	Resident	Haider, M	+31637886118/ 07532093 re_haider@hotmail.com
24	Resident	Ayub, F	ayub.feroze@gmail.com
25	Resident	Ramdhan, B	8697316/ +31647059541
26	Resident	Sietaram	430040/ 8515628 andisa_13@hotmail.com
27	Resident	Mansur, M	mavismansour@gmail.com
28	Land user (Beekeeper)	Elisabeth Fung A Foek	8814504

Appendix 2. Minutes of Meetings

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Project meeting
Attendance:	ILACO: Fortune, M. / Ilahibaks, H. NIMOS: Sewnath, M. / Danoe M.
Location:	Online via ZOOM
Date:	15 June 2022
Compiled by:	Fortune, M.
Time:	14:00- 14:20

Subject	**Discussion/Remarks**
Agenda	- Opening & introduction - Project background - Approach and methodology - Project timeline
Opening & Introduction	Fortune Marie of ILACO opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform NIMOS about the approach and methodology that will be used by ILACO; and • To collect feedback from NIMOS.
Project Background	Summary of the project: • Staatsolie has planned an exploration program in the Uitkijk area, located in the Uitkijk block. • The planning is to drill 2-5wells, from which two (2) are located at the north side of the Uitkijk area and three (3) wells are nearby the Wayamboweg • From the received screening report from Staatsolie, NIMOS had indicated that only an update and review of the existing ESMP for the Uitkijk area is required.
Approach and Methodology	The study will be mainly conducted as a desktop study (as a lot of data/ information is already available, which will be used) supplemented with limited fieldworks: • Noise measurements alongside the Wayambo weg (2-3 locations) • Water quality in-situ measurements in the Van Dijk and Pomona Canal (3-4 locations) • Update of hydrology of the study area: visual observation and collection of water levels from existing divers of Staatsolie • Stakeholder engagement: one-on-one meetings with residents/landowners and relevant parties (NIMOS, DC)
Project timeline	The main activities were presented, namely: • Initial meetings will be conducted with key stakeholders: NIMOS, DC/BO, LVV • For the preparation of the ESMP the field works will be conducted and one-on-one stakeholder consultations & interviews will be held with residents/ landowners. • The initial planning is to submit the Draft ESMP to NIMOS for review by the end of July. • After the Public Consultation meeting and review of NIMOS, the final ESMP will be submitted.
Feedback NIMOS	• NIMOS confirmed that only an update ESMP is required for this study. • As this study only includes an update ESMP, the review time will be 20 days. • Verify if a Waste Management Plan is included in the ESMP. NIMOS had no other feedback on the presented approach and methodology.

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Ilahibaks, H. Staatsolie: Sanches, J. District Commissioners Office: Bansi-Durga, S. / Bhairo, L. / Biharie, R. / Arrias, I. / Sadiwirja, J. / Vreedzaam, A.
Location:	District Commissioners Office Sramacca
Date:	15 July 2022
Compiled by:	Welzijn, B. / Ilahibaks, H. / Fortune, M.
Time:	10:00- 11:30

Subject	Discussion/Remarks
Agenda	- Opening and introduction - Background information Exploration Drilling Project - Background information ESMP - Question rounds
Opening & Introduction	Sanches, J. of Staatsolie opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform the District Commissioner (DC) about the project activities • To collect feedback from the DC and the BO's After the introduction the representatives from the DC had the possibility to ask questions to Staatsolie. After this, the meeting was continued between ILACO and representatives from the DC.
Questions to Staatsolie	**Arrias, I.:** Will chemicals be used during the drilling activities? This concern as water flows towards to south, were there are several agricultural activities. **Sanches J.:** Some product are being used during this process. All waste material are contained. **Arrias, I.:** In case of oil discovery, how will this be transported? **Sanches J.:** This study only include exploration, to identify if oil is present and quantity. Transport can be done using pipeline system or trucks, but not currently part of this study.
Summary response further meeting DC and ILACO	**<u>Cooperation between Staatsolie and the District commissariat</u>** The DC office gets informed by Staatsolie when project related activities are to be conducted within the district. The District Commissariat wants more involvement, for example field orientation of the project activities. The communication between Staatsolie and the DC office has changed, because in the past in case of oil spills the DC office was updated and a team was allowed to get a field orientation with Staatsolie. This is not the case anymore. In case of oil spills NIMOS should be informed too. Recently an oil spill took place at the Huwelijkszorg barge near the school. **<u>Land use in the project area</u>** Agriculture and animal husbandry are both practiced in the project area. Animal husbandry is practiced the most and on a large scale. **<u>Traffic on Wayamboweg and Gangaram Pandayweg</u>** 90% of traffic is from Staatsolie personnel and vehicles that transport personnel during rush hours 7:00-8:00hrs and 15:30-16:00hrs.

	Overview of flooding areas and measures to be taken The northern and south west part of Wayambo are generally areas that are affected by flooding. **Concerns regarding the project activities** • Waterways should not be blocked • Prevent spilling of chemicals into waterways • Demonstration of project impacts on soil conditions • 2 drilling locations are very close to the area where people live • Transportation method of crude oil when found **Complaints** Residents can report their complaints at the DC office. Some complaints that have been reported in the past are: • Residents on the Gangaram Pandayweg are dealing with dust blowing up, causing rainwater contamination. Staatsolie sprays the road with water to prevent dust blowing up but this causes rust on cars because Staatsolie uses water from the river estuary. • The flora and fauna are also disturbed. • There is no sustainable development within the project area. • Disturbance of water ways
Feedback representatives DC	• Proper drainage systems should be put in place near the Pomona Canal and Saramacca River • Staatsolie needs to act more in the best interest of the community • Farming lands should be protected against flooding

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Ilahibaks, H. Ministerie LVV: Debipersad, O./ Van Dams, P. Farmers: Sidhoe, R. / Sardjoe, R. / Sukhraj, N. / Bakker
Location:	BO Office Wayambo
Date:	15 July 2022
Time:	12:00- 14:00
Compiled by:	Welzijn, B. / Ilahibaks, H. / Fortune, M.

Subject	Discussion/Remarks
Agenda	- Opening and introduction - Background information Exploration Drilling Project - Background information ESMP - Question round
Opening & Introduction	Ilahibaks, H. from ILACO opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform Ministry of Agriculture Husbandry and Fisheries (LVV) about the project activities. • To collect feedback from LVV and the farmers that were invited by LVV.
Summary response LVV	**Cooperation between LVV and Staatsolie** There is no cooperation between LVV and Staatsolie. **Role of LVV within project area** LVV is responsible for the management of the agriculture and animal husbandry activities in this area. The majority of farmers is engaged in poultry, dairy cattle, planting of vegetables, fruits etc. Maintenance of canals within the project area is not the responsibility of LVV.
Summary response Farmers	**Communication between Staatsolie and the farmers** The farmers indicated that they are part of the so-called "Boeren collectief". The farmers indicated that the communication between them and Staatsolie has not been regular in the last periods. **Complaints** ***Drainage of the area*** • There is a poor drainage system of the project area. In the past there were natural waterways but these don't exist anymore as they are silted up. Drainage towards the Saramacca River has also decreased. This leads to flooding of the area. • The farmers indicated that earlier their area was not flooding for a long time as currently. Further the sand and shell ridges are currently also prone to flooding. • There are no measures taken by Staatsolie. Staatsolie is equipped to take the needed measures but they don't cooperate. ***Disturbance of swamp and fauna*** The farmers indicated that due to the disturbance of the swamp the fauna has also been disturbed. Lately the farmers have hindrance of jaguars as their livestock is a prey for them.

	Due to these complaints, a farmer's collective of 12 farmers has recently been set up. The farmers have filed a lawsuit against Staatsolie regarding issues caused by Staatsolie in the project area.
Concerns and Feedback LVV and Farmers	**<u>Concerns</u>** • LVV and farmers are discontent with the method of operation used by Staatsolie and NIMOS • Disturbance of swamp systems • (Prolonged) flooding/inundation of the agriculture areas, resulting in decrease of agriculture activities and cattle farming • Canal systems are not cleaned up regularly and are now blocked; causing fish to pull away **<u>Feedback</u>** • Staatsolie should come up with solutions regarding flooding of the project area • To prevent flooding of the area, the farmers propose to construct a new canal from Pomona towards the Saramacca River on a distance of 2- 2.5 km from the East-West corridor • In the dry season the vegetation in canal systems should be burned for proper flow of water • Agricultural areas should be protected

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Naigi, A LBB: Sakimin, C, Samaroe, K/ Sanredjo, E/ Ho Bol, R
Location:	LBB office
Date:	3 august 2022
Compiled by:	Naigi A.
Time:	8:15u - 09:00

Subject	**Discussion/Remarks**
Agenda	- Opening and introduction - Background information Exploration Drilling Project - Background information ESMP - Question round
Opening & Introduction	M. Fortune, from ILACO opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform LBB about the project activities • To collect feedback from LBB about their activities at the project area and concerns about the project.
Summary Role and activities of LBB	**Cooperation between LVV and Staatsolie** There is good cooperation and partnership between LBB and Staatsolie. **Role of LBB** LBB is responsible for the protection and management of natural areas. For example, under the Nature Conservation Act 1954 it is prohibited to camp, cut wood or hunt in certain areas without permission from LBB. The control of sustainable forest management also lies with the Foundation for Forestry and Forestry Supervision (SBB). **Activities of LBB within project area** • LBB conducts two (2) times a year an aerial monitoring of shorebirds in cooperation with Staatsolie. **Information about the project area** • Protected species within the process area are the shorebirds and the jaguars • LBB remarked that there is also other wide life in the project area that should be conserved • There are some fishing holes in the project area, mostly close to the Wayamboweg. Fishing is allowed by some landowners.
Summary regarding Complaints	**Complaint from LBB** LBB believes that they are less informed and are not involved regarding this project. As the project area is within the MUMA (which continues until the Vijfde Rijweg with the exception of the private plots), LBB is responsible for the overall monitoring. LBB would like to know what the further socio-economic impacts of the project will have.

	Complaints received by LBB • There were some complaints reported by some private parties regarding illegal hunters. The complaints are currently only registered but no action can be taken as LBB has no access to the private plots • LBB is familiar with the legal case from the farmers' collective against Staatsolie

Concerns and Feedback LBB	**Concerns**
	1. Water management in the area is important
	2. Accessibility for illegal hunters as waterways will be cleaned
	  • They hunt on the Koeleh-Koeleh, a parrot species. Their breeding season is around May, June, July.
	3. Disturbance of animal species in the project area example:
	  • Main fish species – Trapoen can be disturbed due to the drillings activities
	  • The jaguar's conflict with the community (farmers). The Jaguars are protected animal species in the area.
	
	Feedback & Remarks
	1. Suggestion to ILACO: to include someone from LBB in the field process
	2. LBB proposed to include the project area in the aerial monitoring (conducted together with Staatsolie) that is planned in the 3rd week of August.
	3. Ms. C. Sakimin asks if the following documents and information can be shared with LBB:
	  • Project announcement letter formally send by Staatsolie
	  • Receive Background Information Document
	  • Map of the project area (KML file)
	  • Size of the project area
	4. LBB requests to conduct a site inspection with Staatsolie over the whole length of the waterways, after these have been cleaned.

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Naigi, A
Stakeholder	Notaris Calor (Landowner)
Location:	Notaris Office Calor
Date:	3 august 2022
Compiled by:	Naigi A.
Time:	8:15u - 09:00

Subject	**Discussion/Remarks**
Agenda	- Opening and introduction - Background information Exploration Drilling Project - Background information ESMP - Question round
Opening & Introduction	Fortune M., from ILACO opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform the landowners about the project activities. • To collect feedback about their activities at the location.
Summary response Landowner	**Cooperation between LVV and Staatsolie** There is good cooperation with Staatsolie. Mr. Calor receives all information in a timely manner. He further has no problems with Staatsolie's work method. For permissions of drilling, an agreement has been signed twice for a certain period with Staatsolie. **Activities Landowner in the area:** • Goes to his location alone on weekends. Use terrain: not really active use, more fruit trees. Observation within the area: • parwabos has grown in recent years. • less fish and jaguars observed in the area currently.
Feedback Landowner	**Feedback** • Water management is important in the area. The water remains black and water level east of the dam is higher compared to the west. • Flooding of the area: lasts for months (almost a year already) **Suggestion:** • Regarding water management, Mr. Calor proposed monitoring of water level during execution of the project in order to monitor if a permanent opening in the Calor Dam would stimulate drainage to the Ocean, hence minimizing the flooding problem. Currently (comm. 3 Aug 2022) the water level east of the Calor Dam is higher than west of the dam.

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Naigi, A
Stakeholder	Robert Van Dijk (Landowner)
Location:	The Locksmith Office (Van Dijck)
Date:	5 august 2022
Compiled by:	Naigi A.
Time:	11:00 - 11:30

Subject	**Discussion/Remarks**
Agenda	- Opening and introduction - Background information Exploration Drilling Project - Background information ESMP - Question round
Opening & Introduction	Fortune M., from ILACO opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform the landowners about the project activities. • To collect feedback about their activities at the location.
Summary response Landowner	**Cooperation between landowner and Staatsolie** There is good cooperation and partnership between Mr. Van Dijk and Staatsolie. Staatsolie adheres to the agreements made with Mr. Van Dijk. **Activities Landowner in the area:** • Mr. Van Dijk has no objection to the implementation of the project. • He uses the site only for recreational purposes e.g., fishing. • Cow-cattle activities used to be done. The last years not anymore. • There is also a no hunting policy from his terrain.
Feedback Landowner	**Feedback & agreements** • Drone fly-by ILACO is possible. • At the start of the work (implementation), Mr.Van Dijk would like to be informed in advance.

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Welzijn B.
Stakeholder	Mr. Timmer (the representative of the Soeng Ngie property)
Location:	Wayamboweg (Soeng Ngie property)
Date:	4 august 2022
Compiled by:	Fortune M.
Time:	09:00- 09:30

Subject	**Discussion/Remarks**
Agenda	- Opening and introduction - Background information Exploration Drilling Project - Background information ESMP - Question round
Opening & Introduction	Fortune M., from ILACO opened the meeting followed by a brief introduction and purpose of the meeting. The purpose of the meeting was: • To inform the landowners about the project activities. • To collect feedback about their activities at the location.
Summary response Landowner	**<u>Cooperation between landowner and Staatsolie</u>** There is good cooperation and partnership between Mr. Timmer and Staatsolie. There are currently no activities near the Soeng Ngie dam. Mr. Timmer has no objection about the project. He mentioned if the dam is required by Staatsolie, this may be cleared by Staatsolie.

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Stakeholder consultation
Attendance:	ILACO: Fortune, M. / Ilahibaks H.
Stakeholder:	Elisabeth Fung A Foek (beekeeper north of Van Dijk dam)
Location:	ILACO office
Date:	29th of September 2022 & 6 October 2022
Compiled by:	Fortune M.
Time:	09:00- 10:00 am

Subject	**Discussion/Remarks**
Agenda	- Opening and introduction - Background information Exploration Drilling Project and ESMP - Question round
Summary Response Land user	**Activities within the area:** On the dam (approx. 950m long), North of the Van Dijk Dam beekeeping is practiced. There are camps with beehives present on several locations on this dam. The location of one well (UEP_01) is projected on/ near this dam. South of the location of well UEP-01, there are 7-8 camps with several beehives and north of this well there are beehives that are not under a camp. On the ridge there are also several beehives, but these are currently being removed by the beekeeper. The beekeeper has been practicing her beekeeping activities for the last 9 to 10 years. **Concerns:** • Beekeeping is her main source of income, and the Van Dijk area is a main production site. • The period and duration of Staatsolie activities at well UEP-01. The main production time of the honey bees is in the dry seasons. • Temporary removal of the beehives is not feasible as it requires preparation of new locations and other logistical arrangements. • Possible follow-up activities and effects in case of an oil discovery at the nearby wells (UEP_01 and UEP_02)
Additional remarks from beekeeper during communication on the 6th of October 2022	
Risks and recommendations Beekeeper	The bees mainly react to vibrations (in the soil) and odor (example of exhaust gases). It is proposed that Staatsolie does not make use of the dam and operate on a distance of at least 100m away from nearest beehives. Is case temporary removal of beehives is required, the following should be considered/ required: • Have access to new temporary location, which is also accessible in the rainy season, for regular monitoring of the bees. • Compensation for logistic and labor activities • Should be able to place the beehives at current location again by Mid-September 2023, as the production period will start. No production may result in loss of her costumers.

Minutes of Meeting

Project:	Update Environmental and Social Management Plan (ESMP) for the Exploration Drilling Project in the Uitkijk Area
Project Code:	IS-411
Subject:	Verification Meeting
Attendance:	ILACO: Fortune, M. / Ilahibaks H.
Stakeholder:	Sanches J. (CC Officer Staatsolie)
Location:	ILACO office
Date:	30th of September 2022
Compiled by:	Fortune M.
Time:	13:00- 13:30 am

Subject	**Discussion/Remarks**
Verification Questions	MF: Which complaints has Staatsolie received in the last period? JS: In the month September 2022, Staatsolie received two complaints: • Staatsolie received a complaint through the DC from the residents, regarding dust along the Gangaram Pandayweg. Staatsolie started with spraying the road last week. Measures are also undertaken to increase the tank capacity of the spraying vehicle. Water for spraying is collected from a well at Staatsolie and it consists of river and swamp water. • Another complaint was received from a landowner along the Sidodadiweg regarding the possible impact of Staatsolie machines on his agriculture activities. This complaint is also being addressed. How is the communication between Staatsolie and the stakeholders: • Staatsolie has at least one meeting per quarter with the District Commissioner. If required (for example when requestingpermits), additional meetings are planned. • Staatsolie also maintains good communication with other stakeholders, for example at least once a week with landowners.

Appendix 3. Photo advertisement in De Ware Tijd 17 June 2022

STAATSOLIE

OPROEP VOOR PERCEELEIGENAREN

Staatsolie Maatschappij Suriname N.V. start binnenkort het exploratieboorproject *Exploration Drilling Uitkijk North-East*. Wij willen daarom graag in contact treden met de landeigenaren langs de **Wayamboweg in het district Saramacca tussen km 20 en 21**. Het gaat om eigenaren van percelen met de nummers **54 tot en met 91** en **290 tot en met 365**. Landeigenaren (of hun wettelijke vertegenwoordigers) kunnen tot uiterlijk **30 juni 2022** van maandag tot en met vrijdag tussen 8.00 en 15.00 uur contact opnemen met de afdeling Corporate Communication Upstream op het telefoonnummer 375222 toestelnummers 66359, 66356 en 66353. Er kan ook per e-mail contact worden gemaakt via info@staatsolie.com met als onderwerp 'Oproep landeigenaren'.

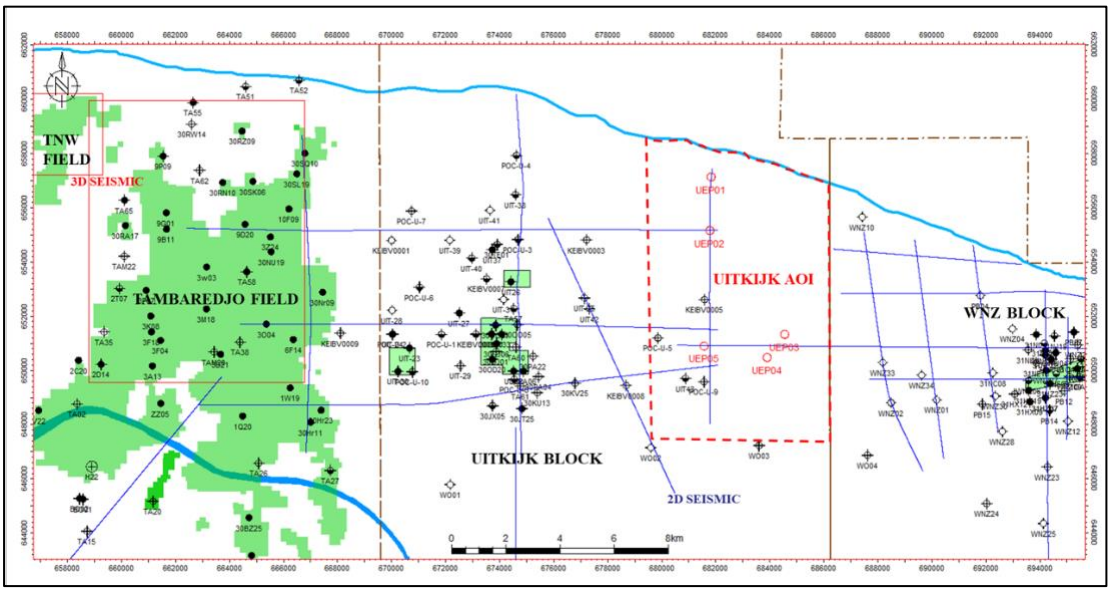
Appendix 4. BID document

Informatie Brochure

Milieu en Sociaal Management Plan

Exploratie boorprogramma in het Uitkijk gebied

Juli 2022



Samengesteld ten behoeve van Staatsolie Maatschappij Suriname N.V.

door

ILACO

ISO 9001:2015 certified

Inleiding

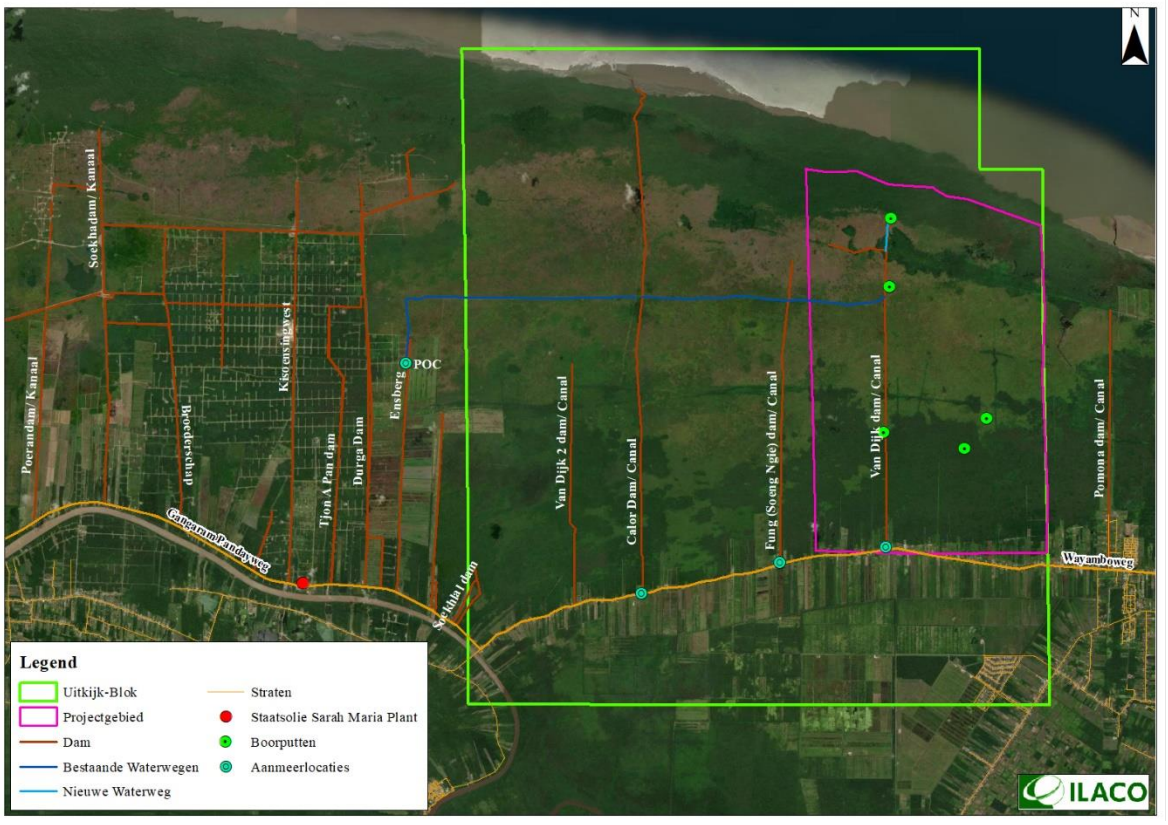
Staatsolie Maatschappij Suriname N.V. (Staatsolie) heeft als één van de strategische doelen het behouden van haar gemiddelde dagelijkse olie productie. In verband hiermee worden er verkenningsboringen uitgevoerd om de aanwezigheid van produceerbare reservoirs vast te stellen om de reserves te vergroten. Het Uitkijk-blok kan bijdragen aan het vergroten van de reserves. In het kader hiervan heeft Staatsolie gepland om een exploratie boorprogramma te verrichten in het oostelijk deel van het Uitkijk Noord-blok. Het projectgebied staat bekend als het Uitkijk Noordoostgebied. Het boorprogramma voor dit gebied bestaat uit het boren van minimaal twee (2) tot maximaal vijf (5) boorputten. De planning is om in oktober 2022 te starten met de uitvoering van het exploratie boorprogramma en zal duren tot het 3e kwartaal van 2023. In geval er olie wordt aangetroffen, zullen er kleinschalige testen worden uitgevoerd, ook wel Repeat Formation Testing genoemd.

Normaal gesproken is er voor een dergelijk project een Milieu en Sociale Effecten Beoordeling of Analyse (Environmental and Social Impact Assessment, ESIA) vereist. In het projectgebied en in de naastgelegen gebieden zijn echter al meerdere ESIA-studies verricht, ook voor boorprogramma's. In samenspraak met het Nationaal Instituut voor Milieu en Ontwikkeling in Suriname (NIMOS) is besloten dat er in dit geval kan worden volstaan met een Milieu en Sociaal Management Plan (Environmental en Social Management Plan, ESMP).

Voor de samenstelling hiervan is het advies- en ingenieursbureau ILACO Suriname N.V. aangetrokken. Deze brochure verschaft informatie over het project en de samenstelling van het ESMP ten behoeve van de stakeholders.

Korte project beschrijving

Het projectgebied is gelegen in het district Saramacca, ten noorden van de Wayamboweg (zie figuur 1). Om toegang te krijgen tot het projectgebied kan men gebruik maken van de bestaande (water) infrastructuur zoals het Calor kanaal, het Soeng Ngie kanaal, het Van Dijk kanaal en de bestaande Staatsoliewaterwegen (trails) in dit gebied. Verder zijn er ook bestaande aanmeerlocaties in het gebied (zie figuur 1).



Figuur 1: Overzicht projectgebied voor het geplande exploratie boorprogramma

Het exploratie boorprogramma bestaat uit tenminste 2 boorlocaties in het noorden van het projectgebied. De drie locaties ten zuiden, zijn back-up boorlocaties. Op basis van de resultaten van de eerste twee boorlocaties zal er besloten worden als er op de back-up locaties wel of niet geboord zal worden.

Het boorprogramma zal in drie (3) fasen worden uitgevoerd, namelijk een constructie fase, een operationele fase en een ontmantelingsfase.

Bij de uitvoering zullen de aanmeerlocaties worden gebruikt voor het aanmeren van zwampboten (airboten) ten behoeve van het laden en lossen van materiaal en het vervoeren van werknemers. De bestaande waterwegen (trails) zullen worden gebruikt voor het verplaatsen van het boorplatform (rig), maar ook voor het vervoeren van werknemers en materiaal met behulp van zwampboten. De bestaande waterwegen met uitzondering van de Calor dam zijn nu dichtgegroeid en moeten worden opgehaald tijdens de constructie fase. Verder zal er één (1) nieuwe waterweg worden aangelegd vanuit de Van Dijk dam richting de meest noordelijke boorlocatie (zie figuur 1 in licht blauw aangegeven).

In de operationele fase zal het boorplatform worden getransporteerd naar de locaties voor de exploratie boringen. Hiervoor zal er een opening (doorgang) moeten worden gemaakt in de Calor dam, Van dijk dam en de Soeng Ngie dam. Alvorens een opening gemaakt zal worden in de dammen, zal een U-dam aan de oost zijde van de dammen worden aangelegd. Dit is om een veiligheidszone te creëren. Na verplaatsing van het boorplatform zal de opening tijdelijk afgesloten worden zodanig dat zwampboten wel doorgang hebben.

Bij de ontmantelingsfase zullen de boorputten en de openingen (doorgang) in de Calor dam en de Soeng Ngie dam worden afgesloten. De werklocaties zullen zo goed mogelijk worden hersteld naar de oude situatie.

Korte beschrijving van het studiegebied

Het studiegebied van het ESMP omvat het projectgebied en de toegangsroutes, waar mogelijke impacts kunnen voorkomen. Het studiegebied is gelegen in het Uitkijk Noord Blok en bevindt zich in de Wayambozwamp, die deel uitmaakt van het speciaal beheersgebied (MUMA) Noord-Saramacca.
Het studiegebied is gelegen in de jonge kustvlakte, welke vlak en laaggelegen is. Het gebied wordt gekenmerkt door de aanwezigheid van uitgestrekte zwampen, welke gevormd zijn op laaggelegen kleiplaten en welke worden doorkruist door lange zuid-noord lopende kanalen vanuit de Wayamboweg, die worden gebruikt om zwampvis te vangen, meestal voor recreatieve doeleinden. Hier en daar zijn er oost-west lopende zand- en schelpritsen die 1-2 m hoger zijn dan de aangrenzende zwampen. Kenmerkend voor de zwampen is de aanwezigheid van een dikker of dunner pakket pegasse boven het klei-oppervlak.

In het Uitkijk Noord Blok zijn vier hoofdecosystemen te onderscheiden van zuid (Wayamboweg) naar noord (Atlantische Oceaan) in de volgende volgorde:

- Zwampbos
- Open zoetwaterzwampen met grassen en kruiden, al dan niet met verspreide boompjes en struiken
- Brak water Typha (Langa grasi) zwamp
- Mangrovezone

Tijdens het regenseizoen heeft de zwamp een waterlaag van 50-90 cm boven het klei oppervlak. In normale droge seizoenen hebben de zwampen een waterdiepte van 10 tot 30 cm, maar in zeer droge seizoenen kan ook de pegasselaag volledig uitdrogen, waardoor de zwampen gevoelig worden voor brand.
De natuurlijke hydrologie van de Wayambozwamp is enigszins verstoord door menselijk handelen en veranderende natuurlijke invloeden. Tijdens perioden van langdurige regenval kan de waterstand in de zwamp dusdanig hoog worden, dat er overstroming van de landbouwarealen en de woonpercelen langs

de Wayamboweg plaatsvindt. Een deel van de zwamp is ingepolderd. De inpoldering heeft plaatsgevonden vanuit de Wayamboweg. Het aantal ingepolderde arealen op kleigronden is relatief klein, vanwege het ontbreken van een ontwateringssysteem.

Binnen het grootste deel van het gebied domineren zoetwaterzwampvissen, en het vogelleven vertoont niet de rijkdom, zoals die in de brakke tot zoute kuststrook met modderbanken ten noorden van de zoetwaterzwampen wordt aangetroffen. In het gebied zijn er geen unieke, zeldzame, bedreigde, kwetsbare of biogeografisch belangrijke plant- en diersoorten aangetroffen bij eerdere baseline studies. Incidenteel is echter voor de nabijgelegen Tambaredjopolder de aanwezigheid van de grote miereneter (vulnerable volgens IUCN), de jaguar en de watradagu (beide “near threathened” – IUCN) gerapporteerd.

De bewoonde delen binnen het studiegebied zijn gelegen langs de Wayamboweg. Hier komen verspreid huizen voor in lintbebouwing.

Met uitzondering van de geplande activiteiten van Staatsolie is er geen andere menselijke aanwezigheid binnen het projectgebied. Er zijn twee zogeheten "visgaten" aanwezig, het Calorkanaal en het Soeng Ngiekanaal. Deze kanalen zijn aangesloten op de Wayamboweg, en ze worden gebruikt voor de jacht (toegang tot jachtgebieden) en de visvangst in het droge seizoen.
De polders worden plaatselijk gebruikt voor extensieve veeteelt en op kleine schaal de teelt van overjarige gewassen op bedden. Een groter areaal met landbouw en veeteelt wordt aangetroffen in het zuidoostelijke deel van het studiegebied. Dit areaal is ontwikkeld op een ritsenbundel.

Er zijn geen archeologische vindplaatsen bekend, en er zijn geen plaatsen van bijzonder historisch belang te vinden in het studiegebied.

De Milieu en Sociale Analyse

Tot op heden zijn verschillende specialistische milieustudies uitgevoerd binnen of nabij het voorgestelde projectgebied, met als meest recente de Update Milieu en Sociale Effecten Analyse (ESIA) voor het Uitkijk Appraisal Drilling Program (ADP) in december 2018. In overleg met NIMOS werd daarom besloten dat alleen een ESMP vereist is voor het huidige onderzoek.

Voor de samenstelling van het ESMP zal ILACO gebruik maken van voorgaande studies betreffende eerdere soortgelijke onderzoeken in het gebied:

- Milieu en Sociale Effecten Analyse voor exploratieboringen in het Uitkijk Blok (2011)
- Milieu en Sociale Effecten Analyse voor Appraisal drilling in het Tambaredjo Noord project area (2013)
- Milieu en Sociale Effecten Analyse voor exploratieboringen in het Uitkijk Blok voor additionele bronnen (2013)
- Update Milieu en Sociale Effecten Analyse voor het Uitkijk Appraisal Drilling Program (ADP) (2018)
- Milieu en Sociale Effecten Analyse voor het 3D Seismisch Project (2020)

Naast de voorgaande studies zal er ook additionele data in het veld worden verzameld ter controle van de reeds beschikbare informatie. De activiteiten omvatten:

- Geluidsmetingen verrichten langs de Wayamboweg;
- Waterkwaliteit in-situ metingen verrichten in het Van Dijk kanaal en de naastgelegen zwamp;
- Verzamelen van hydrologische data (waterniveau en stroming) bij bestaande divers; en
- Stakeholder consultaties: Eén-op-één gesprekken met de bewoners/landeigenaren en andere relevante stakeholders.

De effecten en voorgestelde maatregelen van de studies zullen worden geëvalueerd en eventuele tekortkomingen zullen worden geïdentificeerd en waar nodig aangevuld of gecorrigeerd. Uiteindelijk zullen de resultaten worden gebruikt om het bestaande ESMP kritisch door te nemen en waar nodig aan te vullen en/of te herzien.

Inspraak van, en overleg met het publiek en de relevante autoriteiten is fundamenteel voor het ESMP proces. Hierbij worden belanghebbenden en geïnteresseerde partijen in de gelegenheid gesteld om onduidelijkheden en bezorgdheden over het project naar voren te brengen. Na het indienen van het conceptrapport zullen de resultaten worden gepresenteerd in een publieke vergadering. Op basis van de feedback, ontvangen tijdens de publieke vergadering, zal het concept aangepast worden en vervolgens ingediend worden bij het NIMOS ter verkrijging van een advies voor de uitvoering van het exploratie boorprogramma in het Uitkijk gebied.

Voor nadere informatie kunt u altijd contact opnemen met:

ILACO Suriname N.V.
S.V. Voorwaartslaan 18-Paramaribo
Tel no: +597-431270
Email: **info@ilaconv.com**

Appendix 5. Impact Assessment Methodology

The **significance** of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur.

For each potential impact identified, the significance is rated on a 6-point scale as displayed in the table below.

INSIGNIFICANT: the potential impact is negligible and **will not** have an influence on the decision regarding the proposed activity.
VERY LOW: the potential impact is very small and **should not** have any meaningful influence on the decision regarding the proposed activity.
LOW: the potential impact **may not** have any meaningful influence on the decision regarding the proposed activity.
MEDIUM: the potential impact **should** influence the decision regarding the proposed activity.
HIGH: the potential impact **will** affect a decision regarding the proposed activity.
VERY HIGH: The proposed activity should only be approved under special circumstances.

First the **consequence** rating for the impact is determined based on the combined scoring of the three criteria (see also table below):

- ***Extent***– *the area over which the impact will be experienced*
- ***Intensity***– *the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources*
- ***Duration***– *the timeframe over which the impact will be experienced and its reversibility*

Rating	Definition of Rating	Score
A. *Extent*– *the area over which the impact will be experienced*		
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment,	2
(Inter) national	Nationally or beyond	3
B. *Intensity*– *the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources* Magnitude –		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered Minimal effect on livelihood and/or daily life	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way Some influence on livelihood and/or daily life, but it does not lead to dramatic loss of income or quality of life	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3

	Loss of livelihood and/or severe effect on quality of life	
C. ***Duration***– *the time frame for which the impact will be experienced and its reversibility*		
Short-term	Up to 2 years (i.e. reversible impact)	1
Medium-term	2 to 15 years (i.e. reversible impact)	2
Long-term	> 15 years (state whether impact is irreversible)	3

The combined score of these three criteria corresponds to a **consequence** rating, as follows:

Combined Score (A+B+C)	3 - 4	5	6	7	8 - 9
Consequence Rating	Very low	Low	Medium	High	Very high

Second, the **probability** of the impact occurring was assessed according to the following definitions:

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring **(Small likelihood that the impact will be experienced)**
Possible	40% - 70% chance of occurring **(About 50% chance that the impact will be experienced)**
Probable	> 70% - 90% chance of occurring **(Distinct likelihood that the impact will be experienced)**
Definite	> 90% chance of occurring **((Virtual) certainty that the impact will be experienced)**

Third: The overall **significance** of the impact as a combination of the **consequence** and **probability** ratings was determined, as set out below:

		Probability			
		Improbable	Possible	Probable	Definite
Consequence	Very Low	**INSIGNIFICANT**	**INSIGNIFICANT**	**VERY LOW**	**VERY LOW**
	Low	**VERY LOW**	**VERY LOW**	**LOW**	**LOW**
	Medium	**LOW**	**LOW**	**MEDIUM**	**MEDIUM**
	High	**MEDIUM**	**MEDIUM**	**HIGH**	**HIGH**
	Very High	**HIGH**	**HIGH**	**VERY HIGH**	**VERY HIGH**

As a fourth step in the impact identification and rating, the status of the impact was noted i.e. positive or negative effect, followed by a statement of the level of confidence in the assessment of the impact (high, medium or low).

Finally, as part of the impact assessment methodology, appropriate and practical management measures to address impacts are recommended. The management measures are classified as mitigation measures intended to avoid or minimize potential negative impacts and optimization measures intended to generate or maximize potential benefits of the Project. The significance of each potential impact is rated before and after the application of mitigation/optimization.