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Sustainability Services

Prepared for:

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Environmental and Social Analysis: Health Services Support Project Suriname (SU-L1054)

Pre-Design Phase

May 2018

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Executive Summary

The Ministry of Health (MoH) is the applicant of a loan of the amount of US$20 million to be financed by the Inter-American Development Bank (IDB). The loan will be invested in the execution of the "Health Services Support Project (SU-L1054)". The requested loan will serve several purposes:

- Improving the functioning of the health system in the country;
- Addressing more effectively:
  - communicable diseases (CD),
  - non-communicable diseases (NCD),
  - health disparities in vulnerable populations; and,
- Strengthening the functioning of the Ministry of Health (MoH).

The "Health Services Support Project" is divided into four main Components, each of which has its own subcomponents. The four main Components are:

- Component 1. Institutional strengthening of the MoH to manage NCDs (estimated US$7 million) including the centralisation of Health Services;
- Component 2. Organization of Patient Care (PC) for NCD prevention, management, and control (estimated US$9 million);
- Component 3. Support for priority areas in CD programs (estimated US$1.5 million) including health services for HIV/TB/Leishmanial within the Malaria Programme (MP); and,
- Component 4. Program Administration and Evaluation (estimated US$2.5 million).

This document presents an Environmental and Social Assessment (ESA) of two subcomponents of the "Health Services Support Project". The ESA was commissioned by the IDB and concerns the following two subcomponents:

- Construction of a centralized Health Services Centre;
- Design and implementation of activities for integrated provision of health services for HIV/TB/Leishmania within the Malaria Program (MP).

This document presents a summary of the potential environmental and social risks and impacts that were identified during the ESA for the subcomponents. Both subcomponents are in the preparation phase (Pre-Design).

The new Health Services Centre

MoH identified the current Health Compound area at *Rode Kruislaan* as the location for the new Health Service Centre. To determine what the design of the proposed Health Service Centre will include, the existing building conditions are being assessed in a separate study, considering the following scenarios:

- Total demolition of the existing buildings and construction of new buildings;
- Partial demolition and partial renovation of the existing buildings and partial construction of new buildings; or,
- Total renovation of the existing buildings.

Identified Environmental and Social Risks and Impacts

In the ESA the following risks and impacts for the construction of the new Health Services Centre have been identified regardless of the scenario chosen:

- Contaminated soil (i.e. around the former chemical storage and car repair area), demolition waste which will include wood lice invested wood and potentially asbestos containing materials (ACMs). An ACM inventory and removal plan will have to be completed and executed during Construction. Adequate measures for any ACM removal and/or insulation works will have to be included in the overall Environmental, Social and Health and Safety (ESHS) plan for construction.
- Impacts during construction on community health and safety relate to construction activities on site creating nuisances: dust and noise emissions and potentially vibrations, as well as transport to and from the construction location have been assessed. Depending on the final design piling could be required and this will cause vibrations which could damage nearby buildings.
- Adequate septic tanks in volume and structure need to be included to avoid exposure to humans and leakages to groundwater or overflow during heavy rainfall. Furthermore, an on-site biological treatment should be considered, to remove at least 95% of bacteria and the sludge resulting from the sewage treatment to be subjected to anaerobic digestion. Depending on the chosen scenario the best treatment methodology and space needed can be determined.
- Development of an ESHS plan is needed to manage ESHS risk and impacts during construction. The plan should include safe working practices for high risk operations (i.e. working at height, confined spaces, electrical work, hazardous materials, etc.), waste management and visitor rules. Furthermore, it should include an ESHS training plan and identification of adequate Personal Protective Equipment (PPE).
- Both components will generate biomedical waste. For the handling, collection and disposal appropriate procedures are in place. In the Operational Phase (further) training of staff in proper waste handling should be assessed and provided. The biomedical waste is incinerated by specialized companies in Suriname. Reportedly, there are a few companies that have incinerators for biomedical waste. To ensure that these companies meet international standards audits should be performed by the Bureau of Public Health (BOG) EHS Specialist prior to entering into a (new) contract.
- A review of the risks of natural disasters was done for the location of the proposed Health Services Centre. During the rainy seasons floods occur at the proposed location and these are caused by rainfall-induced accumulation of water due to an outdated and insufficient drainage system. Sufficient dewatering after heavy rainfall and upgrades of existing drainage system in an integrated way with surrounding buildings should be included in the construction design. Therefore, a Natural Disaster Risk Assessment or Management Plan is not necessary.

General

For the execution of the Operation, MoH will establish a Project Implementation Unit (PIU). The PIU should include adequate and capable ESHS resources, more specifically an Environmental, Health and Safety (EHS) Specialist and a Community Liaison Officer (CLO).

The need for a regulatory required EIA has been discussed with the National Institute for Environment and Development in Suriname (NIMOS) representatives. Once the design for the Health Service Centre has been finalized an Environmental Assessment (EA) will have to be completed by MoH. After reviewing the screening list of the NIMOS EA Guidelines the proposed Health Services Centre will be a category B-project. The design will determine whether scale and sensitivity are either high or low to set the final classification of the B-project.

Initial preliminary consultations were held which allowed the proposed Health Services Centre to be presented and feedback to be solicited from identified stakeholders. Based on these consultations a stakeholder mapping was completed for further consultations.

Conclusions

Upon completion of the analysis of environmental and social impacts and risks, it has been concluded that there will be no significant adverse environmental or social impacts, but there will be some risks associated with the construction of the Health Services Centre and limited risks with the integration of provision of health services for HIV/TB/Leishmania within the MP. Based upon these findings, an Environmental and Social Management Plan (ESMP) for both Components covering the different phases has been presented as well as a Consultation Plan, including a grievance mechanism. Furthermore, it is recommended that an environmental and social management system is to be put into place to mitigate, manage, and monitor the identified risks and impacts.

Samenvatting

Het Ministerie van Volksgezondheid is de aanvrager van een door de Inter-Amerikaanse Ontwikkelingsbank (IDB) te financieren lening van 20 miljoen US-dollar. De lening zal gebruikt worden voor de uitvoering van het "Health Services Support Project (SU-L1054)". De aan te vragen lening dient een aantal doeleinden:

- Het verbeteren van de werking van het gezondheidssysteem in het land;
- Komen tot een effectievere aanpak van:
  - overdraagbare ziekten (de zgn CD's of *Communicable Diseases*),
  - niet-overdraagbare ziekten (de zgn NCD's of *Non-Communicable Diseases*),
  - de gezondheidssituatie van kwetsbare bevolkingsgroepen.
- Het versterken van het functioneren van het Ministerie van Volksgezondheid.

Het "Health Services Support Project" is onderverdeeld in vier Hoofdcomponenten, met elk bijbehorende subcomponenten. De vier Hoofdcomponenten zijn:

1. Institutionele versterking van het Ministerie om de niet-overdraagbare ziekten te kunnen managen (geschat op US $ 7 miljoen) inclusief de centralisatie van gezondheidsdiensten;
2. Organisatie van Patiëntenzorg voor preventie, beheer en controle van niet-overdraagbare ziekten (geschat op US $ 9 miljoen);
3. Ondersteuning van prioritaire gebieden in programma's gericht op Overdraagbare Ziekten (geschat op US $ 1,5 miljoen) inclusief gezondheidsdiensten voor HIV, Tuberculose en Leishmania (bosyaws) binnen het Malaria-programma (MP);
4. Beheer en evaluatie van programma's (geschat op US $ 2,5 miljoen).

Milieu en Sociale Effecten Analyse (MSEA)

Dit document presenteert een Milieu en Sociale Effecten Analyse (MSEA) van twee subcomponenten van het "Health Services Support Project. De MSEA is uitgevoerd in opdracht van de IDB en het betreft de volgende subcomponenten:

- De bouw van een gecentraliseerd Health Services Centre van het Ministerie van Volksgezondheid;

- Het ontwerp en de uitvoering van activiteiten voor het geïntegreerd aanbieden van gezondheidsdiensten voor HIV, Tuberculose en Leishmania binnen het Malaria Programma (MP).

Dit document geeft een samenvatting van de tijdens de MSEA geïdentificeerde potentiële milieu en sociale risico's en effecten van de twee subcomponenten. Beide subcomponenten bevinden zich in de voorbereidingsfase (Pre-ontwerp).

Het nieuwe Health Services Centre

Het Ministerie van Volksgezondheid identificeerde de huidige locaties van het Bureau Openbare Gezondheidszorg (BOG) aan de Rode Kruislaan als locatie voor het nieuwe gecentraliseerde Health Services Centre. Om te bepalen wat het definitieve ontwerp van het voorgestelde gezondheidscentrum zal omvatten, worden de bestaande bouwomstandigheden beoordeeld in een afzonderlijke studie. Hierbij worden de volgende scenario's overwogen:

- Totale sloop van de bestaande gebouwen en bouw van nieuwe gebouwen;
- Gedeeltelijke sloop en gedeeltelijke renovatie van de bestaande gebouwen en gedeeltelijke bouw van nieuwe gebouwen; of,

- Volledige renovatie van de bestaande gebouwen.

Geïdentificeerde Milieu en Sociale risico's en effecten

Ongeacht het gekozen scenario (zie hierboven) zijn de volgende potentiële milieu en sociale risico's en effecten voor de bouw van het nieuwe Health Services Centre geïdentificeerd:

- Verontreinigde grond (bijvoorbeeld rond de voormalige opslagruimte voor chemische stoffen en rond het gebied voor de autoreparatie) en sloopafval dat hout met houtluizen bevat en mogelijk ook asbesthoudende materialen. Een inventaris van asbesthoudende materialen en een verwijderingsplan, moeten tijdens de bouw worden voltooid en uitgevoerd. Adequate maatregelen voor verwijderings- en / of isolatie werken moeten worden opgenomen in het algemene Veiligheid, Gezondheid & Milieu (VGM) plan voor de bouw.
- Effecten tijdens de bouw op de gezondheid en veiligheid van de gemeenschap hebben betrekking op bouwactiviteiten op het terrein die hinder veroorzaken: stof- en geluidsemissies en mogelijke trillingen, evenals het transport van en naar de bouwlocatie. Afhankelijk van het uiteindelijke ontwerp kan heien vereist zijn en dit veroorzaakt trillingen die nabijgelegen gebouwen kunnen beschadigen.
- Adequate septic tanks (qua volume en structuur) moeten worden opgenomen om blootstelling van afvalwater aan mensen te voorkomen alsook lekkages naar het grondwater en overstromingen tijdens zware regenval. Bovendien moet een biologische behandeling van het avalwater op de locatie worden overwogen om ten minste 95% van de bacteriën en het slib die uit de rioolwaterzuivering afkomstig zijn, te verwijderen en aan anaerobe afbraak te onderwerpen. Afhankelijk van het gekozen scenario kan de beste behandelmethode en benodigde ruimte worden bepaald.
- Ontwikkeling van een Veiligheid, Gezondheid & Milieu (VGM) plan is nodig om het VGM-risico en de gevolgen tijdens de bouw te beheersen. Het plan moet veilige werkmethoden omvatten voor bouwactiviteiten met een hoog risico (bv. werken op hoogte, begrensde ruimtes, elektrische werkzaamheden, gevaarlijke materialen, enz.), afvalbeheer en bezoekersregels. Verder moet het een VGM-trainingsplan en identificatie van geschikte persoonlijke beschermingsmiddelen bevatten.
- Beide subcomponenten zullen biomedisch afval genereren. Voor de hantering, verzameling en verwijdering zijn geschikte procedures aanwezig. In de Operationele fase moet (verdere) training van personeel voor een juiste afvalverwerking worden beoordeeld en verstrekt. Het biomedische afval wordt verbrand door gespecialiseerde bedrijven in Suriname. Naar verluidt zijn er een paar bedrijven die verbrandingsovens hebben voor biomedisch afval. Om ervoor te zorgen dat deze bedrijven aan internationale standaarden voldoen, moeten audits worden uitgevoerd door BOG en/of de VGM Specialist voorafgaand aan het aangaan van een (nieuw) contract met deze bedrijven.
- Een beoordeling van de risico's van natuurrampen werd uitgevoerd voor de locatie van het voorgestelde Health Services Centre. Tijdens de regenseizoenen treden er op de voorgestelde locatie overstromingen op die worden veroorzaakt door de neerslag van water vanwege een verouderd en onvoldoende functionerend drainagesysteem. Voldoende ontwatering na zware regenval en upgrades van het bestaande drainagesysteem op een geïntegreerde manier met omliggende gebouwen moeten worden opgenomen in het ontwerp van de constructie. Daarom is een Natuurrampen Risicobeoordeling of Beheersplan niet nodig.

Algemeen

Voor de uitvoering van de projecten zal het Ministerie een *Project Implementation Unit* (PIU) opzetten. De PIU moet adequate en capabele Milieu & Sociale middelen kunnen inzetten, in het bijzonder een Specialist op het gebied van Veiligheid, Gezondheid en Milieu (VGM Specialist) en een *Community Liaison Officer* (CLO).

De noodzaak van een door regelgeving voorgeschreven Milieu Effecten Analyse (MEA) is besproken met vertegenwoordigers van het Nationaal Instituut voor Milieu en Ontwikkeling in Suriname (NIMOS). Nadat het ontwerp voor het Health Services Center is afgerond, moet er een MEA worden voltooid door het Ministerie van Volksgezondheid. De verwachting is dat na beoordeling van de screeninglijst van de NIMOS richtlijnen dat het voorgestelde Health Services Center een categorie B-project zal zijn. Het definitieve ontwerp zal bepalend zijn om de uiteindelijke classificatie van het B-project in te stellen.

Er is een eerste raadpleging gehouden om het voorgestelde Health Services Centre te presenteren en om feedback te krijgen van geïdentificeerde belanghebbenden. Op basis van deze raadplegingen zijn de stakeholders in kaart gebracht waarmee verder overleg zal worden gepleegd.

Conclusies

Na afronding van de analyse van de potentiële milieu- en sociale risico's en effecten is geconcludeerd dat er geen significante nadelige milieu- of sociale effecten zullen zijn, maar er zullen enkele risico's verbonden zijn aan de bouw van het Health Services Centre en beperkte risico's bij de levering van gezondheidsdiensten voor HIV / TB / Leishmania binnen het Malaria Programma. Op basis van deze bevindingen is een Milieu- en Sociaal Beheerplan voor beide componenten ontwikkeld, evenals een consultatieplan, inclusief een klachtenmechanisme. Op grond van het consultatieplan zullen verdere raadplegingen worden georganiseerd. Tevens wordt aanbevolen een milieu en sociaal management systeem op te zetten om de geïdentificeerde risico’s en effecten te mitigeren, managen en monitoren.

1 Introduction and Objectives

1.1. Introduction

Esther Wielzen of Wielzen Consultancy and Maartje Hermans of Blue Pelican Sustainability Services ("the Consultants") were commissioned by the Inter-American Development Bank ("IDB" or "Bank") to prepare and write the Environmental and Social Analysis (ESA) of the Operation "Health Services Support Project (SU-L1054) and a management instrument called an Environmental and Social Management Plan (ESMP) that ensures the environmental and social sustainability of the infrastructure and the activities to be financed by the Operation, and therefore to comply with the national environmental legislation as well as the Environmental and Social Safeguards Policies of the IDB.

The Republic of Suriname, specifically the Ministry of Health (MoH) is seeking an estimated US$20 million loan to be financed by IDB for the purposes of improving the functioning of the health system in the country and addressing more effectively communicable diseases, non-communicable diseases, and health disparities in vulnerable populations, and strengthening the functioning of the Ministry of Health.

The proposed Operation would include the following components:

- **Component 1.** Institutional strengthening of the MoH to manage NCDs (estimated US$7 million). The component seeks to strengthen the MOH's stewardship and governance functions in setting priorities, designing effective policies and interventions, and ensuring their efficient implementation with a focus in the areas of prevention, management and control of NCDs. Accordingly, this component will fund: (i) technical assistance to support change management processes; (ii) training of MOH personnel in core areas, including but not limited to, health data collection and analysis, formulation and execution of health policies, and monitoring and evaluation; (iii) development and implementation of digital information management systems to support core business functions; (iv) construction of MoH headquarters; (v) procurement of office equipment; and (vi) technical assistance for activities leading to implementation of population health approaches.
- **Component 2.** Organization of Patient Care (PC) for NCD prevention, management, and control (estimated US$9 million). This component will support strengthening of an integrated, patient-centred healthcare model within PC, with the objectives of increasing access, quality and efficiency of services for NCDs. It will finance: (i) technical assistance for development and operationalization of the Chronic Care Model (CCM) and to support its implementation; (ii) procurement of equipment; (iii) design and implementation of electronic health records and digital support systems for care provision at the primary level; (iv) training of personnel; (v) implementation of change management processes; and (vi) start-up operating costs of the CCM.
- **Component 3.** Support for priority areas in CD programs (estimated US$1.5 million). The objective is to fund activities to sustain and improve the response to CDs, including: (i) design and implementation of culturally appropriate communication and behaviour change strategies to increase use of bed nets and improve health seeking behaviour and adherence to treatment by at-risk population; (ii) specialized training and improvements for data collection, processing and analysis at the national reference laboratory; (iii) design and implementation of activities for integrated provision of health services for HIV/TB/Leishmania within the Malaria Programme (MP).
- **Component 4.** Program Administration and Evaluation (estimated US$2.5 million). This component will support project administration and evaluation activities, including the design and implementation of an impact evaluation.

Based on a review of the Operation and the underlying Components and further discussion with IDB it was agreed that the ESA would focus on the Components with environmental and social impacts and risks (see § 1.2).

1.2 Operation Objectives and Scope

The Consultants have been contracted by the IDB to prepare an ESA for the proposed Operation, more specifically the proposed centralized MoH Health Services Centre in Paramaribo (Component 1(iv)) and the design and implementation of activities for integrated provision of health services for HIV/TB/Leishmania within the MP (Component 3(iii)). This document identifies potential environmental and social risks associated with these Operation's items and proposed mitigation measures based on the pre-design phase of the operation.

Specifically, the ESA has been developed based on the following:

- A document review including available documentation on the Operation and information the Consultants collated for the Operation;
- A site reconnaissance including visual observation of the relevant areas directly and indirectly affected by the Operation, meetings with relevant individual/businesses/ organizations, data and information collection;
- Evaluation of the legal and regulatory framework applicable to the Operation (particularly related to the construction of the new MoH Health Services Centre), including IDB requirements;
- Assessment of the potential environmental, social, cultural, health and safety, and labour impacts and risks associated with the Operation, and the planned construction; focusing primarily on construction design and execution; community; disaster and other risks;
- Assessment of the institutional and technical strengthening needs for MoH to manage environmental, social, cultural, health and safety and labour issues involved with the Operation;
- Recommendations for mitigation, management and monitoring plans required at the level of the Operation, in an Environmental & Social Management Plan (ESMP); and,
- Preparation of a Consultation Plan.

1.3 Key E&S Risks and Impacts

The project's key environmental and social risks and impacts mainly relate to the following:

(a) environmental and social management capacity and systems at MoH, (b) proactive engagement with stakeholders, including information about the construction and the availability of an external grievance mechanism, to address any complaints from construction-related activities and ongoing operations; (c) fair, safe and healthy labour and working conditions during construction and operation of the proposed MoH Health Services Centre for all workers; (d) management of wastes (particularly construction and asbestos containing materials, hazardous and biohazardous waste), air emissions and liquid effluents; (e) protection of community health through adequate building infrastructure for all buildings; (f) resource efficiency (water and energy efficiency); (g) measures to guarantee life and fire safety; and (h) emergency preparedness and response for relevant emergency situations, especially flooding and fire in accordance with the relevant international standards and more specifically World Bank Group (WBG) Environmental, Health and Safety (EHS) Guidelines.

2. Methodology and Context

2.1 Document Review

To understand the Operation's context and in support of the assessment of potential socioeconomic and environmental effects, relevant documentation has been reviewed. Key documents included:

- National Action Plan for the prevention and control of Non-Communicable Diseases 2015 -2020 Ministry of Health Suriname [1];
- Annual Report 2017, Malaria Programme, Ministry of Health Suriname [2];
- Internal Structure Bureau of Public Health 2011, Ministry of Health Suriname [3];
- Country Cooperation Strategy Suriname 2012 – 2016, PAHO/WHO, November 2012 [4];
- Development Plan Suriname 2017 – 2021, Planning Agency Suriname, May 2017 [5];
- Environment Statistics 2016, Bureau of Statistics, December 2016 [6];
- Environmental Assessment Guidelines Volume I: Generic, NIMOS, 2nd Edition, August 2009 [7];
- Meaningful Stakeholder Engagement, IDB, 2017 [8];
- Good Practice Note IFC Life and Fire Safety: Hospitals, 2017 https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_lfs-hospitals [9];
- Labour Law Reform Suriname, Mr. G. Piroe, 2018 [10];
- Environmental & Safeguards Compliance Policy, 2006, OP-703, OP-756, OP-704, OP-710, and OP-761[11];
- Implementation Guidelines for Environmental & Safeguards Compliance Policy, 2007 [12];
- International Finance Cooperation (IFC) ESMS Handbook for Health Care Facilities, March 2015 https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_handbook_esms-healthcarefacilities [13]; and,
- IFC Good Practice Note for Managing Contractors Environmental and Social Performance, October 2017 https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_escontractormanagement [14].

Secondary data and information was also obtained from relevant national bodies and publicly available sources (websites, IDB publications, etc.).

For understanding the current Malaria Programme and proposed integration of health services for HIV/TB/Leishmania in the programme the Programme Coordinator, Dr. Hélène Hiwat, was interviewed and relevant documents were reviewed.

2.2 Site Reconnaissance

The Consultants visited the current location of the MoH and the Health Compound to conduct informal interviews, route walks, and visual recognition which helped to lay out an initial overview of the site context and the key environmental and social issues further developed in forthcoming sections.

The MoH is responsible for the definition of health care policies and their implementation in Suriname. The executive work of the ministry is mainly realized by its executive institutions, among which is the Bureau of Public Health (BOG). The current MoH headquarters in *Henck Arron* street is located within the historic center of Paramaribo, and consists of an historical building, listed within the List of Monuments of Suriname, that lacks maintenance and retrofit (Figure 2.1). In addition, in June 2002 the historic inner city of Paramaribo was added to the World Heritage list of UNESCO. The Government is the owner of the building and when MoH moves, the old building will be occupied again by a Governmental Department or Agency.

Figure 2-1 Current MoH Building

In Figure 2.2 the two locations: existing MoH (Ministerie van Volksgezondheid) in the city centre and proposed location Health Services Centre (BOG Vaccination) in the south of Paramaribo are presented.

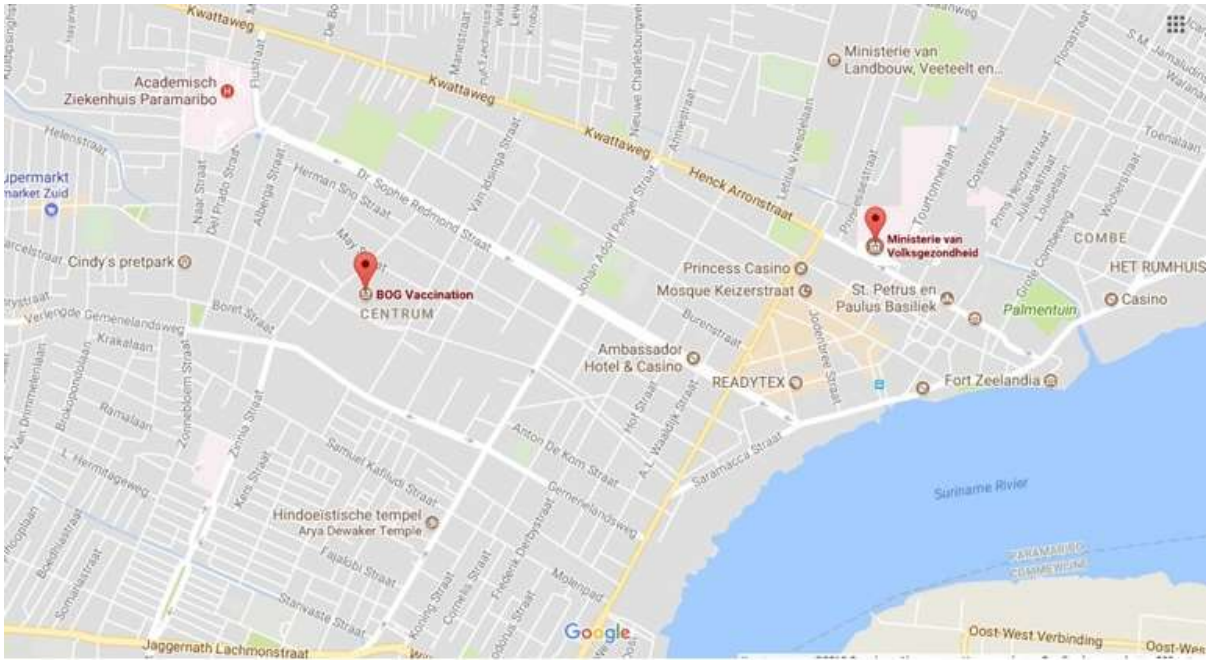

Figure 2-2 Existing MoH and proposed location of Health Services Centre

Most of the health services and facilities that operate under the umbrella of the MoH are located within the Health Compound, comprised of two adjacent plots, located in *Rode Kruislaan*, central area of Paramaribo (Figure 2.3). The plots are property of the State, the first plot (nr 1, in the image below) is about 11 Hectare (Ha) and the second one (nr 2, in the image below) is about 14 Ha, summing 25 Ha of terrain to be used for either restoration of the existing buildings and/or constructions of new buildings. Additionally, on two adjacent plots other Health related institutions are located, including the Red Cross, Central Blood Bank (3) and the Central Laboratories (4).

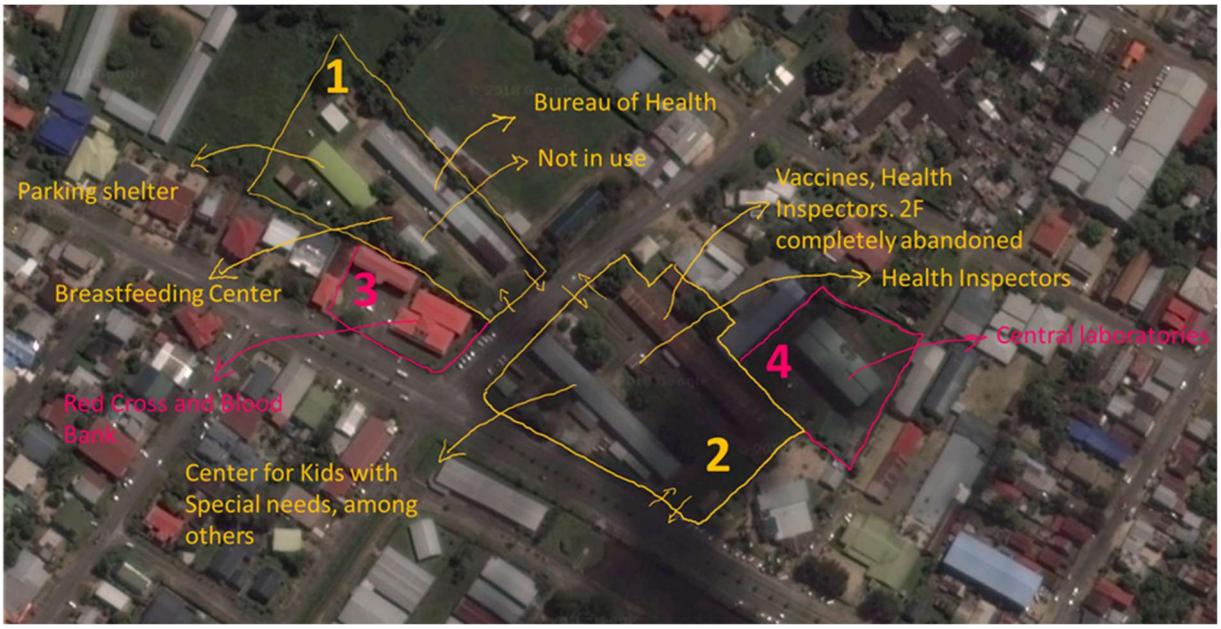

Figure 2-3 Current Health Compound at Rode Kruislaan

MoH is planning to centralise its activities and related services from the historical city center to the Health Compound, consolidating the area as a Health Services Centre including accommodating all the services and facilities that the Ministry administers and operates. In table 2.1 an overview is given of the MoH services and facilities to be located at the Health Services Centre.

Services & Facility	
• Ministry of Health Administration and Policy Development	• Bureau of Public Health
• Vaccination Bureau	• Health Inspection and Pest Control
• Medical Educational Offices	• Brest Feeding Bureau
• Pharmaceutical Offices	• Archives

Table 2-1 MoH Services to be located at the Health Services Centre

2.3 Socio-economic and Health Characteristics

The country has an area of 163,800 km^2 and a population of 567,291 (2015). Suriname is divided into ten political districts: Nickerie, Coronie, Saramacca, Wanica, Paramaribo, Commewijne, Marowijne, Para, Brokopondo, and Sipaliwini Of Suriname's population about 95%, live in the coastal plains and another 5% in the interior (mostly Maroon communities and native Amerindians). Suriname is one of the most ethnically diverse countries in the Americas, mainly because of the 17th and 18th century slave trade and bound labour from India, Indonesia and China. Currently, Suriname is composed of the following predominant groups: Hindustani (East Indians; 27.4% of the population); Creoles (17.7%); Maroons (descendants of runaway slaves from Africa; 14.7%); Indonesians (principally Javanese; 14.6%); Amerindians (3.7%); Chinese (1.8%); Mixed (12.5%); others (7.6%) [6].

Suriname's economy is dominated by the mining industry, with exports of oil and gold accounting for approximately 85% of exports and 27% of government revenues. This makes the economy highly vulnerable to

mineral price volatility. Public sector revenues fell, together with exports, international reserves, employment, and private sector investment. Economic growth declined annually from just under 5% in 2012 to -10.4% in 2016. In January 2011, the government devalued the currency by 20% and raised taxes to reduce the budget deficit. Suriname began instituting macro adjustments between September 2015 and 2016; these included another 20% currency devaluation in November 2015 and foreign currency interventions by the Central Bank until March 2016, after which time the Bank allowed the Surinamese dollar (SRD) to float. By December 2016, the SRD had lost 46% of its value against the dollar (CIA Factbook, 2018).

Over the past decade, Suriname has made significant strides in reducing infectious disease related morbidity and mortality. However, each year Suriname loses 170 000 productive life-years due to ill-health and premature death. "Communicable diseases (CDs), maternal, neonatal, and nutritional disorders", "Non-communicable diseases (NCDs)" and "Injuries" account for 27%, 58%, and 15% respectively of these premature deaths. Similar to global trends, Suriname is currently experiencing a shift from CDs towards an increasing burden of NCDs. NCDs pose a major challenge for the containment of cost in the health system. Suriname has yet to reach global targets for maternal and infant mortality and also faces a significant burden of disease from road traffic injury and depressive disorders and suicide. Inflation and an economic crisis have further put pressure on the health system and efforts are under way to further contain cost and optimize health service delivery. A recent assessment of health equity reports inequities in health status and prevalence of risk factors across ethnic, geographic, gender and socio-economic status. Non-communicable diseases including stroke, ischemic heart disease and diabetes, mental health issues including suicide, HIV, road traffic injuries and preterm birth complications are among the largest contributors to the burden of disease. Key risk factors are an unhealthy diet, insufficient physical activity, use of tobacco and alcohol, high blood pressure, domestic violence, incomplete vaccination coverage, low maternal age and low antenatal care service uptake. Efforts are under way to mainstream the 2030 agenda for sustainable development within the ministry of health in Suriname [1] [4].

2.4 Climate Characteristics

Two rainy and two dry seasons are observed annually over the largest part of the country. The average annual temperature in Suriname is between 26°C and 28°C. Suriname has a high humidity. An ambient humidity between 80 to 90% is quite normal. Even though Suriname is located outside of the hurricane area, hurricane effects are often experienced in the form of heavy rainfall. The following three climate systems influence meteorological conditions in Suriname:

- Sibibusies (Sibi= sweep, Busie= forest) are heavy winds events that occur during heavy precipitation with speeds between 70 km/hr and 100 km/h;
- Inter Tropical Convergence Zone (ITCZ) is an area located close to the equator, where the northeast and southeast trade winds met; and,
- El Niño phenomenon usually occurs 2-7 years lasting 12-18 months, but it can occur any time. Generally, climatological conditions associated to this phenomenon are dry in Suriname.

Suriname experiences frequent floods in the coastal plain and rivers. The UNDP considers Suriname in the list of the ten vulnerable countries with low-lying coastal plains that are threatened by Sea Level Rise in this century During the rainy seasons floods occur at the proposed Health Service Centre and these are caused by rainfall-induced accumulation of water due to an outdated and insufficient drainage system [6]. This will be further discussed in § 4.4.9.

3.0 Regulatory Framework Review

This section evaluates the existing institutional and regulatory frameworks including IDB Safeguard Polices that are relevant to the Operation. It includes a review of applicable legislation and institutions on the management of the construction and/or renovation of the building to serve as MoH headquarters. Information was provided by the National Environmental Policy Office residing in the Cabinet of the President of the Republic, National Institute for Environment and Development in Suriname (NIMOS) and Ministry of Labour.

3.1 Environmental and Social Legal Framework

In the environmental field, responsibilities are spread over several government organizations. The National Environmental Policy Office residing in the Cabinet of the President of the Republic is responsible for formulating environmental policies in Suriname. Environmental management and protection are the responsibility of the National Environmental Policy Office, the Ministry of Labour and Environment and NIMOS. NIMOS was established in 1998, as the executive and research arm of the National Council for the Environment (NRM) After the last elections in 2015, the NRM was replaced by the National Environmental Policy Office. In addition, several agencies and departments in sectoral ministries hold responsibilities in environmental protection, such as enforcing existing environmental regulations and contributing to the National Environmental Policy Office environmental planning activities (see Table 3.1).

The Constitution of Suriname provides for a legal basis for a national environmental policy. At a national level, the following environmental laws below may be relevant to infrastructure projects:

- Nature Conservation Act (Natuurbeschermingswet);
- Hindrance Act (Hinderwet);
- Forest Management Act (Wet Bosbeheer);
- Provisions for the protection and preservation of the natural heritage in Suriname (Houdende voorzieningen tot bescherming en behoud van de in Suriname aanwezige natuurmonumenten).

Suriname is a member of the International Labour Organization (ILO) and has ratified all eight fundamental conventions as laid down in the ILO's Declaration on Fundamental Principles and Rights at Work (1998). The Labour Act 1963 of Suriname and the Occupational Safety and Health Act (OSHA) of 2017 are the main Acts containing provisions in relation to occupation safety and health, and more details can be found in the 9 Safety Regulations pursuant to the OSHA, the Industrial Accidents Act, Pesticides Act and Labour Inspection Decree. The Department of Labour Inspection has inspectors who conduct regular unannounced inspections of work places as well as inspections in response to complaints. There is a Labour Tribunal that can levy fines for violations of workplace safety. Employers are required to provide personal protective equipment but health and safety plans are not required, although large companies generally have plans. The Ministry of Health through its Bureau of Public Health (BOG) has established general guidelines for proper management of medical wastes (which include veterinary clinic and laboratory wastes), but they are not mandatory. Permits for the installation of incinerators are required to be obtained from the relevant District Commissioner Hindrance Act of 1930 that applies to pollution from industrial activities and are reviewed by BOG with input from NIMOS. BOG receives routine reports from incinerator operators, but not air quality monitoring data, as there are no emissions or ambient air quality standards in Suriname.

Government Agencies/Ministries	Responsibilities
National Environmental Policy Office residing in the Cabinet of the President of the Republic (National Bureau voor milieu ontwikkeling)	• Contribute to sustainable development goals and has a role in environmental management and protection. • Preparation of environmental policy at the national level and exercise of control in its implementation.
National Institute for Environment and Development in Surinam (Nationaal Instituut voor Milieu en Ontwikkeling in Suriname (NIMOS))	• Environmental management and protection. • Development of Environmental Impact Assessment (EIA) legislation, advice and monitoring of EIA completion and review • Main governing body responsible for enforcing environmental laws and regulations as well as managing and effecting new laws and developing subsidiary legislation.
Ministry of Labour (Ministerie van Arbeid)	• Enforcement of occupational safety law. • Development of a safe labour market.
Ministry of Public Works (Ministerie van Openbare Werken)	• Manages surface water and urban drainage, conducts hydrological and meteorological monitoring, and manages sewage treatment. • Issues construction permits
District Commissioner (District Commissaris)	• Responsible for the regional development of the district. • Issues Hindrance Act permits.
Ministry of Spatial Planning, Land and Forest Management (Ministerie van Ruimtelijke, Ordening, Grond en Bosbeheer (ROGB))	• Land use planning. • Management and law enforcement with regards to conservation, nature reserves and wildlife.
Ministry of Agriculture, Animal Husbandry and Fisheries (Ministerie van Landbouw, Veeteelt en Visserij (LVV)	• Management drainage canals and control of water quality.
Ministry of Health (Ministerie van Volksgezondheid (VGZ))	• Management of environmental health (infectious diseases, food quality, water quality, industrial waste disposal, water-soil-air quality standards vis-à-vis human health).
National Coordination Centre for Disaster Management (Nationaal Coördinatiecentrum voor Rampenbeheersing (NCCR))	• A Division of the Ministry of Defense that develops national policies on disaster management through coordination and prevention of potential threats and disasters.

Table 3-1 Suriname Legal Framework

3.2 Environmental Management

Currently there is no legal framework for an EIA or Strategic Environmental Assessment (SEA) in Suriname. However, the Suriname government has acknowledged the importance of an Environmental and Social Impact Assessment (ESIA). The government signed the Convention on Biological Diversity and the Convention on the Law of the Sea, which address the requirement of an EIA. As part of the Biodiversity Strategy, the government aims to strengthen the government institutions, NGOs and private businesses engaged in the preparation of EIA. In

addition, NIMOS has issued guidance on EIA (updated in August 2017), and has been tasked with review of EIA reports. NIMOS also advises on the screening decision and scope of EIAs, only a limited number of EIAs have been prepared and submitted, and these mainly relate to oil and gas and mining projects [Website NIMOS].

The Draft Environmental Act of 2002 is a framework law that was prepared because of the Rio Declaration of 1992 to introduce international legal requirements into Suriname's environmental legislative scheme. This Draft Act establishes an Environmental Authority, a Supervisory Board, an Environmental Fund, and an Inter-Ministerial Advisory Committee. It also states the legal framework for an ESIA for all new economic activities that might have an adverse impact on the environment. The ESIA must include tools for pollution control. It also requires permits for waste management and contingency plans for potential accidents that may cause environmental pollution. An important step in the Draft Act is the granting of public participation in the decision-making process related to projects that may have an adverse effect on the environment. During meetings with the National Environmental Policy Office and NIMOS information was provided on the implementation of the Environmental Act which is expected by end of 2018.

The Planning Act of Suriname, which originated in 1973, establishes procedures for national and regional land use planning and provides guidelines for drafting land use plans. This Act also empowers the Government to establish protected areas other than nature reserves such as the special management areas. Laws on the issuance of State-owned lands provide for the issuance of long-term leases for management of public lands including environmental management.

The Government of Suriname has also ratified and complied with the terms of several international treaties and accords. These have been designed to formalize cooperation on regional and global environmental protection strategies. In this regard, Suriname has signed Agenda 21 and is party to the following conventions and agreements [NIMOS Website]:

- The Ramsar Convention (The Convention on Wetlands of International Importance);
- Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora;
- Amazon Cooperation Treaty (ACT);
- United Nations Convention on Biological Diversity;
- The Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (Western Hemisphere Convention);
- United Nations Convention on the Law of the Sea (UNCLOS);
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78);
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal;
- United Nations Framework Convention on Climate Change (UNFCCC); and,
- World Heritage Convention.

4. Environmental and Social Analysis

4.1 Description of the Operation Element 1(iv)

Further to the description of the current Health Compound (Element 1(iv)) in § 2.2 only limited information is available as the Operation element i.e. development of the Health Service Centre is in the Pre-design Phase. Findings of the reconnaissance visit show that the buildings are in bad condition and there is a backlog in maintenance. The main two-story building on the western side in *Rode Kruislaan* is in use by BOG and in a smaller building the Brest Feeding Bureau is situated. At the back of the site a roofed carpark is located where also minor maintenance is conducted on Ministry vehicles as well as two sea containers for storage of campaign materials. On the eastern site in *Rode Kruislaan* there are two main two-story buildings of which the building where the Vaccination Bureau is situated only the ground floor is in use. On the first-floor laboratories were situated which were vacated a couple years ago. Most chemicals were removed, but some bottles and cannisters were found. At the back of the site an abandoned wooden shed is present which was used as a chemical storage. Currently chemicals are stored in a sea container. Reportedly, chemicals were buried at the back of the site and therefore local soil contamination cannot be excluded. On the eastern site the Central Laboratories are located which will be integrated in the proposed Health Service Centre. In the other main building the Health Inspectorate and pest control are located as well as the Medical Education Offices. Evidence of leakages due to rainfall were found in all buildings. The woodwork of all buildings is infested with wood lice because of the mango trees on the sites, but the woodlice are also present in the soil. Furthermore, rodents are present in the buildings.

4.2 Description of the Operation Element 3 (iii)

The main objective of the MoH Malaria Programme (MP) (Element 3 (iii)) is to eliminate malaria in Suriname by 2020 and prevent re-introduction and re-establishment of malaria in all areas in which malaria transmission was successfully interrupted. The population most at risk for malaria is the so-called mobile migrant population, which are gold miners, mostly of Brazilian origin, moving between Suriname and French Guiana. A division of labour has been agreed between the MoH Malaria Programme and the Medical Mission. The MoH Malaria Programme focusses on the mobile migrant population. Inland communities and more specifically Indigenous Peoples receive health care services from the Medical Mission.

The MP is run by a dedicated team which is based in a separate building in the north of Paramaribo. It is not envisioned that they will move to the Health Service Centre. The team consists of a Programme Coordinator, a Head of Laboratory, 2 M&E Officers, a Medical Doctor and 3 Field Supervisors.

A Global Fund grant supported key staff positions in the Malaria Program and human resources active in management of the Malaria Service Deliverer (MSD) network in the gold-mining areas in the Interior of the country. It also supports logistical and material costs for the major malaria interventions of the Malaria Program, which include the provision of health services at the Malaria Program clinic, “TropClinic”, and by the MSD network. In addition, malaria screening of populations at risk in remote areas is done via Active Case Detection Surveys (ACDs) as well as bed net distribution among the populations at risk. The MP clinic, TropClinic, is a low-threshold facility and provides health services around Malaria (prevention, diagnosis and treatment), HIV (prevention, diagnosis, counselling and referral), Leishmaniasis (diagnosis and referral) and general health services related to blood pressure and blood sugar (screening, counselling and referral). Although aimed at migrant workers the clinics have an open-door policy and will provide upon request services to members of local communities. This will include vulnerable groups such as women and indigenous people. In Table 4.1 the number of people are presented who visited TropClinic in 2017 for Malaria and HIV testing or other health services.

TROPCLINIC	Number of People Visiting
Malaria	843
HIV	232
Other Services (blood sugar, blood pressure, Leishmaniasis, etc.)	147
Total	1,222

Table 4-1 Number of people visiting TropClinic

The total number of people screened for malaria within the national health system was 11,381 (14.2% of the population at risk) in 2017. In addition, a total of 9,897 blood smears from the national blood bank were checked for malaria by the Bureau of Public Health Anti-Malaria Campaign. The blood bank samples were all negative for malaria. Of the 11,381 people who were seen at the national health facilities or during ACDs a total of 538 (4.7 %) were positive for malaria infection. Of these 498 cases (92.6%) was the result of import malaria. A total of 476 (95.6%) of the diagnosed import cases were the result of malaria infection obtained in French Guiana. The vast majority of cases from French Guiana were coming from the mining area of Sophie (central French Guiana). A total of 364 cases were identified from this area which is 76.5% (364/476) of the total number of malaria import cases from French Guiana. Deaths due to malaria have dropped from 24 in 2000 to 1 in 2013 Since then no deaths were recorded [2].

Malaria has practically been eliminated in the stable villages of the interior, which previously had the highest transmission rates in the Americas. Malaria in Suriname has decreased to less than 40 autochthonous (nationally transmitted) cases a year. Achieving this remarkable impact was done by:

- Increasing access to malaria diagnosis and treatment; establishment of a Malaria Service Deliverer network using Rapid Diagnostic Tests and further promotion of a Malaria Clinic in the capital with very low threshold for the target populations;
- Reduction of transmission by mass-blood-screening of the at-risk populations;
- Distribution of long-lasting Insecticide treated nets in high-risk areas;
- Prevention of re-establishment of malaria in areas where control was successful by implementing border posts, early detection and case investigation (to determine place of infection and implement targeted control measures); and,
- Working with surveillance guided interventions (with a low threshold to initiate actions in place) [Website Malaria Programme Suriname].

4.3 Diagnostic of Area of Influence and Stakeholders of the Health Services Centre

The proposed Health Services Centre consisting of the MoH building (yellow rectangles) on the western side where the policy development and administration will be based are shown in Figure 3.2. On the eastern side the Health services and facilities will be based (see table 2.1) and will include the Central Laboratories (yellow square). The blue lines signify the approximate primary (solid) and secondary (dotted) affected stakeholders, which are in more detail explained in Chapter 6.

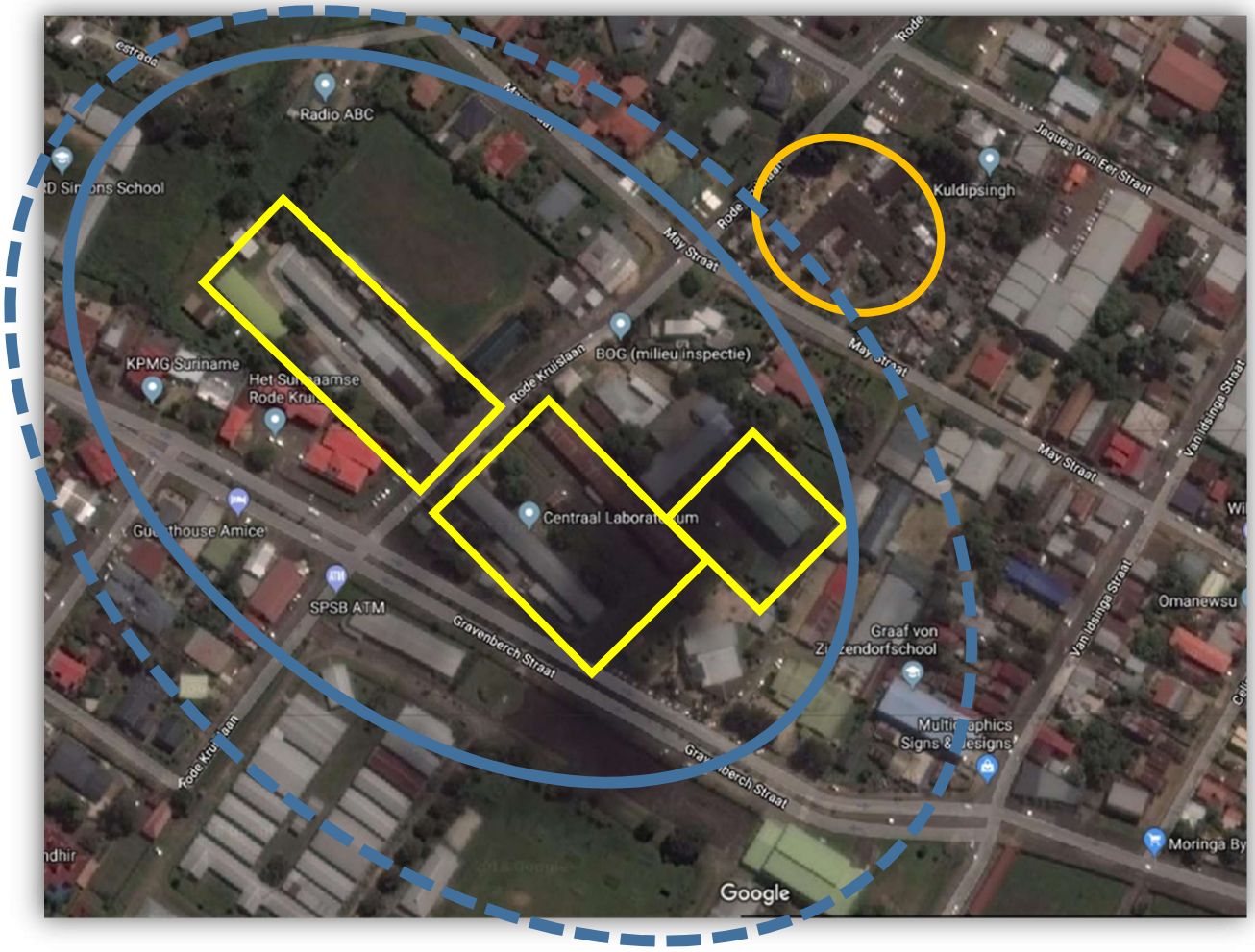

Figure 3-2 Area of Influence

4.3.1 Indirectly Potential Impact Assessment

At approximately 400m north of the proposed Health Service Centre an abandoned building of the Ministry of Social Affairs (former Youth Care Institute) (orange circle) is located. On the site Maroon families have been living for the last 10 to 15 years. The exact number of families and how long each family has been living there is not known. They have built wooden houses and about two years ago they were connected to water and electricity. The settlement is illegal, but has been informally permitted also given the fact they have been provided utilities.

The community will not be directly impacted by the development of the Health Service Centre, except for potentially some limited increase of traffic movements during construction and the operational phase. The street they live on will not be used as the main to and from route. For this reason they are considered a stakeholder and will be included in the consultations.

However, the abandoned building of the former Youth Care Institute poses a health hazard as it contains asbestos containing materials (ACMs) which are in bad condition. The ACMs have been used in the construction of the

wooden houses, as fence materials and pieces are laying all over the site. Distribution of asbestos fibers beyond the site is very likely with different wind directions and will have to be investigated.

This presence of ACMs on the location of the former Youth Care Institute is acknowledged by MoH. Reportedly, an asbestos inventory was completed a couple years ago. Furthermore, this specific location features in a 2017 documentary produced by the NGO Milieu Watch [website Milieu Watch] which was presented to the press in April 2017. There is no legal framework for the inventory, removal and disposal of ACMs in Suriname although it is considered a significant environmental issue. The labour inspection can give a legal exemption for disposal based on an inventory and removal plan. There are a limited number of asbestos removal companies in Suriname. Disposal is at a designated area of the Ornamibo landfill south of Paramaribo [Verbal information Milieu Watch].

Although not part of the proposed Operation, MoH as part of its public health task will need to consider how and what measures can be taken to remediate the ACM risks when developing the Health Services Centre. Potentially IDB could support this with means and/or capacity development.

4.4 Potential Environmental and Social Impacts Operation Element 1(iv)

This Operation Element comprises of four phases: Pre-design, Design, Construction and the Operational phase (see Figure 4.1). The ESA was completed during the Pre-Design Phase. Therefore, this report analyses the potential E&S risks and impacts based on the information available in this phase but considering the next three phases.

Figure 4-1 Phases of the Operation Element 1(iv)

4.4.1 E&S Risk and Impact Assessment and Management

MoH only identified the current Health Compound area for the new Health Service Centre and therefore no analysis of alternative locations was completed. The no-project scenario would mean that MoH would continue to function decentralised in a dilapidated building where expansion and refurbishment to centralize services and facilities is prohibited because it is a UNESCO heritage building.

During the initial consultations, as part of the ESA, the need for a regulatory required EIA has been discussed with NIMOS representatives. Once the design for the Health Service Centre has been finalised an Environmental Assessment (EA) will have to be completed by MoH as per the NIMOS EIA process.

After reviewing the screening list of the NIMOS EA Guidelines the proposed Health Services Centre will be a category B-project. The design will determine whether scale and sensitivity are either high or low to set the final classification of the B-project: Path 3 (If either scale and sensitivity are high) or Path 2 (If either scale or sensitivity are low) or Path 1 (If both scale and sensitivity are low). This will require respectively a full EA, or EMP/Social Impact Assessment/Waste Management Plans/Environmental Impact Statement/Ecological Impact Study, etc. or a form to be filled out [7].

To determine what the design will include, the existing building conditions are being assessed in a separate study, to technically justify the intervention and evaluate the possibility of renovation and retrofit of the buildings located within the proposed Health Service Centre, considering the following scenarios:

- Total demolition of the existing buildings and construction of new buildings;
- Partial demolition and partial renovation of the existing buildings and partial construction of new buildings; or,
- Total renovation of the existing buildings.

Design Phase

This document will provide relevant risk and impact information for the Design Phase of the Operation which can be subsequently used in the screening and scoping phase of the EIA process and subsequently developing the EA as required by NIMOS.

Construction Phase

The EA report based on the final design and reviewed by NIMOS will be used in the permitting process to obtain a construction permit and a Hindrance Act permit for the operational phase. The involved Competent Authorities are the Ministry of Public Works and the District Commissioner. No other environmental permits are believed to be required as there is no environmental permit system in place at the time of this assessment. Other Authorities could be involved but this will depend on the proposed design.

Operational Phase

For the management of the ESMP and E&S aspects longer term MoH could consider the development of an E&S Management System (ESMS). An ESMS includes the organisational structure, planning activities, responsibilities, practices, procedures, processes, and resources for implementing and maintaining sound environmental and social management in an organisation. The ESMP developed as part of this ESA would be part of such an ESMS. NIMOS provides a generic guideline for an environmental management system (EMS) in Annex 12 of the EA Guidelines [7], based on ISO standards. Another particle tool is the International Finance Cooperation (IFC) ESMS Handbook for Health Care Facilities [13] which considers the aspects which are relevant in managing the delivery and quality of healthcare services and staff and patient safety. The IFC Handbook assists in the development of a management system that meets the needs in relation to the scale, nature and size of the MoH organization.

4.4.2 E&S Capacity and Competency in the Operation

Design up to Operational Phase

For the execution of the Operation, MoH will establish a Project Implementation Unit (PIU). The PIU should include adequate and capable E&S resources, more specifically an Environmental, Health and Safety (EHS) Specialist and a Community Liaison Officer (CLO). The Operation Manager of the PIU will supervise the work of both. The EHS Specialist should be qualified in environmental issues management: pollution prevention; chemical handling; (biomedical) waste management and occupational health and safety management, especially during construction. The EHS Specialist would work with NIMOS on the EA requirements and would manage the construction company on day-to-day EHS issues. The CLO should have experience in establishing and maintaining an effective relationship between the project proponent (MoH) and affected stakeholders as well as the institutional and NGO stakeholders. Based on the Consultation Plan, the CLO should provide affected stakeholders with opportunities to express their concerns and raise issues with MoH. The CLO would ideally be a well-respected

member of the Suriname community that can establish a strong sense of trust with the stakeholders. Both resources must have good management and communication skills.

Both functions in the PIU will have tasks in the different phases of the Operation as included in the ESMP and Consultation Plan.

4.4.3 Life and Fire Safety

In 2017, IFC published a Good Practice Note regarding Life and Fire Safety in Hospitals considering that patients in health care occupancies are one of the most vulnerable population groups in case of a fire. Unlike most other buildings and occupancies, the least desirable emergency action in a health care occupancy is the wholesale relocation or evacuation of people who are often incapable of self-preservation due to age or physical or mental disabilities.

Besides this vulnerability of the population, a health care occupancy houses some considerable fire hazards:

- Laboratories and / or treatment rooms, where considerable amounts of flammable liquids and / or gases can be used. These areas often also contain very specific and expensive equipment.
- Presence of oxygen bottles and / or oxygen transport systems.

Design Phase

A "defend-in-place" strategy is required to obtain an acceptable fire safety level in health care occupancies. This strategy includes nearly the entire gamut of systems available. The defend-in-place strategy is implemented using a "total concept" approach. This approach provides an assortment of features that are deemed necessary to avoid the movement of patients to the outside during a fire. Of course, those patients or visitors who might be perilously close to the effects of the fire are given a range of protection features, such as being moved to an adjacent safe refuge area on the same floor.

Requirements for allowable building construction types, sprinklers, alarm and detection systems to help ensure that a patient can be safely and adequately protected, regardless of where a fire starts. A summary table of the key LFS design criteria is included in Annex A of the IFC Guidance Note which should be considered in the Design Phase for the Health Services Centre [9].

Construction Phase

The required level of life and fire safety should be part of the building construction by implementing the identified range of fire safety measures features (e.g., compartmentation; interior finish; alarm, detection, and sprinkler systems; and control of contents and furnishings) as part of the design.

Operational Phase

Staff action is an integral part of the life safety features required in a health care facility. Staff training, coupled with the traditional built-in systems and, combine to provide a safe environment for one of the most vulnerable population groups [9]. This will be part of the overall Emergency Preparedness and Response planning.

4.4.4 Emergency Preparedness and Response

The MoH building and Health Compound buildings have fire extinguishers and emergency lighting and routing in case of an evacuation during an emergency. During the assessment it could not be established if plans were available for all buildings. However, there are, per regulatory requirements, in-house emergency responders (*Bedrijfshulpverleners, BHVs*) for all buildings and fire extinguishers are checked annually. Periodical drills are not conducted to practice emergency events with all employees.

Construction Phase

During construction, the construction contractor should develop a construction Emergency Preparedness and Response Plan that describes procedures to be implemented in forecasted or unanticipated events. This would involve securing equipment and materials, stabilizing disturbed areas, and similar actions.

Operational Phase

A risk assessment should be completed to identify the forecasted or unanticipated emergencies that are most likely to occur in the area and create a comprehensive emergency response and preparedness plan. This will allow MoH to respond properly and minimize damage to its facilities, workers and patients to onsite emergencies and in case of unplanned external events. The plan should include adequate provision of BHVs, periodical drills and maintenance of Life and Fire Safety equipment as described in the previous section.

4.4.5 Labour and Working Conditions

MoH has 481 employees, of which 471 are permanent staff and 10 are consultants/contractors. About 50% of all employees are women [3]. With regards to Gender Equality, it was noted during the ESA that MoH is well represented by women in management functions and that the appointed focal points for each of the four Operation Components are women. During the initial consultation, several organisations were also represented by women and in many of the consultation meetings women were present.

Working conditions and terms of employment are included in the Labour Act of 1963 and associated recent amendments (2016-2017). The standard working period is 48 hours per week and the daily working period cannot exceed 8.5 hours (overtime included). The minimum employment age in Suriname is 14 and child labour and forced labour are prohibited. Children under the age of 18 are not allowed to be employed in hazardous work. By law employment is based on a non-discriminatory and equal opportunity basis. Written contracts provided to workers define terms of employment consistent with national labour law, including hours of work, remuneration, leave for illness, maternity, vacation or holiday. Workers have the right to form and join workers organisations and to undertake collective bargaining.

The Migrant Labour section of the Labour Act requires that all migrant workers are in possession of a valid working permit. As part of the Decent Country Programme Suriname 2014 – 2016 the 9 Safety Guidelines have been modernized and included in the OSHA Act 2017. Safety requirements are laid out and should be communicated to all workers, including migrant workers in an appropriate language [10]. Migrant/low skilled labour is common in Suriname, especially in agriculture, mining and construction. Therefore, this could potentially be an issue during the construction of the Health Services Centre.

Construction Phase

Contractors should have all the working permits in place and should adhere to the Labour Act requirements regarding working hours and remuneration for all migrant workers. Furthermore, in line with international practice it is recommended that all construction workers are 18 years or older.

No EHS plans are required for construction by law, however they are practiced by large (international) companies. Selection criteria for the construction companies as part of the bidding process should include EHS requirements and the contract should include EHS clauses. It will therefore require the contractor to comply with all applicable laws and regulations that pertain to environmental, health and safety standards and/or work practices. A good source of defining the EHS requirements and the contract EHS clauses is the. IFC Good Practice Note for Managing Contractors Environmental and Social Performance [14].

Development of an EHS plan should be mandatory as per these contract clauses to be reviewed and agreed by the MoH EHS Specialist. The plan should include safe working practices for high risk operations (i.e. working at height, confined spaces, electrical work, hazardous materials, etc.), waste management and visitor rules. Furthermore, it should include an EHS training plan and identification of adequate Personal Protective Equipment (PPE). EHS training and PPE should be provided to all workers on site and adherence to the contractual EHS requirements and EHS plan should be monitored by the MoH EHS Specialist.

Operational Phase

In the Operational Phase of the Health Services Centre safe working conditions and environmental practices meeting national requirements and international standards (i.e. IFC ESMS Handbook [14]) will have to be documented and included in the ESMS proposed in § 4.4.1 The EHS Specialist should be retained to develop and implement the ESMS.

4.4.6 Resource Efficiency

Design up to Operational Phase

To build and operate resource efficiency buildings as part of the Health Service Centre the so-called Green Building approach should be adopted. Green Building (also known as green construction or sustainable building) refers to both a structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from planning to design, construction, operation, maintenance, renovation, and demolition. Requirements to be considered during the Design Phase include, but are not limited to:

- Orientation of the buildings;
- Energy saving and efficiency measures;
- Use of renewable energy;
- Water savings (e.g. rain water catchment) and safe drinking water;
- Natural ventilation;
- Indoor air quality and temperature control;
- Local and sustainable building materials; and,
- Climate resilience (potentially floods and gusts of winds).

This design and implementation requires close cooperation of the Architects, MoH and Contractors at all stages.

4.4.7 Pollution Prevention

Design Phase

Pollution prevention measures are required in both the Construction and Operational Phase and the measures required should be determined based on the final design and therefore assessed in the EA.

Construction Phase

Depending on the selected design scenario, ground works and demolition could be required resulting in potentially disposal of contaminated soil (i.e. around the former chemical storage and car repair area), demolition waste which will include wood lice invested wood and potentially ACMs. A Waste Management Plan during construction should cover demolition/construction waste, hazardous materials and contaminated soil. The nature of the measures needed should be assessed during the EA and included in the ESMP of the EA. Measures should at minimum address waste handling, separation and storage on-site, transport, appropriate disposal by either further treatment and/or landfilling at the Ornamibo landfill.

An ACM inventory and removal plan in line with the requirement described in § 4.3.1 will have to be completed and executed during Construction. Adequate measures for any ACM removal and/or insultation works will have to be included in the EHS plan for construction. Only companies experienced and equipped to work with ACMs should be hired. The number of companies in Suriname that can work in accordance with international standards are limited and due to all safety measures this work will be costly.

In general, the water quality in Suriname is good, but the quality of surface water in both urban and rural areas is under severe pressure by mining and industrial activities, poor waste processing and insufficient sanitation facilities. The Suriname Water Company laboratory and the Environmental Control Division of BOG carry out daily water quality testing at the various distribution points. Escherichia Coli (E-coli) and Fecal Coliform (F-coli) are found in drinking water and are an indication of pollution. 2015 testing results compared to 2011 testing results showed an increase of 45.3% for hospitals for E-coli tests in drinking water [5] [6]. MoH will have to ensure that drinking water in the Health Services Centre is safe for all employees and people visiting the medical services and facilities.

Waste water management in Suriname is the responsibility of four Ministries: Ministry of Labour; Ministry of Public Works; Ministry of Health and Ministry of Ministry of Agriculture, Animal Husbandry and Fisheries. Except for a few companies, waste water is discharged to surface water without any treatment as there are no treatment facilities in Suriname [6]. For the collection of sanitation water septic tanks are being used, which are emptied periodically by tanker trucks, after which the water is discharged to the Suriname river.

Adequate septic tanks in volume and structure need to be included to avoid exposure to humans and leakages to groundwater or overflow during heavy rainfall. Furthermore, an on-site biological treatment should be considered, to remove at least 95% of bacteria and the sludge resulting from the sewage treatment to be subjected to anaerobic digestion. Depending on the chosen scenario the best treatment methodology and space needed can be determined.

Operational Phase

To assess the performance of the on-site treatment monitoring results should be benchmarked against WBG EHS Guidelines for effluent limits (Annex A) [WBG EHS Guidelines for Health Care Facilities, 2007].

4.4.8 Hazardous Materials Management

The Services and Facilities of the Medical Health Centre will require hazardous materials management for the storage and handling of chemicals and gases (Central Laboratories), oils and used oils (car maintenance and storage), refrigerants and handling of pesticides (Pest Control Department).

Design

No in-depth assessment was made during the ESA of all these storages and handling of hazardous materials. However, in the Design Phase the design of storages should be done in accordance with the WBG EHS Guidelines for Hazardous Materials Management.

Maintenance and small repairs of MoH vehicles are undertaken at the current Health Compound. This is also foreseen at the proposed Health Services Centre. In the Design Phase a maintenance area with a liquid tight floor and appropriate storage for oil and used oil should be included.

The cold storages for the vaccines use R404a as a refrigerant. R410a was passed for use under the Montreal Protocol treaty as it was found not to contribute to depletion of the ozone layer. As part of the Design-Phase it is expected that the proposed air conditioning systems of the new buildings use a similar allowed refrigerant.

Construction

Construction of the storage facilities/elements should meet the design based on the WBG EHS Guidelines for Hazardous Materials Management.

Operational Phase

Considering the services of the Health Service Centre biomedical waste will be generated. During the ESA, appropriate storage boxes for biomedical waste for the handling, collection and disposal were noted at the Vaccination Bureau. When testing is done inland for the MP and related diseases these boxes are also used and brought back to Paramaribo for disposal.

Considering the storage and handling of hazardous materials and biomedical waste at the new Health Services Centre, the need for (further) training should be assessed and provided as well as appropriate PPEs. Signs will have to be installed on storage facilities indicating their contents and they will be locked. Pesticides stored and used should be allowed under the Pesticides Act of 1972.

The biomedical waste generated as part of the health services is incinerated by specialized companies in Suriname. Reportedly, there are a few companies that have incinerators for biomedical waste. To ensure that these companies meet international standards audits should be performed by BOG/EHS Specialist prior to entering into a (new) contract. Audit criteria include, but are not limited to: segregation and temporary waste storage; use of leak and puncture proof storage boxes; correct mixture of waste and charged correctly; check whether the disposal of the ash is done sanitarily; awareness of the operators on the incineration process and provision of PPE for all operators. Performance of the incinerators to be assessed by benchmarking against WBG EHS Guidelines air emission limits for incinerators (Annex A) [WBG EHS Guidelines for Health Care Facilities, 2007].

4.4.9 Community Health and Safety

Design Phase

Given that the Health Service Centre is a public building access for people with disabilities should be ensured. Suriname has not adopted guidelines for this and therefore international standards should be applied (i.e. UN, EU or ISO standards).

Construction Phase

Impacts during construction on community health and safety relate to construction activities on site creating nuisances: dust and noise emissions and potentially vibrations. As well as transport to and from the construction location. Depending on the final design piling could be required and this will cause vibrations which could damage nearby buildings.

The contractor will be responsible to avoid or minimise the nuisance of noise, dust and vibrations for neighbours. Dust could be minimized by using water spray trucks for dust suppression. Identify if any noise sensitive receptors in the Program area (i.e. bird species, people, etc.) and develop an action plan if identified near site. Limit idling of construction vehicles and equipment. During the initial consultation of the ESA several external stakeholders gave their feedback on this topic (see § 6.6.1 for further details). They requested that the construction activities should avoid disturbances during certain periods of time, e.g. exam periods. Furthermore, sufficient parking space should be ensured. Parking space in the area or the lack thereof is already considered an issue today. Noise sensitive receptors (i.e. nearby schools, blood bank and religious organisations) should be included in noise mitigating measures and will also include the limitation of idling of construction vehicles and equipment. These nuisances and associated mitigation measures will have to be addressed in the EA based on the final design and included in the EHS plan.

It should be noted that the National Army will create road diversions (sometimes for two weeks in a row) for national ceremonial events (i.e. Independence Day 25 November and a march-past in the month of August). Based on the final design a traffic assessment and a traffic safety management plan will have to be completed. The plan may include methods for notification due to road closure, measures to limit congestion and parking. Review public transportation systems and provide recommendations /improvement for bus routes and stops. Closure of roads as part of this plan will have to be agreed with the Military base. Communications on road closure will have to be communicated to all affected stakeholders as per the consultation plan.

Operational Phase

Sufficient parking space for the proposed Health Services Centre on site needs to be considered as this is already an issue.

4.4.10 Disaster Risk Management

The Paramaribo city area is served by an inland network of thirty-five open and closed drainage canals and infrastructure. The canals can be characterized as mixed system because in addition to rainwater, they also receive discharges of domestic waste water. Floods occur in the Paramaribo city area through a combination of poor maintenance of the existing canal network (including waste deposition), lack of maintenance of outlet structures (sluices and pumping stations), unregulated development in areas intended to support drainage such as retention areas, and additional growth of the urban area meaning drainage infrastructure may be under-sized. As previously mentioned in § 2.4, the Health Services Centre will be developed in an area prone to flooding due to heavy rainfall, which could affect both the Construction and Operational Phase. Locally the site of the current BOG building, the

Central Laboratories as well as parts of the *Gravenberch* street south of the proposed area flood during heavy rainfall.

Design Phase

A drainage study and survey should be performed for the catchment and network serving the greater area as part of the Design Phase, including other buildings in the area and their water drain systems to arrive at an integrated solution.

Construction Phase

Drainage system to be constructed as per the agreed plan which should be monitored by the MoH EHS Specialist.

Operational Phase

For the Operational Phase a maintenance and upgrade plan should be developed. This plan must also be synchronized with existing and future urban development plans prepared for Paramaribo and storm water management activities and plans conducted and prepared by the Minister of Public Works. Therefore, a detailed Disaster Risk Assessment or Management Plan is not believed to be necessary.

4.5 Potential Environmental and Social Impacts Operation Element 3 (iii)

Operational Phase

As part of the inland mobile testing services for MP and related diseases, biomedical waste will be generated. For the handling, collection and disposal appropriate boxes for biomedical waste are used. When the MP is expanded and this requires new staff, the training needs for new and existing staff in proper waste handling should be assessed and provided. For the disposal of the biomedical waste the same procedure as for component 1(iv) i.e. incineration is followed.

5 Conclusions and ESMP

5.1 Conclusions

Upon completion of the analysis of environmental and social impacts and risks, it has been concluded that there will be no significant adverse environmental or social impacts, but there will be some risks associated with the construction of the Health Services Centre and limited risks with the integration of provision of health services for HIV/TB/Leishmania within the MP. These risks are easily managed by implementing the ESMPs presented in § 5.2.

The PIU should integrate the proposed actions for the mitigation, management, monitoring and further assessment measures (see Tables 5.1 and 52) in the further design and implementation of the Operation.

The IDB has a list of environmental and social safeguards, which serve as the standard to which environmental and social performance on the part of funding recipients is evaluated against. Table 5.1 details the guidance and compliance relevant to the assessed Operation Components [11, Project Profile and IDB website].

Policy/Directives/Publications	Operation Compliance (Pre-Design Phase)
Directives of the Environmental and Safeguards Compliance Policy (OP-703):	
-B.2 Country Laws and Regulations	-The ESMP outlines the requirements for compliance with country laws and regulations as identified at this stage. When completing the regulatory required ESA, the updated ESMP of the Operation will ensure compliance and consistency.
-B.4 Other Risk Factors	-An assessment of Institutional Capacity and Resources needed in the Project Implementation Unit are presented in § 4.4.2.
-B.5 Environmental Assessment and Plans Requirements	-A socio-environmental analysis was carried out for the operation and the results are presented in this report. Associated mitigation measures are presented in the ESMP (§ 5.2).
-B.6 Consultation -B.7 Supervision and Compliance	-A Consultation Plan is prepared and initial consultations were completed with affected stakeholders to the Operation as included in Chapter 6.
-B.9 Cultural Sites	-No cultural sites were identified during the ESA, except for the current MoH building which is not part of the Operation. The building, which is owned by the Government of Suriname, will continue to be occupied by Government Departments or Agencies.
-B.10 Hazardous Materials	-Use of hazardous materials and generation of hazardous wastes are described in § 4.4.7. Management of hazardous materials is addressed in the ESMP.
-B.11 Pollution Prevention and Abatement	-Construction of the Health Services Centre potentially poses a pollution risk as presented in § 4.4.6 and the ESMP.
Disaster Risk Management Policy (OP-704)	Risks of Natural Disasters and a review of the level of risk are presented in this report in § 2.4 and 4.4.9. Sufficient dewatering after heavy rainfall and upgrades of existing drainage system in an integrated way should be included in the construction design, as stated in the ESMP. Therefore, a Natural Disaster Risk Assessment or Management Plan is not necessary.
OP-761 Operational Policy on Gender Equality in Development	Data on women working at MoH are presented in § 4.4.5. No adverse impacts to women are anticipated because of the Element 1(iv) implementation and therefore no special provisions for ensuring gender equality are necessary. To assess whether there are any adverse gender impacts in Element 3(iii) a separate Sociocultural Analysis will be completed.
Bank's Disclosure of Information Policy OP-102	ESA, ESMP and Consultation Plan, and Consultation Report(s) will be disclosed per OP-703 requirements.
OP-710 Operational Policy on Involuntary Resettlement	Based on the ESA of the proposed Health Services Centre location physical and/or economic displacement is not required.

OP-765 Operational Policy on Indigenous Peoples	To assess whether indigenous communities will benefit from the Operation activities a separate Sociocultural Analysis will be completed.
IDB publication on meaningful stakeholder consultation (2017)	The presented Consultation Plan follows the guidance provided in the IDB publication.

Table 5-1 IDB Safeguards

5.2 Environmental and Social Management Plan (ESMP)

Table 5.1 presents the recommendations for the mitigation and management, verification, monitoring and reporting for the potential impacts identified for the Component 1(iv): proposed Health Services Centre, identified as part of the Pre-Design Phase.

Design Phase					
Topic	**Responsible Person(s)**	**Mitigation and Management Measure**	**Resources[1]**	**Verification (when needed)**	**Monitoring and Reporting**
E&S Capacity	MoH	PIU established for the Operation should include adequate and capable E&S resources, more specifically an Environmental, Health and Safety (EHS) Specialist and a Community Liaison Officer (CLO).	People	Hire process internal and external based on selection criteria	Organigram and job descriptions of EHS Specialist and CLO.
Compliance	MoH EHS Specialist	Presenting ESA to NIMOS to complete screening and scoping phase for regulatory required EA and subsequently complete an EA.	People	NIMOS advice to be shared with IBD	EA report approved by NIMOS and used for permit applications and used in EHS plan and ESMS development for operating the Health Service Centre
Life Fire and Safety	MoH with Architects	A "defend-in-place" strategy is required to obtain an acceptable fire safety level in health care occupancies.	$	Design to be reviewed by relevant by NIMOS and Fire Brigade and included in ESMP	Mitigation Measures to be included in the ESMP of the EA based on the final design
Green Building	MoH with Architects	Green Building approach refers to both a structure and the application of processes throughout a building's life-cycle.	$	Design to be reviewed by NIMOS	Requirements to be included in the ESMP of the EA based on the final design
Pollution Prevention	MoH EHS Specialist with NIMOS	Several measures have been defined in the Pre-Design: removal of contaminated soil, demolition waste disposal, ACM inventory and subsequently insulation and/or removal to be considered in the design and further assessed in the EA.	People	Part of Screening and Scoping Phase for EA based on final design	Mitigation Measures to be included in the ESMP of the EA based on the final design

[1] $ = US$10,000 to US$50,000 and $$ = US$50,000 to US$100,000

Waste Water	MoH EHS Specialist with Architects	Adequate septic tanks in volume and structure need to be included in the design to avoid exposure to humans and leakages to groundwater or overflow during heavy rainfall. Design an on-site biological treatment should be considered and include performance parameters for effluent in line with the WBG EHS Guidelines Health Care Facilities in absence of Suriname regulatory guidelines.	People	Included in final design to be reviewed by Ministry of Public Works and NIMOS (as part of the EA)	Mitigation Measures to be included in the ESMP of the EA based on the final design
Hazardous Material Management	MoH EHS Specialist	Design of hazardous material storages should meet WBG EHS Guidelines for Hazardous Materials Management.	People	Proposed storages could be subject to the NIMOS advise	Mitigation Measures to be included in the ESMP of the EA based on the final design
Community Health and Safety	MoH EHS Specialist and CLO	Based on the final design measures relating to transport to and from the construction location and construction activities on site creating vibrations dust and noise emissions should be further assessed in the EA. Design project-specific Grievance Mechanism Design Construction Communication Plan (i.e transport, hours of operations)	People	Part of Screening and Scoping Phase for EA based on final design Ensure that plans are prepared for stakeholder communication and awareness	Mitigation Measures to be included in the ESMP of the EA based on the final design Relevant documents: i.e. grievances received, responses, meeting notes, etc. to be kept on file.
Community Health and Safety	MoH EHS Specialist and CLO	Access for persons with a disability to be included in the design in accordance with International Standards (i.e. UN, EU or ISO).	People	Adhering to international standards	CLO to seek feedback on adequacy of measures with affected Stakeholders during consultation for design
Disaster Risk Management: Flooding	MoH and Architect	A drainage study and survey should be performed for the catchment and network serving the greater area, including other buildings in the area and their water drain systems to arrive at an integrated solution. Subsequently a maintenance and upgrade plan should be developed. This plan must also be synchronized with existing and future urban development plans prepared for Paramaribo and	$$	Plan to be discussed and agreed with Ministry of Public Works and could also be included in the Screening and Scoping Phase for EA	Mitigation Measures to be included in the ESMP of the EA based on the final design

		storm water management activities and plans conducted and prepared by the Minister of Public Works.			

Construction Phase					
Topic	**Responsible Person(s)**	**Mitigation and Management Measure**	**Resources**	**Verification (when needed)**	**Monitoring and Reporting**
Compliance	PIU/EHS Specialist	Obtaining the Construction Permit	People	Construction Permit	Permit requirements to be included in EHS plan for construction
Compliance	PIU/EHS Specialist	Obtaining the Hindrance Act Permit	People	Hindrance Act Permit	Permit requirements to be included in EHS plan for construction
Green Building	Architect with Contractor	Green Building approach refers to both a structure and the application of processes throughout a building's life-cycle.	People		Appointed Architect to oversee implementation
EHS Management	PIU/EHS Specialist	Selection criteria for the construction companies as part of the bidding process should include EHS requirements and the contract should include EHS clauses.	People	Contract EHS clauses agreed with Contractor and developed EHS plan to be reviewed by MoH EHS Specialist	Completion of OHS training and PPE compliance as well as safe working practices per the EHS plan to be monitored by the MoH EHS Specialist.
EHS Management	Contractor	Development of an EHS plan to address the EHS issues as part of the EA for NIMOS based on the final design. The plan should include safe working practices for high risk operations (i.e. working at height, confined spaces, electrical work, hazardous materials, etc.). Furthermore, it should include an EHS training plan and providing adequate PPE.	People		Completion of OHS training and PPE compliance as well as safe working practices per the EHS plan to be monitored by the MoH EHS Specialist.
Life Fire & Safety	Architect with Contractor	A “defend-in-place” strategy to be included in the construction of the buildings to obtain an acceptable fire safety level in health care occupancies.	People		Implementation of required measures to be audited by EHS Specialist

Emergency Preparedness and Response	Contractor	Development of a construction Emergency Preparedness and Response Plan during construction works. This would involve securing equipment and materials, stabilizing disturbed areas, and similar actions.	People	Plan to be reviewed by MoH EHS Specialist	Implementation and adherence to plan by Contractor to be audited by EHS Specialist
Migrant Labour	Contractor	Contractors should have all the working permits in place and should adhere to the Labour Act requirements regarding working hours and remuneration for all migrant workers.	People	Permits and contract to be reviewed by MoH	Checks to be completed during Construction by EHS Specialist
Waste Water	Contractor	Construction of septic tanks for collecting sanitary waste water. An on-site biological treatment should be considered.	People $$		Proper construction monitored by MoH EHS Specialist
Asbestos Containing Materials	Contractor and Specialised ACM Sub-Contractor	An ACM inventory and removal plan in line with the requirements described in § 4.3.1 will have to be completed and executed. Adequate measures for any ACM removal and/or insultation works will have to be included in the EHS plan for construction.	$-$$/ People	Labour inspection to give a legal exemption for disposal based on the inventory and removal plan	Implementation of required measures to be audited by EHS Specialist
Solid Waste Management	Contractor	Implementation of mitigation measures, as part of a Waste Management Plan, during construction regarding demolition/construction waste, hazardous materials and contaminated soil identified during the EA and included in the ESMP of the EA. Measures should at minimum address waste handling, separation and storage on-site, transport, appropriate disposal by either further treatment and/or landfilling at the Ornamibo landfill.	$-$$/People		Implementation of required measures to be audited by EHS Specialist
Hazardous Material Management	Contractor	Construction of hazardous material storages should follow the design based on the WBG EHS Guidelines for Hazardous Materials Management.	$-$$/People		Proper construction monitored by MoH EHS Specialist
Community Health and Safety	Contractor	Implementation of mitigation measures during construction regarding transport, noise, dust and vibrations (if piling is required) identified during the EA and included in the ESMP of the EA.	$-SS/People		Implementation of required measures to be audited by EHS Specialist

Community Health and Safety	Contractor and CLO	Implementation of Stakeholder Communication Plan and Grievance Mechanism	$/People		Monitoring by MoH EHS specialist and CLO
Disaster Risk Management: Flooding	Contractor	Drainage system to be constructed as per the agreed plan.	People		Proper construction monitored by MoH EHS Specialist

Operational Phase					
Topic	**Responsible Person(s)**	**Mitigation and Management Measure**	**Resources**	**Verification (when needed)**	**Monitoring and Reporting**
E&S Management	Dedicated ESMS team, including EHS Specialist	For the management of the ESMP and E&S aspects longer term it is recommended to develop ESMS. An ESMS includes the organisational structure, planning activities, responsibilities, practices, procedures, processes, and resources for implementing and maintaining sound environmental and social management in an organisation.	People	ESMS framework to be reviewed by IDB	Implementation of ESMS and Annual Management Review shared with IDB for the duration of the loan term.
Emergency Preparedness and Response, including Life and Fire Safety	MoH EHS Specialist	A Risk Assessment should be completed to create a comprehensive emergency response and preparedness plan. The plan should include adequate provision of BHVs, periodical drills and maintenance of Life and Fire Safety equipment as described in the construction section.	People	Risk assessment and plan, including training needs to be reviewed by IDB.	Implementation of plan, trainings completed and drills conducted.
Waste Water	MoH Facility Manager/ EHS Specialist	To assess the performance of the on-site biological treatment monitoring results should be benchmarked against WBG EHS Guidelines for effluent limits (Annex A) [WBG EHS Guidelines for Health Care Facilities, 2007].	$/People		Review of monitoring results against the WBG EHS Guidelines.
Hazardous Material Management	MoH EHS Specialist	The need for (further) training of handling hazardous materials, including biomedical waste, should be assessed and provided as well as appropriate PPEs. Signs will have to be installed on storage facilities indicating their contents	People		Training log kept. MoH EHS Specialist to monitor adherence to Hazardous Material Management requirements.

		and they will be locked. Material Safety Data Sheets should be kept for all chemicals stored. Pesticides stored and used should be allowed under the Pesticides Act of 1972. Companies selected for biomedical waste incineration should be audited. Audit criteria to include: segregation and temporary waste storage; use of leak and puncture proof storage boxes; charge the correct mixture of waste is charged correctly; check whether the disposal of the ash is done sanitarily; awareness of the operators on the incineration process and provision of PPE for all operators. Performance of the incinerators to be assessed by benchmarking against WBG EHS Guidelines air emission limits for incinerators [WBG EHS Guidelines for Health Care Facilities, 2007].	People $/People	Periodically check pesticides stored. Audit report to support improvement measurements and to be periodically checked.
Community Health and Safety	MoH Facility Manager	Sufficient parking space for the proposed Health Services Centre on site needs to be considered as this is already an issue.	People	Addressing any complaints from neighbours as part of the grievance mechanism
Disaster Risk Management: Flooding	MoH Facility Manager	A maintenance and upgrade plan should be developed. This plan must also be synchronized with existing and future urban development plans prepared for Paramaribo and storm water management activities and plans conducted and prepared by the Minister of Public Works.	$/People	Periodically review of the plan and maintenance completed as scheduled.

Table 5.2 presents the recommendations for the mitigation and management, verification, monitoring and reporting for the potential impacts identified for the Component 3(iii): integrated provision of health services for HIV/TB/Leishmania within the MP, identified as part of the Pre-Design Phase.

Operational Phase					
Topic	**Responsible Person(s)**	**Mitigation and Management Measure**	**Resources**	**Verification (when needed)**	**Monitoring and Reporting**
Hazardous Material Management	MoH EHS Specialist	The need for (further) training of handling biomedical waste, should be assessed and provided as well as appropriate PPEs.	People		Training log kept.
		Companies selected for biomedical waste incineration should be audited. Audit criteria to include: segregation and temporary waste storage; use of leak and puncture proof storage boxes; charge the correct mixture of waste is charged correctly; check whether the disposal of the ash is done sanitarily; awareness of the operators on the incineration process and provision of PPE for all operators. Performance of the incinerators to be assessed by benchmarking against WBG EHS Guidelines air emission limits for incinerators [WBG EHS Guidelines for Health Care Facilities, 2007].	$/People		Audit report to support improvement measurements and to be periodically checked.

6 Stakeholder Consultation

6.1 Overview

Stakeholder consultation is an important aspect regarding the planning, approval and implementation of projects supported by the IDB. The Bank has put policies and procedures in place to incorporate stakeholder consultation into the projects and programs it supports. Strengthened guidance on stakeholder engagement and consultation has been made available in recent years. The purpose has been to improve the real or perceived quality of consultation of projects and programs supported by the Bank.

The following IDB documents that provide guidelines for the Stakeholder consultation process were consulted for the development of the consultation plan of the Operation:

- OP- 703: Environmental & Safeguards Compliance Policy, 2006, (ref Policy Directive B.6);
- Implementation Guidelines for Environmental & Safeguards Compliance Policy, 2007;
- OP- 102: Access to Information Policy; and,
- Meaningful Stakeholder Consultation.

This consultation plan predominately focuses on the proposed centralized MoH Health Services Centre in Paramaribo (Component 1(iv)). For the design and implementation of activities for integrated provision of health services for HIV/TB/Leishmania within the MP (Component 3(iii)), the consultation will be in accordance with the magnitude of the risks which are limited, and mainly emphasize getting feedback from communities on how to make services more inclusive of them, gathered as part of fieldwork of the Sociocultural Analysis that is being prepared as a complementary study to this ESA.

6.2. Relevant Policy Elements

The Operation elements 1(iv) and 3 (iii) were classified by the Consultants as a Category B Operation since they are likely to cause mostly local and short-term negative environmental and associated social impacts for which effective mitigation measures are readily available (see also § 1.3).

Based on the Bank's policies related to the Consultation process and Category B operations, the following points need to be considered:

- "The MoH is required to perform public consultations with **affected parties**[2] of the project and consider their inputs. Consultations with other **interested**[3] **parties may** also be undertaken to consider a broader range of perspectives;
- **Affected parties** in Category B operations, will be consulted **at least once**, preferably when the impact assessment and corresponding ESMP are being reviewed;
- **Additional interaction** with affected parties may be considered for Category B operations;
- After the Bank's approval, the MoH should continue an applicable degree of **information disclosure and consultation** based on the agreed ESMP." [11 & 12]

[2] These are individuals, group of individuals or communities who may be directly impacted by a Bank-financed operation. Such impacts may be positive or negative.
[3] These are individuals or groups who have expressed support or concern regarding a proposed or existing bank-financed operation.

6.3 Objectives of Stakeholder Consultation

The objectives of the Stakeholder Consultation process are:

- Promote the development of respectful and open relationships between stakeholders and the Operation;
- Identify Operation stakeholders and Affected Parties and understand their interests, concerns and influence in relation to Operation activities in the Pre-Design Phase and over the life of the Operation;
- Provide stakeholders with timely information about the Operation, in ways that are appropriate to their interests and needs, and also appropriate to the level of potential adverse impacts; and,
- Record and resolve any grievances that may arise from Operation.

The MoH will be responsible for undertaking the Stakeholder Consultation process for the Operation through the Project Implementation Unit (PIU).

6.4 Stakeholder mapping

In the Pre-Design Phase, meetings with the MoH and an initial consultation round were undertaken to get a first overview of the stakeholders involved.

As mentioned in the IDB's publication 'Meaningful Stakeholder Consultation', the term 'stakeholder' refers to individuals, groups, or institutions that have a stake, or an interest, in the project: They may be affected by it (either positively or negatively), or they may have an interest in it and be in a position to influence its outcomes.

Figure 6.1. gives an overview of the main categories and sub-categories of stakeholders as identified in the Pre-Design Phase.

Main and sub categories of stakeholders:

- Internal stakeholders

- External stakeholders
  - Primary & secondary affected parties
  - Institutions and NGO's
  - General public

Figure 6-1 Stakeholder Categories

A further breakdown of the categories of stakeholders is provided below in Table 6.1. and 6.2.

6.5 Internal Stakeholders

A detailed overview of all the departments of the Ministry of Health and its executive services is not yet available. Therefore, the information presented in Table 6.1 is not complete and will need to be updated once the information is available.

Services & Facility	
Ministry of Health Administration and Policy Development	Bureau of Public Health
Vaccination Bureau	Health Inspection and Pest Control
Central Laboratories	Dermatological Service for Malaria Testing
Medical Educational Offices	Brest Feeding Bureau
Pharmaceutical Offices	Archives

Table 6-1 MoH Services to be located at the Health Services Centre

6.5.1 Communication with the Internal Stakeholders

Timing

The timing of communicating the purpose of the Operation to internal stakeholders is important and should be aligned with the timing of the communication to external stakeholders. Information that is made available to external stakeholders, should preferably have been shared before with the internal stakeholders. This is even more the case when the Operation will directly impact the internal stakeholders as well. The MoH will need to evaluate what information has already been shared internally. Before and during the analysis mission more information will be shared with the external stakeholders. This information would need to be made available to the internal stakeholders as well.

Content

The following elements could be part of the communication being shared internally:

- The scope of the Operation;
- The different phases;
- Mile stones and time lines;
- Responsibilities and tasks of the Project Implementation Unit (PIU);
- Impact of the Operation on the internal stakeholders;
- Next steps.

Approach

In communicating initially with the internal stakeholders about the Operation, the formal communication structures can be used. The message can be passed on internally through cascading: senior management will brief line management after which line management will inform the employees.

Instead of using cascading communication, the MoH could also organize smaller information sessions which will take place one after the other spread out over a short period of time. During these sessions senior management directly informs the employees. These sessions should also encourage participation of the employees. The advantage of organizing information sessions with senior management is that the messages will be from one source and therefore more consistent. The disadvantage is that it will put extra pressure on the work load of the senior management.

Depending on the communication infrastructure commonly used in the organization, the internal stakeholders can be updated in different ways throughout the Operation:

- Department meetings with line management;
- Information sessions;
- Formal memo;
- Newsletter;
- Information Board; and,
- Personal letters (i.e. send together with the salary slip).

A communication plan will need to be developed detailing what information will be shared during the different phases of the Operation and by which means.

Responsibilities and Resources

The communication with the internal stakeholders about the Operation will need to be coordinated and aligned with the communication aimed at external stakeholders. This requires the necessary resources and skills to be available to develop and execute the communication plan over the life of the Operation. The PIU will need to evaluate and organize available resources within the organization. If the communication expertise is not sufficiently available internally, the MoH could consider hiring a professional in this field.

6.6 External Stakeholders

External Stakeholders	
Directly affected stakeholders	**Institutions & NGO's (interested parties)**
Within the Primary Circle around the proposed Health Services Centre:	**Ministry of Public Works**
Red Cross/ Blood Bank	Ministry of Labour/ Labour Inspection
Suriname Hospitality and Tourism Training Centre (SHTTC)	National Environmental Policy Office
Foundation for Labour Mobilization and Development (SAO)	NIMOS
Military Base (Memre Boekoe kazerne)	Bureau of Statistics (ABS)

Basic Education Improvement Project (BEIP)	St. Milieu Watch
Lodge AMORC	District Commissioner
Mosque Assayi HaH Islam	
Streepy Stadium	
Schools (Grietjebie, Cederboom, Advontis, Simons)	
Businesses (Car wash, Guesthouse, Dental Practice, etc.)	
Local Residents	
Within the Secondary Circle around the proposed Health Services Centre:	
Taxation Institute	
Sport Complex (Ismay van Wilgen Sporthal)	
Businesses (Accountancy, Construction, Restaurant, etc.)	
Local Residents, including the Maroon Families	

Table 6-2 the external stakeholders (affected and interested parties)

Apart from the District Commissioner, some local businesses and local residents, all stakeholders mentioned in the table, were included in an initial consultation round undertaken in the Pre-design phase.

A distinction is made between the primary and secondary circle around the proposed Health Services Centre (see also §4.3, figure 3.2). The primary circle comprises the area around the Health Services Centre with a diameter of approximately 400m. The secondary circle comprises the area around the Health Services Centre with a diameter of approximately 700m (minus the area of the primary circle). The stakeholders situated within the primary circle will be more impacted by the operations than the stakeholders situated within the secondary circle because of the distance to the proposed Health Services Centre. In Annex B the complete list of stakeholders who were interviewed as part of the first round of consultation meetings, is included.

In the stakeholder mapping, the representation of women has not been identified as an issue. In fact, during the initial consultation several organisations were represented by women (i.e. SAO, Red Cross/Blood Bank, Grietjebie, Cederboom and Simons School) and in the majority of the consultation meetings, women were present.

6.6.1 Identified Concerns and Feedback

Directly affected external stakeholders

During the initial consultation round that took place in the Pre-design phase, a total of 12 directly affected stakeholders within the primary circle and 2 directly affected stakeholders within the secondary circle were

consulted. Without exception, these stakeholders had a positive stance towards the idea of the proposed centralized Health Services Centre. They acknowledged the importance of the MoH for the Surinamese community and the relevance it has for serving the public good. The stakeholders all expressed their support for the project and see as a benefit that all Health Services will be centralized and thus nearby. They, however, also raised a number of issues/ concerns related to the proposed Health Services Centre.

- In the case of **piling** there is a concern for **nuisance of noise and vibrations**. Related to possible vibrations and the risk of damage done to neighbouring buildings (e.g. **rifts, prolapses**) or sensitive equipment, the question was raised if a **baseline survey** would be conducted, how the **damage** would be assessed and how **compensation** would take place.
- The majority of the stakeholders that were consulted, mentioned the **risk of flooding** when the rains come as one of their main concerns. The *Rode Kruislaan* and *Gravenberch* street are then both flooded. Some stakeholders wondered if the IDB could integrate a solution for the problem of flooding of the neighbourhood into the Operation.
- The availability of **parking spaces** could become a bigger problem. Already now there is a lack of sufficient parking spaces in the area (i.e. complaints by the donors of the Blood Bank). Two schools (Grietjebie, Cederboom) have indicated that for safety reasons they would like to be able to continue parking on their school terrain and not somewhere down the street (in case of a complete road diversion).
- Increased **traffic jams** in the area, especially at times when the National Army will create road diversions (sometimes for two weeks in a row) for the purpose of national ceremonial events (i.e. Independence Day 25 November and a march-past in the month of August).
- The **accessibility** of the Health Services Centre by public transportation is currently not optimal. Busline 1 is responsible for this route, but apparently few buses maintain it. Once the new Health Services Centre is in place, reaching it could become a bottleneck for the employees and visitors of the Centre.
- The National Army indicated that the **height** of the Health Services Centre could be an issue from a tactical military point of view. The same goes for the possible installation of **digital cameras** that would be focused on the terrain of the Army.
- The Cederboom school expressed a concern that the pupils might possibly be exposed to **rough language** used by the construction workers. The school also expressed the wish to be able to communicate exam dates to the Operation so that there will be no nuisance of noise at the associated time slots.
- Some stakeholders pointed out that the neighbourhood suffers from **robberies/ theft** being committed. They advise to be careful with the storage of material during the construction phase.

Other feedback/ requests:

- SHTTC: would like to explore the possibility of cooperating with the MoH (i.e. partnering) in the field of tourism and food safety.
- The drainage of rainwater of the container of BEIP is broken and therefore this water is being flown down to the terrain of the Heath Services Centre, causing additional flooding on that side.
- BEIP would like to be informed about the building method that will be used during the construction of the Centre. They also proposed the project to take into account from the start the possibilities of Green Building (i.e. natural ventilation).
- The Red Cross shared a lesson learned: avoid using a lot of glass in the building (i.e. to create feeling of transparency), because in the afternoon it will heat up the spaces too much and overrule the air conditioning system. The Central Laboratories also have to deal with this.

- The Lodge Amorc has daily meetings from 12:30 – 13:30 hours during which they would not like to be disturbed.
- Every Friday the Mosque has visitors for the Friday Prayer which is from 12:30 – 14:30 hours.
- On the terrain of the *Streepy* Stadium, 4 families are accommodated, including some with small children. There is an agreement that employees of the Bureau of Public Health have the right to do sports in the morning on the sports field of the Stadium. It's not clear if this agreement is known to the employees.
- The schools have specific requests regarding avoiding the nuisance of noise during school time (mostly between 7:30 – 13:00 hours) and other important periods (i.e. exam periods). They would like the Operation to take these time slots into account when planning the construction activities. They all expressed the wish to be informed about when the construction activities will take place.

External Stakeholders: Institutions and NGO's

The information provided by this group of external stakeholders has mostly been integrated in other parts of this report such as the Regulatory Framework and the ESA. Following are some of the remaining remarks made:

- Labour inspection: accessibility of the blood stream of blood donors could be negatively impacted by stress caused by nuisance of noise, why not use the *Streepy* Stadium for promoting a Healthy Lifestyle and integrate this in the IDB project, in case of piling the vibrations could maybe cause a collapse of the walls of the houses of the Maroon community, take care when using imported Cement Board plates. Many of them still contain asbestos.
- Stichting Milieu Watch: there may still be Dutch funds available for the cleaning of asbestos.

6.6.2 Planned Stakeholder Consultation

The Operation comprises of four phases: Pre-design, Design, Construction and the Operational phase (see Figure 6.2). During all these phases the MoH will need to reach out to the stakeholders to provide them with appropriate information and to allow them to be meaningfully consulted.

Figure 6-2 Phases of the Operation

When developing the Consultation Plan, the following points need to be considered:

- The ESA report & ESMP should be disclosed to the public prior to the analysis mission. This can be done amongst others through the websites of the IDB, the Ministry of Health and its executing services.
- The ESMP should be reviewed during the analysis mission. The Public meeting could take place during this mission and the affected parties and other stakeholders will then be consulted.
- From the side of the MoH the Environmental, Health and Safety (EHS) Specialist and the Community Liason Officer (CLO) will play an important role in the execution of the Consultation Plan. The EHS Specialist, for instance, will engage with NIMOS in the Design phase and will provide technical input when needed internally within MoH. The CLO will be mainly responsible for overseeing and

implementing the Consultation Plan, including developing a communication plan for the Construction Phase to inform stakeholders about the progress of the work and specific changes in the daily routine (e.g. road diversions).

- MoH will be responsible for executing the consultation activities, including organising all the logistical matters concerning the activities (i.e. media planning, event planning) and ensuring the reporting of the public consultation and following up on it.

Consultation method	Stakeholder (group)	Timing or Phase	Content	Purpose	Responsible
Website, media	All stakeholder groups including the general public	Before the analysis mission	Results ESA & ESMP Locations where study results can also be found Deadline for comments	Disclose	IDB team / MoH
Information and invitation letter	Local residents and other external stakeholders that have not yet been informed about the project	Before the analysis mission	Proposed Health Services Centre invitation for and aim of the public meeting	Inform and invite	MoH
Invitation letter	Stakeholders already consulted in the pre-design phase	Before the analysis mission	invitation for and aim of the public meeting	Invite	MoH
Public meeting	All external stakeholder groups including the general public	During the analysis mission	Results of the Pre-design phase (ESA, ESMP, technical analysis) Contact details Grievance mechanism	Inform and Consult	MoH/ IDB mission
Meetings/briefings	NIMOS	During the Design phase	Further requirements regarding the ESA & ESMP	Inform and Consult	MoH
Website, (social) Media, Letter (digital/mail), telephone calls	All external stakeholder groups including the general public	Before start of the Construction phase	Planning of activities including possible changes in daily routine Contact details Grievance mechanism	Inform and Consult	MoH / Contractor
Website, (social) Media, Letter (digital/mail), telephone calls	All external stakeholder groups including the general public	During the Construction phase	Work progress Planning of specific changes in daily routine (e.g road diversions) Contact details Grievance mechanism	Inform and Consult	MoH / Contractor

Table 6-3 Overview of consultation methods focused at stakeholder groups

6.6.3 Grievance Mechanism

It is critical that the Operation has a procedure to receive, address, and respond to community grievance, especially during construction of the Health Service Centre.

Responsibility for this will lay with the PIU by appointing a community liaison officer. MoH may consider hiring a Community Liaison Officer to directly receive and respond to community complaints. In addition, the borrower should open a dedicated email address and telephone number for the Operation, especially for individuals who are unwilling, unable or afraid of interacting directly with the Community Liaison Officer. The Borrower shall disseminate information of these mechanisms and how to access them within the Operation's area of influence via numerous modes (i.e., television, radio, news media outlets including newspapers and radios, etc.). Dissemination of information should be done in the following languages: Dutch and Sranan.

The grievance mechanism should be well-defined internally. Upon receiving complaints, the borrower shall record appropriate information (if the respective stakeholder is comfortable), including:

- Name,
- Contact information, and
- Grievance.

Upon receiving each grievance, the Borrower's representative will communicate the subsequent process, specifically that the Borrower will contact the affected party within 30 business days with an update and potentially mitigation measures.

6.6.4 Monitoring

It is important to monitor stakeholder engagement to ensure that consultation and disclosure efforts are effective, that stakeholders have been meaningfully consulted throughout the process. Monitoring should include:

- Consultation activities conducted with government authorities and non-governmental stakeholders;
- Consultation with affected parties.
- The effectiveness of the engagement processes by tracking feedback received from engagement activities; and,
- Any grievances received.

Annex A Water Effluent and Air Emission levels, WBG EHS Guidelines for Health Care Facilities (April 2007)

Table 2. Effluent Levels for Health Care Facilities

Pollutants	Units	Guideline Value
pH	S.U	6 - 9
Biochemical oxygen demand (BOD_5)	mg/L	50
Chemical oxygen demand (COD)	mg/L	250
Oil and grease	mg/L	10
Total suspended solid (TSS)	mg/L	50
Cadmium (Cd)	mg/L	0.05
Chromium (Cr)	mg/L	0.5
Lead (Pb)	mg/L	0.1
Mercury (Hg)	mg/L	0.01
Chlorine, total residual	mg/L	0.2
Phenols	mg/L	0.5
Total coliform bateria	MPN[a] / 100ml	400
Polychlorinated dibenzodioxin and dibenzofuran (PCDD/F)	Ng/L	0.1
Temperature increase	°C	<3[b]

Notes:
[a] MPN = Most Probable Number
[b] At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity

Table 3. Air Emission Levels for Hospital Waste Incineration Facilities[b]

Pollutants	Units	Guideline Value
Total Particulate matter (PM)	mg/Nm^3	10
Total organic carbon (TOC)	mg/Nm^3	10
Hydrogen Chloride (HCl)	mg/Nm^3	10
Hydrogen Fluoride (HF)	mg/Nm^3	1
Sulfur dioxide (SO_2)	mg/Nm^3	50
Carbon Monoxide (CO)	mg/Nm^3	50
NO_x	mg/Nm^3	200-400[a]
Mercury (Hg)	mg/Nm^3	0.05
Cadmium + Thallium (Cd + Tl)	mg/Nm^3	0.05
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V	mg/Nm^3	0.5
Polychlorinated dibenzodioxin and dibenzofuran (PCDD/F)	ng/Nm^3TEQ	0.1

Notes:
a. 200 mg/m3 for new plants or for existing incinerators with a nominal capacity exceeding 6 tonnes per hour; 400 mg/m3 for existing incinerators with a nominal capacity of 6 tonnes per hour or less
b. Oxygen level for incinerators is 7 percent

Annex B Table of Stakeholders (affected & interested groups) interviewed as part of the initial preliminary consultation meetings

Organisation	Date of Interview	Stakeholder(s)
Affected Stakeholders		
1. Suriname Hospitality and Tourism Training Centre (SHTTC)	10 April 2018	Mr. R. Boedha
2. Basic Education Improvement Project (BEIP)	10 April 2018	Ms. A. Abdoelrahman and team
3. Red Cross /Blood Bank	10 April 2018	Ms. T. Smit Ms. M. Tjon A Loi
4. Lodge Amorc	10 April 2018	Ms. De Vries Mr. Freuborgh Ms. I. Samuels
5. Taxation Institute	13 April 2018	Mr. J. Jateman
6. Cederboom School	18 April 2018	Ms. A. Bockting
7. Simons School	18 April 2018	Ms. Schutte
8. Military Base (Memre Boekoe kazerne)	18 April 2018	Mr. Ramautar
9. Foundation for Labour Mobilization and Development (SAO)	18 April 2018	Ms. Fer
10. Grietjebie School	20 April 2018	Ms. Crawford
11. Streepy Stadium	20 April 2018	Mr. E. Ramahi
12. Car Wash	20 April 2018	Mr & Mrs Soemita
13. Mosque Assayi HaH Islam	20 April 2018	Mr. Martodikromo
14. Sport Complex (Ismay van Wilgen Sporthal)	20 April 2018	Mr. Ramgoelam
Interested Stakeholders		
1. Ministry of Public Works	9 April 2018	Mr. R. Natha Ms. P. Atma
2. NIMOS	11 April 2018	Mr. Q. Tjon Akon Ms. M. Sewnath
3. National Environmental Policy Office	11 April 2018	Mr. Ramlakhan Ms. Patterson Ms. Cumberbath
4. Ministry of Labour (Labour Inspection)	11 April 2018	Mr. John Courtar
5. Bureau of Statistics (ABS)	11 April 2018	Public Relations & Information Department
6. Stichting Milieu Watch (NGO)	11 April 2018	Mr. H. Schurman Ms. J. Polanen