Environmental and Social Impact Assessment for the Reconstruction of the Parliament Building

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Abbreviations

ADI	Area of direct influence
AII	Area of indirect influence
BUZA	Ministry of Foreign Affairs (Ministerie van Buitenlandse Zaken)
DNA	The National Assembly (De Nationale Assemblee)
DC	District Commissioner
EHS	Environment, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GoS	Government of Suriname
ICOMOS	The International Council on Monuments and Sites
IDB	Inter-American Development Bank
IFC	International Finance Cooperation
Km	Kilometer

M	Meter
NCCR	Nationaal Coordinatie Centrum voor Rampenbeheersing
NGO	Non- Governmental Organization
NIMOS	National Institute for Environment and Development in Suriname (Nationaal Instituut voor Milieu en Ontwikkeling in Suriname)
MINOWC/MESC	Ministry of Eductioan, Science and Culture (Ministerie van Onderwijs, Wetenschap en Cultuur)
PAP	Project-Affected Persons
PIU	Project Implementation Unit
PURP	Paramaribo Urban Rehabilitation Program
RFP	Resettlement Policy Framework
RO	Regional Development, Ministry of Regional Development (Ministerie van Regionale Ontwikkeling)
ROGB	Ministry of Spatial Planning, Land and Forest Management (Ministerie van Ruimtelijke Ordening en Grond-en Bosbeheer)
SBHF	Suriname Built Heritage Foundation (Stichting Gebouwd Erfgoed Suriname SGES)
SEP	Stakeholder Engagement Plan
UNESCO	United Nation Educational, Scientific and Culture Organization
ToR	Terms of Reference
WB	World Bank
WHS	World Heritage Site

Glossary of Terms

Term	**Definition**
Area of Influence	The area likely to be affected by the project, including all its ancillary aspects, such as power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, and construction camps, as well as unplanned developments induced by the project (e.g., spontaneous settlement, logging, or shifting agriculture along access roads).
Community	Usually defined as a group of individuals broader than the household, who identify themselves as a common unit due to recognized social, religious, economic or traditional government ties, often through a shared locality.
District	Administrative Unit, comparable with a province. Each district has its own district government with limited powers of decision-making, headed by a District Commissioner (DC).
Domain Land Dutch: *domeingrond*	All land, to which third parties cannot prove land tenure rights is domain land, that is, property of the state.
Grievance Mechanism	This is a process by which Project beneficiaries or Project Affected Persons can raise their concerns and grievances to Project authorities.
Household	A group of persons living together, who share the same cooking and eating facilities, and form a basic socio-economic and decision-making unit. One or more households may occupy a house.

Involuntary resettlement	Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in physical or economic displacement. This occurs in cases of (i) lawful expropriation or temporary or permanent restrictions on land use and (ii) negotiated settlements in which the buyer can resort to expropriation or impose legal restrictions on land use if negotiations with the seller fail.
Livelihood	The term 'livelihood' refers to the full range of means that individuals, families, and communities utilize to make a living, such as wage-based income, agriculture, fishing, foraging, other natural resource-based livelihoods, petty trade, and bartering.
Project Affected Persons	A person who has been affected due to loss of land, house, assets, livelihood or a combination of these due to project activities
Resort	Administrative unit, subsection of a District.
Resettlement Policy Framework	An instrument to be used throughout Project implementation. The RPF sets out the resettlement objectives and principles, organizational arrangements and funding mechanisms for any resettlement, that may be necessary during Project implementation.
Stakeholders	All individuals, groups, organizations, and institutions interested in and potentially affected by a Project or having the ability to influence a Project.
Vulnerable People	Distinct groups of people who might suffer disproportionately from project impacts such as people below the poverty line, the landless, the elderly or disabled, women and children, indigenous peoples, ethnic minorities, resettlement effects.

Executive Summary

This document presents the results and recommendations of the Environmental and Social Impact Assessment (ESIA) for the Reconstruction of the New Parliament Building at the Henck Arronstraat 2-6 as part of component I of the Paramaribo Urban Rehabilitation Program (PURP).

The appointed Consultant has prepared this ESIA based on the generic environmental assessment and social impact guidelines of the National Institute for Environment and Development in Suriname (NIMOS, 2009) as guidance, as well as international best practice. The analysis and this report were prepared according to the approved Terms of Reference by the Inter-American Development Bank (IDB).

In the Screening Phase of the ESIA, NIMOS determined that the project is a Category B – path 2 project, thus meaning a limited ESIA.

The study was carried out in the period between August and November 2018.

For the compilation of the baseline section, data of previous studies and from existing sources have been used, but in addition fieldwork has been carried out for general orientation, traffic, noise, soil, hydrology and land-use and water quality. Other specialist studies conducted include an asbestos quick scan. Also extensive public consultation was undertaken, during which local public stakeholders, local government representatives, and district authorities were consulted. A socio-economic survey was conducted in order to collect general information on households, income, the public utilities, and to learn about the opinion and concerns about the project.

The ESIA describes the available information on project design and operation. The collected data is considered adequate for the analysis of the impact and is covered in this report in eight chapters and four appendices.

From the impact assessment and the underlying specialist studies, **one major and three moderate negative** impacts are identified. All identified significant impacts can be effectively reduced to **low to negligible impacts** with the implementation of the proposed mitigation measures.

With regard to the occupant who lives in the dilapidated building at the site and earns his income from assisting with parking and washing vehicles, a further assessment for the development of a specific Resettlement Action Plan (RAP)/Livelihood Restoration Plan (LRP) according to the policies of the IDB is required. The RAP/LRP will be prepared separately and have to be finalized prior to the commencement of the works.

Environmental and Social project risks and impacts will be managed through an effective Environmental and Social Management Plan (ESMP) which must be implemented as part of normal operations by incorporating the key components into daily activities, such as including environmental issues in the decision-making process and maintaining complete records. Also, all duties and responsibilities of all involved parties are contained in this plan.

Component	Description	Impact	Residual impact (after proposed mitigation)
Negative impacts			
Loss of living space, 1 person	Occupant living (unauthorized) in old concierge building will have to move	Major	Low
Livelihood	Loss of livelihood for occupant on the informal parking lot on the terrain.	Moderate	Low
Parking during construction for visitors of the area and surroundings	Reduced and limited parking spaces	Moderate	Low
Traffic during construction	Traffic congestions due to construction activities and narrowing of the Henck Arronstraat (slow traffic)	Moderate	Negligible
Positive impacts			
Visual and aesthetics during the operational phase	Physical presence: modern building with historical characteristics	Moderate	Positive
Socio-economy during the operational phase	Physical presence: Promote tourisme Conservation historical aspects Public attraction (library)	Moderate	Positive

1 Introduction

1.1 Purpose of this document

This document presents the results of the Environmental and Social Impact Assessment (ESIA) for the Reconstruction of the Parliamement Building at Henck Arronstraat 2-6 as part of component I of the Paramaribo Urban Rehabilitation Program (PURP). In addition, recommendations are given, which must be carried out prior to the commencement of the construction of the Parliament Building. This to make sure that appropriate measures to prevent or mitigate/minimize any adverse impacts through all the phases of project implementation are taken into consideration and that an Environmental and Social Managent Plan (ESMP) for the Parliament Building is in place.

The ESIA has been carried out in compliance with the national regulatory requirements and the Environmental and Social Assessment guidelines of the National Institute for Environment and Development in Suriname (NIMOS 2005 and 2009) as guidance. Furthermore, relevant standards and guidelines of the Inter-American Development Bank (IDB), the World Bank (WB) Group and the International Finance Corporation (IFC)'s Environmental and Social Review Procedure are taken into account. The assessment and this report were prepared according to the Terms of Reference (ToR) as submitted to NIMOS.

The key regulatory requirements pertaining to the proposed project and the environmental assessment include the following:

- Suriname government policy.
- Suriname legislation, regulations and guidelines.
- International best practice standards, such as the policies and guidelines of the IDB, and the WB Group, including the IFC.
- Relevant international conventions.

1.2 Project background

The Government of Suriname (GoS) and the Inter-American Development Bank (IDB) signed a signed a loan agreement (no. 3905/OC-SU) of twenty million US Dollars (US$20 million) to finance the Paramaribo Urban Rehabilitation Program (PURP).

The main purpose of the PURP is to contribute to the socio-economic revitalization of Paramaribo's historic inner city. This program is implemented by the Ministry of Education, Science and Culture (MESC), through the Suriname Built Heritage Foundation (Stichting Gebouwd Erfgoed Suriname).

The PURP has the following components to be implemented over a 5 years period:

I. Renovation of urban spaces and of key heritage buildings;
II. Improvement in urban mobility (reducing motorized traffic in the World Heritage Site (WHS), and promoting non-motorized transportation),
III. Promotion of economic and residential activities (including the renovation of historic buildings for mixed use housing and commercial uses, as well as tourism planning and identification of soft interventions),
IV. Strengthening the institutional framework for managing the area's development.

The specific objectives of the PURP include:

a) The attraction of new residents and commercial activities;
b) Restoration of value to cultural heritage;

c) Reduction of traffic congestion; and
d) Strengthening of the institutional framework for managing sustainable development.

As part of component I of the Program, the former Parliament Building of Suriname at Henck Arron straat 2-6 will be reconstructed. This old building was completely destroyed by fire on August 1, 1996.

The reconstruction of the Parliament building includes the construction of two buildings: building B (numbers 2 and 4) and building A (number 6) (also see Figure 7, page 37). The groundfloor will contain public-use functions (library, exposition), while the upper floors will be used by the Parliament for its operational department which includes administrative and management functions. The parliamentary work will remain at the current location at the Waterkant.The construction period of the new parliament buildings is 30 calender months.

1.3 The proposed project and ESIA study area

The ESIA study area or the Area of Influence comprises of the project site (plots 2-6 at Henck Arronstraat) as well as its surroundings. The characterization of the Area of Influence is based on the existing environmental and social conditions where the infrastructural works will be carried out. This is distinguished in:

- *An Area of Direct Influence (ADI)* which is considered the physical footprint of the project e.g. the construction site, work staging area and areas affected during the operational phase of the project. For the current project the ADI is defined as the project site and its immediate surroundings based on:
    - Land characteristics and use: for biophysical components such as topography, soil characteristics and terrain stability, impacts are expected to be direct and localized to the project site, therefore the ADI is defined as project site and immediate surrounding (radius of 50-100m)
- *An Area of Indirect Influence (AII)* which is not defined precisely but includes the areas which may experience induced or cumulative changes in combination with the project activities such as traffic flows. For the current project AII is defined based on:
    - Landscape and existing views of the development site and surrounding, air quality, noise levels, traffic and transportation and water: for biophysical components as mentioned above, impacts are expected to be beyond the project site and its immediate surroundings. In general, the historical inner city of Paramaribo may experience indirect nuisance from the project activities in terms of traffic flows and possible exceeding noise levels, therefore, this area is considered for secondary impact (a radius of 250m).

An overview of the ESIA study area with the ADI and AII is presented in Figure 1. A detail overview of the ADI is presented in Figure 2.

Figure 1: Overview of the ESIA Study Area with ADI and AII

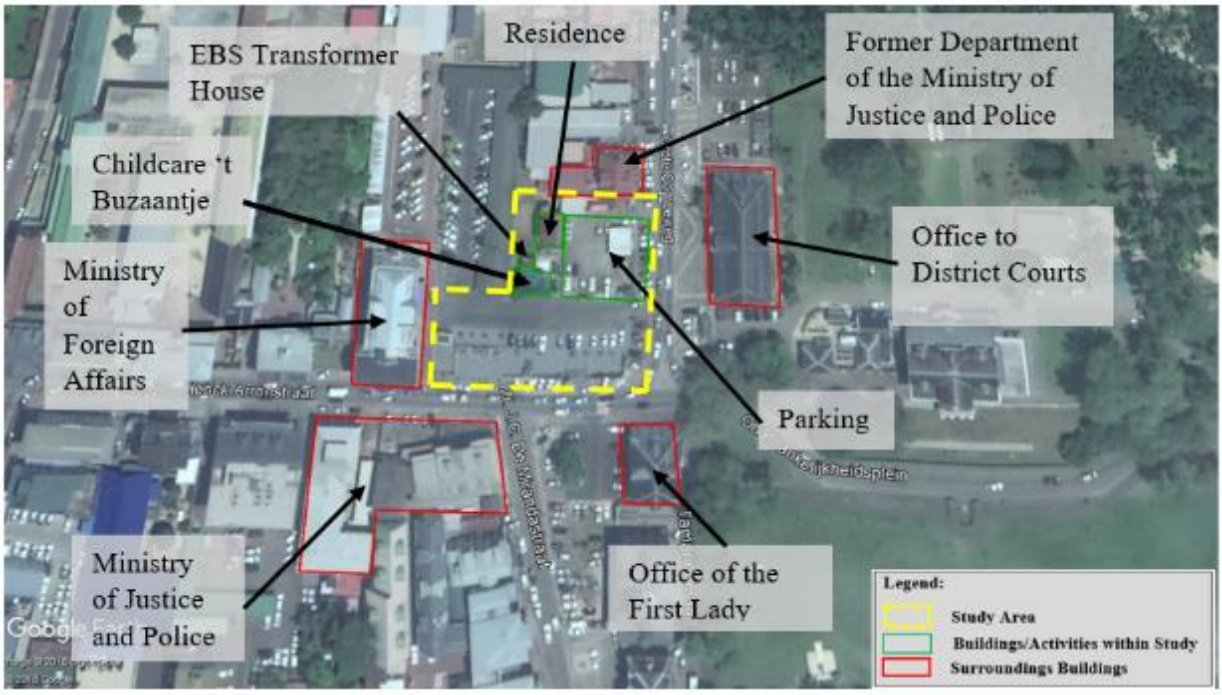

Figure 2: Overview of the ADI

1.4 Objectives and scope

The objective of this ESIA is to:

- Describe the current environmental and social conditions of the project site.

- Inform and obtain contributions from stakeholders, including relevant authorities and local area inhabitants, and address their relevant issues and concerns.
- Verify compliance with the environmental regulations and standards.
- Document and bring into context the bio-physical baseline conditions of the study area.
- Conduct a social baseline study that documents the demographic, socioeconomic, cultural land tenure and use situation in the Area of Influence and the broader impact area.
- Assess in detail the environmental and social impacts that may result from the different phases of the proposed project as well as identified mitigation measures that will allow for minimizing or annihilating negative impacts and maximizing positive project benefits.
- Prepare an Environmental and Social Impact Assessment Report compliant with the Environmental Assessment Guidelines (2009), the guidelines for Social Impact Assessment (NIMOS 2005a) and
- Prepare an Environemental and Social Management Plan (ESMP), to ensure that the project meets both national environmental legislation and the Environmental and Social Safeguards Policy (OP-703) of the IDB.

The IDB has executed the screening of this project and classified it as a Category B project[1]. Although no specific ESIA guidelines for urban construction are available yet in Suriname, the IDB recommended that:

- The ESIA is executed in accordance with the generic environmental assessment and social impact assessment guidelines of the National Institute of Environment and Development in Suriname (NIMOS) and that
- The IDB is provided with the opportunity to review the ToRs to ensure consistency with its requirements

The documents for screening of the project by NIMOS were submitted on the 23rd of August 2018. On September 7th 2018 the result of the screening was received from NIMOS. The ESIA to be conducted for the proposed project was categorized as a Category- B, which means that a limited ESIA is required.

As the second step in the ESIA process a scoping was undertaken. On October 15th 2018, the Draft Scoping Report was submitted to NIMOS. This report was reviewed and approved by NIMOS with reference made to the letter received from NIMOS dating 13th of November 2018.

The Scoping Report includes the ESIA Terms of References for the baseline and impact assessment studies which were used to carry out this ESIA.

1.5 Team of experts

The ESIA has been undertaken by a team of highly motivated experts with ample national and international experience and under conditions similar to the assignment.

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[1] Category B operations, according to OP-703 (Environment and Safeguards Compliance Policy) will normally require an environmental and /or social analysis, according to and focusing on the specific issues identified in the screening process, and an Environmental and Social Management Plan.

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2 Methodology and Approach

2.1 Introduction

This chapter presents the methodology used to meet the objectives of the assignment as listed in paragraph 1.4. The approach involved an understanding of the project background, the preliminary (basic) design, implementation and commissioning of the project. The current study has been conducted by gathering data through desk study, supplemented by gathering of field data through observations, sampling and testing, stakeholder consultations, interviews and a social survey. The reason for the relatively limited amount of field work is justified by the study being a Category B path 2 project (limited assessment) and the small extent of the project activities. Also there is already a large amount of proper information available for the area from other studies conducted such as the Environmental and Social Assessment for the Paramaribo Urban Revitalization Program Environmental Resources Management, December 2016 and the 'Strategic Urban Mobility Plan for Paramaribo Historic Center' by IDB/IDOM, January 2018. The key tasks during the execution of the assignment are listed in the following paragraphs.

2.2 Baseline study

The baseline study comprises an environmental and social-cultural study of the baseline conditions in the study area. Baseline information was gathered through desktop studies, in-situ observations, survey, photography, public consultation of key members representing the community and discussions with the Project Proponent. The baseline descriptions are based on existing maps, photographs and images, literature reviews, documents, field observations and interviews. Baseline data also have been acquired from records held by government services and others.

2.2.1 Environmental Baseline

The environmental setting described in this section provides baseline conditions from which an assessment of the potential effects of project development was determined. In addition, the baseline environmental information can be used as a benchmark by which future monitoring results will be compared. Specific sources of information per component are listed in Table 1 Overview of gathered bio-physical information and information sources.

Table 1: Overview of gathered bio-physical information and information sources

Component	Information and data sources	Fieldwork activity
Climate	Records held by Meteorological Survey Website www.meteosur.sr (MDS 2018) Background literature and documents (see references)	None. Expert judgment based on emission sources and prevailing winds (air quality)

Climate change factors	Background literature and documents (see references) Newspaper article December 10th 2018	None Telephone conversation NCCR, 9th of January 2019
Air quality	General background literature and documents (see references)	Field measurements from October 22nd- 6th of November 2018
Noise	General background literature and documents (see references)	Field measurements (daytime) on October 2nd 2018
Geology and soil quality	Dutch procedures and guidelines (see references)	Sampling of soil on October 3rd 2018
Water resources including flooding risks and water quality	Background literature and documents (see references)	Surface water quality measurements (in situ measurements) on October 2nd, 2018
Traffic flows and infrastructure, road network and services	Background literature and documents (Strategic Urban Mobility Plan for Paramaribo Historic Center' by IDB/IDOM, January 2018)	Traffic counts (day) October 2nd, 2018
Hydrology and Drainage	Background literature and documents Interview Sub-director Civel Works of the Ministry of Public works Final Project Specifications KDV 2014-02 D001-d for the Construction of the buildings at the Henck Arronstreet 2-4 and 6, January 3rd 2019	Survey on September 12th , 13th and 25th ,2018 Meetings with Architect on the 23rd of August 2018 and September 11th 2018 to discuss new drainage plan. Telephone conversation Architect, 8th of January 2019 Meeting with Mr. Mohan, sub-director Civil Works of the Ministry of Public Works, Transport and Communication on the 12th of September 2018 to gather data about the drainage system of the inner city of Paramaribo.
Asbestos	General background literature and documents (see references)	Inspection by asbestos specialist on (day) September 20th, 2018
Parking	General background literature and documents(see references) Final Project Specifications KDV 2014-02 D001-d for the Construction of the buildings at the Henck Arronstreet 2-4 and 6, January 3rd 2019	Fieldsurvey study area on September 12th Meetings with Architect on the August 23rd 2018 and September 11th 2018.
Energy and water use in the operational phase	General background literature and documents(see references) Final Project Specifications KDV 2014-02 D001-d for the Construction of the buildings at the Henck Arronstreet 2-4 and 6, January 3rd 2019	Meetings with Architect on the August 23rd 2018 and September 11th 2018. Telephone conversation Architect, 8th of January 2019

Health and safety aspects	General background literature and documents(see references) Final Project Specifications KDV 2014-02 D001-d for the Construction of the buildings at the Henck Arronstreet 2-4 and 6, January 3rd 2019Fire safety	Meetings with Architect on the August 23rd 2018 and September 11th 2018. Telephone conversation Architect, 8th of January 2019 Meeting with the Fire Department, 4th of October 2018. Telephone conversation with Fire Department Prevention, 5th of December
Waste management	General background literature and documents(see references) Final Project Specifications KDV 2014-02 D001-d for the Construction of the buildings at the Henck Arronstreet 2-4 and 6, January 3rd 2019	Meetings with Architect on the August 23rd 2018 and September 11th 2018.

Desktop study was done in the period August 5th till September 7th 2018.
After the fieldworks the data processing was done in the period from October 4th till October 12th 2018. The findings from the processed data have been compiled into this document.

2.2.2 Social Baseline

The social setting described in this section provides baseline conditions from which an assessment of the potential effects of project development was determined.

Review of existing data
The assessment started with a review of existing secondary data. Consulted secondary data included books, consultancy reports, data from the Suriname General Bureau of Statistics (*Algemeen Bureau voor de Statistiek* – ABS), data from websites from international organizations and online news media.
According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2017) the historical inner city of Paramaribo:

- ✓ *is an exceptional example of the gradual fusion of European architecture and construction techniques with indigenous South American materials and crafts to create a new architectural idiom;*
- ✓ *is a unique example of the contact between the European culture of the Netherlands and the indigenous cultures and environment of South America in the years of intensive colonization of this region in the 16th and 17th centuries.*

Therefore, the UNESCO state conservation report 2017 was reviewed as well.

Stakeholder interviews
Information gaps and issues that remained unclear after literature review were completed and clarified through interviews with key experts and other stakeholders. These interviews also served to verify, modify and correct existing written information. Moreover, stakeholder interviews served to document stakeholder perceptions on the potential positive and negatives effects of the Parliament Building Project, and to more fully explore potential challenges and opportunities to Project Affected Persons (PAPs).Consulted experts and key knowledge persons included relevant representatives from

government, organizations and civil society. A full list of consulted individuals is presented in Annex IVA.

Household interviews
Based on observations and interviews, ten households were identified in the AII, of which four were part of an apartment complex managed by VSH United. The manager of the VSH apartments did not allow the surveyor nor the consultant to interview the households living in the apartments. She was willing though to let the residents fill in the forms themselves. No forms are received back yet (October 18th, 2018).
Interviews were held with the remaining households. Of which in-depth interviews with the household situated in the ADI and with the households living at Mr. J.C. De Mirandastraat, as these households can be considered as vulnerable. The Household Survey Questionnaire is attached as Annex IVB.

Limitations and assumptions
This social specialist study and related recommendations are based on a number of assumptions, which should be beared in mind when considering information presented in this report. In collecting interview data, it was assumed that interviewees answered truthfully to the questions and did not willfully distort or hide information. Furthermore, it is assumed that the local government representatives (Resort Council (RR) members) of the different areas are well informed about their respective areas, and represent the best interests for the entire population in the area under their responsibility.

The consultant is confident that these assumptions do not compromise the overall findings of the study.

2.3 Impact assessment

The impact assessment is based upon qualitative or quantitative assessment of the following attributes:

- Magnitude
- Geographical scale
- Duration
- Probability of occurrence

The resulting impact will be indicated by their significance class. The classes are defined as shown in Table below .

Table 2: Classes of impact significance

< Impact significance >
Major (significant) effect: effect expected to be permanent or continuous and non-reversible on a national scale and/or have international significance.
Moderate (significant) effect: long-term or continuous effect, but it is reversible and/or it has regional significance.
Minor (not significant) effect: effect confined to the local area and/or of short duration, and it is reversible.
Negligible (not significant) effect: effect not detectable.
Unknown effect: insufficient data available to assess the significance of the effect.

In addition, impacts have been classified as:

- Positive: indicating whether the impact will have a positive (beneficial) effect; or

- Negative: indicating whether the impact will have a negative (adverse) effect on the environment, including affected people.

The degree of detail has enabled the determination of required mitigation and possible enhancement measures, respectively to prevent or reduce significant negative impacts and to promote any positive impacts already in the planning phase. The implementation of mitigation measures will reduce negative environmental impacts to an acceptable level as much as possible.
After implementation of mitigation/enhancement measures the significance of the impacts has again been determined.

The overall impact assessment will be presented summarized using a table:

Project Activity	**Resources Affected**	**Impact Description**	**Likelihood**	**Characteristics and Consequence**	**Impact Significance**	**Mitigation Measures**	**Residual Impact**

The methodology is presented in the Scoping Report to which is referred.

3 Legal and Institutional Framework

3.1 Introduction

This chapter provides an overview of the policies, legislation and institutions that form the enabling environment of the project.

The Development Plan (current version 2017-2021) forms the overarching planning and policy document for the development of the country in the widest sense. The Development Plan emphasizes that a responsible environmental policy will be implemented. This policy will consider all the risks that may arise from, amongst others, climatic changes and risks resulting from improper use of the soil and nature.

Aspects that will receive particular attention are:

a. Sea level rise;
b. Risk of disasters caused by man or nature;
c. Chemicals management;
d. Waste management and emission of harmful substances;
e. Renewable energy;
f. Atmosphere protection;
g. Sustainable water, nature, land and forest management;

As it relates to cultural heritage, the Development Plan underlines that the cultural policy must be developed in such a way that the preservation and development of local cultures is part of the planned social progress. A precondition for a successful cultural policy is the adjustment of outdated laws and regulations, or the acceptance of missing ones. Some of the areas that this concerns are intellectual property, and the management and protection of the cultural heritage including buildings.

3.2 Legal framework

Suriname's legislation is exercised through a suite of different legislative instruments, including Laws or Acts of Parliament *(Wet, also called Landsverordening prior to 1975)*, Decrees[2] (*Decreten*), and regulations which are in the form of State Orders (*Staatsbesluiten*), Presidential Orders *(Presidentiële besluiten*), Presidential Resolutions (*Presidentiële Resoluties*) and Ministerial Orders (*Ministeriële Beschikkingen*).

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The legal basis for environmental protection in the Country is provided by the Constitution (1987, last amended in 1992). It is stated that one of the social objectives of the State is directed towards *"The creation and promotion of conditions, necessary for the protection of nature and for conservation of the ecological balance" (article 6g)*.

Despite this constitutional provision, Suriname's environmental regulatory regime has not fully evolved. The current legislation stems from the Colonial period and is more focused on nature conservation rather than pollution control. The legislation includes, amongst others, the Nature Conservation Act 1954, Game law 1954 and Fisheries Act 1961. After independence in 1975, several new laws were promulgated with the aim to regulate exploitation of the natural resources of the country, and not environmental management in particulars'. Examples are the Mining Act of 1986 and the Forestry Act 1992. In general, the legislation regarding environmental and natural resource management is fragmented, dispersed between different pieces of legislation.

Responsibility for the management of the environment and natural resources resides within different government institutions whereas there is a lack of coordination and enforcement.

[2] Decrees date from the Period of Military Ruling (1980-1986) and have the same status as a law.

In this light, in 1998, the National Institute for Environment and Development in Suriname (NIMOS) was established with a mission to initiate the development of a national legal and institutional framework for environmental policy and management in the interest of sustainable development in the Republic of Suriname. It was in the year 2002 when NIMOS started the process to develop an Environmental Framework Act for Suriname.

The legal and regulatory framework for environmental impact assessments in Suriname is governed by NIMOS using the generic Environmental Assessment Guidelines (2009). In October 2018, the Draft Environmental Management Act was submitted to Parliament for discussion. The Environmental Management Act will provide the legal base for the implementation of the Environmental Assessment Guidelines.

NIMOS is currently in the phase of formulating regulations for pollution control and Environmental Impact Assessment. The generic EA (NIMOS, 2009) as well as social impact assessment guidelines (NIMOS 2005a) will be followed for the current study.

In the context of conservation and protection of its natural and cultural heritage the Constitution of Suriname (1987, last amended in 1992) states under article 47 the following: *"The State preserves and protects the cultural heritage of Suriname, stimulates its preservation and promotes the practice of science and technology within the framework of the national development goals"*.

Relevant Legislation Related to the project

A. Environment

The Environmental issues to be dealt with in the current project are regulated under:

i) The **Building Act** and the **State Order on Building**. This legislation provides for the control of Construction of Buildings through a permitting system. The regulations outline the technical requirements for building structures and specific rules concerning the setting up of latrines and septic tanks and the discharge of wastewater. The Ministry of Public Works, Transport and Communication is responsible for enforcement of this Act.

ii) The **Penal Act** and **Police Criminal Act,** which are both criminal acts, penalize water pollution and littering. The Ministry of Justice and Police is responsible for its enforcement.

iii) The **Nuisance Act** aims to prevent the cause of danger, damage or hindrance caused by undertakings (enterprises) to the outside-fence surrounding environment. The District's commissioner is responsible for enforcement.

B. Occupational Health and Safety

The Occupational Health and Safety legislation applicable to the project are:

i) The **Safety Act** 1947 (G.B. 1947 no. 142 as lastly amended by S.B. 1980 no. 116) which is a framework act on safety and hygiene in enterprises. Detailed rules are laid down in subsidiary legislation. At present, there are 9 Safety regulations pursuant to the Safety Act. The Act and the regulations aim to decrease the chances of employment injuries and occupational diseases. They provide specific rules regarding safety on the work floor. Enforcement of the aforementioned laws and regulation is a responsibility of the Ministry of Labor. Suriname is a member of the International Labor Organization (ILO) and has ratified several conventions related to workmen's compensation, safety standards for construction, and labor inspections.

ii) The **Building State Order** specifically provides occupational health and safety rules for workers in the construction sector.

iii) The **Accidents Act** regulates that all employers are obliged to insure employees against accidents related to the work.

iv) The **Act on Driving** as well as the **State Order on Driving** provides rules for participation in the vehicular traffic. This legislation provides, amongst others, for rules regarding loading and unloading of cargo on public roads, transportation of large cargo and it prohibits nuisance caused by motor vehicles.

C. Cultural heritage

The legislation related to cultural heritage falls under the following acts and regulations:

i) The **Building Act,** No. 30 (1972) (last amended SB 2002, No.72) and the **State Order on Building**. It is prohibited to build if the given requirements aren't met with those of the Building Act (art.1). In the Act "building" means the placing, the complete or partial establishment, renewal, change, or expansion of buildings or other structures in the broadest sense of the word, including hydraulic constructions (art.1-3). As it regards monuments, a building permit may be refused if the building plan relates to a monument within the meaning of Article 3 of the Monuments Act and this isn't in compliance with the granted permit by the Minister responsible for cultural affairs (art.4-1b). To promote a harmonious development in urban and village areas with its own aesthetic character, the Director can make special demands on the building plans within those zones. The Director allows himself to assess these requirements by an expert committee, whose duties and powers will be arranged by State Order (art.4-2). The Building Act also states that if a building or structure, either because it is in a dilapidated state due to old age, or from other reasons endangers the safety or health of users or others, the owner of that building is obliged to comply with a notice issued to him by the Director within the specified period to repair, renovate or demolish the dilapidated building, or to take measures in the interest of safety and health, which is deemed necessary by the Director in respect of that building or structure (art.6-1). The Ministry of Public Works, Transport and Communication is responsible for enforcement of this Act.

ii) The **State Order for Monuments Register,** No. 41 (2000), sets out the procedure upon the registration of immovable property and parts thereof which have been designated by the Minister as objects of monument conservation. Further regulations concerning the design and management of the monument register must be established, in order to make registration as intended possible.

iii) The **State Order for designation of Historic Town,** No. 74 (2001). In this State Order provisions are made upon the establishment of the Construction committee and its tasks. Further on the boundaries of the historic city center are indicated as well as the designation of two buffer zones adjacent to the historic city center.

iv) The **Monuments Act,** No. 72 (2002), sets out provisions concerning the preservation of monuments, and town and village views. Article 2 elaborates on the establishment of the Monument Conservation Commission and its tasks. Article 3 sets out the procedure of designation and alteration upon monuments. Provisions are set out for public monument register (art.5). Article 6 offers the opportunity to object to the designation as a monument or to a decision to remove a monument from the monument list. It is prohibited to demolish a monument, or to change the appearance or the control structure without obtaining a license from the Minister (art.7). Before the Minister takes the decision regarding a permit for

demolishing, restorations or movement of monuments advice is requested from the Commission Monuments care and / or the Archaeological Service (art.7-3). Article 8 provides for the rules associated with the licensing system, while indicating that a register must be kept of all permits. Articles 9, 10 and 11 outline provisions regarding restoration and preservation of the monuments. Furthermore, provisions are made regarding the designation of 'city and village view', registration in the public register, and rules that relate to new construction, demolition, alterations or renovations to buildings etc. (art 13, 14, 15, 16). Articles 17 to 22 elaborate on the provisions set out for underground objects that can be qualified as a monument. Articles 23 to 28 emphasizes on the coercive measures and penal provisions. Article 30 of the Act elaborates on the amendment to the Building Act and the Urban Planning Act. As it regards art.4 of the Building Act, a permit may be refused:

a. if the building plan or the papers or the documents do not comply with the requirements set out in art.1 of the State Order or referred to in art.3 of the Building Act.
b. if the building plan relates to a monument within the meaning of Article 3 of the Monuments Act and this is not in accordance with the permit granted by the Minister responsible for cultural affairs.

In the case archeological sites are found during the project, the provisions in the Monuments Act regarding archeological sites are applicable. Article 20.1 stipulates that monuments found in excavations and on which no one can prove the right of ownership are owned by the state. 2. The owner of the land in which the monuments have been dug up is required to transfer the found monuments to the State and is entitled to a reimbursement amounting to half the value of those monuments. 3. Monuments found in an investigation…may be transferred to a place suitable for their custody on the instructions of the Minister of Education.

Article 21. States that the finder, within thirty working days after the discovery must indicate the exact location, time, monument and particulars of the discovery to the District Commissioner (DC) of the district in which the discovery has been made who shall immediately notify the Minister.

v) The Ministerial Order on Plans for the Historic Downtown, No. 34 (2003)
This Order provides for special requirements for building plans for the historic inner city and adjacent zone. Since renovations of the historic inner city are highly susceptible to changes which can result in the loss of the cultural historical character rules / requirements for the construction plans are established. These requirements are also to maintain the cultural historic quality.

Various pieces of legislation related to Environment, Health and Safety and Cultural heritage are required to be complied with during the implementation of the project. Annex 1 provides an overview of these legal instruments. This list does not intend to be definitive or exhaustive, but serves to highlight the key obligations only.

An overview of relevant provisions of the Surinamese Laws and Regulations are presented in Annex I.

3.3 International Best Practice Standards

Where national legislation, standards or guidelines are lacking or where international standards are more stringent, international standards like the IFC World Bank standards are applied where

applicable. As the project is financed by the IDB, the IDB Environmental and Social Safeguard Policies and Directives will be used to guide the project.

The World Bank Sourcebook for Environmental Assessment should be used as a guidance document for this study. The Sourcebook is a reference document that provides practical guidance for identifying and addressing negative environmental impacts of development projects. The Sourcebook aims to collect all World Bank policies, procedures, guidelines, precedents and best practice that reside in different World Bank publications into a single source. The document is continually updated and covers a wide range of subjects.

It is recommended that for the current project, the *IFC[3] Environmental, Health and Safety (EHS) Guidelines developed for Construction and Decommissioning* are used in the absence of national legislation. The hazards and risks associated with the project will be held against this standard. Where Suriname's legislation is absent or differs from the levels and measures presented in the EHS Guidelines, it is recommended to use the most stringent standard or guideline.

The EHS Guidelines for Construction and Decommissioning include information relevant to the management of EHS issues. The environmental issues associated with construction and decommission projects include Noise and Vibration, Soil Erosion, Air Quality, Solid Waste, Hazardous Materials, Wastewater Discharges and Contaminated Land. The associated occupational Health and Safety issues include over-exertion, ergonomic injuries and illnesses, slips and falls, work in heights, struck by objects, moving machinery, dust, confined spaces and excavations. In addition, the guideline recommends implementing risk management strategies to protect the community from physical, chemical, or other hazards associated with sites under construction and decommissioning. Traffic Safety and disease are included as associated issues.

The EHS Guidelines recommend a number of prevention and control measures which, if applicable, can be included in the Environmental Management and Monitoring Plan which is part of current study.

The IFC Performance Standards will also guide the project where relevant and feasible. For the current project, the following standards are applicable:

- *PS 1 Social and Environmental Assessment and Management Systems*

This standard requires the identification and assessment of all social and environmental impacts and risks in a project's area of influence. It aims to avoid, or where avoidance is not possible, minimize adverse social and environmental impacts and to ensure that affected communities are appropriately engaged. The Standard promotes the use of management systems to improve social and environmental performance.

- *PS 2 Labor and Working Conditions*

This standard aims to establish, maintain and improve worker-management relationships through fair treatment of workers and compliance with national labor and employment laws. It aims to prevent unacceptable forms of labor, e.g. child and forced labor and promotes safe and healthy working conditions. The Standard addresses issues such as human resources policy, non-discrimination and equal opportunity, retrenchment, occupational health and safety, contract labor, etc.

- *PS 3 Pollution Prevention and Abatement*

Application of the principles of the World Bank's Pollution Prevention and Abatement Handbook at Policy level is addressed by this standard which aims to avoid or minimize pollution from project activities. Key issues addressed include resource conservation and Energy Efficiency, hazardous materials, waste management, emergency preparedness and Response, ambient and cumulative considerations, greenhouse gas emissions, pesticide use and management.

[3] On the 2th of September 2011 Suriname became a member of the IFC. Suriname is the 14th Caribbean country who joins IFC.

- *PS 4 Community Health, Safety and Security*

The objective of this standard is to minimize and manage health and safety risks to local communities from project related activities. Issues addressed entail infrastructure and equipment safety, hazardous material safety and environmental health. The standard is also to ensure that the safeguarding of project related personnel and property is carried out in a legitimate manner that avoids or minimizes risks to the community's safety and security.

- *PS 5 Land Acquisition and Involuntary Resettlement*

The objective of this standard is to avoid involuntary resettlement wherever possible and to minimize its impact on those displaced through mitigation measures such as fair compensation and improvements to and living conditions. Active community engagement throughout the process is essential.

- *PS 8 Cultural Heritage*

The objective of this standard is to guide companies in protecting cultural heritage from adverse impacts of project activities and supporting its preservation. It also promotes the equitable sharing of benefits from the use of cultural heritage.

The IDB Board of Directors has approved a set of standards (General Operational Policies and Sector Policies that include social and environmental safeguards applicable to all Bank-Financed Projects and that make sustainability an integral part of the Bank's work.
These standards must be observed by all Bank personnel and serve as a guide for the identification of potential social and environmental impacts of Bank-Financed Projects.
These policies also establish the standards for informing and consulting with the region's population that Bank-Financed Projects must meet.

With regard to the IDB Environmental and Social Safeguard Policies and Directives OP-703, the following aspects are of relevance from an environmental standpoint. The IDB has a threefold strategy for addressing environmental concerns: These are:

(1) to enhance long-term development benefits to its member countries by integrating environmental sustainability outcomes in all Bank operations and activities and strengthening environmental management capacities in its borrowing member countries;
(2) to ensure that all Bank operations and activities are environmentally sustainable as defined in its Policy, and
(3) to foster corporate environmental responsibility within the Bank.

The Bank seeks to act to achieve these specific objectives by adopting measures to mainstream the environment into overall economic and social development, and to safeguard the environment in all Bank activities. Additionally, the Bank's Environmental and Safeguards Compliance Policy (OP-703 GN-2208) states that "the Bank will proactively support borrowing countries and clients in identifying and financing operations designed specifically to: (i) enhance environmental governance, policy development and institutional capacity building; (ii) reverse environmental deterioration; and (iii) promote the conservation and sustainable use of natural resources and ecological services."

With respect to the policys mandate to safeguard the project its finances, the Bank categorizes projects according to the potential environmental and social impacts as either: (i) Category A – Operations that are likely to cause significant negative environmental and associated social impacts, or have profound implications affecting natural resources, (ii) Category B – Operations that are likely to cause mostly local and short-term negative environmental and associated social impacts and for which effective mitigation measures are readily available, and (iii) Category C – Operations that are likely to cause minimal or no negative environmental and associated social impacts (Directive B.3 of OP-703)

According to OP-703, the project has been categorized “B”. The reconstruction of the Parliament Building at the Henck Arron straat 2-6 is located in the historical inner city of Paramaribo and is mainly surrounded by government buildings. The ESIA study area is a very active and busy area were schools, churches, utility companies, monuments, monumental and other historical buildings; recreational spaces and restaurants are located. It is expected that the reconstruction activity is likely to cause mainly localized and short-term environmental and social impacts for which effective, standard, and easily implementable mitigation measures exist.

During the operation phase, the facility will generate waste and create traffic congestions, which are likely the most sensitive environmental and social issues of concern for this Project.

As current project may result in temporarily resettlement of residents/occupants, the Bank’s Operation Policy 710 on Involuntary resettlement should be applied.

The objective of the policy is to minimize the disruption of the livelihood of people living in the project’s area of influence, by avoiding or minimizing the need for physical displacement, ensuring that when people must be displaced, they are treated equitably and, where feasible, can share in the benefits of the project that requires their resettlement.

In order to achieve the overall objectives of this policy, operations which may require resettlement will be evaluated and prepared according to two fundamental principles, namely:
i) Every effort will be made to avoid or minimize the need for involuntary resettlement.
ii) When displacement is unavoidable, a resettlement plan must be prepared to ensure that the affected people receive fair and adequate compensation and rehabilitation

3.4 Relevant International Conventions

Suriname is signatory to several international agreements and conventions related to environmental management as well as to Occupational Health and Safety conventions. As the selected site is situated in the UNESCO Cultural Heritage Site (in the conservation zone), conventions related to cultural heritage will be included. These conventions provide the direction for the national policy to be implemented by the Government. Table 3 provides a listing of the Conventions which are considered relevant to the current project.

Table 3: Conventions relevant to the Project.

Environment	
Title of the Convention	Purpose
United Nations Framework Convention on Climate Change 1994	To stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Under the Convention, both developed and developing countries agree to take measures to limit emissions and promote adaptation to future climate change impacts; submit information on their national climate change programs and inventories; promote technology transfer; cooperate on scientific and technical research; and promote public awareness, education, and training.

Kyoto Protocol 1997	The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets. Recognizing that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."
Vienna Convention for the Protection of the Ozone Layer 1985	To protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer. To promote international cooperation in the legal, scientific and technical fields, and encourage the exchange of information
Montreal Protocol on Substances that deplete the Ozone Layer 1989	To protect the Ozone layer by phasing out the production of numerous substances that are responsible for Ozone depletion
Stockholm Convention on Persistent Organic Pollutants 2001	To protect human health and the environment from POPs. POP is the abbreviation for ' Persistent Organic Pollutants ', or a collective name for various, often toxic chemical compounds. With persistent is meant not or poorly biodegradable. These POPs are distributed worldwide and accumulate in the fat of living organisms and are toxic to humans and animals. By implementing this treaty countries will take measures to eliminate or reduce the spread of POPs in the environment.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989	The treaty aims to protect the human health and the environment through minimization of the generation of hazardous waste and other materials where possible. The Convention also aims to further remove the waste as close to the source of origin or process to minimize the amount of hazardous substances and their danger and to limit their movement across international borders.
Labor, Health and Safety	
Constitution of the International Labor Organization	Promotes opportunities for women and men to obtain decent and productive work, in conditions of freedom, equity, security and human dignity
ILO Code of Practice	Promotes Safety and Health in Ports
Constitution of the Pan American Health Organization	To improve health and living standards of the Countries of the Americas
Constitution of the World Health Organization	The attainment of People of highest possible level of health
Cultural Heritage	
Convention Concerning the Protection of the World Cultural and Natural Heritage 1972	The World Heritage Convention aims to promote cooperation among nations to protect heritage around the world that is of such outstanding universal value that its conservation is important for current and future generations.

With regards to conventions being in force into the national legal system, it can be stated that Suriname has a mixed system; both monistic and dualistic. According to the Constitution, treaty provisions that may be directly binding on citizens shall become effective upon its promulgation (monistic). Legal regulations in force in the Republic of Suriname shall not apply if such application should be incompatible with provisions of international agreements that are directly binding on citizens and that were concluded either before or after the enactment of the regulations. The latter mostly regard human rights treaties. In the case where the international treaties provide for instruction norms towards the Government, they must be transformed into national legislation to be applicable (Dualistic). In general, environmental treaties provide instruction norms towards the Government. These Conventions usually require that legal and administrative matters are being implemented by governments.

3.5 Institutional framework

Several government departments and agencies play a role in environmental management in Suriname. This results in fragmentation and insufficient coordination. Within this section only the main entities are discussed and their relevance to environmental, occupational health and safety is highlighted.

A National Council for the Environment (NMR) was established in 1997 as an advisory body to the government and consists of five members appointed by the president and five members representing the trade and industry, unions, Amerindian and Maroon communities and consumer organizations. Currently, the Council is inactive[4]. The National Institute for Environment and Development in Suriname (NIMOS) was created in 1998 to support the NMR in implementation and research and to create national framework for environmental policy and management. NIMOS's current activities include review of environmental and social impact assessments of proposed projects, environmental monitoring and enforcement of environmental mitigation plans, and education and outreach.

An Environment Section was later created in the Ministry of Labor, Technological Development and Environment (ATM), which was converted to a Directorate in 2011. NIMOS worked under this Directorate. In 2013, the Directorate was removed from the Ministry and a National Environmental Policy Office was created in the Cabinet of the President, which also was to oversee NIMOS. The Policy Office, known as 'Coordination Environment' did not become operational until late 2015[5]. The Coordination Environment Office is responsible for formulating and coordinating environmental policy and environmental legislation and serves as the environmental focal point, representing the country in the various environmental conventions it is party to.
Other environmental management activities and policies are under various ministries. The Ministry of Physical Planning, Land and Forest Management is responsible for the issuance of domain land, physical planning, nature conservation and forest management.

The Ministry of Natural Resources is responsible for water resources policy, drinking water supply, energy resources, and mineral resources. The Geological Mining Division (*Geologische Mijnbouwkundige Dienst)* is responsible for monitoring of mining licenses.

The Ministry of Public Works, Transport and Communication is responsible for policy, planning and development of general architectural structure, and other civil engineering infrastructure, flood control and drainage, surface water and urban drainage, hydrological and meteorological monitoring, and manages sewage treatment, technical provisions for traffic and public transport as well as management of all harbors.

In the environmental arena, the Ministry of Health[6] is responsible for public health in the broadest sense, for the monitoring of the protection of public health in particular, for health information and education, and for regulating medical waste management.

The Ministry of Agriculture, Animal Husbandry and Fisheries is responsible for pesticide management, including imports, distribution, storage and use.

In the arena of Occupational Health and Safety, the Ministry of Labor plays a major role. The Labor Inspection is responsible for the monitoring of the legislation on Occupational Health and Safety

[4] Personal Communication with Legal Officer NIMOS, Gina Griffith, dd 15 October 2018.
[5] Ibid.
[6] Sometimes referred to as Public Health.

As it relates to the management of cultural heritage and heritage administration in Suriname, this is solely a government affair. The primary heritage authority in Suriname is the Ministry of Education. The Ministry is responsible for the promotion, practice and development of art and culture and for museums, archeology and monuments. Based on the Monuments Act 2002, this Ministry may issue permits for demolishing, restorations, movement of monuments, create and curate lists of protected monuments, prohibit demolition, compel restoration of historic buildings, and prosecute offenders. Before the Minister takes the decision regarding a permit for demolishing, restorations or movement of monuments advice is requested from the Commission Monuments care and / or the Archaeological Service.

The Ministry of Education is assisted in heritage administration and protection by the Commission for Monuments care, which advises on the implementation of the Monuments Act as well as reports to the Minister regarding the state of the Monuments. The Commission further executes activities in the area of monuments care assigned by the minister or by law. In case of archeological monuments, advice is being requested from the Archeological Service.

The Ministry of Public Works, Communication and Transport is responsible for building permits in general and specifically when it regards plans and permits for building in the historic downtown and historic towns and villages. The Ministry is then advised by the Building Commission.

Furthermore, there is the Suriname Built Heritage Trust (SGES), a public authority whose primary task is to optimize the management of Historic Buildings in Paramaribo. SGES has an advisory role with respect to the Ministry of Education, and SGES is the manager of the UNESCO listed Historic Inner City of Paramaribo.
The permits required for the current project are listed in Table 4 Overview of various permits required for current project.

There is no monitoring done by the government agencies during construction as such. The agencies are only involved in issuing a permit (Table 4) and based on the permit; an inspection can be done but in practice this is not necessarily always carried out. For this Project, the PIU will carry out the environmental and social monitoring during construction.

Table 4: Overview of various permits required for current project.

PERMIT	RESPONSIBILITIES
	MINISTRY OF PUBLIC WORKS, TRANSPORT AND COMMUNICATION
Building Permit	The Director of the Ministry of Public Works is responsible for issuing Building permits (construction and renovations) The Department Building and house supervision (Bouw en Woningtoezicht) is responsible for inspection. The Minister of Education is responsible for issuing permits for demolishing, restorations, movement of monuments. The Commission Monuments care provides advice regarding monuments. The Archaeological Service provides advice regarding archaeological monuments. Other government agencies are involved in the permitting process by providing advice. These include the Labor Inspection, the Fire Department, and the Bureau of Public Health.
Demolishing Permit	When it comes to city and village views and it regards demolition of a monument, the Minister of Education is responsible for issuing demolishing permits When it comes to city and village views and it regards the construction and renovation of buildings, which may affect the spatial or structural cohesion, the Minister in charge of Public Works may grant a permit, after review of the plans for new construction and modification to existing buildings by the Construction Committee.
Parking Permit	The Ministry of Public Works (OW) is responsible for the issuing of permits for establishment of parking facilities for Office Space on public spaces. The Traffic

	department has developed their internal guidelines to calculate the number of parking spaces.
Authorization to place culverts and bridges	The Department for Wet Civil Technical Works of the Ministry of Public Works is responsible for the monitoring.
Permit for longer working hours	Ministry of Labor and the Head of Labor Inspection have the authority to sanction longer working hours than prescribed by law.
Permit for equipment	The Director of Labor issues inspection permit for the use of certain equipment like cranes. Re-inspection can be demanded.
Environment and Social Impact Approval	NIMOS provides guidance in the ESIA process. It is on a voluntary basis as it is not legally binding.

4 Description of the Proposed Project

4.1 Landownership

The proposed project is located at the Henck Arronstraat 2-6. The site can be reached via the Henck Arronstraat as well as the Grote Combeweg. The land of the project site is owned by the Government of Suriname and has the status of domain land. See Figure 4 Project site, Henck Arronstraat 2-6

The terrain has been issued to the National Assemblee (Parliament) as shown in Figure 3 the land surveyor map by ing. H. Kalloe dated August 23, 2001 below (purple area). As can be concluded the terrain runs from the Henck Arronstraat all the way up to the van Rooseveltkade.

As mentioned before, the fire of August 1, 1996 completely destroyed the former Parliament Building. Therefore, the Parliament was temporarily settled at the Waterkant. The intention was to move again to the current project site at the Henck Arronstraat, once the building was reconstructed.

In the meanwhile, the location at the Waterkant seemed very suitable for the political functions of the Parliament and in exchange for this location; a part of the site at the Henck Arronstraat has been given back to the Governement. The map with the new boundaries of the terrain at the Henck Arronstraat belonging to the Parliament has yet to be prepared.

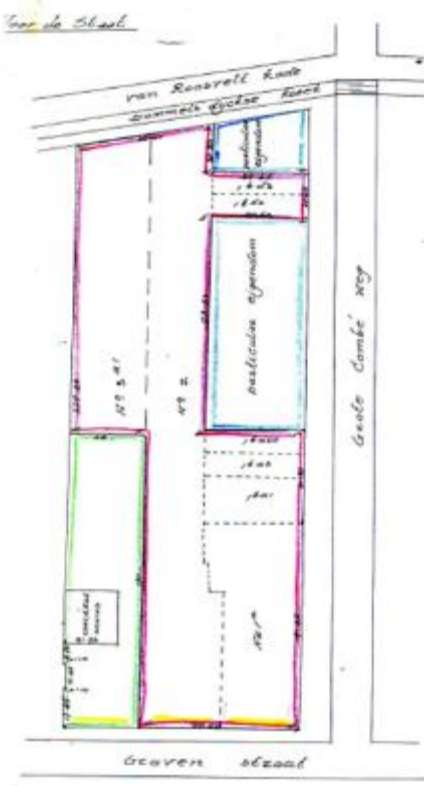

Figure 3: The land surveyor map of the project site by ing. H. Kalloe dated August 23, 2001

Figure 4: Project site, Henck Arronstraat 2-6 (picture taken 20th August 2018)

4.2 Land-use

4.2.1 Land-use Study Area

From observations and surveys in the Area of Direct Influence (ADI) and the Area of Indirect Influence (AII) of the current study it could be concluded that the ESIA Study Area can be classified as an institutional/educational center. Most of the country's ministries and administrative centers are located within this area. Many of the historic buildings in the area are being used as institutional offices, such as the Court of Justice, the Ministry of Justice and Police, the Presidential Palace, the Ministry of Natural Resources, the Ministry of Finance.

In the area, there are also schools and other higher institutions located.

Commercial activity has been observed but only along the main roads.

Based on Figure 5 Overview Classification of land use in the Historic Center (source: IDOM, 2018) and observations during field surveys the type of land use observed in the study area is classified as mainly institutional and educational (because of the presence of many schools and other educational institutes) and to a lesser extent commercial (small restaurants) and residential.

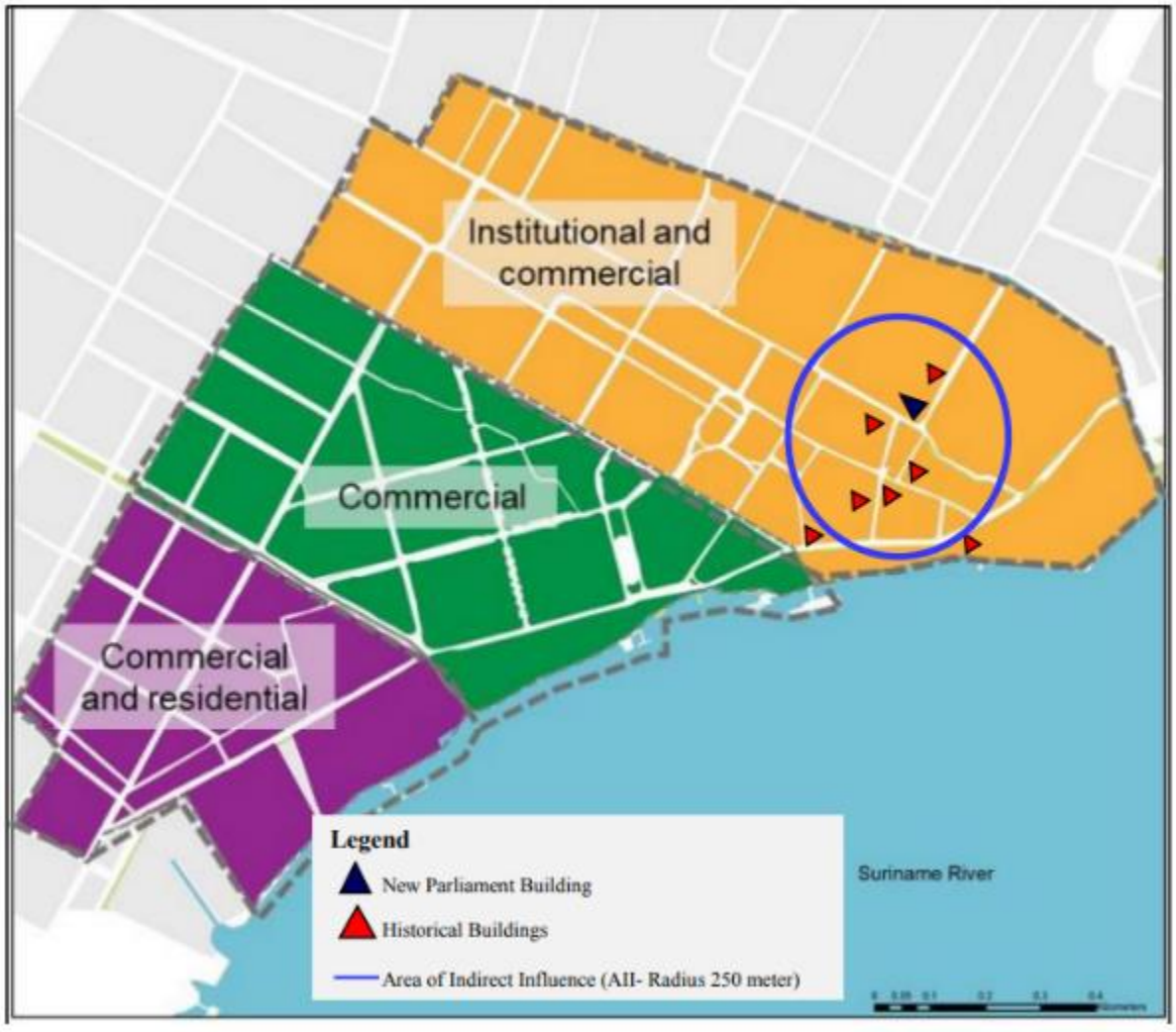

Figure 5: Overview Classification of land use in the Historic Center (source: IDOM, 2018)

4.2.2 Land-use Project Site

The consultant conducted serveral surveys including one to determine the activities on the proposed project site and the surrounding area. The proposed project site is currently being used as a parking lot

(approximately 30-40 parking spaces). Part of this parking lot is used by the Ministry of Foreign Affairs (BUZA) and its visitors (approx. 30 parking spaces) while the other part (approx. 20 parking spaces) is used by others (general public, visitors of the area, visitors of the Court of Justice and other surrounding institutes and/or offices). This is further detailed in Section 5.5.

Furthermore, the remains of the entrance of the old Parliament building and several buildings such as a child care and education center (Buzaantje), a dilapidated house and an transformer house from the Energy Company of Suriname (Energie Bedrijven Suriname, EBS) were observed.
The site is adjacent to the following:

- The Ministry of Foreign Affairs (to the west neighboring along the Henck Arronstraat);
- Office of the District Court (to the east across the Grote Combeweg);
- The office of the First Lady and the Ministry of Justice and Police (to the south across the Henck Arronstraat);
- The former department of Immigration of the Ministry of Justice and Police (to the north neighboring along the Grote Combeweg).

The details of the land use on the project site and its immediate surroundings are shown in Figure 6 below:

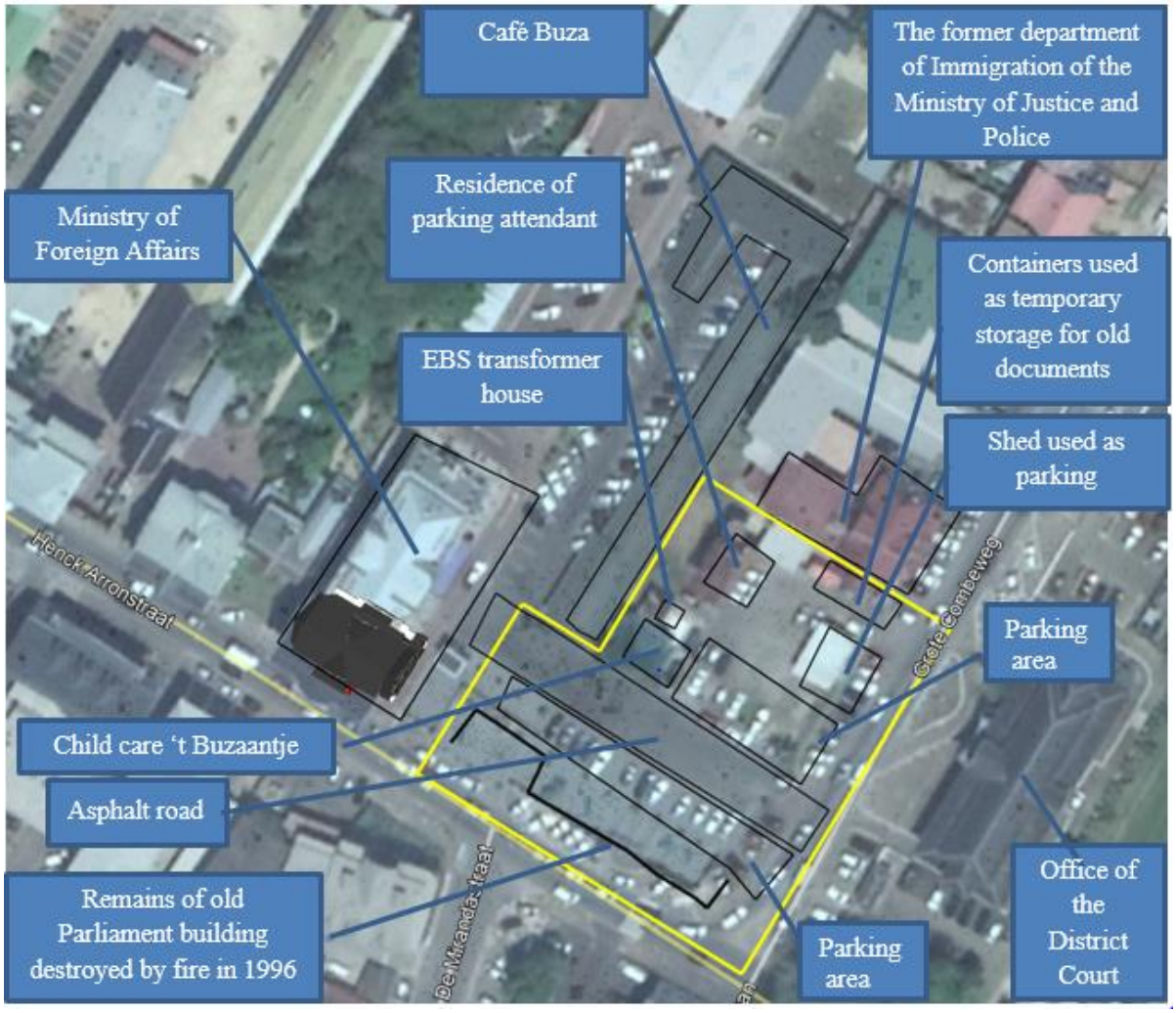

Figure 6: Land use on the project site and immediate surroundings

4.3 The proposed project

4.3.1 Pre -design Phase

On October 14th, 2014 the Ministry of Public Works, Transport and Communication assigned KDV Architects to make a design for the reconstruction of the burned down Parliament building at the Henck Arronstraat 2-6. The project comprises the construction of two buildings: building B (numbers 2 and 4) and building A (number 6), see Figure 7.

The following Table 5 Pre design activities and status gives an overview of the activities that were conducted in the pre design/ planning phase with their current status during this ESIA:

Table 5: Pre design activities and status

	Activity	Components	Status
1	Programma van Eisen	• The terrain measurement • The measurement of Henck Arronstraat 2-4 • The measurement of the Henck Arronstraat 6 • The historical study of the location • Durability, energy consumption and accessibility • Preconditions for this building project • Architectural requirements • Materials to be used	Completed September 16th, 2015
2	Preliminary design	Technical specifications and project drawings	Completed
3	Final design	Technical specifications and project drawings	Completed January 3rd 2019
4	Tender documents	Submittal of Tender documents to Ministry of Public works for screening	Submittal completed
5	Tendering	Bidding process Awarding contractor for construction of project	pending

The original street facades will be carefully reconstructed[7], but behind the facades the buildings will be modern. The groundfloor will contain public-use functions (library, exposition), while the upper floors will be used by the Parliament for its operational department which includes administrative and management functions. The remnants that stayed behind will be carefully taken apart, and the historic building materials re-used in the project. The monumental entrance stairs of both buildings also have been preserved. The stairs of no. 2- 4 can be re-used "as is", but the stairs of no. 6 has been badly damaged, and will have to be replaced. It is certain that there are still some remains hidden beneath ground level. At the beginning of construction, these will be carefully excavated and charted; after

[7] Article #86 of the UNESCO World Heritage Operational Guidelines states: *"In relation to authenticity, the reconstruction of archaeological remains or historic buildings or districts in justifiable only in exceptional circumstances. Reconstruction is acceptable only on the basis of complete and detailed documentation and to no extent on conjuncture".*

that it will be decided whether or not they can be incorporated into the new complex. Figure 7 and 8 show the site after construction of the buildings.

As mentioned before, some of the elements of the original building will be maintained. The designs have been shared with the World Heritage Centre by ICOMOS International for technical review. The outcome of the review is reported in the Technical Review Report of 23rd of November 2018 with ref.: CLT/HER/WHC/LAC/CMT/AS/2858.

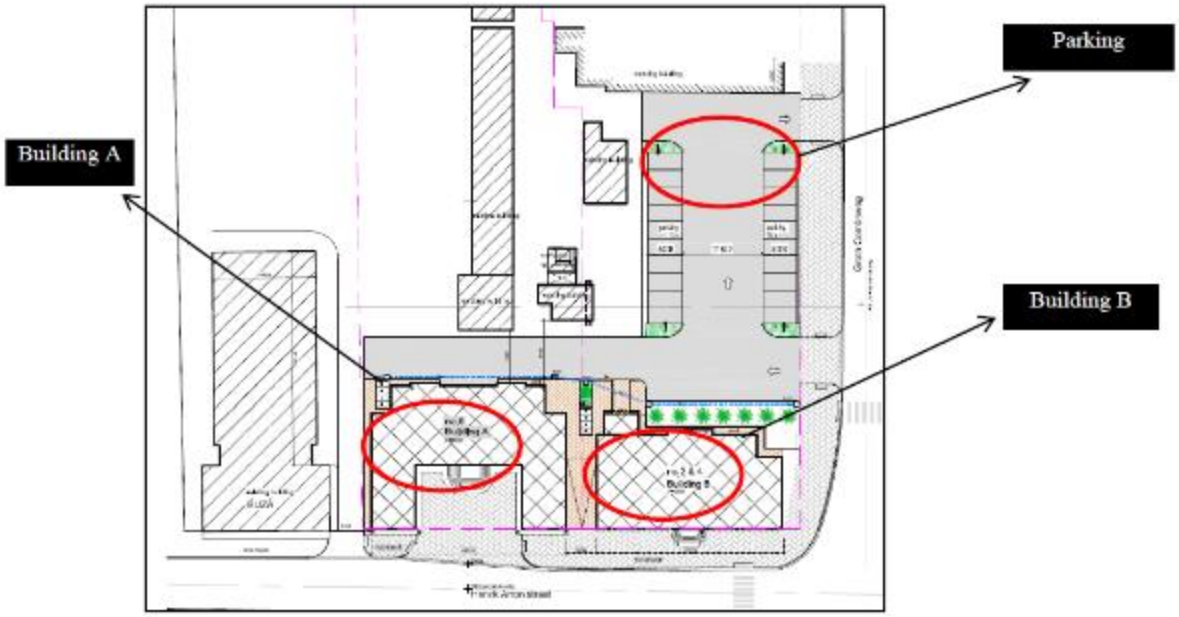

Figure 7: Overview of the site after reconstruction of the Parliament Building

Figure 8: Overview of the site after reconstruction of the Parliament Building

Building A

Building A will have several functions. The basement of building A will have no specific function other than to be used as a technical and archive area.
On the first floor of the building A, two conference rooms, a kitchenette and a gallery are projected. On this floor, the main entrance of the building is also situated. On the second floor and top floor, several offices and conference rooms will be projected. The new sewerage system will finally be connected to public sewer system.

Building B

Building B will mainly function as office space. The basement of building B is partly part of the expo space that is situated on the ground floor for public use. The basement will also function as a storage/work area. The ground floor and upper floors are designed for mostly office space. A lift was proposed by the architect but was extracted from the plans due to the budget. The lift shaft still remains in the design. The new sewerage system will be connected to the public sewer system. The existing sewerage system can accommodate the additional sewerage to be generated during the operation of the building and this has also been approved by the Ministry of Public Works (KDV Architects, Mr. P. Dikland, telephone conversation on the 8th January 2019).

4.3.2 Construction Phase

The construction period of the project is 30 calender months after commencement of the works. The following Table 6 shows the list of construction activies with their duration, which are often overlapping.

Table 6: Construction phase activities and duration

#	Activities	Duration in months:
1	Setting up temporary facilities	1
2	Measuring and setting out	1
3	Removal of historic remains	2
4	Excavation Works	2
5	Concrete Works such as foundations, beams, etc.	6
6	Walls (Masonry including plaster works, Gypsum Board Walls, Cement Board Walls)	4
7	Steel works such as Stairs construction, Steel fence and steel gates	3
8	Roof Construction	4
9	Drainage and Sewer System	3
10	Tile Works	3
11	Ceilings	3
12	Historic Construction Works such as historic wood works	3
13	Doors and Windows (wood/aluminum)	3
14	Sanitary works	3
15	Furniture	2
16	Paint Works and Preservation	6
17	Installation Works (Electra, Water and Data)	4
18	Fire and alarm	2
19	Terrain Works such as paving, terrain drainage, lighting and flagpoles	3

Manpower and equipment

Equipment expected to be on site during the construction phase are: heavy trucks, demolition/drilling machines, excavators and crane trucks, concrete mixing trucks and cranes, etc. This equipment may affect the flow of traffic and cause noise and dust hindrance. In this stage of the project it is not known how many people are in the construction team of the project. Before commencement of the construction phase the contractor awarded with the construction project will have to provide in his

work plan details of the equipment to be used, manpower and a health, safety and environmental (HSE) plan.

Waste management
In the project specificiations for the project (Project Specifications KDV 2014-02 D001-a for the Construction of the buildings at the Henck Arronstreet 2-4 and 6, July10th 2018) the following statements in regard to waste management during the construction phase of the project have been included:

- The project area should be maintained free of waste material, debris and rubbish and in orderly condition.
- Debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces should be removed prior to enclosing the spaces.
- Interior areas should be broomed and vacuumed prior to start of surface finishing and continuous cleaning should be done to eliminate dust.
- Construction waste will be removed from the site weekly and will be disposed at at a designated area at the national open dump site of Ornamibo.
- Domestic waste will be collected in waste bags and disposed of at Ornamibo by regular waste management practices of the area (collection by the waste collection department of the Ministry of Public Works, Transportation and Communication). There is no waste management permit required for construction activities and there are no specific written procedures on this matter.

4.3.3 Operational Phase

Operations can start when the buildings with their complete facilities are ready to be used for its intended purpose. The owner will likely have accepted care, custody, and control of the project well before this time.
The following table gives an overview of which operations/rooms are proposed in the reconstructed Parliament building. Based on the design, an estimate has been made of how many people will be working in the different rooms. This is presented in Table 7 Operations/rooms in reconstructed parliament building

Table 7: Operations/rooms in reconstructed parliament building

	Operations/rooms	**Number of people**
Building A		
Basement	archive; gallery; technical room;	Variable Variable -
Groundfloor	gallery; conference room1; conference room 2; rest rooms; kitchenette; technical room	Variable Variable Variable - - -
Second floor	conference room1; conference room 2; rest rooms; kitchenette; technical room; office room(10x)	Variable Variable - - - 12
Top/attic floor	office rooms(8x); rest rooms; kitchenette; technical room;	14 - - -
Building B		

Basement	reception: expo space; work/storage space; storage space; technical room;	1 Variable - - -
Groundfloor	expo space chief office; office rooms(2x); reception; rest rooms; technical room	Variable 1 2 1 - 1

Second floor	chief offices(2x);
	office rooms(6x);
	reception;
	secretary;
	archive;
	technical room;
	rest rooms;
	kitchenette;
		2
		6
		1
		1
		-
		1
		-
		-

Top/attic floor	office rooms (6x); technical room; restroom	12 - -
	TOTAL	**55**

A total of more than 55 people are expected to be working in the buildings according to Table 8. The number of required parking spaces is estimated to be approximately 100, when taking into account visits of groups of guests. Parking spaces are planned at the site of the new Parliament building and outside along the Combeweg.

4.4.4 Project Alternatives

This section describes the alternatives that have been considered for the proposed project. The project offers limited opportunities for the analysis of alternatives, given that the project site is already determined. Therefore, only the no-project alternative and design alternative have been considered.

No-Project alternative
The no-project alternative describes the consequences in case the proposed project is cancelled. This option would implicate that the Parliament would have no accommodation for their expansion of management and administrative functions and would have to consider another available building or construction area. Ideally the building or construction area would also have to be situated in the inner city close to the the assembly functions at the current location at the Waterkant. Available space in the inner city is very limited. A solution would be to redesign one of the other existing government buildings as the new parliament building. This solution implicates that the redesign would be limited by the existing design and building material. Another consequence of cancellation of this project would mean that the Old Parliament Building would not be restored at her original site. This would undermine the PURP program in which its component 1 stands for the renovation of urban spaces and of key heritage buildings. Because of these consequences for which other solutions are very limited, this no-project alternative is very undesirable. Also taking into account that this concerns the reconstruction of an historic building (with historic value), this should be at its original location. This is still possible because even after 22 years, it has not been designated to another location. Figure 9 below presents the Cultural Property of the UNESCO World Heritage Site with the location of the proposed poject site, which lies in the designated conservation zone.

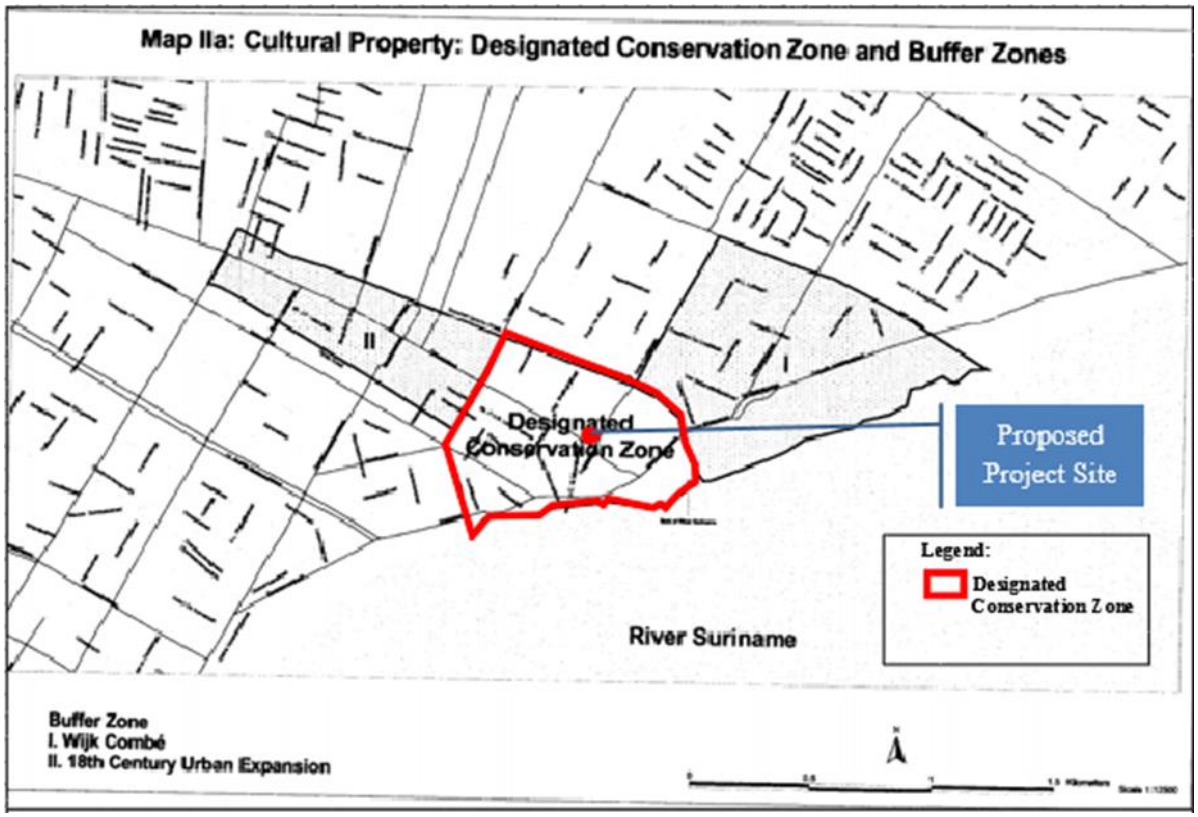

Figure 9: Designated Conservation Zone and Buffer Zones (© UNESCO World Heritage Site 1992-2018)

Design alternative

On the the 23rd of August 2018 and September 11th 2018 meetings were held with the Architects considering the design alternatives:

- alternative mixes of use;
- materials to be used (e.g. climate change aspects etc.);
- technology to be used (e.g. sewer infrastructure, energy supply/efficiency, water use efficiency etc.)
- operational aspects (e.g. parking facilities, traffic management

Ad I. Alternative mixes of use:

It was discussed in what manner the new buildings could also fulfull mixed uses. The first and upper floors of both buildings A and B are designed for office space and conference. Only the ground floors of the buildings are designed for mixed used. For building A this is a gallery for the public and for building B this is an expo space for the public. Both designs of these first floors leave the possibility of creating a library and or museum space. It is unlikely that such modifications will affect the outcomes of the ESIA.

Ad II. Materials to be used (climate change aspects etc.):

It was discussed that the materials to be used as described in the technical specifications for the project are durable of quality and are resistant to moist, our climatological conditions, climate change factors as well as the effect of exhaust gases of cars. The architect has included all descriptions of the requirements of material to be used and proper treatment of the material for durability in the technical specifications.

Ad III. Technology to be used (e.g. sewer infrastructure, energy supply/efficiency, water use efficiency, etc):
It was discussed how safe and efficient use of water and energy in the operational phase of the project are incorporated in the designs. Efficiency and safe use of energy and water for both Buildings A and B have been incorporated in the designs through the following measures:

- Shafts and isolation have been incorporated.
- A less advanced air conditioning system was chosen instead of the proposed VRF (central) system where more interior units are connected to one exterior unit). This was done to lower the costs for installation and maintenance and reduce energy consumption.
- Piping of the buildings will mostly be done in the walls and ceiling.
- The exterior will be situated on the roof.
- A small back-up generator has been included.

AdIV. Operational aspects (e.g. parking facilities, traffic management, accessibility for disabled persons):
It was discussed which effects the buildings in operation could have on the current conditions in the surrounding area and how measures to mitigate the effects have been incorporated in the design. The number of parking space is estimated to be approximately 100 as mentioned earlier. This is not incorporated in the design. Due to limited space, there will be limited parking available also outside the project site.

Limited parking spaces in the inner city are a major challenge and this has to be solved through other alternatives. KDV architects have written a proposal for a parking garage with a capacity of approximately 750 parking spaces to create parking facility for the inner city. An ideal area for this parking garage still has to be created.

The design was also reviewed on facilities for the disabled. In the design no parking spaces and ramps in the projected garden at the back of the parliament building are included. It is recommended to designate a minimal of 2 parking spaces for disabled persons with the necessary facilities and also include ramps in the garden for the disabled.

Other Alternatives
In the project design a narrowing of the Henck Arronstraat on the side of the Combeweg near the stairs of building B is implemented. It is advised to shut down access for heavy trucks in this part and propose alternative routes to avoid inefficiency of traffic circulation at this location. The architect has indicated that it is possible to propose alternative routes.

The minutes of the meetings with the architect are included in Annex IIIB and IIIE.

5 Environmental Baseline

5.1 Geographical Location

Suriname is administratively divided in ten districts. The proposed project site is located witin the historical World Heritage Unesco site of Paramaribo City, which is the capital of Suriname. The capital is located in the Paramaribo district (Figure 10) which borders Wanica district in the south and west. In the north, the coastal area of the district is bordered by the Atlantic Ocean and in the east the capital is bordered by the Suriname River. With a surface area of 182 km2, Paramaribo is Suriname's smallest district. This district and its near area (Wanica district) are populated with almost 65% of the total population in Suriname.

Figure 10: District of Paramaribo

The inner city of Paramaribo plays an important role in connecting the northern part with the southern parts of the main (sub) urban areas of Greater Paramaribo. It is noted that large population is concentrated in both the southern and northern part of the city.

In the next sections, the environmental and social baseline conditions at and around the site are presented.

5.2 Climate

5.2.1 Introduction

The climate of Suriname is tropical with abundant rainfall, uniform temperature, and high humidity. Most of Northern Suriname, including the study area, has a Tropical Rainforest Climate (Af-climate in Köppen's classification). The mean annual air temperature at Paramaribo is 27 º C, with a daily range of 9-13 ºC and an annual range of about 2ºC.

The average rainfall at Paramaribo is generally taken as representative of the country. Two wet and two dry seasons are to be observed, with about 50% of the annual rainfall occurring in the four month long wet season and about 20% in the two –month short wet season. The remaining of the annual rainfall occurs in the dry periods.

The weather of Suriname is dictated mainly by the northeast and southeast trade wind system called the Inter-Tropical Convergence Zone ("ITCZ" zone also known as the "Equatorial Trough"). The ITCZ follows the sun in its movement to the north to about 15º latitude and to the south to about 10º latitude south of the Equator. The ITCZ passes over Suriname twice per year causing heavy rainfall when it is overhead. This results in four seasons based upon rainfall distribution (Scherpenzeel 1977).

- Long Rainy Season End April-Mid August
- Long Dry Season Mid- August-Early December
- Short Rainy Season Early December-Early February
- Short Dry Season Early February-End April

The above classification of the seasons is developed for Paramaribo, using long-term rainfall data of meteorological stations situated in Paramaribo.

5.2.2 Climate in the study area

For the description of the climate of the study area, baseline data have been acquired from published sources within Suriname, and from records held by the Meteorological Services.
The meteorological stations **Zorg en Hoop** and **Cultuurtuin** are the nearest stations within the study area (see Figure 11), therefore the data from these two stations are used for the baseline climate conditions.

Figure 11: Overview of nearest meteorological stations to the project site

5.2.2.1 Rainfall

Figure 12 shows the monthly average rainfall of the Zorg en Hoop Station over a longer period (data from www.meteosur.sr.). The station shows an annual total of 2,076mm. The highest total average monthly rainfall is recorded during the months May, June and July, which are in the Long Rainy Season, and minimum values are found during the months September to November, which are in the Long Dry Season.

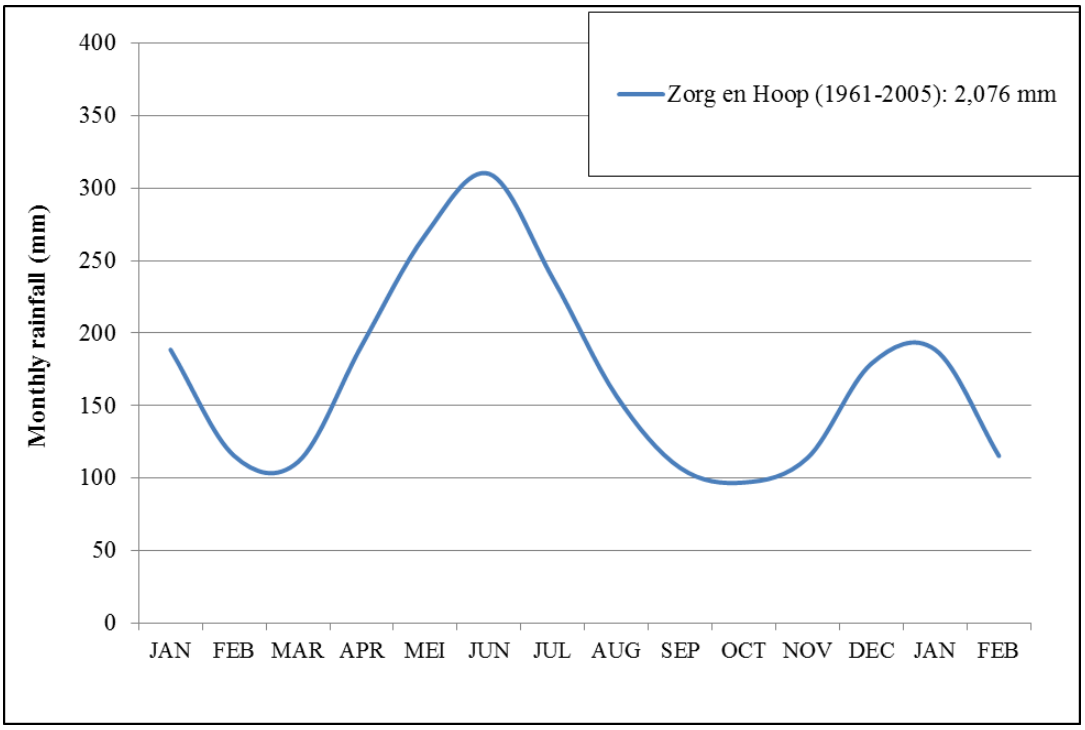

Figure 12: Long-term monthly average rainfail and annual precipitation of the Zorg en Hoop Station

More recent rainfall data show similar annual totals, but a change in the pattern for the 2008-2017 period, with lower rainfall in January and higher rainfall in February (see Figure 13). **Annual totals show a slight increase between the long-term data and the 2008-2017 data.**

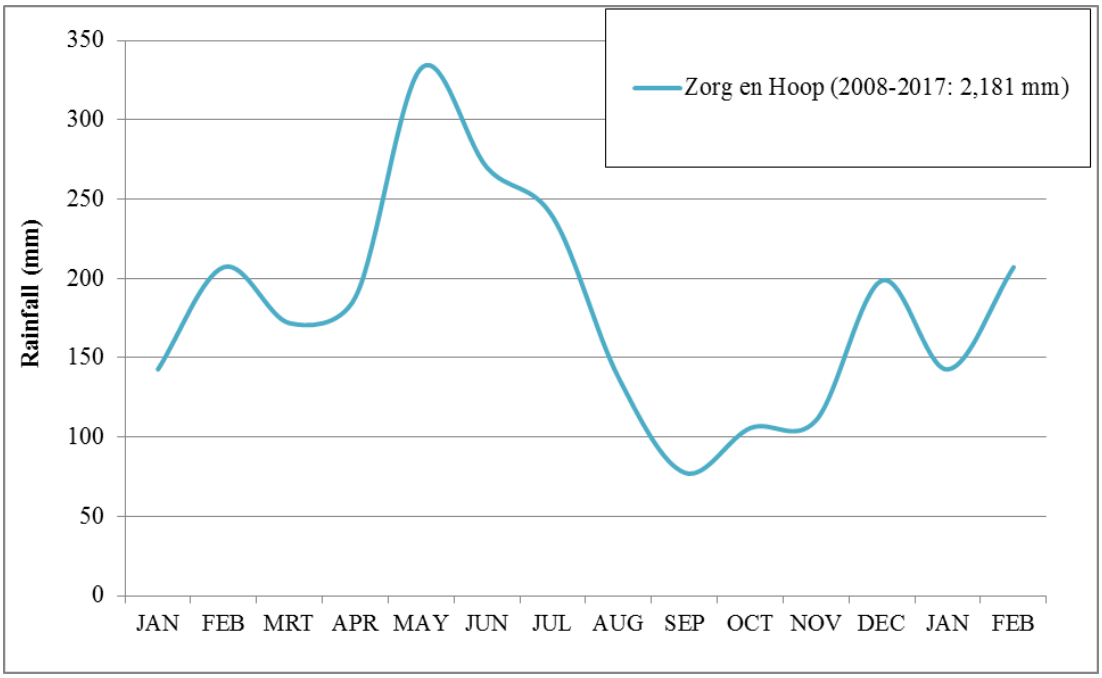

Figure 13: Recent average monthly and total annual precipitation for the Zorg en hoop station

5.2.2.2 Temperature

The long-term mean monthly averages of the temperatures at station Cultuurtuin (1975-2004) are presented in Figure 14, together with the recent mean monthly temperatures. The longterm mean

annual temperature till 2004/2008 for Cultuurtuin is 27.3°C. In general the warmest months are August through November (Long Dry Season) with averages of 28.1 and 28.5 respectively. The coldest months are January and February (Short Rainy Season), when the mean monthly temperature is 26.5 – 26.6 °C.

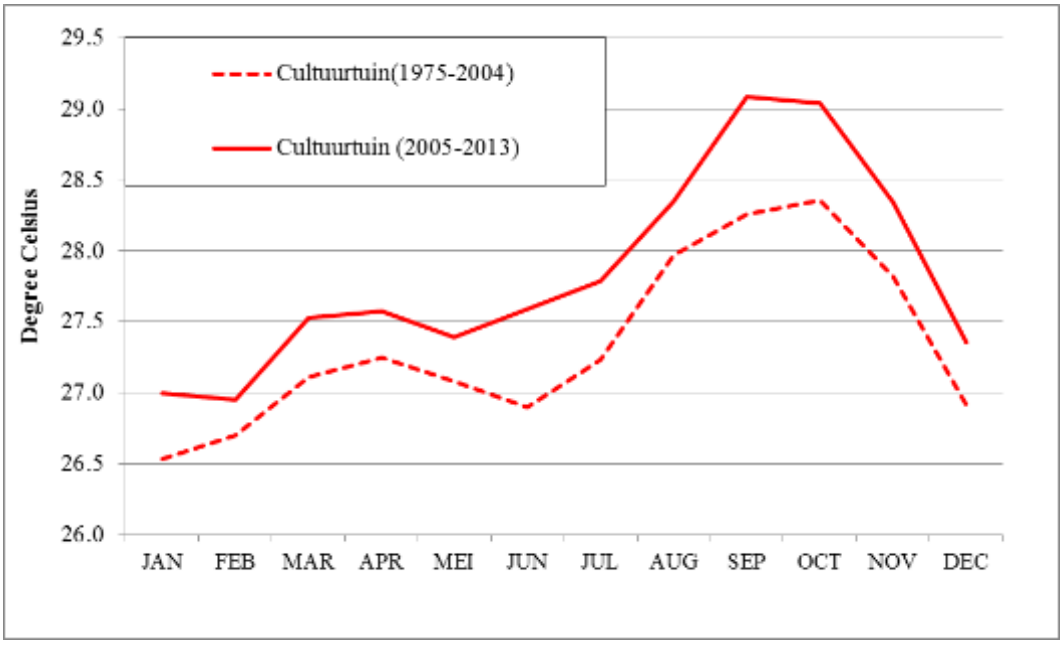

Figure 14: Mean monthly temperatures at the Cultuurtuin Station

When the mean monthly temperatures till 2004/2008 are compared with the more recent ones, it becomes clear that there has been a rise in temperature between the two periods.

Figure 15 presents the mean monthly temperatures and the maximum and minimum monthly means for Cultuurtuin over the period 2005-2013. Mean monthly maximum and minimum temperatures at Cultuurtuin follow the same trend as the mean monthly temperature, with higher maximum and minimum temperatures in the Long Dry Season and lower ones during the Short Rainy Season.

The highest mean monthly maximum occurs in October with 34.7º C, while the lowest mean monthly minimum is recorded for December and February with 20.8 º C. The monthly mean temperature range is 8.8-12.6º C and the annual range in the mean monthly temperature is 2.1º C.

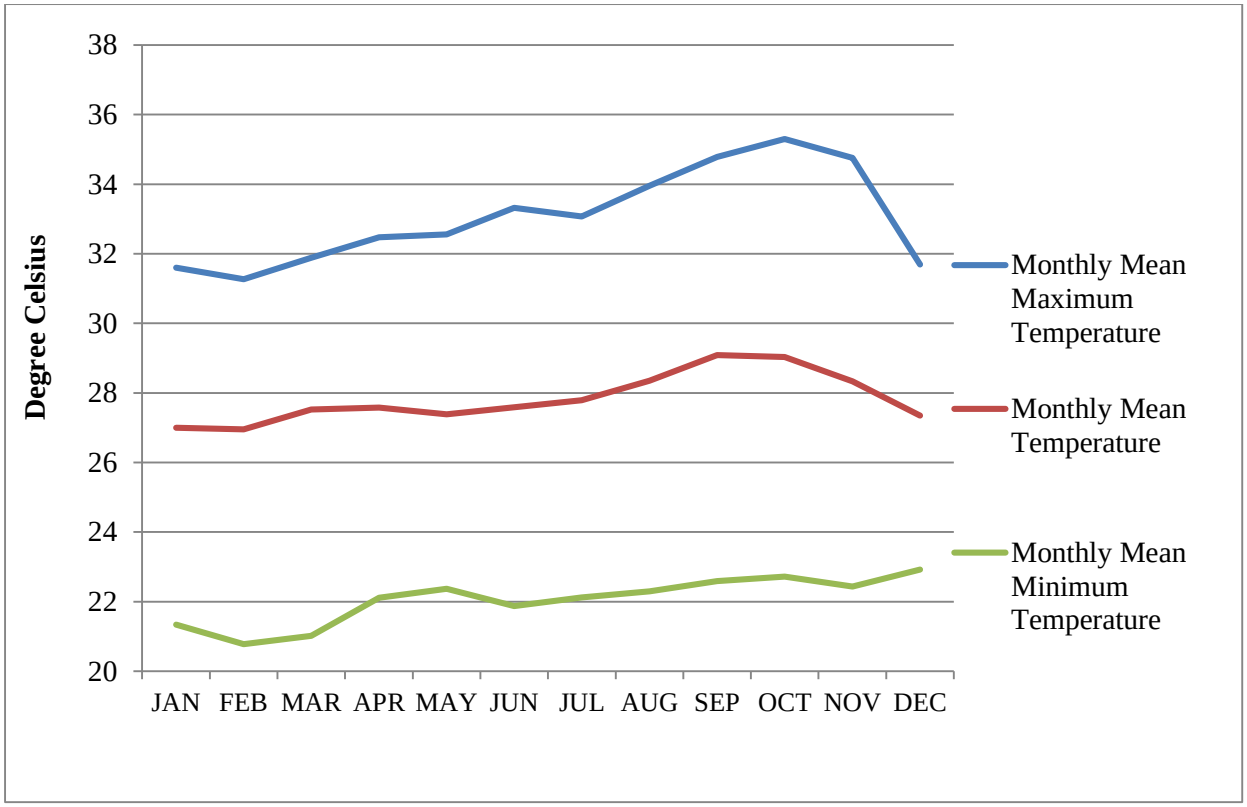

Figure 15: Monthly mean temperatures for Cultuurtuin (2005-2013).

5.2.2.3 Windspeed

In
Figure 16 the monthly mean and maximum windspeed is presented for Zorg & Hoop. The average annual windspeed is 1.4-1.5 m/s.

The highest mean windspeed is recorded in the February-April period, ranging between 1.6 and 1.8 m/s. The lowest ones are in June-August, ranging between 1.1 and 1.3 m/s. The windspeed is more or less correlated with the seasons, with higher windspeed in the dry seasons and lower ones during the rainy seasons.

The wind velocities are relatively high at the sea border and decrease further inland. As illustrated in Figure 16, the strongest winds appear to occur in the short dry season, when temperature gradients are highest.

Suriname is free of hurricanes. But short-lived wind speeds of 15-20 m/s (54-72 km/h), with occasional speeds up to 30 m/s (108 km/h) have been recorded during thunderstorms. These wind speeds are in line with data from Kourou in French Guiana, where maximum monthly wind speeds have been recorded since 1971 (Richard & Losada 2016). For about 98% of the months between 1971 and till 2014, the maximum windspeed is between 10 and 20 m/s. A peak of 30 m/s is only recorded once for a few seconds (June 2005). The other peaks lie between 21 and 23 m/s.

Such micro bursts are locally known as ‘sibibusi’ (sibi=sweep, busi=forest). They can result in considerable localized damage to buildings, infrastructure and trees (Richard, S. & C. Losada 2016. Risques naturels au Centre Spatial Guyanes. SDP/ES)

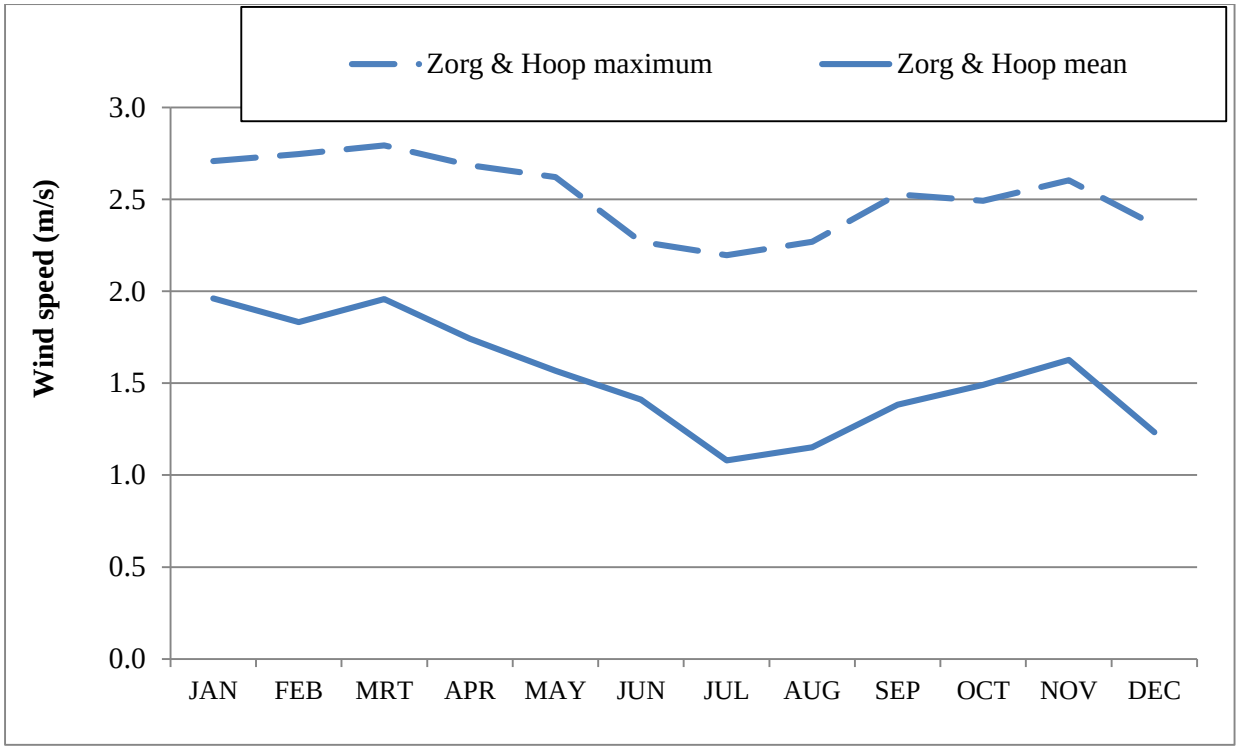

Figure 16: Mean monthly windspeed for Zorg & Hoop and Zanderij (1991-2017)

The course of the mean and maximum windspeed over the day is illustrated in Figure **17** for Zorg & Hoop for the (extended) daytime period (06.00-21.00h).

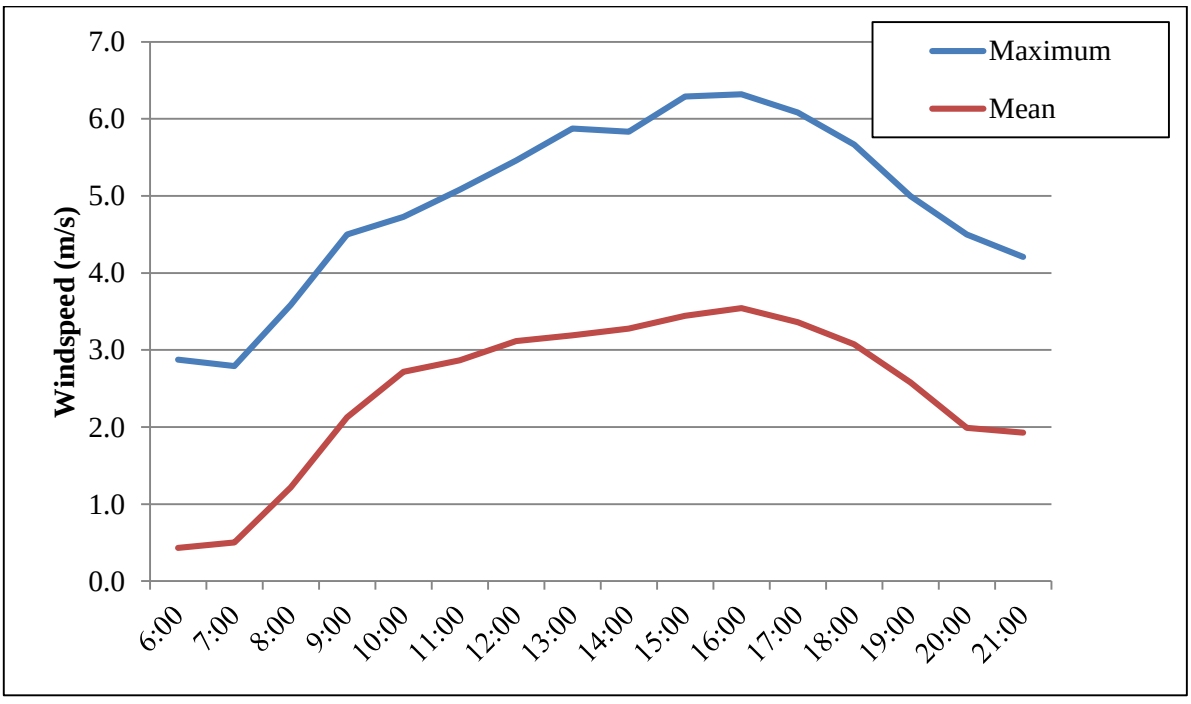

Figure 17: Average mean and maximum hourly windspeed for Zorg & Hoop (2017)

Calm winds, *i.e.* winds with hourly speeds less than 0.5 m/s, are very frequent in Paramaribo and most of Suriname, and occur over 50% of the time, and even over 60% of the time in the June-July period

(Scherpenzeel 1977). During the night and early morning, it is usually calm. This is caused by the southerly land wind, which especially from May to December is well developed during the nights. This land wind dampens the effect of the trade winds, resulting in calm conditions during the night and the early morning. During the day the windspeed may increase to about 5 m/s, and in some seasons up to 7m/s, in particular in the February-April period. This is illustrated in above figures.

5.2.2.4 Wind Direction

The wind directions in Suriname are correlated to the position of the ITC-zone, whereby the directions NE to E usually have the highest frequencies. The seasonal wind direction for Zorg & Hoop is presented in Figure 18. Daytime wind direction is presented in Figure 19. In the Short Rainy and Dry Seasons, northeasterly winds dominate, while in the Long Rainy Season also more easterly and southeasterly winds occur. During the Long Dry Season winds range between northeast and southeast.

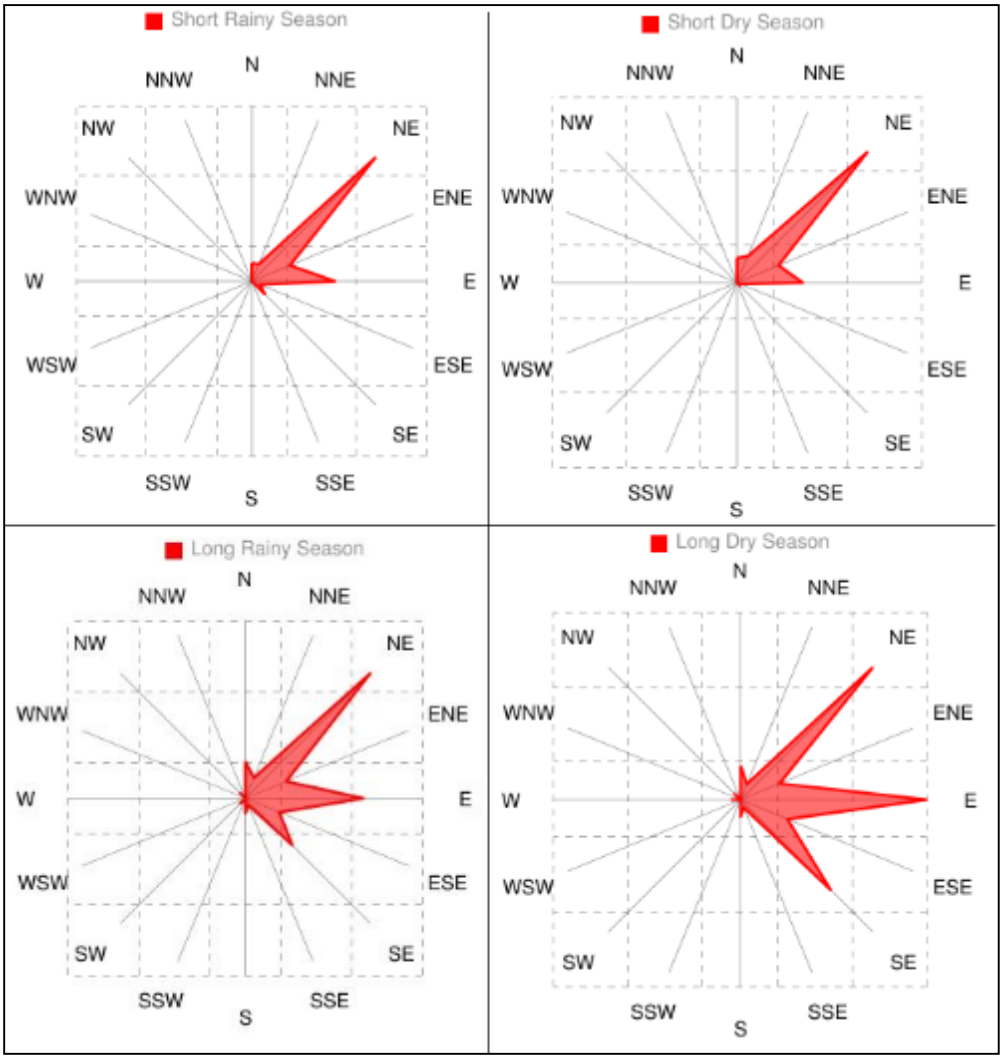

Figure 18: Wind roses presenting seasonal wind directions (Zorg & Hoop (1991-2017).

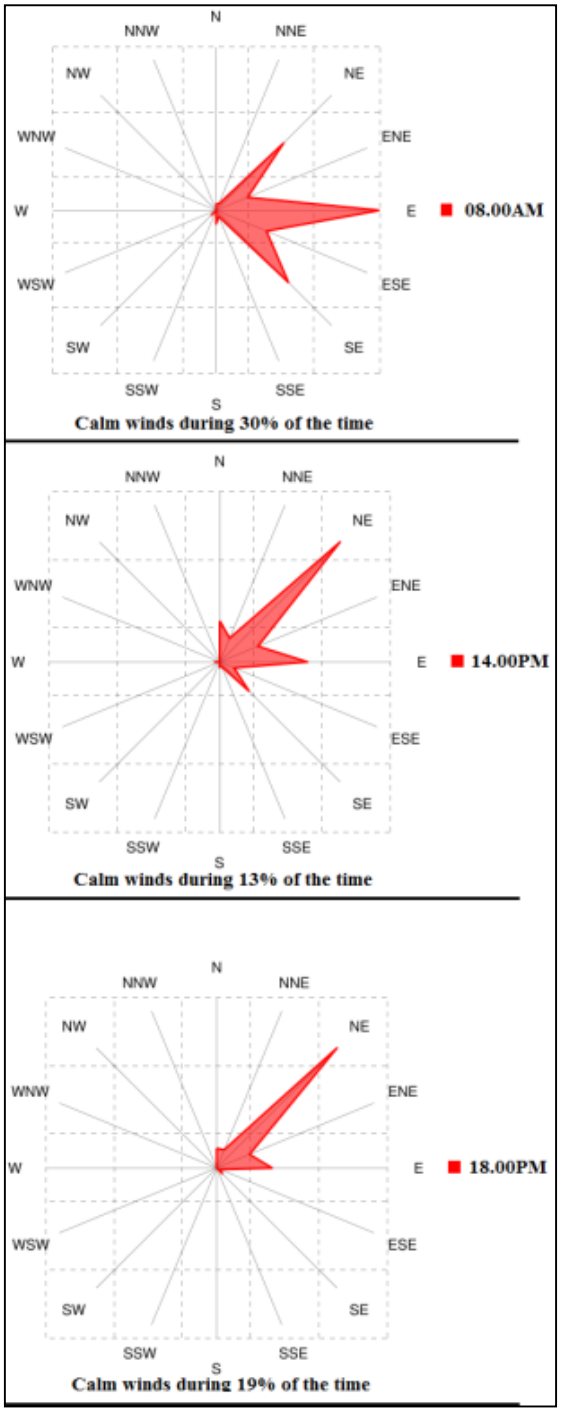

Figure 19: Wind direction during the day (Zorg & Hoop 1991-2017)

5.2.2.5 Relative humidity

Relative humidity (RH) reflects the seasons described above, with the highest average daily humidity in the rainy seasons and lower values in the dry seasons. RH is typically very high at night (close to 100% from midnight until 06h00), but after 06h00 the RH decreases, reaching its lowest value around 14h00. Minimum RH is slightly above 50% in the driest months of the Long Dry Season and around 70% in the rainy seasons.

5.2.2.6 Sunshine

Average daily sunshine ranges from 6 hours per day (40-60%) from December to June, rising to 8-9 hours per day (70-80%) in September and October.

5.2.2.7 Atmospheric stability

During the daytime, the atmosphere above Suriname is rather unstable due to thermal turbulence and moderate to high wind. During night-time, a much more stable atmosphere comes into existence due to calm wind conditions and cooling of the surface. According to Burger & von Reiche (2009), surface-based inversions in the study area may reach depths of 200-400 meter. During the night, a stable boundary layer with limited vertical mixing is present especially during nights with low or no wind.

5.2.2.8 El Niño–Southern Oscillation (ENSO)

The El Niño–Southern Oscillation is a single climate phenomenon that periodically fluctuates between three phases: Neutral, La Niña or El Niño. It is caused by a variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean, affecting climate of much of the tropics and subtropics. The warming phase of the sea temperature is known as El Niño and the cooling phase as La Niña. The two periods last several months each (typically occurring every few years) and their effects vary in intensity.

For Suriname, El Niño causes drought, while La Niña results in more rainy conditions. However, the impact of ENSO varies in intensity and from place to place. Some El Niño events are extreme, e.g. the one of 1963-64 that resulted in 9 consecutive dry months, while others are hardly noticable. In additions, some El Niño are felt stronger in some parts of the country than in others, e.g. the 1997-1998 El Niño that was much more prominent in Nickerie than in Paramaribo.

Other extreme events in Suriname are the strong winds known as sibibusies (Sibi=sweep, Busi= Forest). Sibibusies are very strong winds which during heavy rains can achieve windspeeds of between 70-100 km/h. In 2013, approximately 300 houses / buildings were damaged as a result of strong winds. Floods and rainfall occurred in the districts of Paramaribo, Wanica, Saramacca and Marowijne, with a lot of material damage. In 2014 there was a hailstorm, of which about 150 houses / statues were damaged. Between 2014 and 2017 there were some heavy of wind, which caused damage, including one death and a few people injured. Suriname is more frequently faced with these heavy winds, which also increase in strength. From the eighth edition of the General Bureau of Statistics (Algemeen Bureau Statistiek, ABS) environmental statistics, the number of areas and households affected by natural disasters appear to have decreased. The peak was reached in Paramaribo in 2015. The last harmful squall was registered in October 2018, where a roof of a house was snatched away at the Kwattaweg, Paramaribo (source: Newspaper “Dagblad Suriname”, 10th of December 2018, Environmental Statistics, 8th Edition).

The Fire Department Prevention of Suriname was consulted for inquiry of fire safety plans for the inner city in case of fire outbreak that can be the consequence of increasing temperatures/drought. Currently there are no fire safety plans in place. Mr. Ho A Sjoe (Head of the Department Prevention) has stated in a telephone conversation on 5th of December 2018 that the following measures will be taken in case of fire outbreak in the inner city:

- Supply of water by 2 or 3 tankers for the fire trucks. The SWM supply of water in the fire pits is insufficient for the suction capacity of the fire trucks. For this reason, the Fire Brigrade uses tankers for the water supply.
- Use of water from the Suriname River is considered if water supply is not enough for extinguishment in the inner city. This may be an option only if there is high tide.

The above mentioned measures are taken into account in the mitigation measures to be taken in the context of this proposed project. See Chapter 8.

5.3 Air quality

The air quality in the area is assumed to be suboptimal, due to human habitation and related activities. Sources of man-made air emissions that affect the air quality at the project site include exhaust gasses from traffic along the Henck Arronstraat, Grote Combéweg and vehicles parked on the parking lots in the vicinity. These emissions occur mainly during day time hours.

Dust may be experienced in particular during dry periods. The proposed project site and immediate surrounding area are almost completely paved with the result that the atmospheric dust originates from unpaved parts in the project site, the vicinity of the project site (such as Palm garden) and from upaved areas at further distance carried through the north-eastern air (wind) flows.

The impact zone is related to the dominating north-eastern winds at day-time. An impact of current air pollution only occurs where receptors are downwind and sufficiently close.

The Consultant set up an air quality measuring instrument (Aeroqual AQS1 12102017-630 Dust Profiler with Weather Station) on the proposed project site to quantitatively gather data on the local air quality (dust and gasses). Twenty- four hour measurements have been carried out in the period 22nd of October – 6th of November 2018.

Figure 20: Overview Air Quality Instrument at proposed prject site after installation

In the absence of outdoor air quality guidelines for Suriname, the available WHO guidelines of 2005 are used to assess the collected data. See Table 8 for the WHO Guidelines for air quality (2005).

Table 8: WHO Guidelines for air quality (2005)

	24-hour mean/8-hour mean/1-hour mean/10-minute mean	**Annual mean**
PM2.5 (fine particular matter particles with a diameter of 2.5 microns or less)	25 μg/m^3 24-hour mean	10 μg/m^3 annual mean
PM10 (fine particular matter particles with a diameter of 10 microns or less)	50 μg/m^3 24-hour mean	20 μg/m^3 annual mean
O_3(Ozone)	100 μg/m^3 8-hour mean	
NO_2 (Nitrogen dioxide)	200 μg/m^3 1-hour mean	40 μg/m^3 annual mean
SO2 (Sulfur dioxide)	500 μg/m^3 10-minute mean 20 μg/m^3 24-hour mean	

Dust

Table 9 and Figure 21 present the average 24-hour mean for PM1.0, PM 2.5 and PM 10 and the Total Suspended Particles (TSP) in the period from 22nd of October-6th of November 2018.

Table 9: Average 24-hour mean and peak 24 hour mean values for PM1.0, PM 2.5 and PM 10 and the Total Suspended Particles (TSP) during measuring period

Parameter	**24-hour mean in μg/m³**	**Peak 24-hour mean value μg/m³, date**
PM1.0	1.2	2.88, November 1st 2018
PM2.5	2.7	4.01, November 1st 2018
PM10	3.4	4.73, November 1st 2018
TSP	5.2	5.16, October 22nd 2018

The following can be concluded from the measured dust data:

- PM 2.5 and PM 10 values lie below the WHO guidelines of respectively 25 μg/m3 for PM2.5 and 50 μg/m3.
- The possible sources of fine dust resulting in peaks are traffic, moving vehicles and other commercial activities upwind of the project site. This correlates to the traffic data and peaks as described under section 5.4

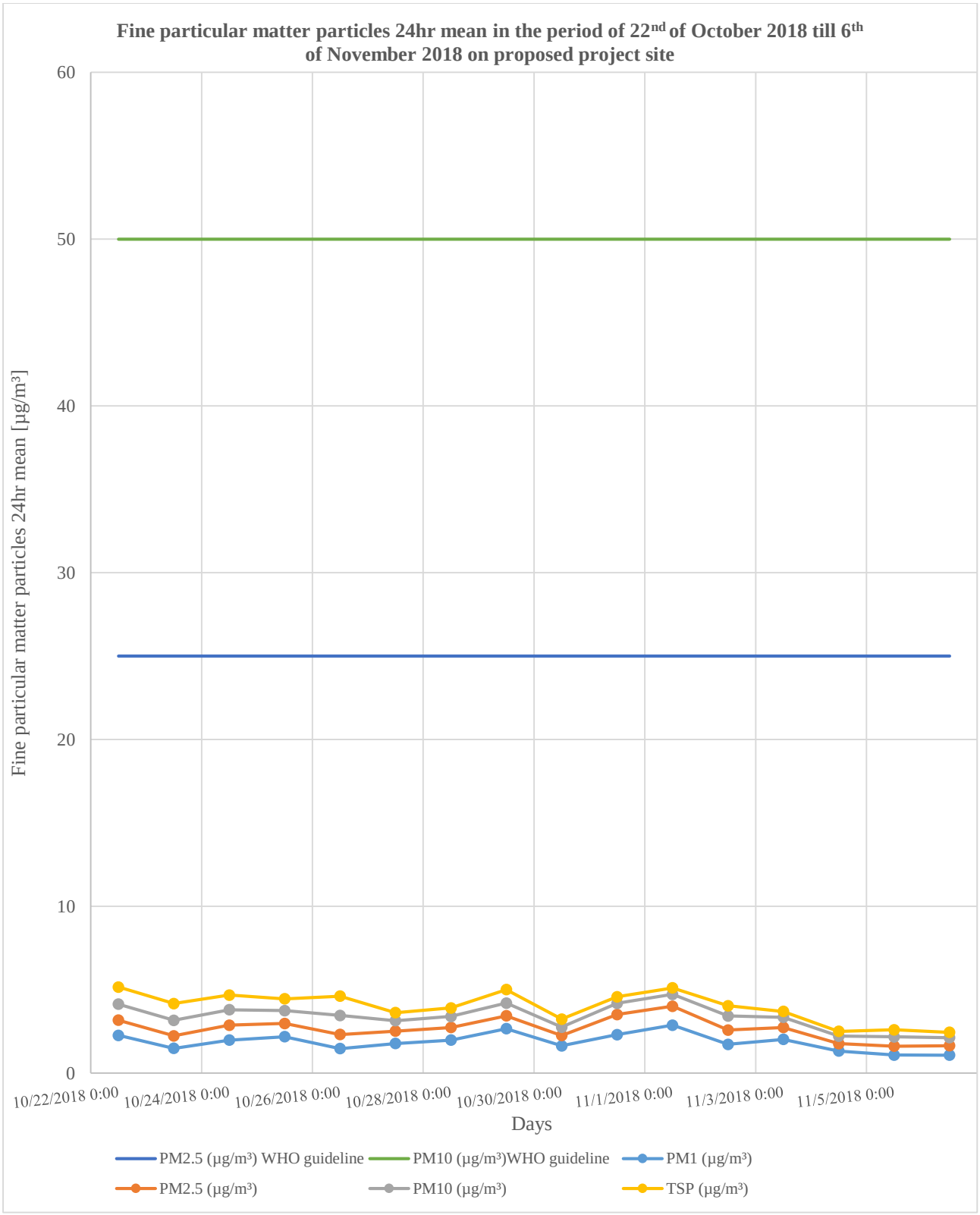

Figure 21: Fine particular matter particles 24hr mean in the period of 22nd of October 2018 – 6th of November 2018 on proposed project site

Gasses

Figure 22 presents the 1 hour mean is presented for cNO_2 in the period from 22nd of October – 6th of November 2018:

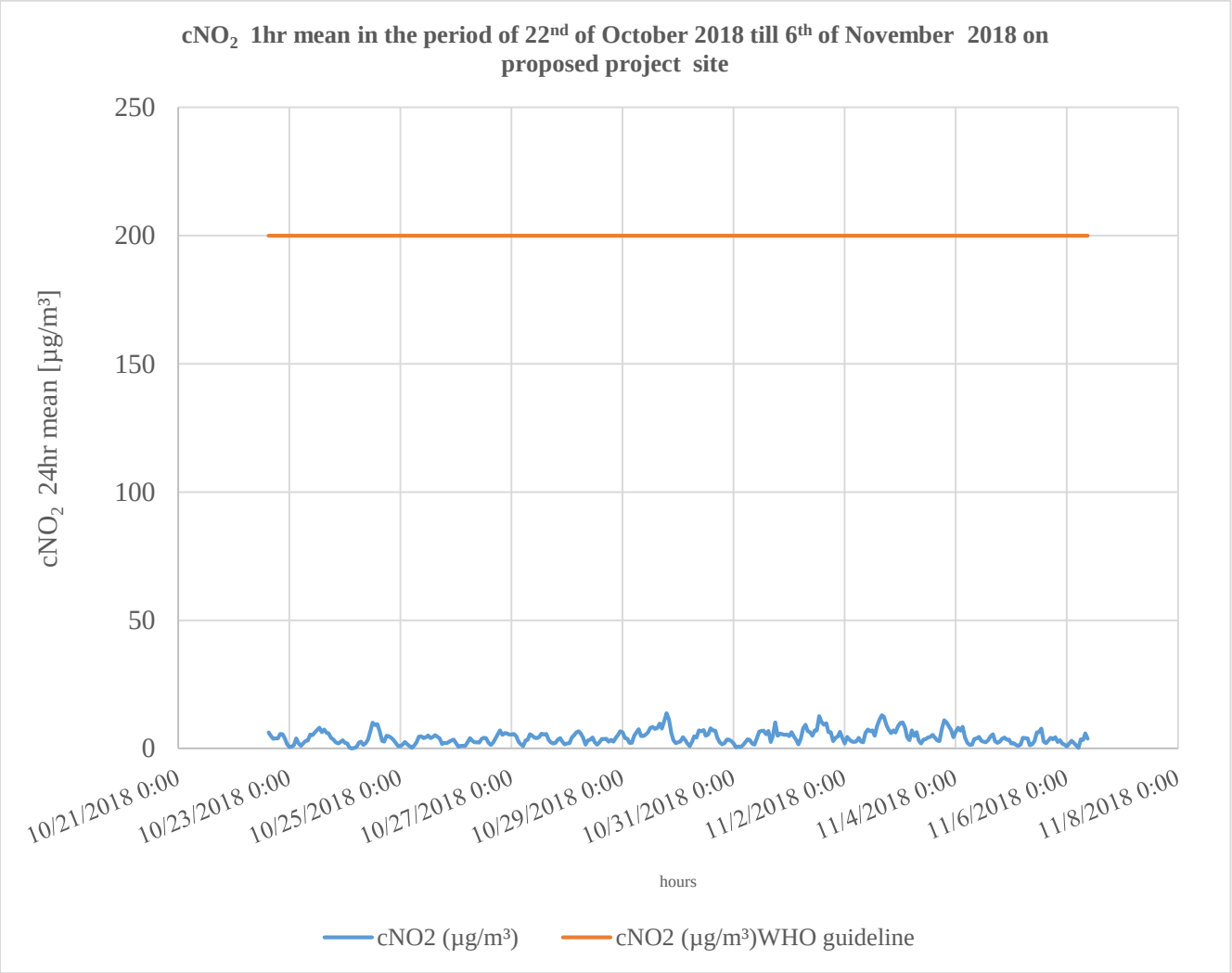

Figure 22: cNO2 1hr mean in the period of 22nd of October 2018- 6th November 2018 on proposed project site

The measured peak values vary between 6.7-13.8 µg/m³. The highest peak value of 13.8 µg/m³ was measured around 19.00pm on Monday 29th of October. All the measured values lie below the 1-hour mean WHO guideline of 200 µg/m3 for NO_2

Peaks were observed:

- Daily in the afternoon between the hours of 12.00-16.00pm except on Saturday and Sunday.
- During the night between 18.00pm-20.00pm (29th, 31st of October and 3rd of November 2018) and
- Early mornings between 1.00-3.00 am (3rd and 4th of November 2018).

The possible sources of cNO2 include traffic, moving vehicles and other commercial activities upwind of the project site. This also correlates to the traffic data and peaks as described under section 5.4

Figure 23 presents the 24-hour mean for SO_2 for the period 22nd of October till 29th of Otober 2018.

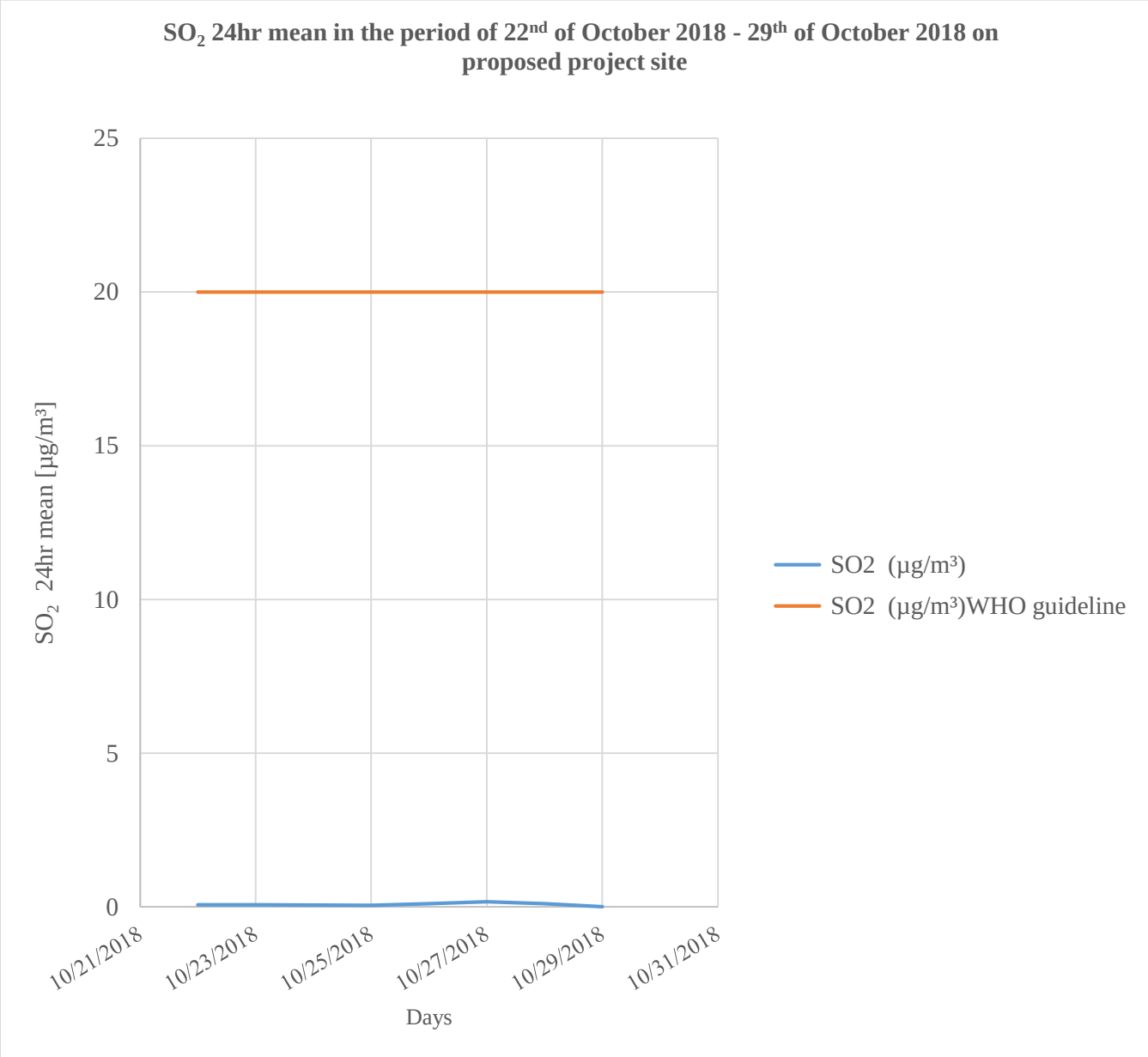

Figure 23: SO2 24hr mean in the period of 22nd of October 2018 - 29th of October 2018 on proposed project site

In de period of 22nd of October to 29th of October the highest 24-hour mean for SO2 was 0.17 µg/m³ and this was measured on Saturday 27th of October. All measured values are below the 24-hour mean WHO guideline of 20 µg/m3 for SO2.

The possible sources of SO2 include traffic, moving vehicles and other commercial activities upwind of the project site. This also correlates to the traffic data and peaks as described under section 5.4

5.4 Traffic

In 2018, the Strategic Urban Mobility Plan for Paramaribo Historic Center was published by IDOM (Mexico) funded by IDB. This study concluded that the inner city of Paramaribo is a key factor area for the mobility of Paramaribo. It connects the northern with the southern parts of the main urban area of Suriname. Due to the large population concentrated in both the southern and northern part of the inner city, an important number of generated and attracted trips take place. In total about 55% of the traffic in the inner city is only through traffic, while 45% of the traffic has its destination to the inner city.

Furthermore, the study showed that:

- Several factors lead to congestions in the inner city. One of these factors is the presence of complex vehicular intersections and discontinuity of traffic lanes.
- The traffic intensity at the Henck Arronstraat, part of the Waterkant and Dr. S. Redmondstraat are between 500-900 vehicles per hour during weekdays.
- Peak hours can be distinguished in the morning and in the afternoon. The morning peak period is between 06:30 and 09:30, with highest traffic activity between 07:00 and 08:00. In the afternoon the traffic starts to increase early around 12:00 pm and reaches its peak between 16:00 and 18:00.

The project site is located next to the thoroughfares Henck Arronstraat and Grote Combéweg. The Henck Arronstraat is a one-way street, which connects East Paramaribo with the historical inner city. Traffics lights are used to dose traffic. In the Henck Arronstraat sidewalks are available. There are several private praking lots; few public parking spaces are also available in the Henck Arronstraat from the Jessurunstraat to the crossroads with the Grote Combéweg.

The Grote Combéweg is a two- way street, which connects the Paramaribo city center with North Paramaribo, and provides access to the Van Sommelsdijckstraat. In the Van Sommelsdijckstraat several restaurants are located. The Court of Justice and the main entrance to the historic Palm Tree Garden are both located within the ADI along the Grote Combéweg. There are several parking spaces available along the Grote Combéweg.

The area is known for the many offices, governmental and non-governmental, which are located primarily in the Henck Arronstraat, Mr. F.H.R. Lim A Po Straat, Mr. J.C. De Mirandastraat and Tamarindelaan.

Based on the existing information as mentioned above, the location of the project with the currently foreseen project activities, 4 locations were selected to carry out traffic measurements in order to give a representative image of the traffic intensity and traffic flows in the inner city. See below Figure 24 Overview of Traffic Measurement Locations.

Figure 24: Overview of Traffic Measurement Locations

The traffic study (count) was executed on the 2nd of October 2018 (weekday) during the morning and afternoon peak hours. At each location (4 in total, T1-T4) three measurements were carried out of half an hour each, during three different time intervals (morning between 6.30-9.30, afternoon between 12.30 and 15.30 and between 16.00-18.45).

The total motorized traffic intensity (cars, trucks, busses, motorbikes and bikes) counted at each traffic location T1 to T4 per half an hour time interval is presented in section 5.6 Noise in **Table 12: Summary of daytime sound levels in the proposed project study area during the 3 time intervals**. For detailed results see Annex IIA.Baseline Traffic Study report

The results of the total traffic counts per location for thhe 2nd of October 2018 are presented in the Table 10 and the Figure 25.

Table 10: Total traffic counts per location

	T1 Henck Arronstraat, Grote Combeweg, Tamarinelaan and Onafhankelijkheidsplein	**T2** Onafhankelijkheidsplein, Waterkant, Kleine Waterstraat and Zeelandiaweg	**T3** Mr. F.H.R. Lim A Postraat and Mr.J.C. de Mirandastraat	**T4** Waterkant and Kromme Elleboogstraat
Category	**Total**	**Total**	**Total**	**Total**
Cars	1876	1858	781	1006
(Light) Trucks + busses	272	305	105	149
Large Trucks	8	13	1	9
Motorbikes + bikes	225	215	92	160
Pedestrians	72	52	102	151
Total	**2453**	**2443**	**1081**	**1475**

From the table it can be concluded that cars are mostly observed at all locations during all measurement periods. The IDOM/IDB report concluded that public transportation isn't very organized within the inner city. People are therefor likely to use a car as transportation method. This is more or less confirmed in the current study.

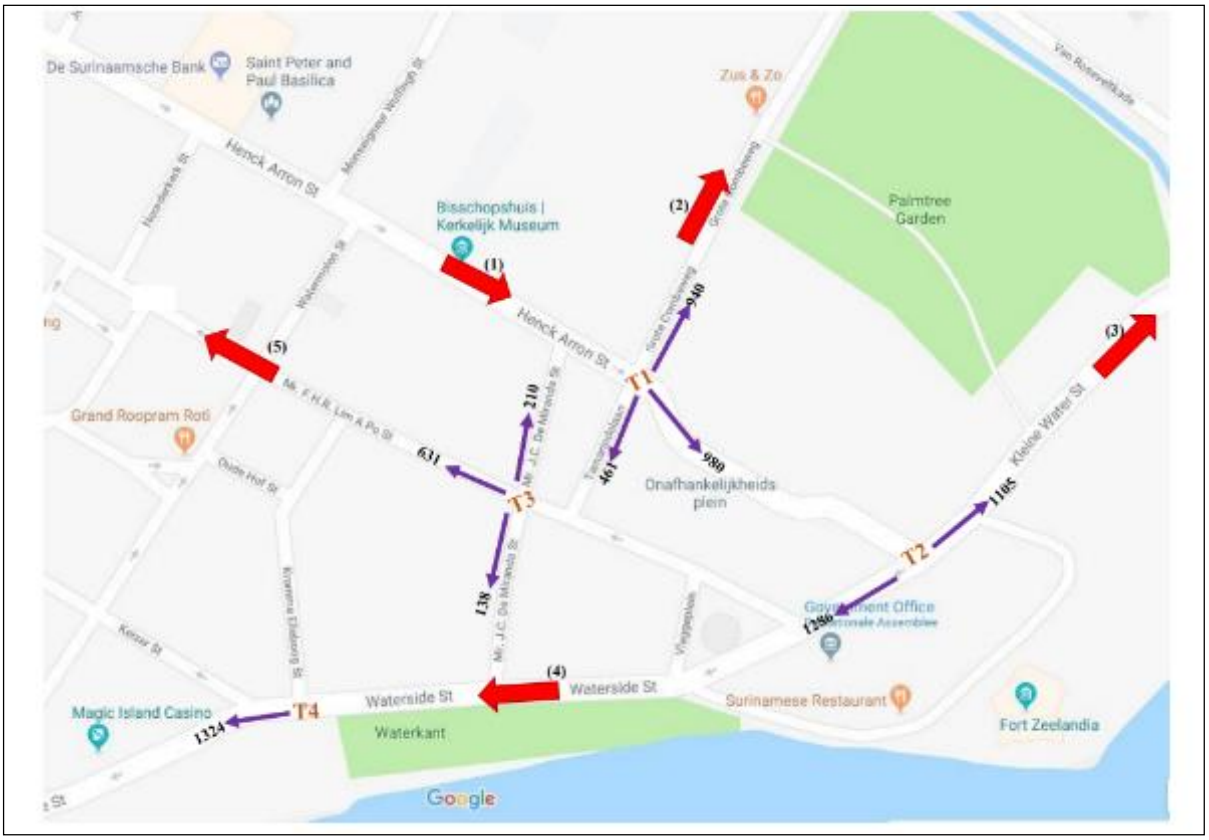

Figure 25: Overview total traffic counts per location

From Figure 24 the following can be concluded:

- Most traffic moves along the Henck Arronstraat (1), Grote Combeweg (2), Kleine Waterstraat (3), Waterkant (4) and Mr. Lim A Postraat (5). In the IDOM/IDB report it was concluded that traffic mostly moves along the Henck Arronstraat, Waterkant, Keizerstraat and Domineestraat. In the current study, the traffic movement is mostly as mentioned in the IDOM/IDB Report. At location T1 (junction Henck Arronstraat/Grote Combeweg), the overall traffic intensity at this location was higher in comparison to the other locations. The Henck Arronstraat is classified as primary road, category B, which means a main road. Around 8.00-8.30 AM, there is a peak of traffic moving in and out of the inner city. This peak goes down at 6.30-7.00 AM, 13.15-13.45 PM and after 17.30 PM. The remainder of the day shows a rather even distribution. The ESIA study area is mostly used to house several government departments and offices, with operating hours between 7:00-17:00. Therefore, the peak of traffic can be directly related to the operation hours of these government departments and offices in the area.
- Pedestrians were mostly observed during the morning peak 07:00-9:30 and in the afternoon peak of 15:00- 15:30. The study area is near several government agencies and offices with similar opening and closing hours, which explains the observed number of pedestrians. It

should be noted that at the crossover in front of the project site of the New Parliament Building approximately 30 pedestrians were observed per half hour. During construction works, the safety of the pedestrians near the new Parliament Building should therefore be taken into consideration.

- Other observations of the traffic study include: the roads are generally in good condition, pedestrian facilities are minimal and not usable because of car parking along the road. The conditions of most of the footpaths are bad, because of loose tiles and bad drainage system. See Figure 26 below. There are no speedbumps present in the study area. Recently, safety cameras are installed on several locations in the inner city of Paramaribo. These should be taken into consideration during the construction works (information from Telesur during ESIA meeting of 27th February 2019).

Figure 26: Minimal pedestrian facilities and car parking along side way/footpath of Kromme elleboogstraat (left) and loose tiles along the waterkant footpath (right)

The details of the traffic study are included in Report Baseline Traffic Study report in Annex IIA.

5.5 Parking

During weekdays at working hours, most streets of the inner city are lined by cars that park along the roads and on footpaths minimizing the walkability for pedestrians. There are some private and public parking lots but it is clear that available space is far from sufficient.

Within the study area a total of 25 parking spaces have been identified. These include:

- In the ADI (area within a radius of 100 meters from the proposed project site): a total of 14 parking spaces of which 2 lie on the proposed site. One is specifically used by the Ministry of Foreign Affairs and its visitors (approx. 30 parking spaces) while the other (approx. 20 parking spaces) is used by others (general public, visitors of the area, visitors of the Court of Justice and other surrounding institutes and/or offices).
- In the AII (area within radius 250 meters from the proposed project site): a total of 11 parking spaces are identified

The total number of cars that can park at the current site is about 30-40. This implies that with the construction of the new building these (and new extra users for the new Parliament building) parking lots need to be available elsewhere or alternatives for parking has to be sought.

See Figure 27 below the identified parking spaces within the study area.

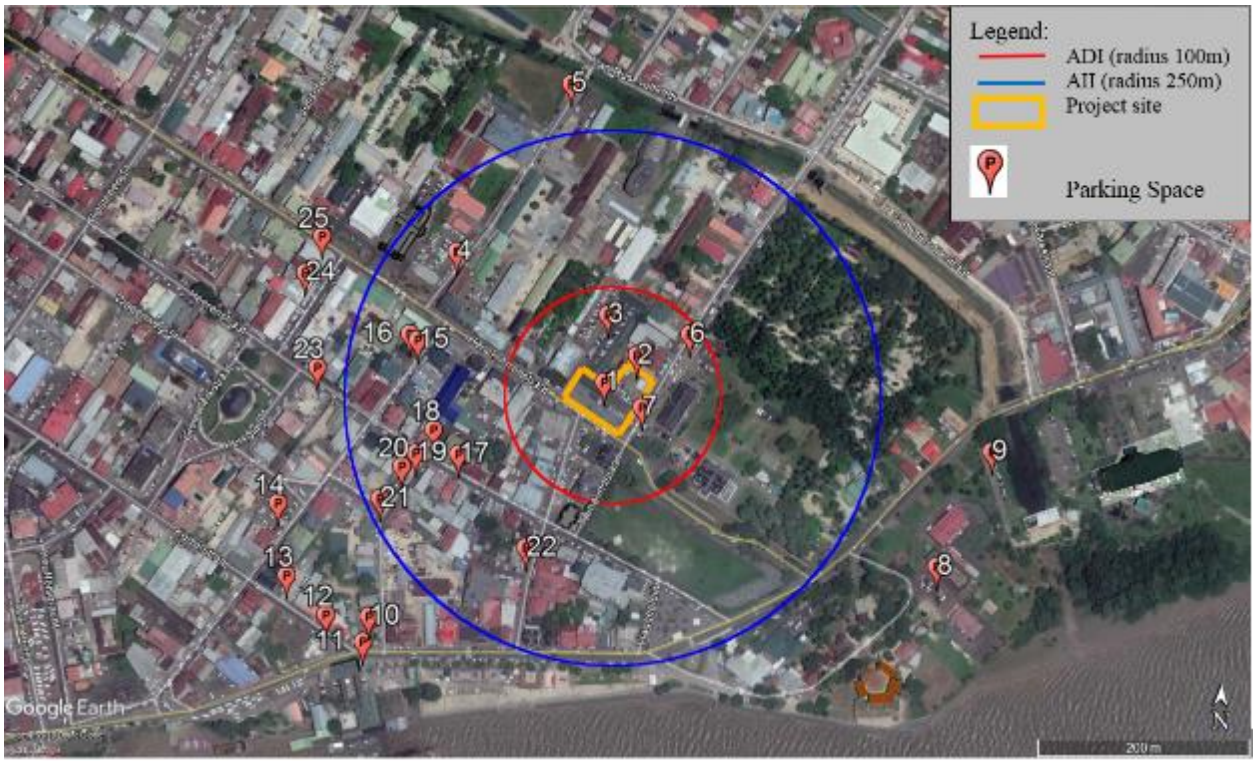

Figure 27: Identified parking spaces within the study area

The following Table 11 gives an overview of the 25 identified parking spaces.

Table 11: Locations identified parking spaces within study area

No	Parking spaces
1	Parkinglot Ministry of Foreign Affairs on DNA terrain (± 15 spaces)
2	Public parking on DNA terrain (± 15 spaces)
3	Parkinglot Ministry of Foreign Affairs
4	Parkinglot/ Cathedral
5	Private parkinglot
6	Parkinglot at Palm garden in front of Sub district court
7	Parkinglot Presidential Palace
8	Parking Area (± 42 spaces)
9	Parking area (± 18 spaces)
10	Parking area (± 20 cars)
11	Parking area (± 15 cars)
12	Parking Area Kasimex
13	Parking Area Surinaamse Postspaar Bank (for clients)
14	Parking ara (± 30-40 cars)
15	Parking Area Surinaamsche Waterleiding Maatschappij
16	Private parking area
17	FHR Parking area
18	Parking Area (private)
19	Parking area (private)

20	Parking area
21	Parking area (Staff members Central Bank of Suriname)
22	Parking Area/Back entrance Central Bank of Suriname
23	Parking area Waldo's (private)
24	Fatum verzekeringsmaatschappij parking spaces
25	Digicel office parking spaces

5.6 Noise

As part of the baseline study, noise measurements were carried out. The methodology and detailed results are presented in a separate report Baseline Noise Report in Annex IIB.

Reference or baseline noise levels have been measured on specific time periods and at specific locations based on: (1)Traffic peak hours, which include morning peak hours between 6:30 AM and 9:30 AM and afternoon peak hours between 12:30 PM and 18:00 PM. The morning peak consists of one-time interval and the afternoon peak consists of two time intervals (IDOM, 2018). (2) The presence of important traffic routes for movement in the North-South direction. (3) The presence of sensitive receptors such as churches, restaurants and schools. (4) Operational hours of offices and workspaces during daytime. (5) The IFC requirements for measurements during daytime.

No nighttime measurements and weekend measurements are included as currently no nighttime/weekend project activities are foreseen.

In total four locations are selected for noise measurements (see Table 12 and Figure 28):

- Henck Arronstraat– Grote Combeweg (N1)
- Onafhankelijkheidsplein – Kleine Waterstraat (N2)
- Mr.J.C.de Mirandastraat– Mr. F.H.R. Lim A Po straat (N3)
- Waterkant– Kromme Elleboogstraat (N4)

The noise measurements have been carried out during daytime (7.00-22.00h) on a weekday. At each location, 3 measurements were carried out of half an hour each, during 3 different time intervals. In total 12 measurements were carried out.

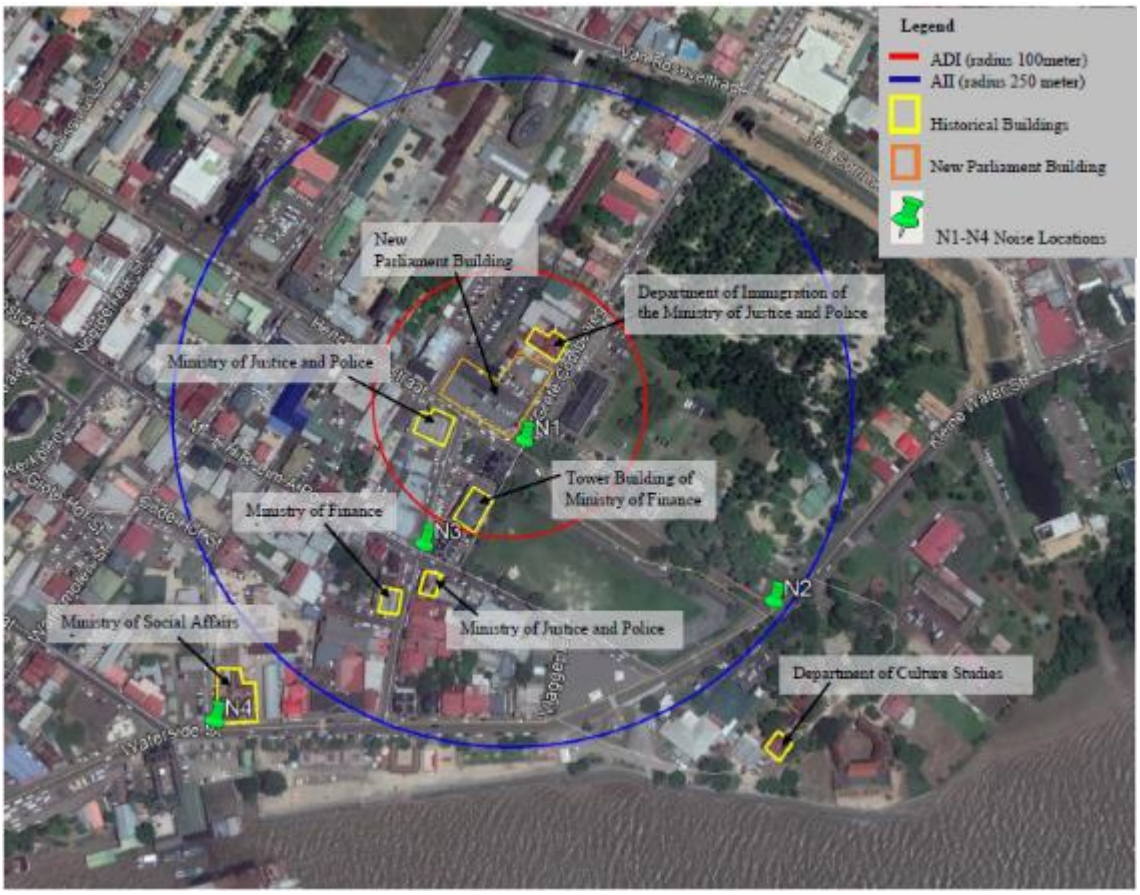

Figure 28: Overview of Noise Measurement Locations

The results of the noise study are summarized in Table 12

Table 12: Summary of daytime sound levels in the proposed project study area during the 3 time intervals

ID #	Location	Time period	Motorized traffic intensity	LAeq	L10	L50	L90	Lmax	Lmin
N1	At the junction of the Henck Arronstraat and the Grote Combeweg.	06:30-07:00 h	658	67.6	70.6	64.4	58.4	84.4	49.7
		12:30-13:00 h	848	68.5	69.0	63.0	56.5	100.2	48.4
		16:00-16:30 h	854	68.1	69.9	64.5	56.8	92.8	48.4
N2	At the junction of the Onafhankelijkheidsplein and the Kleine Waterstraat	07:15-07:45 h	849	72.5	75.1	71.0	64.4	92.5	52.3
		13:15-13:45 h	667	72.0	73.8	67.0	59.4	99.3	50.9
		16:45-17:15 h	866	71.6	74.7	69.1	62.8	92.5	53.3
N3	At the junction of Mr. J.C de Mirandastraat and Mr. F.H.R Lim A Po straat	08:00-08:30 h	400	63.7	66.8	60.1	55.0	85.8	49.2
		14:00-14:30 h	340	62.7	65.7	58.6	53.7	85.3	49.3
		17:30-18:00 h	229	60.7	62.7	55.1	50.1	84.4	44.1
N4	At the junction of the Kromme Elleboogstraat and Waterkant	09:00-09:30 h	497	69.3	72.3	66.4	57.6	89.7	47.7
		15:00-15:30 h	420	68.8	71.2	64.4	54.0	93.1	42.6
		18:15-18:45 h	390	70.2	73.0	67.1	58.2	92.6	48.3

Note: all values highlighted in red are above the applicable WHO/IFC daytime standard of 70 dBA for commercial areas

The noise levels for the different locations and time intervals are presented in Figure 29. In Figure 30 the total traffic counts are set out as measured at the same locations and time intervals.

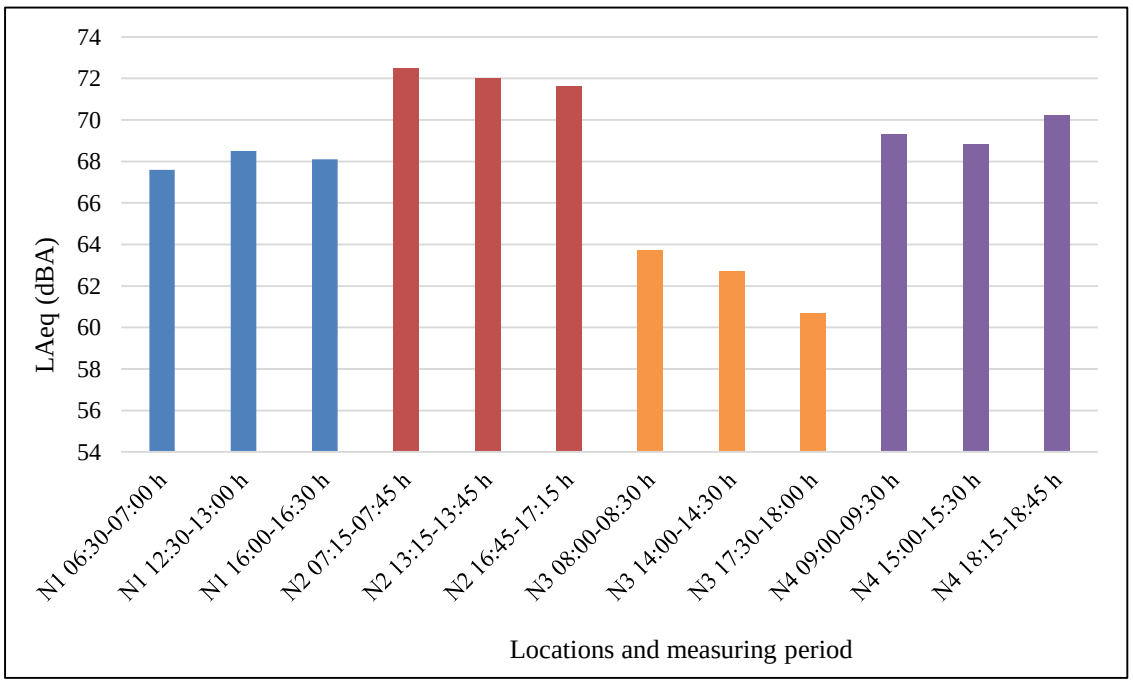

Figure 29: Noise levels at the locations during different time intervals

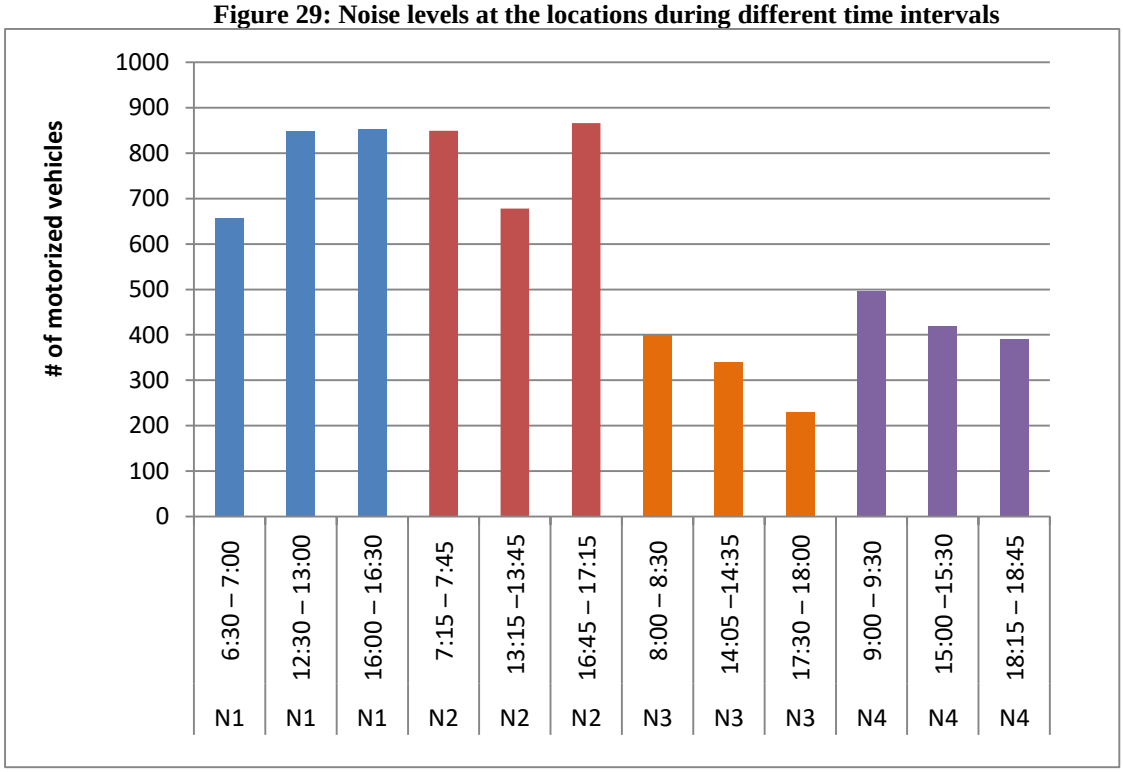

Figure 30: Total motorized vehicles at locations during different time intervals.

In the absence of noise guidelines for Suriname the World Health Organization-WHO, World Bank/IFC) are used. See Table 13 Applicable Outdoor Noise Standards for Community-based noise (WHO/IFC)

Table 13: Applicable Outdoor Noise Standards for Community-based noise (WHO/IFC)

	Maximum Allowable Ambient Noise Levels **1-hour LAeq (dBA)**	
Receptor	**Daytime 07:00- 22:00**	**Nighttime 22:00- 07:00**
Residential; institutional; educational	55	45
Industrial; commercial	70	70

The buildings in the project area are predominantly offices and other commercial buildings with operating hours between 7:00 – 17:00. Therefore, the standards for commercial area will be used to compare the measured noise levels. Where the baseline ambient noise levels are above the standard, the variable permitted is no more than +3 dBA.

The main findings and conclusions of the noise study are:

- Most of the measured LAeq values are below the WHO/IFC daytime standard of 70 dBA for commercial areas. Only levels at location N2 (Onafhankelijkheidsplein- Kleine Waterstraat) and N4 during the last time interval (18.15-18.45) are are slightly higher than the WHO/IFC limits. In general, the measured levels are considered representative for weekdays along the roads of the inner city of Paramaribo.
- The noise levels at N1 (Henck Arronstraat- Grote Combeweg) and N4 (Waterkant-Kromme Elleboogstraat) are almost similar, but the traffic intensity at N1 is much higher than at N4. This difference in noise levels is likely caused by:
    - The overall higher speed (and thus noise) at location N4, compared to N1.
    - The crossing at N1 causes traffic to slow down and thus standing and/or very slow speed levels. The Henck Arronstraat is narrowed with about 0.5 m at the junction with Grote Combeweg, so traffic is forced to slow down at this point.
    - N1 is situated in a more open space than N4 and reflections from the walls of buildings may result in higher noise levels.
- The noise levels at location N2 are higher than at N1, while the intensity of traffic is similar to N1. The higher noise levels are mostly caused by the overall higher speed level at N2 (see Traffic study report).
- Overall N3 (Mr.J.C.de Mirandastraat – Mr.F.H.R. Lim a Postraat) has the lowest noise levels. This location also has the lowest traffic intensity, while is also shows a good correlation between traffic intensity and noise level.
- In addition to the mentioned causes for differences in noise levels, also the type of pavement could play a role.

5.7 Soils

The study area is located in the Young Coastal Plain of Suriname. The project site is situated to the north of the Henck Arronstraat, which is located on a shell ridge (former beach). Local information of the soil conditions was gathered by making several drillings (shallow and deep) on the site.

The detail soil report is included in Annex IIC.

From the soil baseline it can be concluded that the site has a soil profile consisting of (1) fine shell sand, (2) dark grey clay loam (3) ripe till nearly ripe clay and (4) shell grit with sand.

The soil profiles at the site show that the area was not situated on a ridge, but on the clay flat in front (seaside), with sand and shell fragments on top. The clay is encountered at a depth of 80 cm below the surface. From the profile characteristics it is concluded that the upper soil has been severely disturbed (presence of brick fragments and charcoal).

The findings are in agreement with the existing soil information about the area. Furthermore, no objects or residues were encountered that would indicate the presence of an archaeological site. It was not possible to conclude the presence of an archaeological site from the color of the soil. Nevertheless it is stressed that the construction site is part of Suriname's historic inner-city as well as the location of possible pre-Columbian indigenous settlement. It is therefore possible that archaeological artefacts can be discovered (unearthed and/or disturbed) during earth moving activities.

As part of the baseline study, the soil quality was also determined by sampling and testing in order to eventually reveal the presence of artifacts in the soil. Soil samples were taken at 2 locations. Also see Annex IIC for detailed information.

Soil samples were taken as composite samples from the 0-50 cm layer and submitted to Eurofins Analytico in the Netherlands for Terratest Analysis. This analysis is a comprehensive suite of some 200 common organic and inorganic compounds. The results have been tested against the Dutch standards (VROM 2013). The outcome of the investigation is reported in a separate Soil Sampling and Testing Report in Annex IIC

The abridged analys results of the investigation are presented in Table 14

The main findings are:

- During drilling and sampling no objects or residues were observed that would indicate the presence of an archaeological site. It was not possible to conclude the presence of an archaeological site from the color of the soil.
- Most values for soil samples in Table 11 are above the detection limits and are below the related Dutch background levels.
- The soil at the site is slightly contaminated with Tin, PCBs, Drins and Bisethylhexylphtalate, moderately contaminated with Zinc, and heavily contaminated with Lead.
- The contamination is the result of past and present human activities at and around the site, including traffic; also the fire of the DNA building at the site has contributed to this contamination.
- Testing of the soil data against the Dutch standards of the generic framework indicates that the sampled site - except for Mercury, Lead and Sum Drins - meets the requirements for the soil function Residential, and - except for Lead - those for the soil function Industry
- Future use of the site is building construction with soil movement and back filling. No residence buildings will be constructed and no crops will be planted. Therefore, the soil function "Industry" is used for reference comparison for the project site. Exceedance of limits for this soil function is only recorded for Lead.
- The measured high Lead level may present an ecological risk, but is not considered significant for the current site. The human risk index is below 1, so that no human risk is expected in relation to the Lead contamination of the soil.
- The soil quality of the sampled site meets the requirements for the intended use and poses no human risks.

Table 14: Analysis results for soil and testing against the Dutch Guideline Values (VROM 2007, 2013)

Analysis	Background level soil (mg/kg dm)	Maximum values for soil function class (mg/kg dm)		Intervention value	Soil sample ID	
		Residential	Industry	Soil (mg/kg dm)	PU_1	PU_2
Metals						
Arsenic	20	27	76	76	6.8	9.0
Barium	-	-		–	120	190
Cadmium	0.60	1,2	4.3	13	0.35	***0.61***
Beryllium					-	1.4
Chromium	55	62	180	–	7.2	18
Cobalt	15	35	190	190	2.6	5.8
Copper	40	54	190	190	22	40
Mercury	0.15	0.83	4.8	36	**1.2**	**2.4**
Lead	50	210	530	530	**560**	**750**
Nickel	35	39	100	100	4.5	10
Zinc	140	200	720	720	**370**	**580**
Tin	6.5	180	-	-	***21***	***15***
Vanadium	80	97	-	-	11	22
Polycyclic Aromatic Hydrocarbons						
Phenanthrene	-	-	-	-	0.03	0.01
Fluoranthene	-	-	-	-	0.13	0.09
Pyrene	-	-	-	-	0.13	0.09
Benzo(a)anthracene	-	-	-	-	0.07	0.05
Chrysene	-	-	-	-	0.10	0.07
Benzo(b)fluoranthene	-	-	-	-	0.15	0.10
Benzo(k)fluoranthene	-	-	-	-	0.06	0.04
Benzo(a)pyrene	-	-	-	-	0.12	0.07
Dibenzo(ah)anthracene	-	-	-	-	0.03	0.02
Benzo(ghi)perylene	-	-	-	-	0.11	0.07
Indeno(123cd)pyrene	-	-	-	-	0.11	0.07
PAH 10 VROM (sum)	1.5	6.8	40	40	0.72	0.47
PAH 16 EPA (sum)	-	-	-	-	1.0	0.68
Poly Chlorinated Biphenyl (PCB)						
PCB 101	-	-	-	-	0.003	-
PCB 138	-	-	-	-	0.010	-
PCB 153	-	-	-	-	0.009	-
PCB 180	-	-	-	-	0.011	0.002
PCB (6) (sum)	-	-	-	-	0.033	0.002
PCB (7) (sum)	0.020	0.040	0.5	1	***0.033***	0.002
Organic Chlorinated Pesticides						
4,4 -DDE	-	-	-	-	0.004	0.009

Analysis	Background level soil (mg/kg dm)	Maximum values for soil function class (mg/kg dm)		Intervention value	Soil sample ID	
		Residential	Industry	Soil (mg/kg dm)	PU_1	PU_2
4,4 -DDT	-	-	-	-	0.003	0.004
4,4 -DDD + 2,4 -DDT	-	-	-	-	-	0.004
2,4 -DDD	-	-	-	-	0.001	-
DDT/DDE/DDD (sum)	-	-	-	-	0.008	0.016
Aldrin	-	-	-	0.32	0.006	0.010
Dieldrin	-	-	-	-	0.036	0.016
Drins (sum)	0.015	0.04	0.14	4	**0.042**	***0.026***
Phtalates						
Bisethylhexylphtalate	0.045*	8.3	60	60	***0.3***	***0.9***
Phtalates (sum)	-	-	-	-	0.3	0.9
Petroleum Hydrocarbons						
EPH (C21-C30)	-	-	-	-	15	-
EPH (C30-C35)	-	-	-	-	11	8.1
Mineral oil (C10-C40)		190	500		<38	<38

* No background level known; detection limit shown.
0.9: value above the background level for soil
580: value above the maximum values for soil function class residential
750: value above the intervention value

5.8 Hydrology

5.8.1 Introduction

The main river in the area is the Suriname River. The river flow is controlled by the hydro power dam in Brokopondo, about 100 km to the south of Paramaribo. In the study area the Suriname River is wide and under tidal influence.

The study area is located in the Young Coastal Plain (low lying land) and as such prone to flooding. Suriname has experienced frequent floods in the past in the coastal plain and from rivers in the interior. The most recent severe floods were in the Interior in 2006 and 2008. Other less severe floods were experienced between 2010 and 2014. Floods may occur when sea/river level rises during tide, during tropical storms and rainfall- induced accumulation of water due to the outdated and insufficient drainage system.

5.8.2 Drainage

General

The proposed project site is located in the inner city of Paramaribo and mainly consists of build- up space. The drainage system of historical Paramaribo consists of a combination of open channels and closed systems, which finally discharges into the Suriname River.

Important drainage and sewerage system in Paramaribo include:

- Knuffelsgracht
- Viotte Creek
- Picornie Creek
- Steenbakkersgracht and the

- Sommelsdijckse Creek

The Sommelsdijckse Creek is the oldest drainage channel in Paramaribo and runs right through the old city. The drainage and sewerage of the inner city is regulated by sluices and pumping systems. The system collects both excess stormwater and wastewater from residential and public septic tanks, hospitals, and restaurants etc. which water is ultimately discharged into the Suriname River.
Due to urban development, the amount of water that is being discharged has increased, but the capacity of the system has not been enlarged. Open systems are not maintained well enough and are often visibly polluted causing stench and inconveniences during high water events.

Study area
Information about the drainage in the study area is gathered from the Civil Works Department of the Ministry of Public Works, Transportation and Communication (interview with Mr. Mohan, sub director Civil Works, 12th September 2018). The drainage flow is described below and presented in Figure 30:

- The drainage water on the south side of the Henck Arronstraat flows directly to the Suriname River. The drainage system of the Keizerstraat located in the south part of the Henck Arronstraat, crosses the Waterkant to the terrain of the Scheepvaart Maatschappij Suriname (SMS) from where the outlet ends up in the Suriname River (Area 1). The drainage system of the Mirandastraat in this part crosses the Waterkant to end up in the Suriname River. In this part of the project area the area at Fort Zeelandia (Area 2) has its own drainage system that also leads to the Suriname River.
- The outlets at SMS Pier, Miranda Street and Fort Zeelandia are incorporated into the steel sheet piles. The diameter of the drainage pipes in the inner city varies between 30 and 40 cm.
- The drainage systems can be characterized as mixed system because in addition to rainwater, they also receive discharges of domestic waste water (partially treated by septic tanks).
- The drainage water of the north side of the Henck Arronstraat in which area the proposed project siteis located, flows directly into the Sommelsdijckse Creek that dewaters to the Suriname River (Area 3). In the Sommelsdijckse Creek, the outflow is regulated via sluices and a pumping station near the Suriname River. The Sommelsdijckse Creek is located at a distance of approximately 250 meters from the project site

See Figure 31 below for the drainage and drainage pattern of the study area.

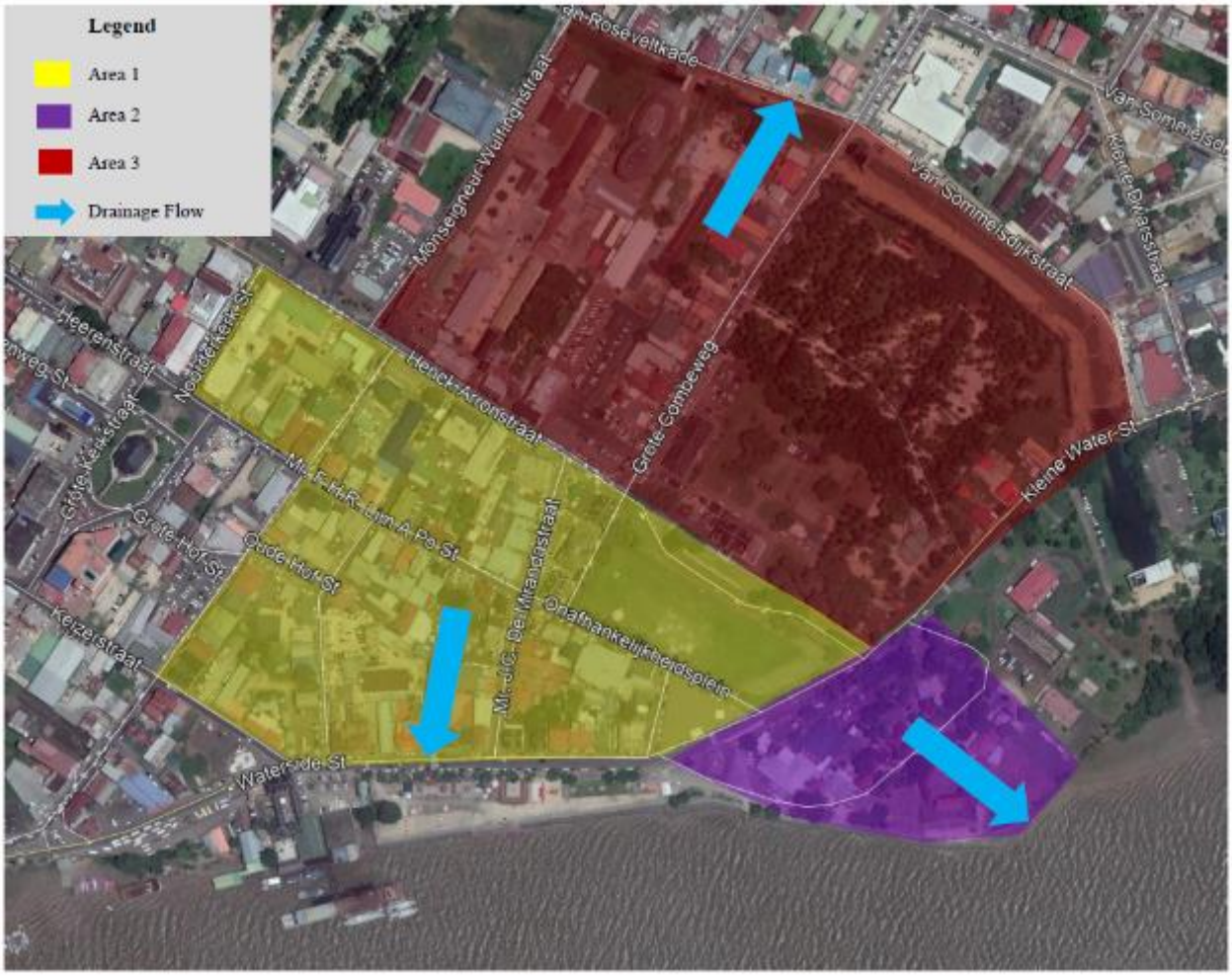

Figure 31: Drainage flow pattern study area

5.8.3 Water quality in the study area

The surface water observed in the study area were the van Sommelsdijckse Creek (man -made channel) and the Suriname River (during low tide). As part of the baseline study, water quality in situ measurements were carried out. More information of the methodology is presented in a separate Water Quality Investigation Field Report in Annex IID.

Taking into consideration, the drainage system of the inner city of Paramaribo and the ESIA study area, water quality investigation in the van Sommelsdijckse Creek and Suriname River, has been proposed. In the van Sommelsdijckse Creek the investigation is done at four (4) locations, and in the Suriname River also at four (4) locations (see Figure 32 Overview of In-situ measurement Locations and Figure 33 In-situ watermeasuring in the Van Sommelsdijckse Creek (left) and Suriname River (right), October 2nd 2018).

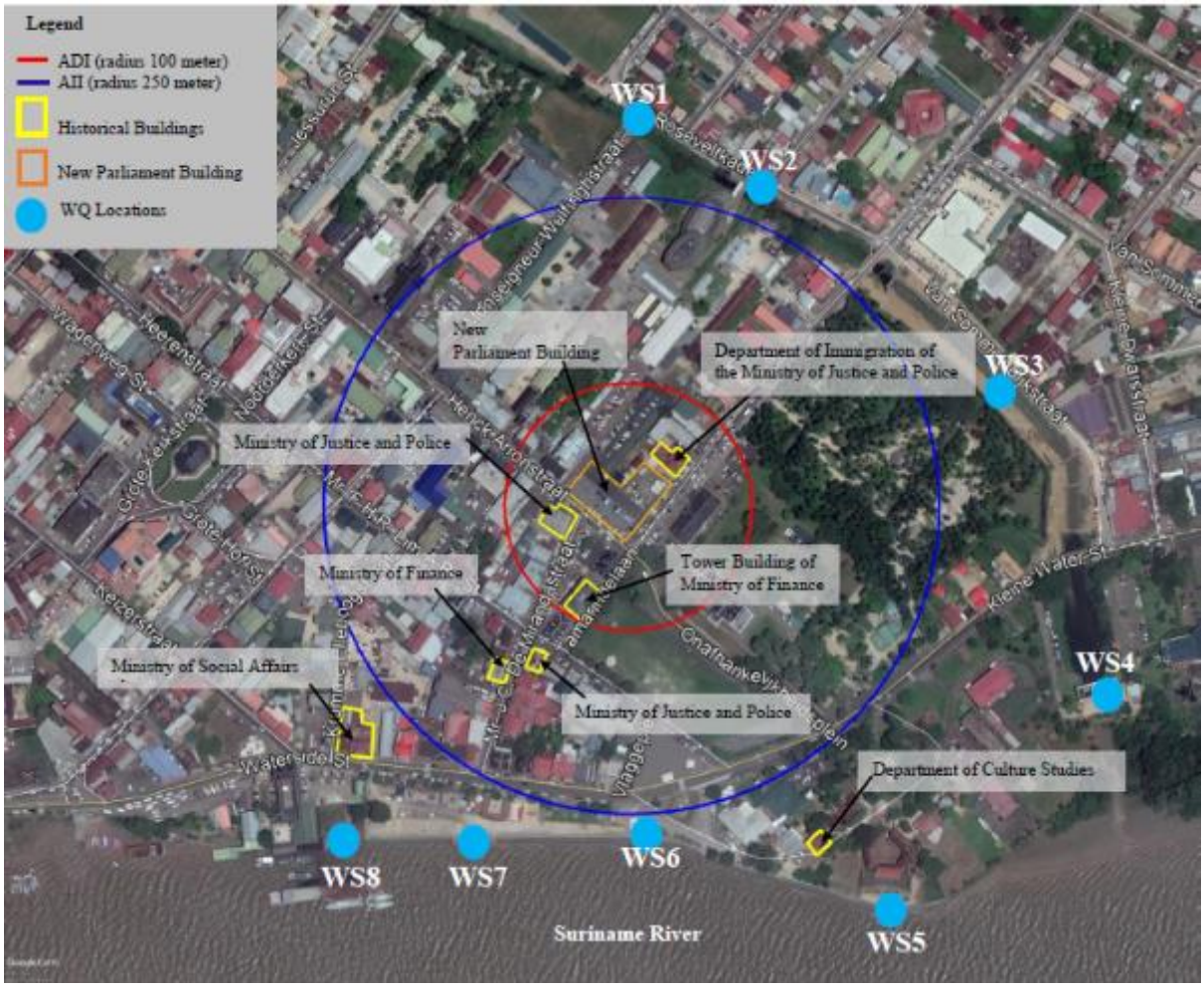

Figure 32: Overview of In-situ measurement Locations

Figure 33: In-situ watermeasuring in the Van Sommelsdijckse Creek (left) and Suriname River (right), October 2nd 2018

The outcome of the investigations is also reported in the Water Quality Investigation Field Report in Annex IID.
The main conclusions of the investigation are:

- There is a difference in water color between the Van Sommelsdijckse Creek and the Suriname River. The Van Sommelsdijckse Creek also carries wastewater from houses and buildings. The Suriname River has a constant flow with lots of sediments transported.
- The EC of the Suriname River (measured during low tide) is higher than that of the Van Sommelsdijckse Creek. This is caused by the penetration of saltwater from the sea within the Suriname River.This can also be concluded from the higher measured salinity in the Suriname River. The Van Sommelsdijckse Creek is not in direct connection with the Suriname River.
- No flow of water was observed in the Van Sommelsdijckse Creek, while there is continuous flow of water in the Suriname River.
- No other significant observation was noted.

5.9 Specialist studies

5.9.1 Asbestos quickscan constructions project site

An asbestos quickscan of the structures and material present on the site was conducted by an asbestos expert in addition to the environmental specialist baseline studies, for reason of speculations that asbestos could be present in these structures and/or objects. The quickscan was limited to visual inspection. No lab testing on asbestos was done. The terrain of the site is almost completely paved, partly with gravel on root cloth, partly tiled and partly with asphalt. No further inspections beneath these pavements were done.
The outcome of the asbestos inspection and methodology are reported in a separate Asbestos Report attached in Annex IIE to this report.

The main conclusions of the study are:

- It is possible that the root cloth underneath the gravel on -site contains asbestos.
- On some locations of the remains of the old parliament building that was destroyed by fire in 1996, putty/kit was found. The kit could contain asbestos, based on similar data from the past.
- No asbest suspected material has been encountered at the shed used as parking garage and the residence of the parking attendant.

The EBS transformer house, built of (baked) stone bricks, is operational and serves several households and buildings in the study area (EBS, Mr. Wielzon, telephone conversation on the 6th of December 2018). This high voltage installation is not isolated and for safety reasons could not be entered without cutting off the power supply. Therefore it was excluded from the asbestos investigation (quick scan). It is known that asbestos-containing material is used in the older switching installations, transformers and main fuses. In the final design the transformer house will be relocated. This should be done in consultation with the EBS. Since it was not possible to investigate the inside of the transformer house on asbestos presence it is recommended that specific measures as such asbestos handling and removal are included in the technical specfications of the project (contractor requirements) and in the HSE plan of the contractor.

From the final design (as received January 3rd, 2019) review, it is concluded that the EBS transformer house will be relocated. Contamination with transformer oil (which may contain PCB) may be encountered and proper remediation may be required. This should be done in consultation with the EBS and measures should be included in the HSE plan of the contractor.

5.10 Climate Change

Climate change projections include Sea Level Rise (SLR), changes in precipitation, changes in temperature and possible changes in the occurance of extreme events including highwind speeds. All these projections are based on scenarios developed by the Intergovernmental Panel on Climate

Change (IPCC) and adapted for Suriname to describe how future conditions may be developed considering the driving forces and key relationships. Climate change projections also illustrate a dynamic system with anticipated changes which could pose changes in the flooding hazards and risks. Figure 34 below shows a flooding map for Paramaribo as consequence of climate change under existing land use (Rawlings 2016).

As seen on the map the proposed site for the reconstruction of the new parliament building lies in the coastal land that is prone to floods. The inner city of Paramaribo and its surrounding area are currenlty protected by dikes, dams and sluices. It is stressed that these coastal protection measures are maintained properly in order to minimize the effects of climate change which includes sea level rise.

Figure 34: Coastal flooding hazard maps under existing land use and climate change (SLR +0.5 m) for 50-year return period (source: Environmental and Social Assessment for the Paramaribo Urban Revitalization Program 2016. Environmental Resources Management; Inter-American Development Bank, December 2016).

6 Socio-economic Baseline

6.1 Population: Paramaribo Urban Area

The latest data indicate that the population of Paramaribo district is 240.924 (ABS, 2018[8]). Paramaribo is divided in 12 Resorts. The project is situated in Resort Centrum, where, 20.631 people (male: n = 9.835; female: n = 10.796) were counted. Table 15 shows the distribution of the age categories by gender.

Table 15: Distribution population Paramaribo Center

	Gender	
Age category	male	female
0 - 4	708	659
5- 9	670	592
10 - 14	745	796
15 - 19	901	829
20 - 24	864	917
25 - 29	831	842
30 - 34	683	747
35 - 39	564	643
40 - 44	610	721
45 - 49	651	670
50 - 54	603	728
55 - 59	492	524
60 - 64	405	536
65 - 69	354	396
70 - 74	250	321
75 - 79	209	358
80 - 84	137	247
85+	126	242
unknown	32	28
Total	9.835	10.796
Aquired from ABS 2014		

The General Bureau of Statistics (ABS) distinguishes the main ethnicities (i.e. largest populations) of the district of Paramaribo as: Creole (n = 61.477); Hindustani (n = 55.192), Mixed (n = 44.077); Maroon (n = 38.450), Javanese (n = 23.670). According to ABS data (2014) the highest complete formal education is most often secondary school (VOJ; n = 36.596) or primary school (GLO; 29.377). Of the economic active population most work for the Government (n = 13.897) and in the trade sector (n = 12.951).

6.2 Sensitive Receptors

6.2.1 Introduction

Sensitive receptors are people or other organisms that may have a significantly increased sensitivity or exposure to contaminants by virtue of their age and health (e.g. schools, day care centers, hospitals,

[8] ABS. (2018). Statistical Yearbook 2016/2017 Suriname. ABS: Paramaribo

nursing homes), status (e.g. sensitive or endangered species), proximity to the contamination, dwelling construction (e.g. basement), or the facilities they use (e.g. water supply well). The sensitive receptors defined for this project include educational institutions and religious organizations. No health institutions were identified in the area.

6.2.2 Educational Institutions

In the AII ten educational institutions are identified (see figure below). Most primary and secondary schools (n = 5) are located north-west of the project site. These schools are visited from Monday to Friday. Most pupils are being dropped off by car or by school bus. One secondary school (Alpha Beta Free Athenaeum) is located north-east of the project site. The cultural educational institution (*On Stage Performing Arts*) is also located north-west of the project site. One higher educational institution with three departments (FHR Institute) is located south-west of the project site. The last identified educational institution is AHKCO. This higher educational institution is located north of the project site, in the Waterfront area. For all institutions applies that most employees come to work by bus or by car. See Figure below.

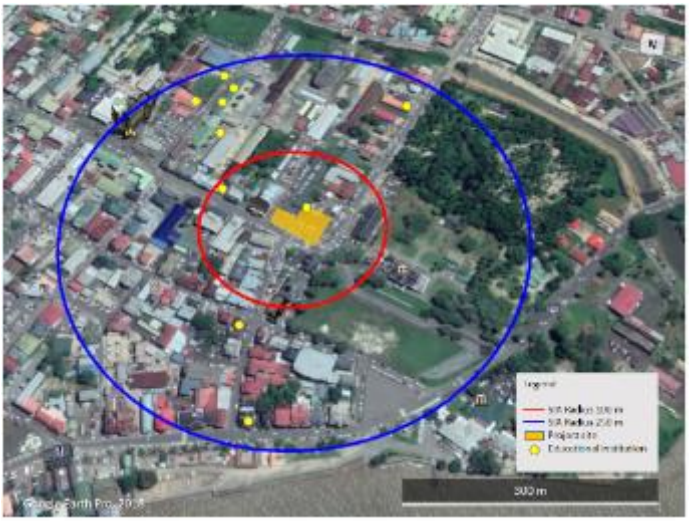

Figure 35: Overview educational institutions

Table 16: Overview educational institutions

		ISIC		Education hours		No. of students	No. of employees
		Code	*Description*	*Days*	*Hours*		
1	AHKCO	8530	Higher education	Mon. – Fri.	8am – 9pm	100	11 – 50
2	Alpha Beta Free Athenaeum	8521	Secondary education	Mon. – Fri.	7am – 9:30pm	140	11 – 50
				Saturday	9am – 1pm		
3	't Buzaantje	8549	Other education	Mon. – Fri.	11am – 6pm	10	1 – 10
4	Cathedral Choir School	8510	Primary education	Mon. – Fri.	7:30am – 13:30pm	104	11 – 50
5	FHR Institute	8530	Higher education	Mon. – Fri.	8am – 10pm	300	11 – 50
				Saturday	8am – 10pm		
				Sunday	12pm – 10pm		
6	On Stage Performing Arts	8542	Cultural education	Mon. – Sat.	9am – 10pm	50	1 – 10
				Sunday	10am – 4pm		
7	St. Elisabeth School I	8510	Primary education	Mon. – Fri.	8am – 1pm	380	11 – 50
8	St. Elisabeth School II	8510	Primary education	Mon. – Fri.	8am – 1pm	324	11 – 50
9	St. Louise School	8521	Secondary education	Mon. – Fri.	7:25am – 1:05pm	350	11 – 50
10	St. Paulus School	8510	Primary education	Mon. – Fri.	8am – 1pm	300	11 – 50

Two educational institutions are located in the ADI; day-care 't Buzaantje which is located at the project site and St. Elisabeth School 1, located at the Henck Arronstraat.

The childcare facility 't Buzaantje is opened on weekdays between 11am and 6pm. A maximum of ten children in the ages 4 to 12 are present each day. 't Buzaantje only hosts children from employees from the Ministry of Foreign Affairs. The staff (n = 2) is paid by the ministry of Social Affairs. As the facility is located on the project site, it has to be relocated – either temporarily or permanent. The figure below shows the suggested area for this relocating, which has a distance of about 100m from the original location. The building of the facility can be easily lifted and placed on another location (L. Truideman, personal communication, September 20th, 2018). Another option is suggested by the ministry of Foreign Affairs is to incorporate the day-care facility in the new reconstructed Parliament Building (L. Truideman, personal communication, October 18th, 2018). See Figure below.

Figure 36: Suggested relocation area

6.2.3 Religious institutions

In the secondary impact area three departments of the Roman Catholic Church are located. Yet only the Saint Peter & Paul Cathedral (the Cathedral) is considered to be a sensitive receptor. The Roman Catholic Church Chancellery and the Secretary of the Roman Catholic Church are mainly responsible for administrative activities, for this reason these two organizations are considered to be as offices (Chapter 6.2.7). The Cathedral is opened for public from Monday to Sunday between 6am and 1:30pm (Table 17). In addition to the weekly holy mass on Sunday, Cathedral activities typically concern baptisms, weddings and funerals. The Cathedral is the largest wooden structure in the Western Hemisphere. For this reason the Cathedral is also visited by tourists.

Table 17: Opening hours Cathedral

Monday- Friday	6:00am – 1:30pm
Saturday	8:00am – 1:00pm
Sunday	8:30am – 12:00pm

6.2.4 Residents

In total ten households were identified. In the primary impact area one household was identified and the secondary impact area counts nine households (Figure 37). For the purpose of identifying any persons with valid claims to involuntary resettlement or loss of livelihoods as a result of the project, the date at the end of the social-economic baseline (20th November 2018) is considered the cut-off date. The results regarding the households are described below.

Figure 37: Overview location households

In the ADI (Figure 37) lives one Creole male person (CH) who is 57 years of age. His highest completed education is elementary school and he speaks fluently Dutch. The main source of income according to CH comes from guarding the parking lot adjacent to the project site. With the money he earns, CH cares for girlfriend who has two children. She and her children live in another part of Paramaribo (Boma area). According to CH, his monthly expenditures are about SRD 425,-. CH's main source of drinking water is from a SWM tap in the yard and he has no access to electricity. At the time of the interview, CH had no disease or disability and he did not have health insurance (or any other kind of insurance). CH occupied the dwelling (Figure 38 and Figure 39) more than 30 years ago, when his father passed away. His father was concierge of the Parliament Building and was therefore allowed to stay at the dwelling. As his father, CH does not rent the place, but stays there for free. CH is formally registered at the Central Population Register (CBB: Centraal Bureau voor Burgerzaken). The excerpt of this registry states that CH is registered at the address since 1987 (see annex IVC).

Figure 38: Orientation dwelling with respect to project site

Figure 39: Dwelling Grote Combeweg #1

See in Figure below photos of the interior of the dwelling at Grote Combeweg #1

Figure 40: Interior dwelling Grote Combeweg #1

In the secondary impact area, at the parcel behind the building of De Mirandastraat #7 live two households. This parcel can only be reached by a corridor which is entered by one door. Both households live in the same dwelling (Figure 41).

Household #1
This household consists of mother (47) and daughter (5). The mother is a government worker and earns between 2.001,- and 4.000,- SRD. The daughter goes to elementary school. Both mother and daughter are in good health and have a basic health insurance.

Household #2
This household consists of a mother (41, sister of mother household #1), father (30+), daughter (22) and son (13). The mother of this household works for the government as a cleaning lady. Father works at an automotive shop/workplace. Their monthly earnings and expenditures are unknown. Based on the work description it can be assumed that mother and father have low incomes. Both children go to school daily. Both parents are hearing impaired

Figure 41: Dwelling Mr.J.C. De Mirandastraat #7

According to the mother (household #1) the house they live in belonged to their mother, who has been concierge of several ministries (amongst others Ministry of Finance). After their mother passed away the children stayed in the house. They don't pay rent, but stay there for free. The mother has been living there since birth, which is documented at the central population registry (Centraal Bureau voor Burgerzaken, CBB). They do have SWM water in the house, as well as EBS electricity 24/7.

Furthermore, households live at Henck Arronstraat #12 (the Bishop of Paramaribo), Lim A Postraat #3 (family Lim A Po) and Waterkant #10 (editor in chief of De West newspaper). The Verenigde Surinaamse Holdingmij (VSH United) owns the twin building at Waterkant #6 & #8 and housed, at the moment of the data collection (September 2018), four households in separate apartments.Limited information was collected due to non-response although several attempts have been made (also see Annex IVD).

Table 18 shows an overview of the known owners of the household buildings including known household members.

Table 18: Overview owners household buildings

		Owner building	**No. of households**	**No. of household members**
1	Grote Combéweg # 1	State of Suriname	1	1
2	Henck Arronstraat #10	Roman Catholic Church	1	1
4	Waterkant #6 & #8	VSH United	4	8
5	Waterkant #10	Private owner	1	3
6	Lim A Postraat #3	Private owner	1	2
7	De Mirandastraat #7	State of Suriname	2	6
	total		10	21

Limited information was collected due to non-response (see annex IVD-Overview attempts made to interview households).

6.2.5 Social Places

Several so called social places were identified, which are all located in the AII. For the purpose of this study, locations are considered to be *social places* when they have recreational value, i.e. people visit these places for relaxation and/or gatherings.

The following social places are distinguished:

- Palm Tree Garden: this public park is adjacent to the Presidential Palace and is under supervision of the President's Cabinet. The Palm Tree Garden thanks its name to the prominent palm trees. In this park several statues are present as well as a playground. This park is commonly used during national holidays for festivities and commerce (See Figure 42). Also, during the year private organizations organize activities for the community. A household (Chapter 6.2.5) living in the neighboring area earns some extra money during the festivals and other activities by guarding parked vehicles. The Palm Tree Garden is also very popular by tourists as it represents the history of the Colonial Area.

Figure 42: Festivities and commerce Palm Tree Garden during Day of the Maroons (Dag der Marrons) 2018

- Congress Hall: this building is rented for several - more formal - purposes. Both public and private organizations may request the Secretary Office of the President's Cabinet to rent the place. Events take place throughout the year. The Congress Hall is located in a one way street, with few parking spaces. Situated in front of the Congress Hall is the Independence Square.

- Independence Square (*Onafhankelijkheidsplein*): This field, located between the Presidential Palace and Congress Hall, houses two statues and is decorated with several country flags (Flag Square/Vlaggenplein). During the year the Independence Square is used for diverse purposes, from placing the national Christmas Tree to dance events. The National Assembly is located next to the Flag Square. Protest manifestations are occasionally organized across from this building.

- Waterfront (*Waterkant*): this promenade along the Suriname River is popular among both local residents and tourists. The Waterfront promenade has a playground, a crafts market, and several eateries. Also some street vendors sell their products (crafts/refreshments). Elderly men may gather here in day time, and in the evening mainly young people and love couples visit the place. The presence of homeless people, and drug use and trade have been reported as a social problem in this area. The Waterfront is adjacent to a busy street (at daytime) and has parking spaces along the promenade. The District Commissioner of Paramaribo has established a Waterfront Management Council which maintains a small office on Waterkant itself. This council is

responsible for the management of the Waterfront and its task is to ensure that the relevant rules and regulations are observed[9].

6.2.6 Businesses and Non-Governmental Offices

24 businesses and non-governmental offices were identified (Figure 43). Most employees come to work by car. For the offices with private parking lots, parking is no issue. However, most offices do not feature private parking. For employees of these offices parking is a challenge. Also, respondents complained about the lack of parking possibilities for their clients/visitors. Other mentioned commuter transportation includes bus, moped and the ferry (for the residents of Commewijne district). At the moment of data collection, no special activities where planned.

Six commercial venues are identified in the secondary impact area. Three venues are classified as short term accommodations (ISIC[10] 5510). Furthermore, one restaurant (ISIC 5610), a publisher of medias (ISIC 5813), a radio station (ISIC 6010) and a renting venue of bicycles (ISIC 7721) are identified. According to the standards of the International Labour Organization (ILO) most the venues (n = 13) are small sized businesses (11 to 50 employees). Although not in the AII, it is worth mentioning two paid parking lots are situated near the AII border.

The restaurant *Zus & Zo* and the bicycle renting company *Fietsen in Suriname* are near the project area. Mainly tourists and interns visit these places. Although the businesses offering accommodation are opened throughout the year, high season for this category is typically in the months of July, August and December. At the time of data collection (September 2018) none of the venues had planned special activities for 2019.

Visitor opening hours of the non-government offices are typically between 7am and 4pm (Monday to Friday). However, several (n = 9) organizations (consultancy firms, legal firm and research organization) explained that working hours are extended if a lot of work has to be done. In these cases employees may work in weekends and late evening hours(Table 19).

[9] Culturecom Consulting (Red.). (2016). *Livelihoods Assessment and Plan for waterfront development and bus terminal improvement.*

[10] United Nations. (2008). International Standard Industrial Classification of All Economic Activities (Series M No.4/Rev.4). Retrieved from https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

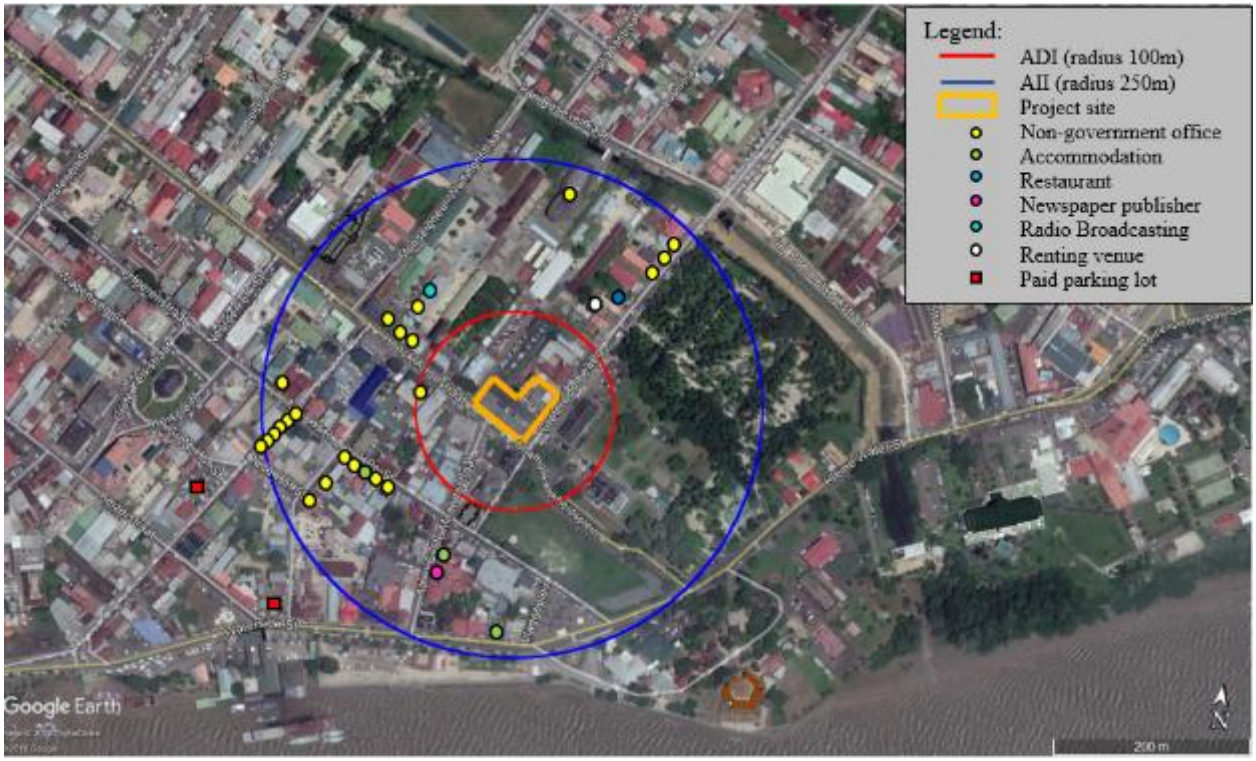

Figure 43: Overview businesses and non-government offices

At the project site the building of the former cantine of the Ministry of Foreign Affairs is located (see figure below). The cantine used to be exploited by a private owner. At the moment the cantine is not used as such. Currently documents of the Ministry are stored inside.

The cantine building will be permanently removed, which means that the documents stored inside need to be removed. This should be done by the Ministry of Foreign Affarirs prior to the commencement of works.

Figure 44: Cantine building with respect to the project site

Table 19:Overview Bussinesses and ofices by ISIC-classification, opening hours and number of employees

		ISIC		Opening hours		No. of employees
		Code	*Description*	*Days*	*Hours*	
1	La Petite Maison	5510	Accommodation	Mon. – Sun.	24h.	1 – 10p
2	De Kleine Historie	5510	Accommodation	Mon. – Sun.	24h.	1 – 10p
3	Albergo Alberga Guesthouse	5510	Accommodation	Mon. – Sun.	24h.	1 – 10p
4	Zus & Zo	5610	Restaurant	Mon. – Sun.	7am – 11pm	11 – 50p
5	De West	5813	Publisher media	Mon. – Sat.	7am – 5pm	11 – 50p
6	Radio Immanuel	6010	Radio broadcasting	Mon. – Sat.	8am – 3pm	1 – 10p
7	Fietsen in Suriname	7721	Renting activities	Mon. – Sat.	8am – 5pm	1 – 10p
				Sunday	9am – 2pm	
8	I Frontier	6399	Other information services	Mon. – Fri.	7am – 4pm	11 – 50
9	Assuria Verzekeringen	6512	Non-life insurance	Mon. – Fri.	7am – 3pm	101 – 250
10	Ramautar Makelaar & Taxateurs	6910	Legal activities	Mon. – Fri.	8am – 2pm	1 – 10
11	Notaris kantoor Soerdjbalie	6910	Accounting, bookkeeping and auditing activities; tax consultancy	Mon. – Fri.	7am – 3pm	11 – 50
12	Advocaten kantoor Lim A Po	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
13	Incassoburo Watermolen	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
14	Schuurman advocaten	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
15	Bishoen Noratiaat	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
16	Advocaten Hooplot, Thijm, Amirkhan	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
17	Advocatenpraktijk Adelaar	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
18	Kensenhuis	6910	Legal activities	Mon. – Fri.	7am – 4pm	11 – 50
19	Consulting Group	6920	Accounting, bookkeeping and auditing activities; tax consultancy	Mon. – Fri.	7am – 4pm	11 – 50
20	Belfirma	6920	Accounting, bookkeeping and auditing activities; tax consultancy	Mon. – Fri.	7am – 4pm	11 – 50
21	Accountants Maatschap Suriname	6920	Accounting, bookkeeping and auditing activities; tax consultancy	Mon. – Fri.	7am – 4pm	11 – 50

22	R.R. Consulting/Symbiont Consulting	7020	Management consulting activities	Mon. – Fri.	7am – 4pm	11 – 50
23	Conservation International Suriname	7210	Research and experimental development on natural sciences	Mon. – Fri.	7am – 2pm	11 – 50
24	Uitzendbureau Flexibel	7810	Activities of employment placement agencies	Mon. – Fri.	8am – 4pm	1 – 10
25	Jungle Resort Pingpe	7912	Tour operator activities	Mon. – Fri.	8am – 4pm	1 – 10
26	Secretariaat Kathedraal	8211	Combined office administrative service activities	Mon. – Fri.	8am – 2pm	1 – 10
27	Phenox Consultants	8211	Combined office administrative service activities	Mon. – Fri.	8am – 4pm	1 – 10
28	Ambassade van het Koninkrijk der Nederlanden	9900	Activities of extraterritorial organizations and bodies	Mon. – Thu.	7am – 4pm	11 -50
				Friday	7am – 2pm	
29	Consulate General of Haïti	9900	Activities of extraterritorial organizations and bodies	Mon. – Fri.	7am – 3pm	11 -50
30	Unesco National Commission Suriname	9900	Activities of extraterritorial organizations and bodies	Mon. – Fri.	7am – 3pm	11 -50

6.2.7 Governmental Offices

Fifteen government offices are identified, of which two are considered to be so called parastatals (Figure 45). The offices are opened Monday through Friday from 7am to 3pm (Table 20).

Figure 45: Overview government offices

Table 20: Overview government offices and parastatals by ISIC-classification and number of employees

		ISIC		No. of employees
		Code	*Description*	
1	Surinaamsche Waterleiding Maatschappij	3600	Water collection, treatment and supply	101 - 250
2	Centrale Bank van Suriname	6411	Central Banking	251 – 500
3	Kabinet van de First Lady	8411	General public administration activities	1 – 10
4	Ministerie van Financiën (Afdeling Personeel zaken en Juridische zaken)	8411	General public administration activities	n/a*
5	Ministerie van Natuurlijke Hulpbronnen	8411	General public administration activities	n/a
6	Ministerie van Financiën (Afdeling Thesaurie Inspectie)	8411	General public administration activities	n/a
7	Kabinet van de President (Afdeling Volkscontacten)	8411	General public administration activities	11 – 50
8	Ministerie van Binnenlandse Zaken (afdeling Communicatie Unit)	8411	General public administration activities	1 – 10

9	Ministerie van Buitenlandse Zaken	8421	Foreign affairs	101- 250
10	Ministerie van Justitie en Politie (n = 6)	8423	Public order and safety activities	> 500
**) n/a: awaiting response ministry*				

6.2.8 Vulnerable populations

Observations and stakeholder interviews revealed that several vulnerable groups can be identified in the ADI:

Homeless people

In the ADI several locations seem to be the territory of homeless people (men). In the evening they sleep at the staircases of the buildings. They are moving night to night. The neighborhood complains about the nuisance the homeless cause; stealing, yelling and even threatening. Most nuisance is experienced in the Grote Combéweg, Mr. J.C. de Mirandastraat and Waterkant. As a result of the analysis no homeless people live or squat at the at the project site, but onlynly at different areas near the site (i.e. Grote Combéweg, Mr. J.C. De Mirandastraat and Waterkant). In interviews with, among others the District Commissioner, it was reported that if the reconstruction activities of the Parliament Building should cause hinder for the homeless, they will shift to another part of the city.

Household Grote Combéweg

The person (CH) living in the dilapidated building at the parking lot of the Parliament Building, has been living and working in this location for more than 30 years. The living conditions of this person, uncertain and low income, and absence of health insurance, make him vulnerable to numerous threats. In the context of this project, this person will experience physical and economic displacement. Therefore, a Resettlement Policy would be required as per IDB guidelines.

Indigenous Peoples and Maroons

According to the Indigenous Platform in Unity and Solidarity for Alliance and Progress (Eenheid Solidariteit Alliantie en Vooruitgang), ESAV[11], the Palm Tree Garden is a sacred place for the indigenous people[12]. The lands surrounding the Palmentuin (a historic palm garden in Paramaribo) are regarded as the home of the first Indigenous people of Suriname. This area is currently not considered as part of the customary lands of any one of Suriname's existing Indigenous or Tribal ethnic groups. No Indigenous People live or have permanent businesses on this location. Construction-related activities will not take place in the palm garden. This location may be affected by dust, but no severe, long-term, or irreversible impacts related to the reconstruction activities are anticipated. This Project will not cause direct impacts on Indigenous Peoples, and the IDB Operational Policy on Indigenous Peoples (OP 765) is not triggered in the context of the proposed Project. No specific mitigation plan has been developed for the palm garden. Maroons do not depend on the ADI for their livelihoods or traditions. Therefore, considering Maroon rights does not apply in this study.

[11] A platform with the objective to represent the Indigenous people by protecting and maintaining their culture (http://www.esav.network/)

[12] Source: http://dagbladdewest.com/2015/01/21/esav-nieuw-platform-voor-inheemsen/

6.2.9 Livelihood Significance of the Project Site

In the ADI two sources of livelihood are identified:

Household Grote Combéweg

CH earns his main income as an informal parking attendant at this location. It is difficult to estimate income, because it is variable and unrecorded. Approximately 25 cars park at this location each weekday. Not every person pays, but those who do pay SRD 5- per day. Also several clients who work in the neighboring area (e.g. Court of Justice and Ministry of Justice and Police), stated in interviews that they pay 5,- SRD per day. He also receives some additional money with washing cars. On good days, these activities will earn him about SRD 200/day, up to a maximum of SRD 250/day, for regular work days. When there are festivities in the Palm Tree Garden or the Independence Square, he can earn up to SRD 500 in a day. There are also bad days though, during which he only earns about SRD 50. On average, these earnings will usually add up to between SRD 750-1000/week. As not every day all parking spaces are occupied, this calculation seems to be a reasonable, considering that 5,- SRD per day is the current price of parking at paid parking lots in the neighboring area. In regular weekends, he earns almost nothing. After planned construction activities, CH will no longer be able to perform this work.

Childcare 't Buzaantje

The childcare facility 't Buzaantje, which is located on the construction site (Figure below), will have to move. Staff is paid by the ministry of Social Affairs. As the facility cannot remain at the present location on the future construction site. Moving the childcare facility may in some way affect income of employees (currently investigated by the ministry of Social Affairs).

Figure 46: Indication household and childcare facility with respect to proposed Project site

6.3 Archaeological Resources, Tangible Heritage, and other Places of Cultural Significance

6.3.1 Cultural heritage sites

The ADI and the broader impact area feature various structures and locations that belong to tangible heritage, including historic buildings[13] (n = 62; Table 21), statutes and monuments (Figure 47). Also it is not expected that the Project will have adverse effects on tangible cultural heritage.

Table 21: Overview historic buildings

Object		Name/function
1	Onafhankelijkheidsplein 1	Presidential Palace
2	Onafhankelijkheidsplein 2	Empty building
3	Onafhankelijkheidsplein 3	Head office Ministry of Finance
4	Onafhankelijkheidsplein 4	Court of Justice
5	Onafhankelijkheidsplein 7	National Bureau Gender Policy
6	Onafhankelijkheidsplein 8	Empty building
7	Onafhankelijkheidsplein 9	Dixie Bar
8	Henck Aaronstraat 1	Head office Ministry of Justice and Police
9	Henck Aaronstraat 3	Parquet/Cabinet PG/OM
10	Henck Aaronstraat 9	Head office SWM
11	Henck Aaronstraat 10	Archive Bishop
12	Henck Aaronstraat 12	Residence Bishop of Paramaribo
13	Henck Aaronstraat 14	Empty building
14	Henck Aaronstraat 16	Department Ministry of Foreign Affairs
15	Henck Aaronstraat 18	Empty building
16	Henck Aaronstraat 20	Demolished 2010/2011
17	Henck Aaronstraat 21	Department Roman Catholic Church
18	Henck Aaronstraat 22-24	St Peter and Paul Cathedral
19	Mr. F.H.R. Lim A Postraat 1	Office
20	Mr. F.H.R. Lim A Postraat 3	Residence
21	Mr. F.H.R. Lim A Postraat 4	Department Ministry of Justice and Police
22	Mr. F.H.R. Lim A Postraat 5	Residence
23	Mr. F.H.R. Lim A Postraat 6	Department Ministry of Justice and Police
24	Mr. F.H.R. Lim A Postraat 7	Department Central Bank of Suriname
25	Mr. F.H.R. Lim A Postraat 8	Educational institution (FHR)
26	Mr. F.H.R. Lim A Postraat 9	Empty building
27	Mr. F.H.R. Lim A Postraat 10	Educational institution (FHR)
28	Mr. F.H.R. Lim A Postraat 13	Guesthouse
29	Mr. F.H.R. Lim A Postraat 20	Office
30	Mr. F.H.R. Lim A Postraat 21	Office
31	Mr. F.H.R. Lim A Postraat 26	Office
32	Mr.dr. J.C. de Mirandastraat 1	Department Central Bank of Suriname

[13]Monumentenlijst Paramaribo (n.d.). Retrieved October 4, 2018, from https://citofparamaribo.nl/?file=32986 (updated by author)

33	Mr.dr. J.C. de Mirandastraat 2	Newpaper publisher De West
34	Mr.dr. J.C. de Mirandastraat 4	Newpaper publisher De West
35	Mr.dr. J.C. de Mirandastraat 5-7	Department Ministry of Finance
36	Mr.dr. J.C. de Mirandastraat 8	Office
37	Mr.dr. J.C. de Mirandastraat 10	Office
38	Mr.dr. J.C. de Mirandastraat 11	Ministry of Natural Resources
39	Mr.dr. J.C. de Mirandastraat 13-15	Ministry of Natural Resources
40	Mr.dr. J.C. de Mirandastraat 17	Ministry of Finance Thesaury Inspection
41	Waterkant 2	Cornerhouse (residence director Suralco)
42	Waterkant 4	Residence
43	Waterkant 5	Empty building/Waaggebouw
44	Waterkant 6-8	Apartments
45	Waterkant 10	Residence
46	Waterkant 12	Residence
47	Waterkant 14/Mirandastraat	Educational institution (AHKCO)
48	Waterkant 26	Empty building
49	Waterkant 28	Office Rekenkamer van Suriname
50	Waterkant 30	Ministry of Social Affairs and Public Housing
51	Waterkant 32/Kromme Elleboogstr	Ministry of Social Affairs and Public Housing
52	Kromme Elleboogstraat 9-11	Office
53	Kromme Elleboogstraat 14a	Residence
54	Kromme Elleboogstraat 20	Office
55	Kromme Elleboogstraat 22	Office
56	Grote Combéweg 3	Department Ministry of Justice and Police
57	Grote Combéweg 6	Palm Tree Garden
58	Grote Combéweg 11	Residence
59	Grote Combéweg 13	Residence
60	Mgr. Wulfinghstraat 1	Patronage
61	Mgr. Wulfinghstraat 2-4	St. Elizabethschool II
62	Mgr. Wulfinghstraat 5	Registry of the District Court

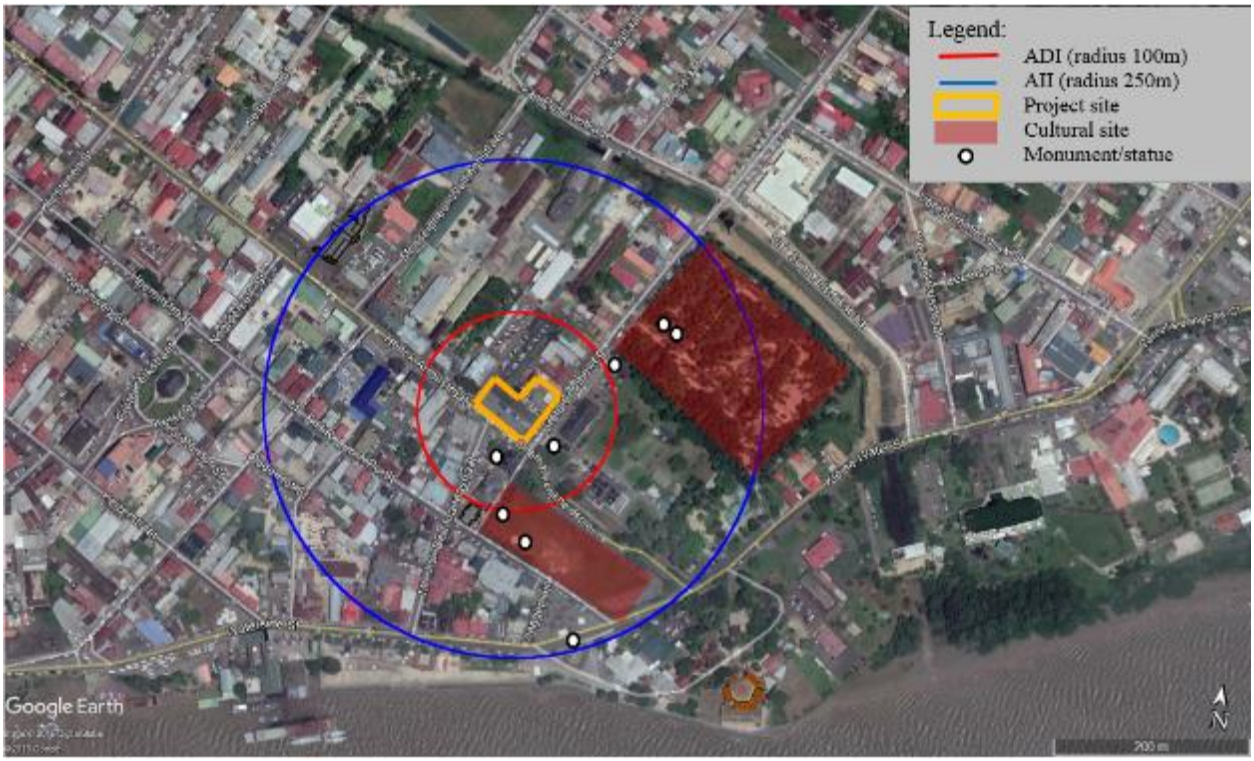

Figure 47: Overview location culural sites and monuments/statues in ADI

6.3.2 Archaeological sites

The national register of cultural heritage sites (Versteeg, 2003) identifies Waterkant and Mirandastraat as archaeological sites in the ADI. These sites may contain tangible heritage finds from pre-Columbian Indigenous cultures. Furthermore, it can - with almost certainly - be assumed that the project site will reveal archaeological findings if it is needed to dig deep with respect to the construction activities (I. Meulenberg, personal communication, September 27th, 2018). To make an accurate estimation literature study should first be conducted according to Meulenberg. It must also be taken into account that lack of national register status does not mean that more sites do not exist in the project footprint, as few places have been excavated.

Given the absence of Suriname national guidelines in the case of archaeological finds, any direct Project activities and activities indirectly resulting from the Project activities in the longer run, should be consistent with internationally recognized good practice as described in the ICOMOS (1990) Charter for the Protection and Management of the Archaeological Heritage. In addition, Project stakeholders must comply with the Government of Suriname (GoS) Monument Law of 2002 for immoveable archaeological resources found during the course of the project.

Article 20.1 stipulates that monuments found in excavations and on which no one can prove the right of ownership are owned by the state. 2. The owner of the land in which the monuments have been dug up is required to transfer the found monuments to the State and is entitled to a reimbursement amounting to half the value of those monuments. 3. Monuments found in an investigation…may be transferred to a place suitable for their custody on the instructions of the Minister [of Education, Science and Culture].

Article 21 states that the finder, within thirty working days after the discovery must indicate the exact location, time, monument and particulars of the discovery to the District Commissioner (DC) of the district in which the discovery has been made who shall immediately notify the Minister.

The Project activities also should comply with a zoning standard for places of cultural importance and archaeological sites. If archaeological or cultural historical findings are made, relics and locations have to be reported immediately to the ministry of Education, Science and Culture (MINOWC - Ministerie van Onderwijs, Wetenschap en Cultuur). The licensee and their staff, contractors or representatives will refrain from interfering in any way with such sites and / or relics. National guidelines are still in review phase by the government Directorate of Culture of the MINOWC and are not available for distribution.

7 Public Consultation

Public consultation is a key component that runs throughout the ESIA process. During the first phase of the process, key stakeholders are identified and consulted.
The study started on August 6th of 2018, with the official Contract Signing. A kick-off meeting with the Project Implementation Unit of URP (PIU-PURP) was held on the 15th of August 2018. A site visit was conducted on the 20th of August 2018 and a meeting was held with the Design Consultant KDV Architects on the 23rd of August 2018. Also, on the 23rd of August 2018 a meeting was held with NIMOS about the approach and methodology as well as the additional concerns to be included in the study.

In all the initial meetings, preliminary ESIA findings (potential issues and impacts the proposed project may have) were discussed. All minutes of meetings are included in Annex III.

In order to further identify potential issues and impacts it was decided that key stakeholders would be consulted during the Scoping Phase. The Consultant organized a Scoping meeting on the 24th of August 2018. This was the first public consultation meeting where the content of the proposed project and the already identified potential issues and impacts regarding the project was presented to the invited key stakeholders. During this consultation the stakeholders raised other concerns and potential impacts to be incuded in the ESIA study.

During the ESIA process a meeting was held with the Parliament of Suriname and one progress meetings was organized with the Client These meetings were respectively held on the 7th and 28th of September 2018. The minutes of these meetings are included in Annex IIID and IIIH.

Further consultation of stakeholder consultations/interviews was undertaken to inform persons and organizations with special interest in the Area of Impact (AoI) about the projected construction activities, and to elicit their concerns and suggestions to minimize negative project impacts and maximize project benefits. Consultation meetings took place in the period September 10th to 28th 2018. In the list of consulted stakeholders in the ESIA Phase that is attached to this report in Annex IVA is presented for each consulted stakeholder group their function in the AoI, their main concerns and proposed mitigation actions. Gathered concerns and proposed mitigation measures also were used to inform the assessment of social impacts.

The minutes of meetings have been added to this report as well in Annex III.

The second Public Consultation was held on the 27th of February 201In this second Consultation Meeting the Environmental and Social Baseline conditions together with the Impacts Assessment of the proposed projected from this document (see Chapter 8) were presented to the stakeholders. The comments of the stakeholders and NIMOS have been processed in this document to complete the final ESIA report for the Reconstruction of the Parliament Building. The minutes of this meeting are included in Annex III.

8 Potential Impacts and Proposed Mitigation Measures

8.1 Introduction

Tables 22 to 24 summarize the kind of environmental and social impacts that can result from the construction and operation of the New Parliament Building. In the context of these potential impacts, the environmental and social conditions were assessed to determine the potential risks for the project.

8.2 Parking

The current site of the Parliament Building is used as parking lot for employees and visitors of the Ministry of Foreign Affairs and the Court of Justice. Also, employees and visitors of other offices in the area are allowed to use available parking spots on the site. During the construction of the Parliament Building, parking at the site will not be possible anymore. About 30-40 parking spots will become less available.

During the construction phase it is advised to:

- Use of alternative parking places in the surroundings: A total of 25 parking spaces (public and private) are identified in the near surrounding, also see section 5.5 of the environmental baseline. It is recommended to negotiate with owners of private parking areas for temporary use of their spaces during daytime during the construction. For example, private paid parking across the gas service station at the corner of the Wilhelminastraat and the Van Sommelsdijckstraat is reportedly available during daytime.
- Use of busses for transport of construction workers to the site.
- Efficient planning of the construction activities, so that part of the site can still be used for parking during the construction works.

This will temporarily solve the parking issue but the impact is still considered moderate for the longer term. Long-term recommendations are included in Chapter 9.

8.3 Traffic

The project site is located along the Henck Arronstraat and the Grote Combeweg which are two important roads to divert the traffic in the North-South Direction in the inner city. See also section 5.4 of the environmental baseline. During the construction of the Parliament Building, it is expected that extra traffic congestions may occur, especially during peak hours and certain construction activities adjacent to the roads.

Therefore, during construction it is advised to:

- Introduce alternative routes for regular traffic especially during peak hours and certain construction activities. Signs have to be placed at strategic locations, so that the public is informed well in advance. For example:
- Destination traffic:
  Route 1: Via the entrance of BUZA at the Henck Arronstraat to the Directorate of Culture and final direction Grote Combeweg.

Route 2: Via the Henck Arronstraat into the Mirandastraat

- Other Traffic:
  Route 1: Via the Monseigneur Wulfingstraat
  Route 2: Via the Mirandastraat
- Re-direct heavy traffic.
- Allow the Contractor to use heavy equipment only during non-peak hours. E.g. supply of material can be in the weekend or after 3 PM.
- Have a traffic management plan in place in close cooperation with the traffic police.

These items can be included in the Contractor's activity (works contract).

Table 22: Potential environmental impacts during the construction phase of the new parliament building, their source and mitigation

Construction Phase (including mobilization)						
Environmental Aspects						
Affected Environmental Aspect	**Impact Description**	**Impact Likelihood**	**Impact Characteristics and Consequence**	**Impact Significance**	**Mitigation Measures**	**Residual Impact**
Visual and Aesthetics	Transportation and handling of materials: storage	Very likely	Direct; short term, reversible. Consequence: minor	Low	Limited operational hours (e.g. only daytime). Maintenance of vehicles and wetting, covering of construction site Prevent obstruction of access routes/emergency escapes by proper storage of materials. Materials to be properly stacked to prevent falls. HSE guidelines for contractor (toolbox meetings for workers): Include specific removal procedures for asbestos/hire an asbestos specialist for removal asbestos Include remediation measures for contamination with transformer oil on relocation of EBS transformer house. Minimum transportation of soil material (maximum use of soil material on-site)	Negligible
	Temporary fencing and delineation of working area: physical presence	Very likely	Direct, short term, reversible Consequence: moderate	Medium	Media announcement, proper signing	Low
	Waste: waste from construction activities	Very likely	Direct, short term, reversible Consequence: minor	Low	The contractor should have a waste management plan in place. This plan should at least include the type of wastes, the amount of waste and the disposal manner for example: - Remaining debris/construction waste will	Low

					be re-used as much as possible and/or disposed at the national dump of Ornamibo or other designated public dump acceptable to the Ministry of Public Works, Transport and Communication - Re-use of excavated soils on the site. - Domestic waste produced during construction be collected in waste bags/containers and disposed by regular waste practices of the area. - Asbestos containing material should be removed by an asbestos expert. This should be included in the contractors requirements.	
Air quality	Traffic along transport routes and on project site: exhaust gasses and dust from traffic and dust from handling of materials	Very likely	Direct; short term; reversible Consequence: minor	Low	Proper maintenance of vehicles (engines) Prevent dust emissions by covering and wetting of dust producing material during construction or by placing dust screens.	Negligible
Noise	Increased noise levels at project-site and along transport routes: project traffic and construction activities on-site (hammering)	Very likely	Direct; short term, reversible Consequence: minor	Low	Proper maintenance of vehicles (engines) Limited operational hours (e.g. specific activities only before or after office hours during the week). Prior communication about noisy activities.	Low
Land and soil	Local contamination: spills of chemicals (paint) or oil spills/leakages from vehicles/equipment	Rare	Direct; short term; reversible Consequence: minor	Low	Proper maintenance of vehicles (engines) HSE guidelines for contractor (toolbox meetings for workers)	Negligible
	Local contamination: Presence of lead in soil	Rare	Direct; long term; reversible Consequence: minor	Low	Limit the removal of soil (minimum transportation of soil material) Re-use of soil on existing locations (maximum) HSE guidelines for contractor (toolbox meetings)	Negligible
Hydrology, and	Connection of	Very	Direct; short term;	Low	None required (installation according to the	Negligible

Water quality	drainage to existing sewerage system: additional pollution load	likely	reversible Consequence: minor		guidelines of Public Works).	
Extreme weather events	High intensity rainfall and winds: damage to constructions works and flooding	Rare	Direct; short term; irreversible Consequence: major	Medium	The contractor should have an emergency plan in place. For example: - for flooding risks have an emergency dewatering pump as back-up - Emergency plan should follow the safety instructions from the Fire Department Prevention. - Include instructions from NCCR in case of disasters such as fire, floods, heavy storms. Measures which are already included in the design of the buildings: - Type of material and quality of material - The descriptions of the requirements of material to be used and proper treatment for durability are included in the technical specifications of the Architects. - Roof construction is of steel structure and is designed based on wind forces and other variable forces. - Isolation measures against high temperatures. - Approval of design by the Fire Department.	Low
Climate change	Sea level rise Increase in temperature Increase in rainfall intensity Increase of occurrence and level of wind bursts associated with rain storms.	Rare	Direct; long term; irreversible Consequence: major	Medium	Measures which are already included in the design of the buildings: - Type of material and quality of material The descriptions of the requirements of material to be used and proper treatment for durability are included in the technical specifications of the Architects. - Roof construction is of steel structure and is designed based on wind forces and variable forces.	Low

					- Isolation measures against high temperatures. - Approval of design by the Fire Department.	

Table 23: Potential social impacts during the construcion phase of the new parliament building, their source and mitigation

Construction Phase (including mobilization))						
Social Aspects						
Affected Stakeholders/Resources	**Impact Description**	**Impact Likelihood**	**Impact Characteristics and Consequence**	**Impact Significance**	**Mitigation Measures**	**Residual Impact**
Palm Tree Garden	Cultural heritage site used by indigenous people during festivities may be affected by some dust. There is no specific present-day Indigenous group claiming this place	Likely	Direct; short-term, reversible. Consequence: minor	Low	None required.	Low
Undiscovered archaeological sites	Undiscovered archaeological sites may be disturbed during digging activities.	Rare	Direct, long-term, irreversible. Consequence: Moderate	Medium	Presence of trained watchers during earthworks; use of chance- find procedure. Work with draft guidelines for archaeological chance finds from PURP-ESMM.	Low
Construction Workers	Exposure to noise and dust	Very likely	Direct; long term, reversible. Consequence: moderate	Medium	Minimal PPE prescription for workers; Proper maintenance of vehicles (engines) Planning of specific noisy construction activities before and after office hours. Prior communication about noisy construction activities. Covering and wetting especially during the dryer months	Low

	Exposure to the possible presence of asbestos in the soil (geotextile layer), the existing stairs of the former Parliament Building and the EBS transformer house.	Rare	Direct; short term, reversible. Consequence: minor	Low	Include specific removal procedures for asbestos/hire an asbestos specialist for removal. Minimal PPE prescription for workers; Delineation of the working area. Consult and involve EBS for the transformer house before works start.	Low
	Exposure to contamination from transformer oil (PCB) when relocating the EBS transformer house	Likely	Direct; short term, reversible. Consequence: minor	Low	Consult and involve EBS prior to the works. Include remediation measures for contamination with transformer oil on relocation of EBS transformer house in contractors HSE plan.	Low
	Reduced parking spaces	Very likely	Direct; long term term, reversible. Consequence: moderate	Medium	Parking on the site by means of efficient planning (reserve space on-site for parking) Use of busses for transport of construction workers to the site. For example, private paid parking across the gas service station at the Wilhelminastraat and the Van Sommelsdijckstraat is reportedly available during daytime.	Low
Employees of Ministry of Foreign Affairs and Court of Justice	Exposure to noise	Very likely	Direct; long term term, reversible. Consequence: moderate	Medium	Planning of specific noisy construction activities before and after office hours. Prior communication about noisy construction activities.	Low
	Exposure to dust	Likely	Direct; long term term, reversible. Consequence: moderate	Medium	Placing of dust screen (covering) Wetting Prior communication about dust producing construction activities.	Low

	Disturbance child-care facility 't Buzaantje (for employers of ministry of Foreign Affairs only).	Very likely	Direct; long term, reversible. Consequence: moderate	Medium	Prior communication regarding the possible disturbance. Relocation in (written) agreement with clients of the child-care (i.e. employers of the ministry of Foreign Affairs). Relocation of 't Buzaantje not during opening hours. Relocating't Buzaantje on the property of the Ministry of Foreign Affairs.	Low
	Reduced parking spaces	Very likely	Direct; long term term, irreversible. Consequence: moderate	Medium	Alternative parking space on the terrain of BUZA is already available for employees. Ensure to include a parking preferences for people with physical limitations (pregnant women, disability) Make use of available parking places nearby (e.g. private parking lot at the Monseigneur Wulfinghstraat or the parking lot of the Cathedral also at the Monseigneur Wulfingstraat, also see other options in the main report) Make agreement with private owners to use dedicated space during office hours. For example, private paid parking across the gas service station at the Wilhelminastraat and the Van Sommelsdijckstraat is reportedly available during daytime.	Negligible
	Annoyance from construction workers	Likely	Direct; long term term, reversible. Consequence: minor	Low	Training of construction workers	Low
Visitors of Ministry of Foreign Affairs and Court of Justice	Exposure to noise and dust	Very likely	Direct; long term term, reversible. Consequence: minor	Low	Planning of specific noisy construction activities before and after office hours. Prior communication about noisy and dust producing construction activities. Placing of dust screen (covering) Wetting Media announcement	Negligible

	Blocked access	Very likely	Direct; long term term, reversible. Consequence: moderate	Medium	Create an alternative access route and pedestrian facilities for example: Via the entrance of BUZA at the Henck Arronstraat to the Directorate of Culture and final direction Grote Combeweg. Proper and clear signing for alternative routes Media announcement. Delineate pedestrian paths with clear signs and ribbons.	Low
	Annoyance from construction workers	Likely	Direct; long term term, reversible. Consequence: minor	Low	Training of construction workers: daily toolbox meetings including code of conduct; The HSE plan of the contractors such include sexual harassment policy. -	Low
	Reduced parking spaces	Very likely	Direct; long term; irreversible Consequence: moderate	Medium	Make use of available parking places nearby (e.g. private parking lot at the Monseigneur Wulfinghstraat or the parking lot of the Cathedral also at the Monseigneur Wulfingstraat, also see other options in the main report).	Low
Occupant (House Grote Combeweg 1)	Loss of residence and income	Very likely	Direct; long term; irreversible Consequence: severe	High	Implement a specific Resettlement Action Plan (RAP)/Livelihood Restoration Plan (LRP) (will be developed as a separate document)	Positive
Households in AII	Reduced accessibility to home, due to traffic congestions	Likely	Direct; long term; reversible. Consequence: moderate	Medium	Prior communication about the hindrance and obstruction. Limit construction traffic/ heavy traffic between 6:30-8:00am and 12-2pm. Introduce alternative routes for traffic especially during peak hours and certain construction activities.	Low

Businesses in the ADI	Noise and dust	Rare	In direct; long term; reversible Consequence: minor	Low	Planning of specific noisy construction activities before and after office hours. Prior communication about noisy and dust producing construction activities. Placing of dust screen (covering) Wetting Media announcement	Negligible
Pedestrians (particularly vulnerable groups such as children, elderly, disabled)	Poor accesibility (especially for people with disability) and blockage of sidewalks by construction fence, sharing of road with cars.	Very likely	Direct; long term; reversible Consequence: moderate	Medium	Create alternative access routes/sidewalks and pedestrian facilities for example: Via the entrance of BUZA at the Henck Arronstraat to the Directorate of Culture and final direction Grote Combeweg. Proper and clear signing for alternative routes Media announcement Delineate pedestrian paths with clear signs and ribbons	Negligible
Day care facility (t Buzaantje)	Relocation of day care, disturbance of work activities (n=2).	Very likely	Direct; long term; irreversible Consequence: severe	Medium	Development and implementation of RAP with alternatives for near-by location for day-care facility prior to removal of existing day-care (will be developed as a separate document).	Low
St. Elisabeth School	Noise and dust	Rare	In direct; long term; reversible Consequence: minor	Low	Planning of specific noisy construction activities before and after office hours. Prior communication about noisy and dust producing construction activities. Placing of dust screen (covering) Wetting Media announcement	Negligible
Traffic (general)	Traffic congestions due to extra construction traffic. Hindrance of commuter traffic. Obstruction of visitors of Palm tree garden Hindrance home-school traffic Accidents	Very likely	Direct; short term; reversible Consequence: moderate	Medium	Introduce alternative routes for traffic especially during peak hours and certain construction activities for example: Destination traffic: Route 1:Via the entrance of BUZA at the Henck Arronstraat to the Directorate of Culture and final direction Grote Combeweg. Route 2: Via the Henck Arronstraat into the Mirandastraat	Lowe

					Other Traffic: Route 1: Via the Monseigneur Wulfingstraat Route 2: Via the Mirandastraat Schedule activities that will result in closure of access routes during the least busy days and/or hours Public communication of alternative routes. Prior communication about hindrance and obstruction. Clear signaling of alternative routes for traffic. Re direction of heavy traffic. Traffic management plan in place inclose cooperation with the traffic police.	

Table 24: Potential environmental impacts during the operational phase of the new parliament building, their source and mitigation

Operational Phase						
Environmental Aspects						
Affected Environmental Aspect	**Impact Description**	**Impact Likelihood**	**Impact Characteristics and Consequence**	**Impact Significance**	**Mitigation Measures**	**Residual Impact**
Visual and Aesthetics	Physical presence: modern building with historical characteristics	Very likely	Direct; long term, irreversible. Consequence: moderate	High	None required	Positive

	Waste	Very likely	Direct, long term, reversible Consequence: minor	Low	Waste management practices. During the operational phase mainly domestic waste is expected. A waste container must be requested from the Waste Collection Department of the Ministry of Public Works, Transportation and Communication. Waste is collected in waste bags and disposed in the container. At the Henck Arronstraat there is a daily collection schedule , twice per day at 17.00pm and at 20.00 pm.	Low
Noise	Potential increased noise level due to reflection	Likely	Direct, long term, irreversible Consequence: minor	Low	Open space incorporated in the design, slow traffic due to narrowing of the Henck Arronstraat, speed limits for traffic. Isolation of floors and walls against nuisance included in the design.	Negligible
Hydrology, and Water quality	Connection of drainage to existing sewerage system: additional pollution load	Very likely	Direct; short term;reversible Consequence: minor	Low	None required (installation according to the guidelines of Public Works)	Negligible
Extreme weather events	High intensity rainfall and winds: damage to building; flooding	Rare	Direct; short term; irreversible Consequence: major	Medium	Consult and follow the standard procedures from NCCR in case of any disasters (NCCR has specific procedures for different types of disasters such as floods, fire, terrorism and heavy storms) Follow the safety instructions from the Fire Department Prevention Measures already included in the design of the buildings: - Type of material and quality of material - The descriptions of the requirements of material to be used and proper treatment for durability are included in the technical specifiications of the Architects. - Roof construction is of steel structure and is designed based on wind forces and other variable forces. - Isolation measures against high	Low

					temperatures - Approval of design by the Fire Department -	
Climate Change	Sea level rise Increase in temperature Increase in rainfall intensity Increase of occurence and level of wind bursts associated with rain storms. Carbon footprint	Likely	Direct; long term; irreversible Consequence: moderate	Medium	Measures already included in the design of the buildings: - Type of material and quality of material The descriptions of the requirements of material to be used and proper treatment for durability are included in the technical specifiications of the Architects. - Roof construction is of steel structure and is designed based on wind forces and variable forces. - Isolation measures against high temperatures - Approval of design by the Fire Department - Measures for energy efficiency (central ac system, back-up generator) and water consumption are included in the design.	Low

Table 25: Potential social impacts during the operational phase of the new parliament building, their source and mitigation

Operational Phase						
Social Aspects						
Affected Stakeholders	**Impact Description**	**Impact Likelihood**	**Impact Characteristics and Consequence**	**Impact Significance**	**Mitigation Measures**	**Residual Impact**
Employees and Visitors of Ministry of Foreign Affairs, Court of Justice and the New	Reduced parking spaces	Very likely	Direct; long term term, irreversible. Consequence: moderate	Medium	Alternative parking space on the terrain of BUZA already available for employees. Make sure to include a parking preferences for people with physical limitations (pregnant women, disability) Make use of available parking places nearby (e.g. private parking lot at the Monseigneur	Low

Parliament Building and other surrounding buildings					Wulfinghstraat or the parking lot of the Cathedral also at the Monseigneur Wulfingstraat, also see other options in the main report) Government/ Ministries to make agreement with private owners to use dedicated space during office hours. Long term recommendations: Construct a multi-level parking garage as proposed by the KDV Architects. Possibility of other (underground) parking garages.	
Traffic (general)	Traffic congestions due to extra employees and activities. Slow traffic.	Very likely	Direct; long term; reversible Consequence: moderate	Medium	Ministry of Public Works, Transport and Communication together with the Traffic Police to: Introduce alternative routes for traffic especially during peak hours for example: Destination traffic: Route 1:Via the entrance of BUZA at the Henck Arronstraat to the Directorate of Culture and final direction Grote Combeweg. Route 2: Via the Henck Arronstraat into the Mirandastraat Other Traffic: Route 1: Via the Monseigneur Wulfingstraat Route 2: Via the Mirandastraat Re direction of heavy traffic. All traffic measures should be planned inclose cooperation with the traffic police.	Low
Socio-economy	Physical presence: Promote tourism Conservation historical aspects Public attraction (library)	Very likely	Direct; long term term, irreversible. Consequence: major	High	None required	Positive

9 Conclusions and Recommendations

The ESIA was prepared for the Reconstruction of the New Parliament Building, which will be built over a period of 30 calendar months after commencement of construction.

For the compilation of the baseline section, data of previous studies and from existing sources have been used, but in addition fieldwork has been carried out for general orientation, traffic, noise, soil, hydrology and land-use and water quality. Other specialist studies conducted include an asbestos quick scan.

Also extensive public consultation was undertaken, during which local public stakeholders, local government representatives, and district authorities were consulted. A socio-economic survey was conducted in order to collect general information on households, income, the public utilities, and to learn about the opinion and concerns about the project.

The ESIA describes the available information on the proposed project design, construction and operational phase. The collected data is considered adequate for the analysis of the impacts.

Comparison of the project activities with the baseline conditions has enabled the identification and analyses of environmental (biophysical as well as socio-economic) impacts of the proposed project. In addition, impacts have been identified by stakeholders. These have been included.

The ESIA report presents an impartial and complete evaluation of the possible impacts of the project. Mitigation measures are presented to manage these impacts.

From the impact assessment and the underlying specialist studies, **one major and three moderate negative** impacts are identified. All identified significant impacts can be effectively reduced to **low to negligible impacts** with the implementation of the proposed mitigation measures.

Short-term recommendations

With regard to the occupant who lives in the damaged building at the site and earns his income from assisting with parking and washing vehicles, it is emphasized that a specific Resettlement Action Plan (RAP)/Livelihood Restoration Plan (LRP) according to the policies of the IDB are applicable. The RAP/LRP will be prepared separately and have to be applied prior to the commencement of the works.

Short term recommendations for parking and traffic are listed in Chapter 8.2 and 8.3

Long-term recommendations

Parking

For the operation phase of the Parliament Building a minimum of parking spots have been included in the designs, which will not suffice for the expected parking needs on longer-term. Therefore it is recommended to:

- Construct a multi-level parking garage near the BUZA building as proposed by the KDV Architects.
- Look at the possibility of other parking (underground) garage buildings, in order to consider the impact negligible.

Traffic

During the operation phase it is recommended to:

- Introduce alternative routes for regular through traffic especially during peak hours (also see examples mentioned above)
- Re-direct heavy through traffic (not with destination to the inner city).
- Introduce a Traffic Control System in close cooperation with the Traffic Police, in which traffic is directed in different routes in case of congestion

Environmental and Social project risks and impacts will be managed through an effective Environmental and Social Management Plan (ESMP) which must be implemented as part of normal operations by incorporating the key components into daily activities, such as including environmental issues in the decision-making process and maintaining complete records. Also, all duties and responsibilities of all involved parties are contained in this plan.

A Non-Technical Summary (in Dutch) of this report was distributed to stakeholders that have been contacted and other interested parties.

Relevant comments will be included in the final ESIA.

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ANNEXES