Prepared For:

IDB
Inter-American Development Bank

Environment Safeguards Unit
Inter-American Development Bank
1300 New York Ave, NW
Washington, DC 20577

Environmental and Social Assessment for the Paramaribo Urban Revitalization Program

Advanced Draft

October 2016

Environmental Resources Management
1776 I (Eye) St. NW, Suite 200
Washington, DC 20006

www.erm.com

ERM

The world's leading sustainability consultancy.

DRAFT

Prepared for:

Inter-American Development Bank

Environmental and Social Assessment for the Paramaribo Urban Revitalization Program

Advanced Draft

14 October 2016

Peter Rawlings
Partner

Environmental Resources Management
1776 I (Eye) St. NW Suite 200
Washington, DC 20006

http://www.erm.com

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

To be completed in final version

1.0 INTRODUCTION AND PURPOSE

1.1 INTRODUCTION

The Inter-American Development Bank (IDB) is funding a loan amount of US$20 million for the Paramaribo Urban Revitalization Program (the Program), which will have an execution period of four (4) years.

The Program will be designed as a single investment operation, conceived to tackle the most urgent problems affecting the Historical Center and promote a sustainable revitalization process. As such, the program will support the establishment of a management structure for the area, implement strategic urban interventions – including public spaces and buildings rehabilitation - and develop new models for housing production and business development. The positive results of this first operation in the context of the continuing dialogue between the Government and the IDB could lead to additional financial support from for consolidating the institutional and socioeconomic achievements of the revitalization process.

This document presents an Environmental and Social Assessment (ESA) of the Program, which is a requirement for IDB-supported projects. While it is anticipated that the Program would have a benefit to the community, the potential exists for environmental and social impacts to occur, and this document seeks to identify these potential impacts and recommends an environmental and social management framework to be put into place to mitigate, manage, and monitor these impacts and risks for the life of the Program.

1.2 OBJECTIVES AND SCOPE

ERM has been contracted by the IDB to prepare an ESA for the Program. This document identifies potential environmental and social risks associated with the Program activities. Specifically, the ESA has been developed based on the following:

- A document review including the documentation and information ERM is collating for the Paramaribo Emerging and Sustainable Cities (ESC) program study and additional documentation.
- A site reconnaissance including visual observation of the relevant areas directly and indirectly affected by the Program, meetings with relevant individual/groups/ organizations, data and information collection.
- Evaluation of the legal and regulatory framework applicable to the Program (particularly related to the management of the World Heritage Site), including IDB requirements.
- Assessment of the potential environmental, social, cultural, health and safety, and labor impacts and risks associated with the Program, and the planned urban interventions; focusing primarily on livelihoods; flood risk; heritage and other risks.
- Assessment of the institutional and technical strengthening needs for the Executing Agency to manage environmental, social, cultural, health and safety and labor issues involved with the Program.
- Recommendations for mitigation, management and monitoring plans required at the level of the Program, in an Environmental and Social Management Framework (ESMF).

- Participation in a consultation event in which the Borrower will present the Program, the main impacts and risks, the results of ESA and will seek feedback from the public on the Program and the proposed ESMF.

1.3 PROGRAM DESCRIPTION

The IDB is funding a program – Paramaribo Urban Revitalization - and its implementation to assist with UNESCO's recent recommendations for maintaining Paramaribo's historic center status as a World Heritage Site (WHS).

The Program will be centered on the historic urban center of Paramaribo in the Core Zone (Figure 1-1):

Figure 1-1 Program Area (Core Zone of Paramaribo World Heritage Site)

Source: Inter-American development Bank (IDB), 2016

The Program is intended as a positive contribution to the local area, and will consist of three main components:

- **Component 1 – Urban Interventions:** it comprises the design and implementation of strategic urban interventions intended to reverse the physical deterioration of the historic center and trigger a sustainable revitalization process. It will have three subcomponents:
  - i. *Redevelopment of public spaces:* will focus on the renewal and upgrading of emblematic public spaces in the central area, including the comprehensive street and other public space improvements and provision of recreational and cultural facilities;
  - ii. *Restoration of heritage buildings and construction of new public buildings:* will focus on the rehabilitation and reconstruction of heritage buildings currently in a state of decay and with a high

risk of collapse, putting them back into residential and/or commercial use, as well as new public buildings; and

iii. *Urban mobility*: aims at implementing traffic management and infrastructure solutions to improve mobility within the historic center and its connection with the rest of the city.

- **Component 2 – Residential and Private Business Development:** this component's goal is to contribute to the revitalization process by turning the historic center into a lively part of the city attracting new residents and businesses. It includes two subcomponents:
  i. *Pilot housing schemes:* aims to develop operational and financial arrangements to promote the production of new housing in the historical center. It will finance the restoration of historical buildings that can be put back into residential or mix residential and commercial uses; and
  ii. *Pilot private business development models:* will support the renovation of historical buildings that can be put into productive use, such as the installation of an incubator for small and medium size enterprises, and/or the development of business clusters.

- **Component 3 – Institutional Strengthening:** this component will establish and strengthen the institutions required to guide the historic center's revitalization process in a sustainable manner and allow the effective implementation of this program's activities. This includes:
  i. *Management Agency Implementation:* providing support for the Suriname Built Heritage Foundation (SBHF), to perform its responsibilities as both the agency responsible for the management of the historical center and for the implementation of the present program. The support will include technical training, consulting services and a project management system. The goal of this activity is to qualify the SBHF to become de facto the Historic Center Management Agency;
  ii. *Planning instruments:* will contribute to update, modernization and development of planning instruments that will facilitate the management of the PWHS; and
  iii. *Communication and Social Engagement:* will design a Communication Plan and its implementation (including consultations and organization of academic, cultural and awareness activities about the program and the historical center in general; preparation of instructional and promotional material), and the implementation of the Livelihood Restoration Plan.

While the Program encompasses a number of components and areas, ERM's scope for the current ESA focuses on the construction works associated with urban interventions (Figure 1.2), listed below:

- A waterfront development project;
- The (re)construction of the Suriname National Assembly Building, as well and the restoration of 5-6 historic buildings historic center (yet to be identified); and
- A series of smaller urban mobility works.

Figure 1-2 Urban Interventions

Source: Inter-American development Bank (IDB), 2016

1.3.1 The Waterfront Project

Error! Reference source not found. and Figure 1-4 show the location of the Waterfront Project and its proposed area of intervention, respectively. Based on information provided by IDB, Geografia Urbana and El Equipo Mazzanti (2016), the objectives of this intervention include:

- *Design a comprehensive strategy to revitalize the historic city center.* To achieve this objective, the Project will consider and evaluate existing land uses, use of public spaces, preservation list of protected and historical spaces/buildings, identification of a transition belt and strategic areas with the potential to encourage urban revitalization and landscape strategy;
- *Re-articulate the city with the Suriname River:* Four main areas are part of intervention along Suriname River's left bank: 1. Market; 2. Transport Hub; 3. Der Waag; and 4. Fort Zeelandia; and
- *Re-connect the metropolitan area to the historic city center.* To achieve this objective, the Program will consider and analyze land uses, blocks, and strategic areas.

Figure 1-3 Waterfront Project Area

Source: Inter-American development Bank (IDB), 2016

Figure 1-4: Proposed Area of Intervention at the Waterfront

Source: IDB, Geografia Urbana and El Equipo Mazzanti, 2016.

The Waterfront Project is divided in two phases and it is still at conceptual level. At this time, final designs and components have not been defined. Phase I of the Program is the revitalization of Der Waag Area and **Error! Reference source not found.** shows the preliminary conceptual design of Phase I and its main components.

Figure 1-5: Phase I of the Waterfront Project (preliminary conceptual design)

Source: IDB, Geografia Urbana and El Equipo Mazzanti, 2016.

1.3.2 The (re)construction of the Suriname National Assembly Building

Comprised within the urban interventions, the reconstruction of the Suriname National Assembly Building (Figure 1-6), as well the restoration of 5-6 historic buildings historic center (yet to be identified) are considered. The aim is to rehabilitate heritage buildings currently in state of decay and risk of collapse, putting them back into residential and/or commercial use. (Figure 1-7)

Figure 1-6 Proposed site of Reconstruction of National Assembly (site 2)

Source: Inter-American development Bank (IDB), 2016

Figure 1-7: Restoration of Heritage Buildings

Source: Inter-American development Bank (IDB), 2016

1.3.3 Urban Mobility

Will focus at implementing traffic management and infrastructure solutions to improve mobility within the historic center and its connection with the rest of the city (Figure 1-8), solutions will include:

- Upgrading transit corridors to divert traffic from the historical center;
- Introducing traffic lights and signage;
- Creation of bicycle lanes and improving pedestrian paths;
- Developing parking strategies; and
- Reorganizing the bus terminal area.

Figure 1-8: Urban Mobility

Source: Inter-American development Bank (IDB), 2016

The Ministry of Education, Science and Culture of Suriname, through the Suriname Built Heritage Foundation (SBHF), will be the governmental entity responsible for implementing the Program. Also, a technical committee will be created to provide

technical advice and supervision. This committee will be formed by the Ministry of Education and Culture, Ministry of Public Works, Ministry of Transport, Communication and Tourism, and the District Commission.

2.0 METHODOLOGY

2.1 DOCUMENT REVIEW

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

- Paramaribo World Heritage Site Management 2011-2015;
- Paramaribo Urban Development Plan;
- Study on Preventive Conservation, Maintenance and Monitoring in the Historic Inner City of Paramaribo; and
- Restaureren met respect (Restoring with respect, A technical guide for restoring and expanding monuments in the historic inner city of Paramaribo).

Secondary data and information was also obtained from relevant national bodies and publically available databases.

2.2 SITE RECONNAISSANCE

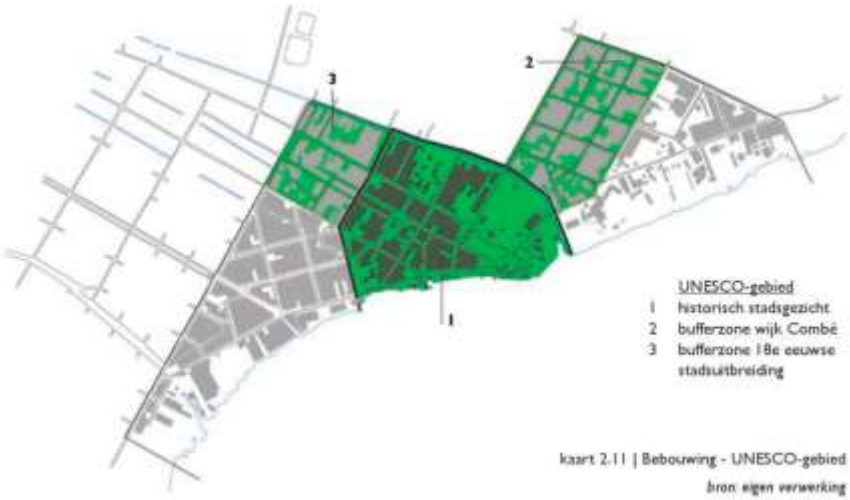
ERM experts visited the historic district area to conduct informal interviews, route walks, and visual recognition which helped to lay out an initial overview of the site context and the key environmental and social issues further developed in forthcoming sections.

According to UNESCO's webpage on the Historic Inner City of Paramaribo (http://whc.unesco.org/en/list/940), Paramaribo is a former Dutch colonial town from the 17th and 18th centuries planted on the northern coast of tropical South America. The original and highly characteristic street plan of the historic center remains intact. Its buildings illustrate the gradual fusion of Dutch architectural influence with traditional local techniques and materials, justifying its classification as World Heritage by the UNESCO in 2002.

The historic district of Paramaribo is a very good example of compact street patterns and low-rise vernacular architecture that creates attractive streetscapes, conversely, it exposes a clear gap in urban planning by been invaded for out of place architecture damaging its historic fabric, and land use patterns that does not favor walkability or pedestrian activity. The automobile dominates, even for short distances, and a lack of safe streets and sidewalks as well as insufficient public transportation contributes to its existing eminent scene.

The area of intervention is the waterfront of Paramaribo's UNESCO world heritage site (UWHS). The UWHS is comprised of approximately 20 – 25 city blocks in downtown Paramaribo that configured the early XVII Century Dutch settlement (see **Error! Reference source not found.**). This area houses the main sites and buildings of Paramaribo's civic life, including Fort Zelandia, the civic park/plaza known as The Plain, the former Governor House and now Presidential Palace, the Palm park (formerly the Governor's garden), the Paramaribo Parliament, the Court House, the Orange Park, important churches and synagogues of the time and the homes and businesses of prominent families.

Figure 2-1: UNESCO World Heritage Site delimitation of Paramaribo, Suriname



Note: Area 1 corresponds to the site proper, while areas 2 and 3 correspond to buffer zones, also protected.

The UWHS waterfront corresponds to the riverbank of the Paramaribo River that runs, to the north, from the mouth of the Sommelsdyk Creek (between the Presidential Bureau and the Royal Torarica hotel), down southwards to Heulge Weg Straat (Holy Way Street), where the main Paramaribo market warehouses are located. Figure 2-2 and Figure 2-3 show how Paramaribo's waterfront has shifted from a setting in which the different sites and buildings along riverbank could directly and seamlessly access the river, to one in which a retention wall of significant mass built to withstand maximum high tides enables only certain points of access to the water.

Figure 2-2: Paramaribo waterfront circa 1860

Source: G.W.C. Voorduim.

Figure 2-3: Paramaribo UWHS waterfront on September 2016

Source: Arturo Samper and ERM, 2016

These landing areas are, notably, a pier and set of stairs in front of the Parliamentary building, (see Figure 2-3) and the commuter boat landing area near the market warehouses and terrestrial transport hub, which can be viewed in Figure 2-4. Along this stretch of Suriname riverbank, there are also a number of private or controlled access points to the water, servicing mostly tourists and voyagers navigating to and from long-distance towns and tourist attractions.

Figure 2-4: Commuter boat landing area to the south of the UWHS

Source: Arturo Samper and ERM, 2016

The majority of buildings inside the UWHS area are currently utilized by private and governmental offices, retail stores, education centers, churches, and other activities servicing mostly workers during the daily hours. There are also some facilities and services directed at the small tourist population visiting Paramaribo, most of whom stay in the hotels north of the UWHS. Perhaps the most notable of such services is the artisans market, located on a permanent structure along the very waterfront. The area is also marked by the presence of numerous empty lots of land. There are only very few families living in the area.

Because of these factors, the waterfront's 'life' is limited to the pedestrians walking between the transport hub and their workplace two times a day, the few tourists and visitors, and the local merchants of the artisans' market (see Figure 2-5). While the built setting is comprised of exemplary Dutch and North American plantation-style buildings, the fact that the majority are offices with no relationship to the street other than that of access contributes to that sense of limited life.

Figure 2-5: Parking and Pedestrian Sidewalks at the Waterfront

Source: Arturo Samper and ERM, 2016

In the downtown area and the waterfront, automobile parking is allowed on all streets; this affects the pedestrian experience significantly. But perhaps the most challenging element is the high tide retaining wall, whose specifications meant building it to approximately 1.5 m above the level of the sidewalk. The wall is made of steel panels crowned by a concrete curb, providing the pedestrian with a sense of almost entire isolation from the water.

These and other factors all converge to create the sense that the area is more a water-back than water-front, to the point that, as illustrated in Figure 2-6, parking takes place along the sidewalk.

Figure 2-6: Paramaribo waterfront today.

Note: The landscape is marked by the height of the high tide retaining wall, visible on the background, which blocks the continuous flow of space that was traditional in the early periods of Paramaribo.

In Suriname, municipal affairs are handled by the National government, through the action of the different ministries. The most important ministry for the purposes of

spatial, land use, and other affairs of the built setting is Public Works. This ministry is in charge of granting construction permits to all developments occurring in cities and in the area of influence of the regional and national corridors. Therefore, this would be the entity responsible for all private and public works in the area.

However, because of the designation of the UWHS designation, the area has been put also under the jurisdiction of the Monuments Commission, which is dependent of the Department of Culture of the Ministry of Education. The Commission, in turn, appoints a Site Administrator, whose role is to follow-up, verify, document, and manage the actions and performance of the different institutions and actors, under the regulations and parameters established in the World Heritage Site Management Plan that accompanies the UNESCO designation. In the process of creation of the UWHS, the Government of Suriname also established a Special Committee of Construction Experts, whose mandate is to provide guidance to the Ministry of Public Works regarding approvals for new development, restoration, public works, urban design, and other projects of similar nature within the boundaries of the UWHS and its buffer zones.

There is a key player in the area called the Suriname Built Heritage Foundation. This is a non-for-profit organization constituted by different economic groups (banks, companies), with the mandate to purchase heritage buildings, restore them sell them or rent them to new tenants. This foundation has carried this activity in two buildings and is currently doing so for several others.

3.0 FRAMEWORK REVIEW

This section evaluates the existing institutional and regulatory frameworks including IDB Safeguard Polices that are applicable to the project. It includes a review of applicable legislation and institutions on the management of the World Heritage Site.

3.1 INSTITUTIONAL

There are several government institutions that are responsible for the legal guidance and responsibilities in the management of the World Heritage Site (WHS) in Paramaribo. This Project will be led by the Ministry of Education, Science, and Culture through the Suriname Built Heritage Foundation. Below is a brief breakdown of the relevant ministries and agencies and their responsibilities for the management of the World Heritage Site and the Project.

3.1.1 Ministry of Education, Science and Culture

The Ministry is responsible for the development of policies to enhance the protection of the Historic Site and its monuments. The Department of Culture, within the Ministry is also responsible for the maintenance of the historic pal Garden and the Fort Zeelandia Area within WHS.

The project will be led by the Suriname Built Heritage Foundation (SGES, based on its Dutch name) within the Ministry of Education, Science and Culture. SGES was established in 1997 by the Ministry of Education. Its responsibilities include setting up an infrastructure to preserve and manage the historical build heritage in Suriname. It is the Site Manager of Paramaribo WHS. Further, SGES was responsible for the implementation of the Paramaribo World Heritage Site Management Plan 2011-2015.

The Monuments Committee is another advisory board within the Ministry of Education, Science and Culture. It is responsible for monitoring the implementation of laws, formulating policies and administering the Monuments Register

3.1.2 Ministry of Public Works

The Ministry of Public Works (MPW) is responsible for planning, building and construction, road and walkway infrastructure, parking, drainage, sewage, waste management, green zones, park development, bridges, sea walls and dikes of the WHS. The MPW is also responsible for the maintenance of all state-owned buildings including listed monuments. There is an Expert Building Committee within the MPW that is appointed by the Minister of Public Works. The Expert Building Committee is responsible for new buildings in the preserved area of the WHS and its buffers.

3.1.3 Ministry of Regional Development – District Commissioner

Paramaribo is administratively divided into two geographic regions which are each headed by a District Commissioner. Further, the Paramaribo District is subdivided into twelve resorts. The District Commissioner is responsible for issuing licenses to all users of the resorts including but not limited to shops, parking, businesses,

cultural activities, advertisements on public spaces. Further, the District Commissioner is also responsible for the monitoring the effects of the licenses and are charged with responsibility of applying sanctions.

3.1.4 Ministry of Transport, Communication and Tourism

The Ministry of Transport, Communication and Tourism is responsible for public transportation including the organization of public transport and placement of bus stops and the development of tourism.

3.2 LEGAL

Suriname has had legislation on historic environment since the 1950s. This section provides a summary of relevant regulations to the project and broadly to the World Heritage Site.

- **The Monuments Act (1963, revised 2002):** This was the first legislation that focused on the protection of built heritage which include unique monuments and archaeological assets. This act was revised in 2002. In the revision, the act established the Monuments Committee. It also provides general guidance to maintain both designated historic monuments as well as city and town views. The International Council on Monuments and Sites (ICOMOS), SGES, and the Monuments Committee are collaborating on providing proposed revisions to the Act to accommodate the nomination of the Paramaribo World Heritage Site (PWS).
- **The Building Act (1958):** This act oversees licenses for new constructions and residential areas in Suriname.
- **The Town Planning Act (1972):** The act established that the Ministry of Public Works to be responsible for the execution of spatial planning and development of urban areas.
- **The Planning Act (1973):** Established that the Ministry of Planning and Development Cooperation would be responsible for a comprehensive and sustainable policy for spatial, ecological, and socioeconomic.
- **The Monuments List of Paramaribo:** This listed containing 244 monuments that were designated by the Ministerial Resolution of Paramaribo as protected.
- **The State Resolution for Monuments Registration (2000):** This registered all designated monuments as officially protected. The Monuments Committee maintains the registrar
- **The State Resolution for establishing an Aesthetic Building Committee (2001):** This resolution formally designated the Historic Inner City of Paramaribo as a conservation zone with two additional buffer zone and defined boundaries. It also created the Building Committee. The Building committee supervises building plans and was provided authority to evaluate building plans according to a special set of building criteria (building codes). These building codes were published in 2003 to control new constructions within the WHS and buffer areas.
- **State Resolution on the implementation of Article 4, Section 2 of the Building Code of 1956:** This resolution was approved by the President of the Republic of Suriname in 2011 (S.B. 31 October 2011 No. 74). The resolution established an Expert Building Committee (Special Advisory Committee) to review new building plans within the site according to

aesthetic criteria for modern architecture, which were published in the Gazette.

ERM understands that there are limited environmental laws/legislation. ERM is awaiting feedback from NIMOS to supplement this.

3.3 IDB SAFEGUARDS AND COMPLIANCE

The IDB has a list of environmental and social safeguards, which serve as the standard to which environmental and social performance on the part of funding recipients is evaluated against. The safeguards, provide guidance as to the best-practice implementation of projects. **Table 3-1** details the guidance relevant to the activities associated with this Project.

Table 3-1 IDB Safeguards

Policy/Directive	Applicable aspect	Performance
IDB B1: Bank Policies	Environmental Management and Resource Management Operation	Has the Borrower/Executing Agency have legislation in place that promotes environmental management, training, and environmental governance and also promote conservation and sustainable use of natural resources?
IDB OP-703: B.4 International Best Practice	Governance capacity	Does the Borrower/Executing Agency exhibit weak institutional capacity for managing environmental and social issues?
IDB OP-703: B.6 IDB OP-102 International Best Practice	Consultation	Has the Borrower/Executing Agency developed a Stakeholder Engagement Plan that is scaled to the project risks and impacts and development stage?
IDB OP-703: B9	Natural Habitats and Cultural Sites	The Borrower/Executing Agency will not support operations that significantly convert or degrade critical natural habitats or that damage critical cultural sites.
Resettlement Policy	Loss of Livelihoods	
International Best Practice	External communication and Grievance Mechanisms	Has the Borrower/Executing Agency established a grievance mechanism to receive and facilitate resolution of Affected Communities' concerns and grievances about the client's E&S performance?
IDB OP-704: A-1	Risk Management through Programming and Operations	Does the Borrower/Executing Agency have frameworks or activities in place to reducing vulnerability the project may face?
IDB OP-704: A2	Risk and Project Viability	Did the Borrower/Executing Agency evaluated the risk profile to natural hazards of the project?

Policy/Directive	Applicable aspect	Performance
IDB OP-703	Community Health, Safety & Security	Did the Borrower/Executing Agency evaluate the risks and impacts to the health and safety of the Affected Communities during the project life-cycle and will establish preventive and control measures consistent with good international industry practice?
IDB OP-710 IDB OP-761	Resettlement	Has the Borrower/Executing Agency done everything to minimize the need for physical and economic resettlement, and if it has, has it managed impact in such a way so as to ensure resettlement becomes a development opportunity?

3.4 OTHER INTERNATIONAL STANDARDS

3.4.1 IFC

Performance Standard	Applicable aspect	Performance
PS1	Assessment and Management of Environmental and Social Risks and Impacts	The borrower in coordination with other responsible government agencies and third parties as appropriate, will conduct a process of environmental and social assessment, and establish and maintain an ESA appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts. The ESA will incorporate the following elements: (i) policy; (ii) identification of risks and impacts; (iii) management programs; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) stakeholder engagement; and (vii) monitoring and review.
PS3	Resource Efficiency and Pollution Prevention	The borrower during the project life-cycle, will consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention principles and techniques that are best suited to avoid, or where avoidance is not possible, minimize adverse impacts on human health and the environment.
PS4	Community Health, Safety, and Security	The borrower will evaluate the risks and impacts to the health and safety of the Affected Communities during the project lifecycle and will establish preventive and control measures consistent with good international industry practice (GIIP),1 such as in the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) or other internationally recognized sources.
PS5	Land Acquisition and Involuntary Resettlement	The borrower will consider feasible alternative project designs to avoid or minimize physical and/or economic displacement, while balancing environmental, social, and financial costs and benefits, paying particular attention to impacts on the poor and vulnerable.

Performance Standard	Applicable aspect	Performance
PS6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	The Borrower should consider direct and indirect project related impacts on biodiversity and ecosystem services and identify any significant residual impacts. This process will consider relevant threats to biodiversity and ecosystem services, especially focusing on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, and pollution.
PS8	Cultural Heritage	The Borrower in addition to complying with applicable law on the protection of cultural heritage, including national law implementing the host country's obligations under the Convention Concerning the Protection of the World Cultural and Natural Heritage, the client will identify and protect cultural heritage by ensuring that internationally recognized practices for the protection, field-based study, and documentation of cultural heritage are implemented.

3.4.2 *UNESCO / ICOMOS*

Article	Applicable aspect	Performance
International Charter for the Conservation and Restoration of Monuments Sites - Article 14	Historic Sites	The sites of monuments must be the object of special care in order to safeguard their integrity and ensure that they are cleared and presented in a seemly manner. The work of conservation and restoration carried out in such places should be inspired by the principles set forth in the foregoing articles.
Charter for the Conservation of Historic Towns and Urban Areas	Historic Town and Urban Areas	The borrower must comply with methods and instruments 5 through 16. (http://www.icomos.org/charters/charters.pdf)
International Cultural Tourism Charter – Principle 1	Cultural Tourism	The borrower must comply with principles 1 through 6. (http://www.icomos.org/charters/charters.pdf)
Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage	Structural Restoration of Architectural Buildings	The borrower must be familiar with the principles listed throughout the General Criteria, Diagnosis and Remedial Measures and Controls of this charter, complying with applicable principles. (http://www.icomos.org/charters/charters.pdf)

4.0 RISK ASSESSMENT

4.1 LOSS OF LIVELIHOODS

4.1.1 Baseline Conditions

ERM, and its local partner, Culturecom, are undertaking a livelihoods assessment in order to acquire relevant data to establish an accurate baseline. Given the evolving nature of the Program, ERM and the IDB have selected a study area (see Figure 4-1) that reflects current understanding as to where the main businesses and traders are located. If as the Program specifics evolve and it is found that additional areas of businesses and traders could be affected by the Program (beyond those assessed here), then additional livelihood surveys will to be undertaken.

The purpose of the livelihoods assessment is to allow a determination as to whether livelihoods of local businesses and traders might be affected by the proposed Program. The study will survey both formal and informal business activities, and other factors that are relevant to the Program. These include, but are not limited to:

- Type of business;
- Property tenure;
- Socio-economic profile, gender, race and ethnicity of owners;
- Socio-economic profile, gender, race and ethnicity of the employees;
- Characterization of customers; and
- Sources and levels of income.

A register, located in Appendix A, has been developed to record the spaces, buildings and businesses in the study area. A total of 112 spaces, building and businesses were registered. However, the total number of businesses will lie between 150 and 200, because numerous structures contain several businesses. For example, the crafts sales structure contains at least 40 small business owners.

To facilitate the study, the study area has been split into seven zones (see Figure 4-1) in order to capture the very different social and physical characteristics of these spaces and the associated structures.

Figure 4-1: Map of study area.

These areas have been subdivided into separate blocks.

Area I covers the stretch from the Suralco Cornerhouse (Waterkant #2) to Oemrawsingh Jeweler at the beginning of Watermolenstraat. This area is a combination of private residences and commercial fronts—the latter of which includes museums, the Central Bank of Suriname, and a casino.

Area 2 is Waterkant proper, an open public space lined with almond trees and views of the Suriname River. Recently the river-side embankment has been upgraded with sheet piling and concrete, giving the waterfront a more structured and geometric appearance. This area is filled with twelve small bars and restaurants, over forty vendor stands (primarily Indigenous), the Suriname Shipping Company (SMS), and several miscellaneous rotary clubs.

Area 3 is the Heiligenweg, the main public bus stop. This is an open rectangular space where the buses park. The west side of the terminal is lined with mainly Chinese businesses. Several businesses have shut down, reflecting the impact of the current economic crisis. The east side houses a bank, the fire department and several other government buildings and a hair salon. This is one of the busiest areas in Paramaribo, because the buses attract thousands of passengers each day.

Area 4 is the first part of the Watermolenstraat, originating at Waterkant. Parts of this street section contain many classical buildings which house bars and hotels. There are also prominent businesses in this area, such as the Jamaludin Pharmacy and clinic, and the Government Labor Inspection Office and the Water Service Department of the Ministry of Natural Resources.

Area 5 is the first part of the south side of Keizerstraat, originating at Waterkant. This area includes commercial spaces (i.e., Brakke Clothing), a police department, and a large parking lot.

Area 6 is Valliantplein is also a prominent public space. There is a large round fountain in the center of this public space, and the bell tower (which appears not be in use). This area primarily contains residential structures, in addition to Telesur, the government owned telephone company.

Area 7 is the north side of the Keizerstraat. Most of the classical buildings have been replaced by more modern style structures. There are many open spaces and parking lots.

4.1.2 Impact Assessment and Recommendations

The livelihood survey, which is ongoing, will provide more in-depth understanding of the perception of the key stakeholders and will help identify opportunities for positive interventions. The following represent the main themes that have been identified from the interviews and survey performed at the time of this report draft:

(i) Apprehension

Based on initial engagement, it is clear that many business owners are apprehensive of the Program. This apprehension appears linked to a lack of information and understanding as to what the Program comprises, a fear that they will have to incur tax increases to fund it, and concerns that income losses will be incurred. These sentiments are understandable given the early stage planning of the Program. A public meeting and engagement exercise is being planned on October 27, 2016, hosted and led by the government and IDB, and this will present an opportunity to try and address some of this apprehension. It is noted that this apprehension is also fostering some collective action – for example, the stall owners have said that they are now organizing themselves into an association, in the hope that their problems and concerns can be heard and addressed as soon as possible.

(ii) Attractiveness of the Area

A number of the businesses have indicated that current business incomes are low, and this is attributed to the lack of 'attractiveness' of the area to residents and tourists. They see the revitalization project in general terms as a positive and beneficial opportunity to attract more visitors, inhabitants and tourists to the area, which in turn will benefit their businesses. The caution that is linked to these views is more specific to what the revitalization may mean for them in terms of their specific businesses (see below).

(iii) Craft Stall Traders

On Waterkant, there are 42 craft stalls/stands, which are mainly earmarked for indigenous crafters and craft vendors. While interviews with these vendors are ongoing, the following insights have been gained from the survey to date:

- A number of vendors have only been at this location for less than six months, and therefore only limited trading history will exist upon which to judge livelihood impacts against;
- Most vendors are one-person enterprises (eenmanszaak) and are owner operated. Some stand owners work together with their spouse or with an immediate relative (sister, niece);

- The turnover of the owners interviewed is reported to be less than US$500 per month. The best months (August, December) were between US$ 300 and 500. The stand owners pay SRD 100 (US 13.70) rent per month to the Waterkant manager;
- The customer base in mixed, with a general sense that more customers were female, between the ages of 25 and 60, and most customers are Surinamese and Dutch, followed by French tourists;
- When asked to discuss concerns due to the Program, some vendors suggested that closure for a brief period is unlikely to be a major impact, in that they could stay at home and produce crafts. However, anything over a few weeks becomes a major issue, as they would lose income. Some vendors said that they would want compensation if they are shut down, and some said that they would want to be provided with a temporary trading location if the Program were to affect their currents stalls;
- Dust was identified as a potential concern, especially in the dry season. The vendors already are experiencing problems due to the construction of the playground next to the crafts stand, which generates a lot of dust which in turn dirties their goods, especially cloths, which affects their sales; and
- Many of the vendors were united in their views of the problems and challenges they face now, and these insights represent an opportunity that should be considered by the IDB and the Government in the design of the Program. These include:
    - Transportation is a major burden and cost item. There is no onsite storage and so vendors have to move their wares back and forth to their stands on a daily basis;
    - Rain is also a major concern in that there are no shelters or structures to protect their stands and wares;
    - The absence of nearby toilets and washrooms; and
    - The issue of homeless people is also seen as an issue.

(iv) Business with a Regular Customer Base

Several businesses in the Waterkant area rely on repeat customers for their business, and their major concern is that the Program may impact their ability, even temporarily to serve these customers. As an example, one of the bars present has been operating at its location for over 40 years. Their concern is that if the Program meant that their business has to be interrupted for a period of time, they would want another temporary location where they can continue to operate, because they do not want to lose their customer base. They cited that as an example, in the early 1990s, they shut down for over one year for renovations, and they lost customers, which took many years to recover and have business back to the pre-renovation levels.

Business continuity is seen as the priority need in case disruption is to occur, and not financial compensation. Establishing customer loyalty and good will takes a lot of effort to re-establish, which money (by way of compensation) cannot solve.

In terms of opportunities that could be built in to the Program, some emerging themes include:

- Security, in terms of making the area more attractive to a broader range of visitors; and
- Addressing the issue of homeless people, who are seen as a nuisance to their customers.

(v) Gentrification

This is seen as a concern in terms of whether, after the Program and revitalization is complete, the same opportunities still exist for stall and business owners. There is a concern that rent prices will be increased to attract other businesses, which in turn will price current traders and businesses out of the area.

(vi) Traffic

Traffic has also been identified as an area of concern. Traffic in the area is already a challenge and affects trade due to difficulties people have in crossing the busy Waterkant lanes. If construction traffic and temporary road or lane closures are added to the mix, there are concerns at the impact this will have on foot traffic and business.

Improving crossings in the area also represents an opportunity for the Program to be considering.

4.2 STAKEHOLDER ENGAGEMENT

Placeholder – a public consultation meeting will be held on October 27, 2016 and the main insights and feedback will be integrated into this report.

4.3 NATURAL DISASTER RISK

4.3.1 Baseline Conditions

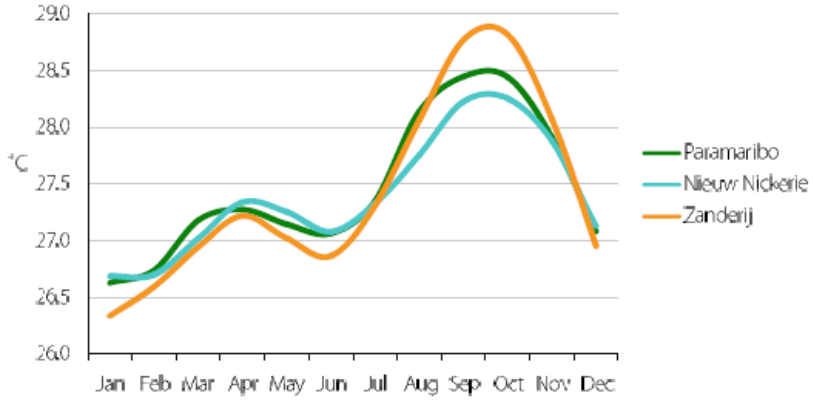
Climatological and Precipitation Conditions

Even though Suriname is located outside of the hurricane area, hurricane effects are often experienced in the form of heavy rainfall. Sibibuies's (Sibi= sweep, Busie= forest), Inter Tropical Convergence Zone (ITCZ) and the El Niño phenomenon are climate systems that influence meteorological conditions in Suriname (Environment Statistics, 2016).

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

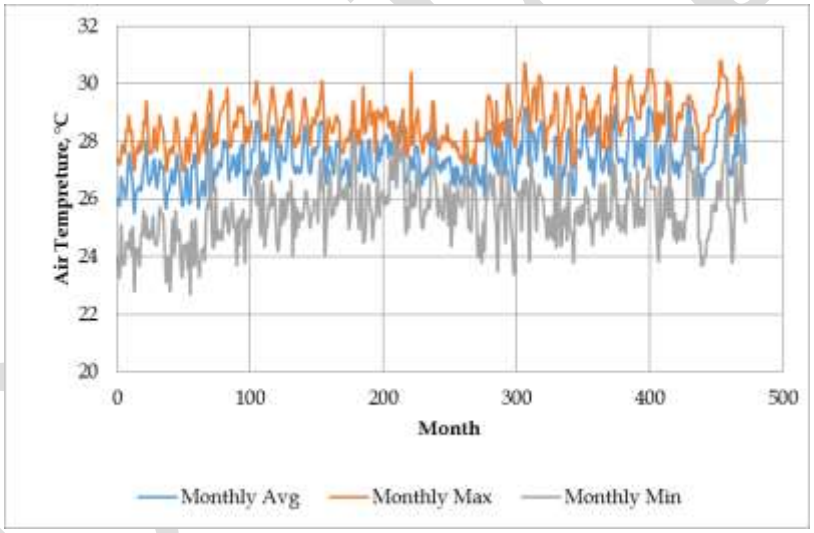
The Program's area is part of the urban footprint of Paramaribo with an average daily temperature of approximately 27.4 °C, with daily variations of 5°C (MLTDE, 2013). Figure 4-2 shows the average monthly temperature for Paramaribo indicating that there is a small variation in air temperature along the year. The coldest month of the year in Paramaribo is January, while October is the warmest. Figure 4-3 shows historical average, maximum and minimum temperatures registered at the Cultuurtuin Station from January 1971 to December 2009.

Figure 4-2: Average Monthly Temperatures for Three Stations



Source: MLTDE, 2013

Figure 4-3: Monthly Average, Maximum and Minim Temperatures Registered at the Cultuurtuin Station (January 1971-December 2009)



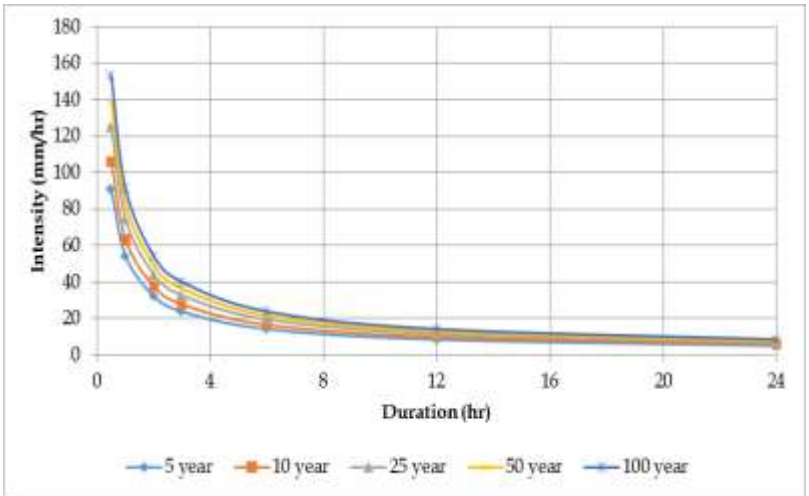
Source: Created by ERM, 2016 based on historical air temperature records provided by Meteorlogische Dienst Suriname

Paramaribo presents two wet and two dry seasons with an annual average precipitation of 2,210 mm. The short wet season lasts from December to February while the long wet season occurs between May and August with an average precipitation of approximately 200 mm for both wet seasons. On the other hand, the short dry season occurs between February and April while the long dry season occurs from August to December with an average monthly precipitation of 100 mm for both dry seasons. Classification of these four seasons is based on precipitation records from the Cultuurtuin meteorological station located in Paramaribo (Amatali, 2007; MLTDE, 2013).

Precipitation intensity depends on the duration of the storm and return period. The precipitation intensity decreases when the duration of the storm decreases (Amatali,

2007). Figure 4-4 shows the precipitation Intensity Duration Frequency (IDF) curves for different return periods for the Cultuurtuin station based on historical precipitation records for the 1981-2015 period.

Figure 4-4: Intensity Duration Frequency (IDF) Curves for Cultuurtuin Station (1981-2015)



Source: Created by ERM, 2016 based on historical precipitation records provided by Meteorlogische Dienst Suriname

Historical Floods and Other Natural Disasters

According to the Environment Statistics (2016), Suriname experiences frequent floods in the coastal plain and rivers. Floods at the Program site occur when sea level rises during spring tide and during tropical storms by impacting low-lying riverine development and infrastructure. Also, flooding is caused by rainfall-induced accumulation of water due to its outdated and insufficient drainage system.

Table 4-1**Error! Reference source not found.** shows a summary of the type of natural disasters and population affected between 2004 and 2015 in Suriname. The UNDP considers Suriname in the list of the ten vulnerable countries with low-lying coastal plains that are threatened by sea level rise (SLR) in this century.

Table 4-1: Types of Natural Disaster and Population Affected 2004-2015 in Suriname

Date	Natural Disaster	Affected Areas	Population
9/7/2004	Floods associated with rainfall from Hurricane Ivan	Not specified	Unknown
6/5/2006	Flood due to excessive rainfall	Gran Rio and Pikin Rio rivers, Paramacaans on the Marowijne River, upper Marowijne, Tapanhony and Lawa, (Mofina) Suriname and Sipaliwini River	25000 people
June 2006	Floods due to heavy rainfall	Villages along the upper Marowijne river and the upper Suriname River	20,000 people
2006/2007	Flood	Coropina triangle, Vier Kinderen, La Prosperite and Republiek	500 people
29/4/2007	Floods due to continuous rainfall	Paramaribo	

Date	Natural Disaster	Affected Areas	Population
28/5/2000	Flood due to excessive rainfall	Sipaliwini, Northern Marowijne, Tapanahony River, Lawa and Curuni	5000 people
6/8/2008	Flood due excessive rainfall	Southern part of the interior: Djumu, Asidonhopo, Semoisi, Awaradam	Unknown
1/10/2009	Flood due to excessive rainfall	Paramaribo	Unknown
2/4/2009	Flood due to excessive rainfall	Paramaribo	Unknown
10/3/2009	Flood due to excessive rainfall	Paramaribo	Unknown
5/3/2009	Flood due to excessive rainfall	Paramaribo	Unknown
2009/2010	Drought	National level	Unknown
14/7/2010	Coastal flooding as a result of dam fail	Saramaca: La poule, Peperhol, north part of Wayambo	Unknown
24/4/2010	Flood due to excessive rainfall	Paramaribo	Unknown
16/4/2010	Flood due to excessive rainfall	Paramaribo: Margarethalaan	unknown
22/4/2010	Flood due to excessive rainfall	Paramaribo: Poelepantje	Unknown
1/6/2012	Storm	Nickerie: Nieuw Nickerie	55 houses
20/6/2012	Storm	Paramaribo, Marowijne: Galibi and Albina	35 people
17/5/2013	Flood due to excessive rainfall	Saramacca: Misgusnst	Unknown
16/5/2013	Flood due to excessive rainfall	Commewijne: Frederikdorp	Unknown
16/5/2013	Flood due to excessive rainfall	Para, Paramaribo, Marowijne (Cottica)	Unknown
20/6/2013	Tail of a heavy tropical storm/flooding (heavy rainfall)	Paramaribo, Wanica, Saramacca, Marowijne (Galibi). Roof were torn away (30 houses), tres uprooted and damaged power poles, advertsing signs and Street lighting	300 people affected
27/12/2013	Flood due to excessive rainfall	Paramaribo, Wanica, Saramacca	Unknown
16/1/2016	Hailstorm	Paramaribo and surroundings	
6/7/2014	Storm	National: Paramaribo, Coronie, Commewijne, Saramacca en Nickerie	150+
7/6/2014	Storm	Nickerie: Nieuw Nickerie	100 houses
2/5/2015	Flood	Marowijne: Alale Kondre	Unknown
18/5/2015	Persistent rainfall	Wanica: Hanna's Lust	
21/6/2015	Storm	Paramaribo: Zorg en Hoop	1 injured and 35 homes affected
28/6/2015	Storm	Paramaribo	1 (death)
27/7/2015	Flood	Saramacca	unknown

Source: Adapted from Environment Statistics (2016) and NCCR situatie Analyze/NCCR Situation Analysis

The Waterfront Project and the National Assembly Project are located within the urban area of Paramaribo at the left bank of Suriname River (at km 52). Besides Paramaribo, there are other settlements along the left bank, including Domburg and Paranam while in the right bank of the river; New Amsterdam is located (Amatali and Naipal, 1999). The urban area of Paramaribo is considered highly vulnerable to floods due to sea level rise and increase of intensity of precipitation (see **Error! Reference source not found.**); loss of land due to coastal and riverbank erosion; longer and frequent severe dry periods; and uncontrolled urbanization towards the North area (Noordam, 2007). At the east side of Paramaribo City flows the Suriname River, which is a tidal influenced river with a catchment area of 16,500 square kilometers (km^2). Its waters are discharged into the Atlantic Ocean and its flow has been regulated by the hydropower Afobaka Dam (Prof. van Blommenstein reservoir) since 1964 located approximately 194 km upstream of Paramaribo.

According to Karijokromo (2011), before the flood of May 2006, natural disasters were not frequent in Suriname. There were some historical normal floods produced

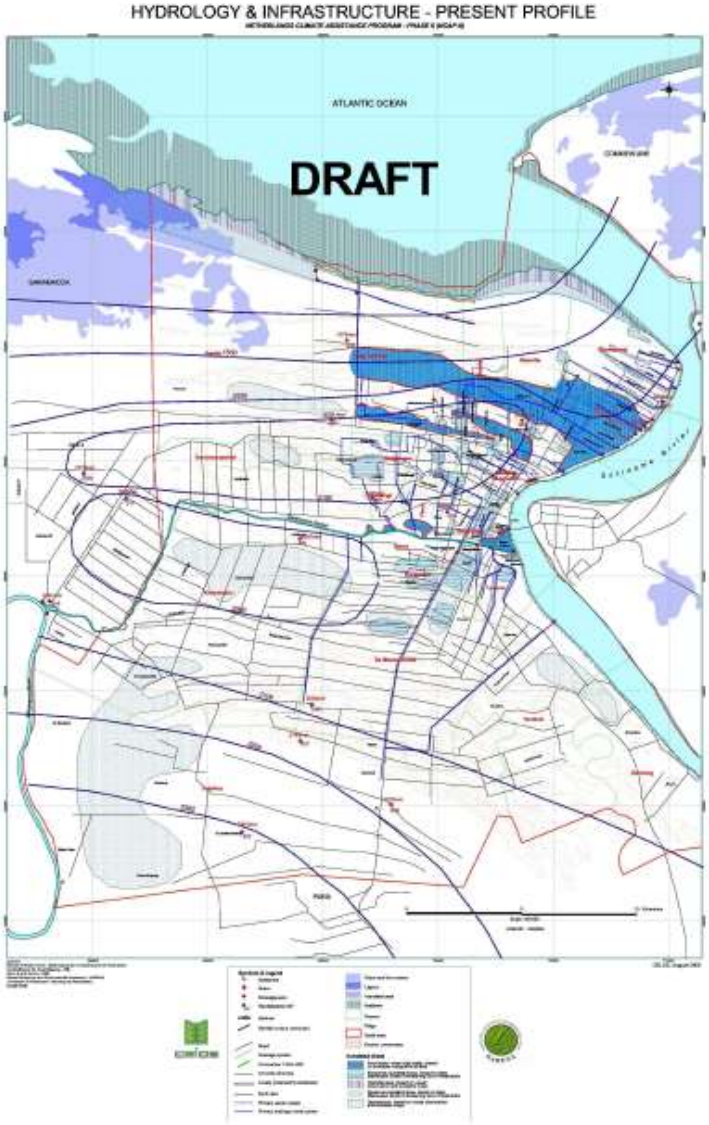
by an outdated drainage system in different areas of Paramaribo City. The impacts of these normal floods were not destructing as the flood that occurred on 2006. The Preventionweb (2016) reports that flooding represent an Average Annual Loss (AAL) of USD $53.81M for Suriname.

Inland and coastal flooding in urban areas of Paramaribo is produced from high volume of precipitation, poor drainage, and rising sea and river water levels. According to MOGP (2002), in 2002, approximately 13% of the total urban area of Paramaribo was affected by this hazard causing economic damage and health conditions associated with stagnant water. The most recent floods in Paramaribo occurred in 2006 and 2008 but no records of economic or lives losses were available. Floods in Paramaribo are principally caused because large parts of the city were built on low-lying lands and the lack of an updated stormwater drainage system (see

Figure 4-5 and

Figure 4-6).

Figure 4-5: Frequent and Seasonal Inundated Areas in Paramaribo based on Data from Masterplan Study Ontwatering Groot Paramaribo



Source: Taken from Amatali, 2007

Figure 4-6: Inland Flooding in Paramaribo on March 2015

Source: IDB staff

Figure 4-7: Inland Flooding in Urban Paramaribo on October 2009

Source: https://www.youtube.com/watch?v=GZYORrohCVk

Coastal and Suriname River banks are at risk for flooding due to higher water levels. According to the Country Study Climate Change, approximately over 2,000 km^2 of coastal zones of Suriname are at risk for flooding. Historical Sea Level Rise is affecting the city and sometimes existing natural and artificial protections are insufficient. The Suriname River's left banks overflow (e.g., Anton Dragtengwe, Paramaribo North) during high water levels (MOGP, 2002).

Most of the floods at the Project site occur during spring tide. Breaching or overtopping of defensive structures, results in tidal flooding by saline or brackish water (Noordam, 2007). At the mouth of Suriname River, the mean tidal range is 1.8 m between neap tide and spring tide. Based on historical annual water level measured at Paramaribo station (located at km 52 in Suriname River), it is observed a slightly positive trend of+0.6 mm/year (Amatali, 2012). The inhabited areas along Suriname River banks, the land level is lower than the 10-year return (Tr) water level (see Table 4-2) producing potential risk for inundation from the river (see **Error! Reference source not found.**). Amatali (2007) reports that the average high water in the Suriname River at high tide is 1.20 m NSP and any lower area is prone to be inundated daily at high tide if drainage structures are not constructed or properly operated. It can be observed in **Error! Reference source not found.** historical flooded areas in urban areas of Paramaribo and the contour line of 1.20 m NSP.

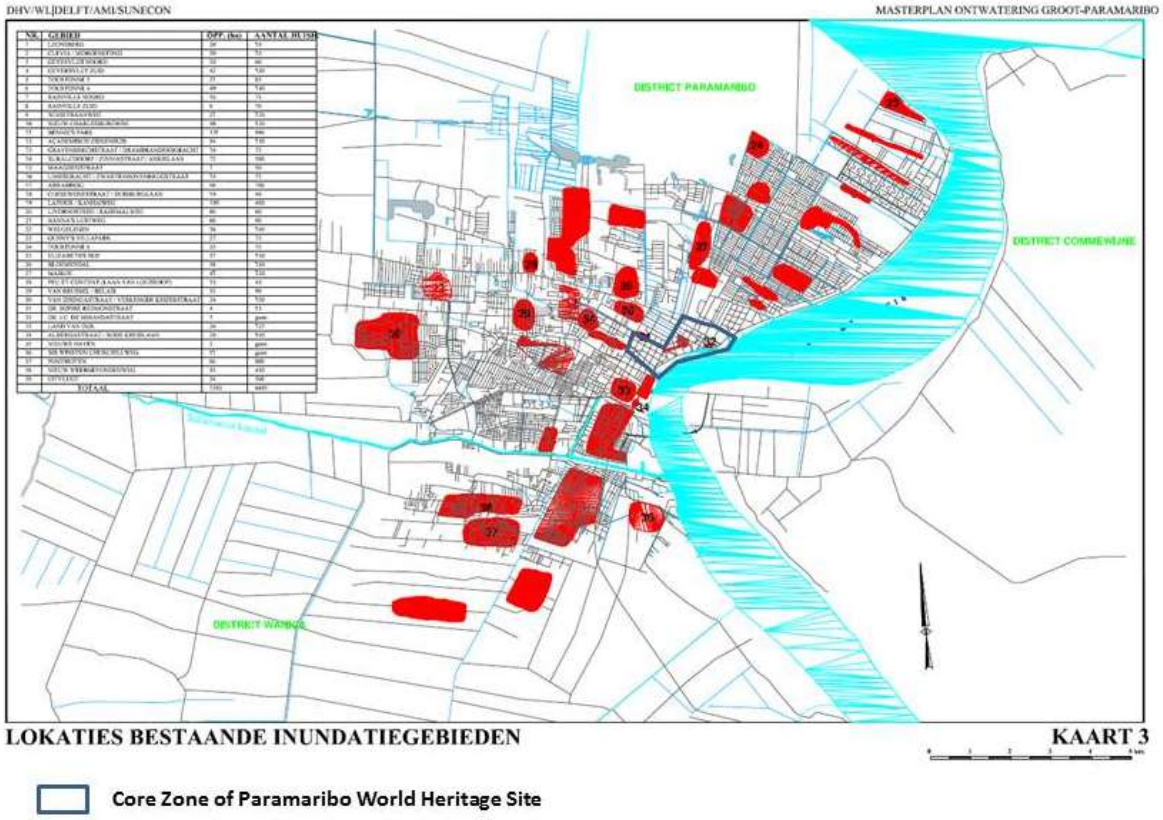
Table 4-2: High Water Level Suriname River

Station	Annual HHW in cm NSP			
	Tr = 10-years	Tr = 25-years	Tr = 50-years	Tr = 100-years
Geleidelicht	185	198	207	216
New Amsterdam	193	203	210	217
Paramaribo	201	211	219	226
Domburg	198	203	207	212
Paranam	155	175	190	204

Tr= Return period; HHW= Higher High Water; cm= centimeters; NSP= Normaal Surinaamse Peil.

Source: Adapted from Amatali, 2012

Figure 4-8: Frequent Flooded Areas in Paramaribo (in red)



Source: Adapted from MOGP, 2002

Climate Change Projections

Climatological conditions in Suriname are affected by El Niño -Southern Oscillation (ENSO) that occurs once every 2-7 years. Studies such as Amatali (2012) indicate that El Niño events may cause reduction on precipitation. Historically when El Niño occurs in South America and there is excess precipitation on the west coast, Suriname presents dryer conditions (MLTDE, 2013).

Air temperatures in Suriname have increased during the last 47-50 years based on historical records from Cultuurtuin and Nickerie Airport meteorological stations. These stations have shown increasing trends on annual mean air temperatures of +0.016 °C/year and +0.008 °C/year, respectively while the Zanderij station has shown trends of annual mean air temperature of +0.004 °C/year (Amatali, 2012; MLTDE, 2013).

Precipitation records from Cultuurtuin climatological stations have shown decreasing trend on annual mean precipitation and maximum daily precipitation of -1.147 mm/year and -0.0247 mm/year, respectively. Amatali (2012) reports that dry seasons recorded at Cultuurtuin station has reported increasing trends of three weeks of dry seasons when the last 30 years are compared with the first 30 years of data from the previous century.

In the Second National Communication to the United Nations Framework Convention on Climate Change (MLTDE, 2013), climate change scenarios and projections, recognized for Suriname, are presented. These projections include Sea Level Rise (SLR), changes on precipitation, changes in temperature and possible changes in extreme events including wind 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. Elements of A2 and B2 scenarios, specific data for the country, and data of extreme events and variations were used to develop the adapted projections for Suriname. **Error! Reference source not found.** shows the climate change projections for Suriname and used on the natural disaster risks assessment presented in Section 4.2.

Table 4-3: Climate Change Projections for Suriname based on A2 and B2 IPCC Scenarios

Parameters	Value	Year	Source
Air Temperature overall annual mean	+2 °C to +3 °C	2100	IPCC Forth Assessment Report Second National Communication to the United Nations Framework Convention on Climate Change
Precipitation	-10%	2100	IPCC Forth Assessment Second National Communication to the United Nations Framework Convention on Climate Change
Weather extremes, including wind, intensity	+27% Dec-Jan-Feb +18% March-Apr-May	2100	IPCC Forth Assessment
Average significant wave height	+2.5% compared with the current magnitude	2099	Technical paper Future profile. Second National Communication. Sector Water Resources

Parameters	Value	Year	Source
Sea Level Rise (SLR)	+1.0 meter	2100	Technical paper Future profile. Second National Communication. Sector Water Resources

4.3.2 *Impact Assessment*

According to UNISDR (2009), *hazard* is a dangerous phenomenon, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. On the other hand, *disaster* is defined as a serious disruption of the functioning of a community or a society involving widespread, human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

The Program itself is vulnerable to the natural disasters such floods, erosion and salt intrusion, which could affect it during both construction and operations. For example:

- Construction Phase –tropical storms and storm surges could significantly impact construction and result in damage to project facilities (e.g., damage to facilities and construction equipment) and worsen impacts to the environment (e.g., increased risk of erosion, and sedimentation because of construction activities); and
- Operation Phase – natural disasters could damage the waterfront through floods, erosion and salt intrusion affecting facilities and population.

If appropriate management measures are not implemented as part of the Program, this can have the potential to exacerbate impacts associated to natural disasters. Some of these impacts could be erosion of river banks and increase of inundated areas at and around the Project site producing economic and human loses.

Risk is defined as the combination of the probability of an event and its negative consequences (UN, 2014). The components of risks for project, people, and environment are:

- Exposure (probability and intensity of natural disasters and the number of people exposed or threatened by these disasters); and
- Vulnerability (considering susceptibility, coping capacity, and adaptive capacity).

According to the World Risk Index (UN, 2014), Suriname is ranked 49 of 174 countries in the world in terms of vulnerability with a WRI of 8.42%. Suriname is especially vulnerable to natural hazards for several reasons:

- Concentration of population located in hazard prone areas (low-lying);
- Weak institutional capacity to prepare for and respond to natural disasters; and
- High levels of poverty that limit the ability of the population to respond to natural disasters.

The process to evaluate flooding hazards and risks in the area of the Program consists of the following steps:

- Determination of the baseline hydrological and meteorological conditions;

- Identification of relevant climate change projections for the Program area;
- Development of flooding hazard profiles;
- Assessment of vulnerability (exposed buildings and population);
- Estimation of losses; and
- Risk analysis framework.

Preliminary results of the coastal flooding hazards profiles for 10-year, 25-year, 50-year, and 100-year return periods are shown from Figure 4-9 to Figure 4-12 and preliminary results of the inland flooding hazard profiles are shown from Figure 4-13 to Figure 4-16. ERM is preparing these hazards profiles as part of the ongoing ESC study. Table 4- summarizes the criteria used to determine flood hazard levels by considering water depth and velocity parameters.

The coastal and inland flooding natural hazard maps indicate that the area of the Program is prone to floods. It is important to mention that these maps are preliminary results based on a 30-m resolution Digital Terrain Model (DTM), which will be replaced by a higher resolution 2-m DTM. These maps integrate a range of parameters including intensity precipitation events, climate change projections, land use, existing drainage conditions and the Suriname River bathymetry. Risk maps for assets and population are also under development and results will be shortly incorporated to this ESA. These risk maps are being constructed by using hazard profiles, exposure analysis (assets and population) and vulnerability index. Historical information related to floods within the urban Paramaribo area is included in this ESA in the Disaster Risk Management Plan (see Section 6.3).

Table 4-4: Definitions of Flood Intensity for Hazard Flooding Maps

Flood Intensity	Maximum depth h (m)		Maximum depth h times maximum velocity v (m2/s)	Hazard Level
High	h > 1.5 m	OR	v * h > 1.5 m2/s	High
Medium	0.5 m < h < 1.5 m	OR	0.5 m2/s < v * h < 1.5 m2/s	Medium
Low	0.1 m < h < 0.5 m	AND	0.1 m2/s < v* h < 0.5 m2/s	Low

h=water depth; m= meters; m^2/s= square meters per second; v=water velocity.

Source: Adapted from FLO-2D Reference Manual, 2004

Figure 4-9: Preliminary coastal flooding hazard maps under existing land use and climate change (SLR +1 m) for 10-year return period

Figure 4-10: Preliminary coastal flooding hazard maps under existing land use and climate change (SLR +1 m) for 25-year return period

Figure 4-11: Preliminary coastal flooding hazard maps under existing land use and climate change (SLR +1 m) for 50-year return period

Figure 4-12: Preliminary coastal flooding hazard maps under existing land use and climate change (SLR +1 m) for 100-year return period

Figure 4-13: Preliminary inland flooding hazard maps under existing land use and climate change (+13% intensity) for 10-year return period

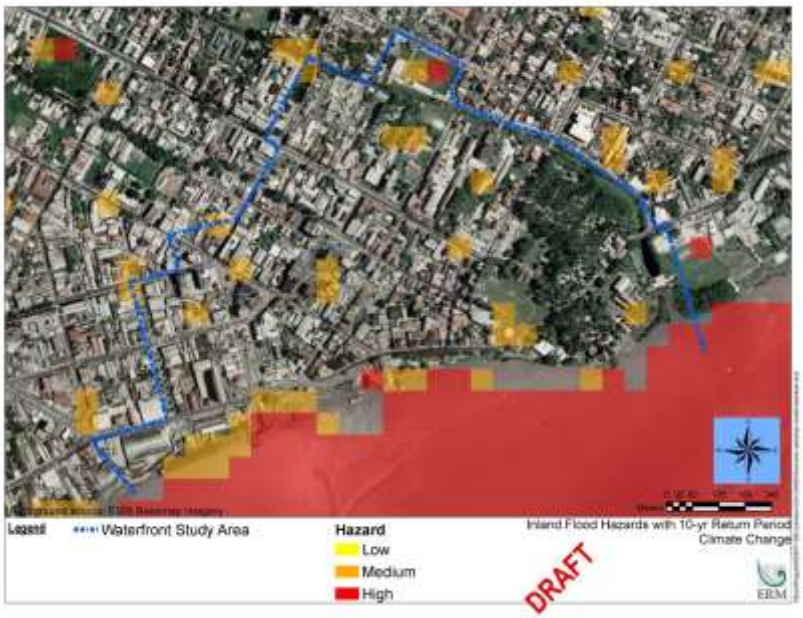


Figure 4-14: Preliminary inland flooding hazard maps under existing land use and climate change (+13% intensity) for 25-year return period

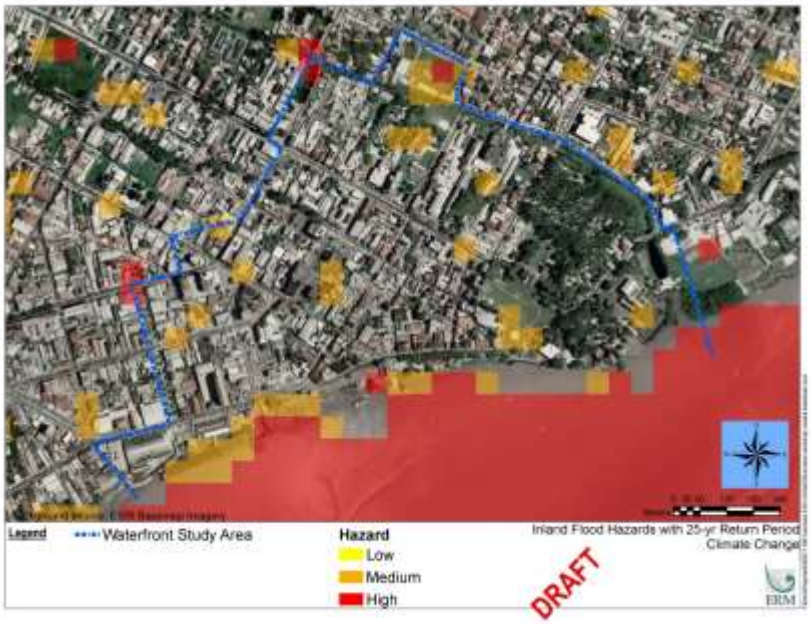


Figure 4-15: Preliminary inland flooding hazard maps under existing land use and climate change (+13% intensity) for 50-year return period

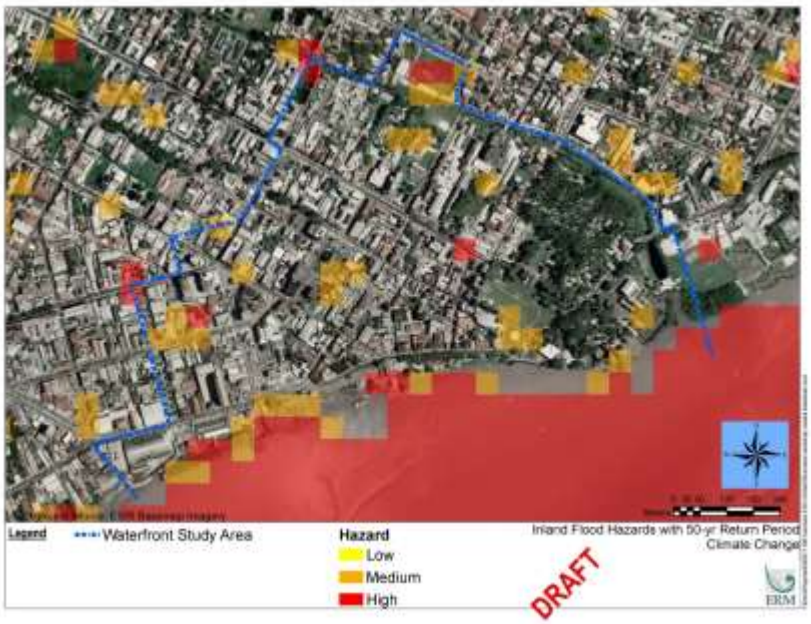
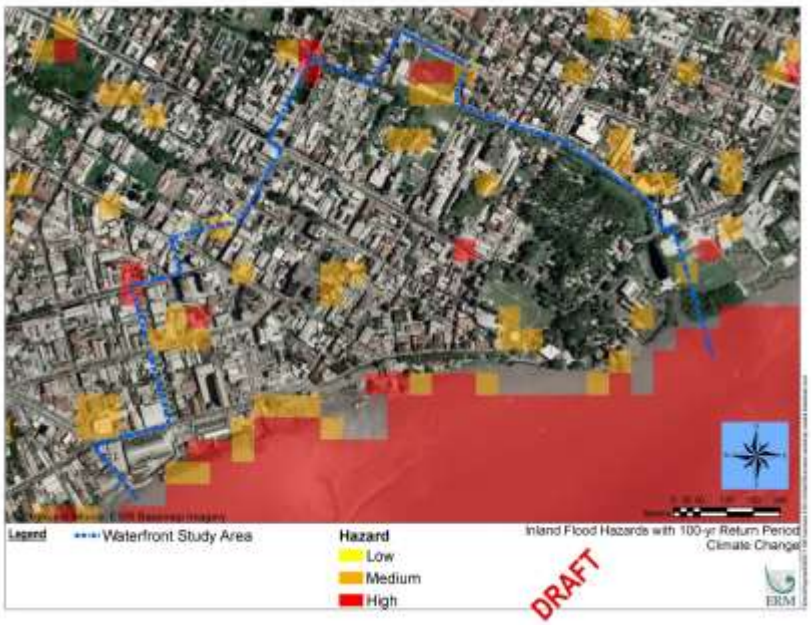


Figure 4-16: Preliminary inland flooding hazard maps under existing land use and climate change (+13% intensity) for 100-year return period



In addition to flooding, the Program's area of influence is exposed to erosion and salt intrusion natural hazards. If appropriate measures are not implemented, the Waterfront Project has the potential to exacerbate risks to human life, property, the environment, or the operation itself. These natural hazards (flooding and erosion) may pose risk to the investments made by the Bank, to the surrounding population and the environment. Details of the erosion and salt intrusion natural risks for the Project's site are described in the following sections. Other natural risks may occur at regional level such as drought and extreme winds events but are not described in this study.

Riverine Erosion

Erosion takes place along the coastline and at some sections along the Suriname River. The main drivers for erosion at the Suriname River are floods from high tide; and human activities such as removal of mangrove areas and shipping. River bank erosion and deposition can have effects on navigation of the Suriname River and have impacts on residential areas and zones with light industry (Noordam, 2007). It can also cause damage and increase the vulnerability of waterfront property to storm surge, as well as threaten natural resources.

According to the River bank protection waterside Paramaribo, SMS pier project prepared by the Ministry of Public Works (ND), the Suriname River's left bank between Waterkant and Knuffelsgracht indicates signs of erosion (see **Error! Reference source not found.**). The area represents bad conditions and protection measures are required to prevent further bank erosion, which causes instability and flood risk during high tide. General recommendations aimed to mitigate riverine erosion are described further in this document.

Figure 4-17: Suriname River Bank Protection Project

Source: Ministry of Public Works,(ND)

Figure 4-18: Existing Barriers along the Left Bank of Suriname River

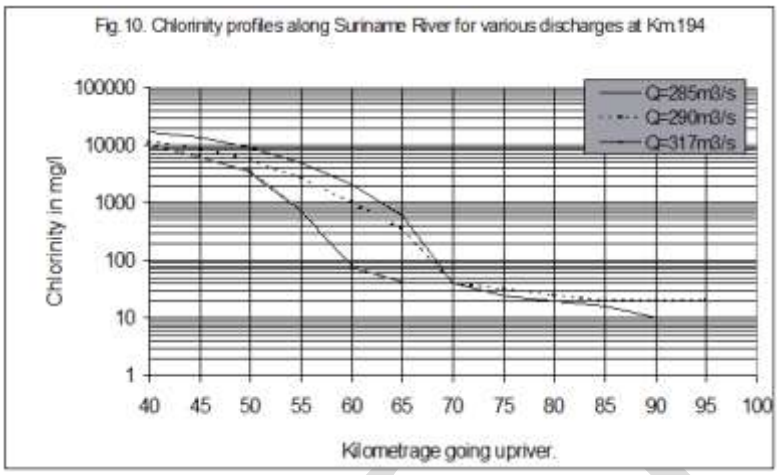
Source: ERM, 2016

Salt Intrusion

The Suriname River is considered one of the main freshwater sources in Suriname with a mean discharge at its mouth of approximately 426 cubic meters per second (m^3/s) and specific discharge of 25.8 liters per second per square kilometers ($L/s/km^2$). However, due to its tidal influence from the Atlantic Ocean and freshwater discharge from the Bokopondo Reservoir, the Suriname River near Paramaribo urban area is not appropriate for drinking water purposes due to its brackish characteristics. The salt wedge (300 mg Cl^-/L limit) along the Suriname River has historically identified near Domburg (approximately 10 km upstream of Paramaribo) during the dry season and near Doorsteek during the wet season (Amatali, 2007). **Error! Reference source not found.** shows the estimated location of the salt wedge along the Suriname River. The salt wedge can be further than Paramaribo (km 52) and reach Paranam at km 88 (Amatali and Naipal, 1999).

The levels of salinity along the Suriname River should be considered to decide the type of infrastructure or adaptation used and implemented for Project. High levels of salinity can have the potential to damage and reduce the life of infrastructure such as roads and/or buildings. It can also impact vegetation around the riverbank. General recommendations to mitigate and prevent potential impacts associated with high levels of salinity in the Suriname River are summarized below in section 4.2.3 (Recommendations).

Figure 4-19: Chloride Concentrations along Suriname River for Different



Source: Amatali and Naipal, 1999

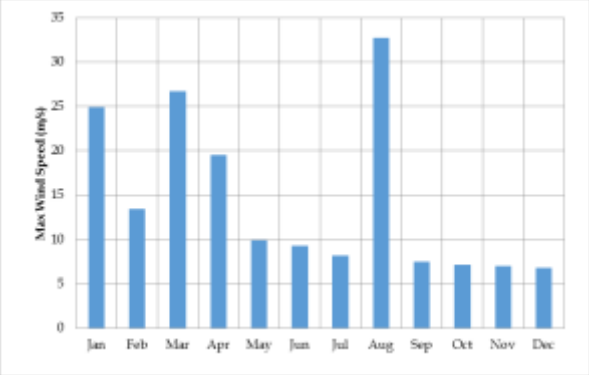
Extreme Wind

According to the Environment Statistics (2016) and conversations with local specialists (Sukarni Sallons Mitro-Meteorological Service Suriname-personal communication), Paramaribo has recently experienced severe weather conditions including high intensity wind or Sibibusies. These extreme wind conditions have caused partial destruction of Paramaribo's infrastructure. The Sibibusies occur during heavy rains and can present wind speeds between 20 meters per second (m/s) and 30 m/s. It is expected that with the projected increase in temperature, the energy in the atmosphere will increase as well as the maximum wind velocity (Amatali, 2008). Extreme winds have toppled trees, blown off roofs and snapped light poles. The National Coordination Center for Disaster Relief (NCCR) has provided help to people under extreme wind events at more than 35 places around Paramaribo (Hokstam, 2012).

Figure 4-20 shows maximum wind speeds recorded at the Cultuurtuin Climatological Station for the last two years (February 2015 to August 2016).

Extreme Wind Hazards-Risks Maps, inland, coastal and extreme wind risk maps are under construction and will be added for the final report. Prioritization of adaptation and Cost-Benefit analysis of selected adaptation measures will be conducted after risks maps are completed and we receive feedback from stakeholders who are attending the Workshop in Paramaribo (Oct 24).

Figure 4-20: Maximum Wind Speed (m/s) Recorded at Cultuurtuin Climatological Station for 2015-2016 Period



Source: ERM with data provided by Meteorological Service Suriname, 2016

4.3.3 *Recommendations*

ERM recommends that the Borrower and the IDB undertake the following measures as part of the Program's development:

- **Floods:** Prepare and implement a stormwater management plan for the Program during construction and operation phases. This management plan must be synchronized with existing and future urban development plans prepared for Paramaribo and stormwater management activities and plans (e.g., MOGP) conducted and prepared by the Minister of Public Works (Department of Hydraulics). The Program's stormwater management plan should consider the use of non-structural (soft) measures that can be combined with the existing flood wall along the left bank of the Suriname River. These non-structural measures can be used to reduce and/or prevent impacts associated with floods produced by high tides and their exacerbation due to projected SLR. Nonstructural measures represent techniques commonly used to reduce flood risk and the damages associated with flooding. Examples of non-structural measures that may be used at the Program's area includes: elevation of existing structure at least equal to or greater than the 1% annual change flood elevation; wet flood-proofing techniques as a stand-alone measure or combined with elevation. The wet flood-proofing refers to all construction materials and finishing materials need to be water resistant. Wet-proofing is applicable to commercial and industrial structures when combined with a flood warning and flood emergency preparedness plan (FEPP). The FEPP should include the community's response to flooding, flood warning system, dissemination of flood risk maps, and location of evacuation centers, primary evacuation routes, and post flood recovery processes.
- **Riverine Erosion:** Consider the reinforcement of the existing riprap streambank protection located at the left bank of the Suriname River with some non-structural measures. Some of these soft approaches include the use of live vegetation and woody material for bank stabilization; pole plantings (or live stakes); coir rolls. It is also recommended to conduct a sediment transport analysis at the Suriname River that includes scour computations, geomorphic analysis and use of historical data regarding river movement.

- **Salt Intrusion:** Conduct water quality monitoring campaigns including measures of salinity concentrations at the Suriname River during construction and operation phases of the Program. Results of salinity levels should be considered in the selection of construction materials, their maintenance, and selection of adaptation measures that will be used for the Program. For instance, if live vegetation is considered as a non-structural adaptation for riverine erosion, the vegetation should be resistant to salinity levels in the Suriname River.
- **Extreme winds:** Ensure appropriate extreme wind load building codes are met for the structures of the Program. This will lead to reduce vulnerability of new construction and avoid impacts on neighboring buildings. It is recommended that the Program's structures should be designed to resist extreme wind speeds with annual probability of exceedance of 1 in 100 years or greater. The criteria should be defined with the Minister of Public Works and by following the American Society of Civil Engineers (ASCE) and/or International Building Code (IBC) guidelines. Also, early warning systems and emergency preparedness plan should be implemented to prevent lives losses in case extreme winds events occur.

The selection of final adaptation measures to be implemented in the Program's area of influence should be prioritized by conducting cost-benefit analysis and their consultation with key stakeholders. Monitoring and reporting activities must be regularly conducted in order to verify that the implemented adaptation measures are achieving their objectives and/or if new adaptation measures are required.

The area is already prone to the natural risks described, and the Program is not anticipated to worsen or intensify the natural risks. The Program might however introduce more visitors and residents into the areas of higher risk, as well as bring new infrastructure and construction, thereby increasing the damage potential in monetary terms. These negative impacts could be minimized, however, by the implementation of mitigation and adaptation measures developed in consultation with the Ministry of Public Works and Urban Planners. Residual impacts could then be offset by implementing management measures that result in the positive impacts such as preventing floods and riverine erosion. It is ERM's opinion that a realistic goal for the Program in regards to Natural Disasters is therefore "no net negative impacts."

4.4 HERITAGE

4.4.1 Baseline Conditions

The Program will include a series of projects within the Historic Inner City of Paramaribo, which was inscribed as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site on June 29, 2002 (Figure 4.5). According to the nomination form, the site's inscription is based on the following two criteria, as stipulated in the Operational Guidelines for the Implementation of the World Heritage Convention, WHC 99/2, March 1999, paragraph 24:

- Criteria ii (Exhibit an important interchange of human values, within a cultural area of the world, on developments in architecture and town planning) – Paramaribo is an exceptional example of the gradual fusion of

European architecture and construction techniques with indigenous South America materials and crafts to create a new architectural idiom; and

- Criterion iv (Bear a unique or at least exceptional testimony to a cultural tradition, which has disappeared) – Paramaribo 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 in the 16th and 17th centuries.

According to the nomination form, there are seven "essential" listed monuments inside the site's Designated Conservation Zone. These are:

1. Fort Zeelandia Area, which consists of Fort Zeelandia (operated as a museum), 4 former officer houses (used as office buildings), 2 former commander houses, a former guardhouse, a former military prison, and the ruins of "Gebouw 1790" (a former barrack);
2. Presidential Palace;
3. Ministry of Finance;
4. St. Petrus en Paulus (Roman Catholic Cathedral);
5. "Corner House";
6. "De Waag" (1824); and
7. Reformed Church.

In addition, there are two "essential" listed monuments outside of the site's Designated Conservation Zone but within Buffer Zones. These are:

1. Luthern Church; and
2. "Neve Shalom" Synagogue (Ashkenazi Jewish Community).

Based on a map in the nomination form, the Corner House and De Waag are the only essential listed monuments located within the Study Area (Figure 4-16).

Figure 4-21: Designated Conservation Zone (outlined, not shaded) and Buffer Zones (shaded) of the Historic Inner City of Paramaribo World Heritage Site.

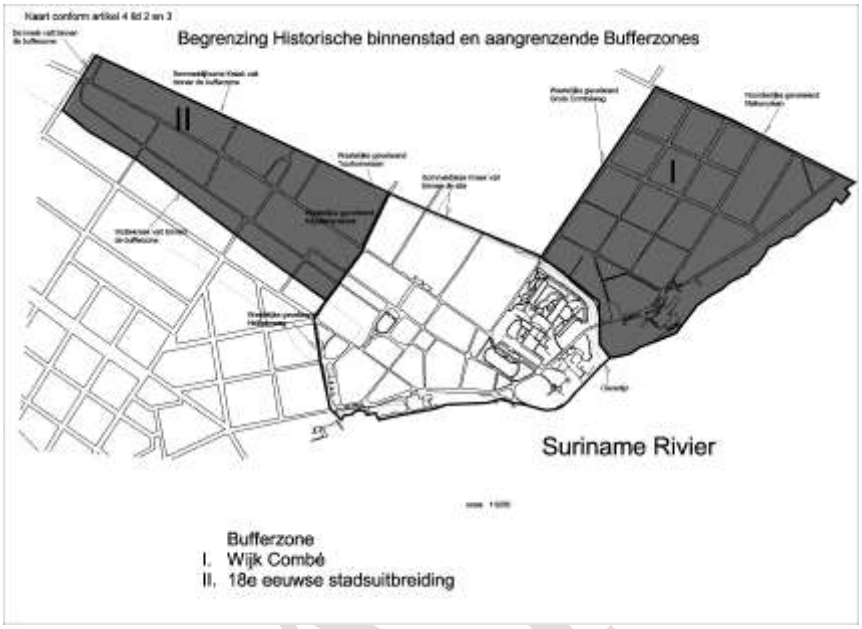
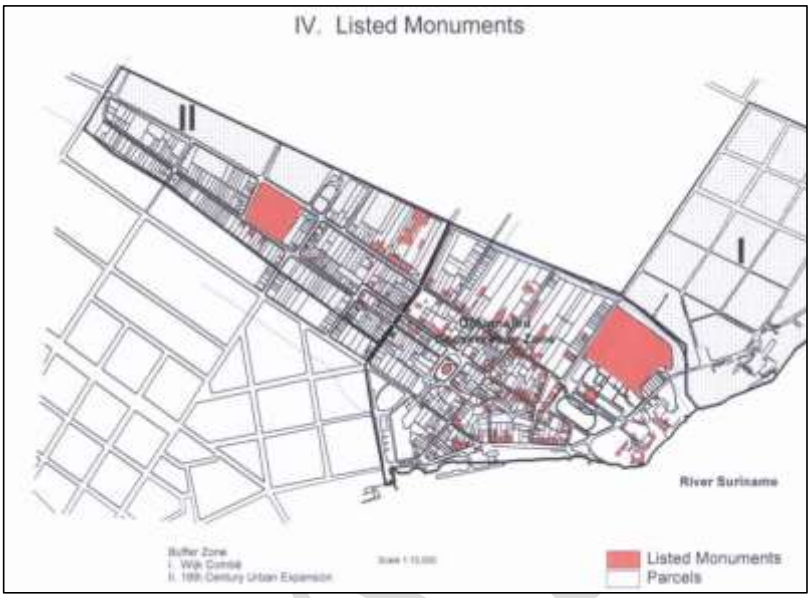


Figure 4-6: Essential Listed Monuments.

At the time of nomination, the World Heritage Site consisted of 244 formally protected monuments. Approximately 50% of these monuments are located within the Designated Conservation Zone, and approximately 15% are located in the two Buffer Zones. The Designated Conservation Zone and Buffer Zones comprise an area of approximately 90 hectares. Based on a map in the nomination form,

approximately 20 of the listed monuments are located within the Study Area (Figure 4-7).

Figure 4-7: Listed Monuments.



According to UNESCO's webpage on the Historic Inner City of Paramaribo (http://whc.unesco.org/en/list/940), there are currently 291 listed monuments in Paramaribo. Protection of approximately 250 of these monuments was initially guaranteed by the 1963 Monuments Act, which was replaced in 2002 by a new Monuments Bill (S.B. 5 September 2002 No. 72). The latter provides for the designation of protected historic quarters with controls over interventions and provision for subsidies to owners for conservation works. Additional monuments were added to the monuments list in 2007 (n=1), 2010 (n=1), and 2011 (n=25). It is unknown how many of these new listed monuments are located within the Study Area.

4.4.2 *Site Protection and Management*

The Historic Inner City of Paramaribo is protected by a State Resolution on the implementation of Article 4, Section 2 of the Building Code of 1956. This resolution was approved by the President of the Republic of Suriname in 2011 (S.B. 31 October 2011 No. 74). The resolution established an Expert Building Committee (Special Advisory Committee) to review new building plans within the site according to aesthetic criteria for modern architecture, which were published in the Gazette (Advertentieblad van de Republiek Suriname, A.R.S. 29 April 2003 No. 34).

A "Paramaribo World Heritage Site Management Plan (PWHSMP) 2011-2015" was officially endorsed by the UNESCO Council of Ministers on January 28, 2014. The Suriname Built Heritage Foundation (Stichting Gebouwd Erfgoed Suriname, or SGES) was formed to implement the PWHSMP. According to UNESCO's webpage, however, the SGES "has not been properly empowered with adequate staffing, the definition of precise actions, timelines and budgets. The authority of SGES as the

Site Manager needs to be reinforced through adequate regulatory and legislative measures and communicated to all government levels as well as to all stakeholders and the community."

A Paramaribo Conservation Foundation (Stichting Stadsherstel Paramaribo) was established on October 25, 2011, which became the Paramaribo Conservation Ltd. (Stadsherstel Suriname N.V.) on May 25, 2013. This foundation purchases dilapidated historical monuments and restores them for reuse in order to preserve the historic character of the World Heritage Site. The foundation acquired their first property in January 2012, which has already been restored and re-let. Additional properties have since been purchased.

Heritage Site Status of Paramaribo has been under review by the International Council on Monuments and Sites (ICOMOS, on behalf of UNESCO) since 2012, when Suriname reportedly awarded a concession to a private sector firm for rehabilitation the waterfront without following UNESCO guidelines. Further, in June 2014, the World Heritage Committee (WHC) made a series of recommendations to the government of Suriname to improve the management of the WHS, and to report back to UNESCO on the state of conservation and the implementation of measures to address its recommendations. The Government submitted an updated report to UNESCO December 2015. While it demonstrated advances in many areas, it also showed a number of critical actions that were pending including rehabilitation of state-owned monuments in urgent need of conservation; inexistence of a law that secures the role and position of the Management Authority; no advances in terms of legal instruments on heritage conservation and urban development; lack of budget for the implementation of the Paramaribo Management Plan; and traffic and parking control.

Regarding the project proposal for the redevelopment of part of the Waterfront, the Ministry of Public Works underscored that no building permit had been granted the private company that has the concession. At its 40th session, held in July 2016, the WHC once again examined the state of conservation of the property and recommended a series of actions to preserve the city's historical site status. Specifically the WHC (i) commended the adoption of the PWHS Management Plan 2011-2015 and the Emergency Action Plan 2014; (ii) urged the strengthening of the Management Authority and the provision of funding for urgently needed conservation and restoration works at government-owned monumental buildings; (iii) expressed very serious concerns about the potential real-estate development at the waterfront and strongly urged the withdrawal of the licenses granted to a private company; (iv) requested an update on the state of conservation by the end of 2017 and (v) welcomed the initiative promoted by the IDB urban rehabilitation program, since this operation supports part of these measures and invites the government to seek the advice of the WHC and the Advisory Boards in its further design and implementation.

The concerns cited in the ICOMOS report should be evaluated independently in order to respond to appropriate UNESCO officials. Rehabilitation of the areas should take into account but should also balance them with the practical concerns that must also be addressed to create a economically viable site that supports modern uses.

4.4.3 *Potential Impacts*

According to the nomination form, factors currently affecting the Historic Inner City of Paramaribo include the following:

- Development pressures (i.e., urban renewal, especially the replacement of wooden buildings by concrete ones);
- Environmental pressures (e.g., building and sewer maintenance);
- Natural disasters (especially fires) and preparedness;
- Visitor/tourism pressures; and
- Number of inhabitants within the site.

Potential negative impacts from the Program include the following:

- Demolition of historic buildings,, whether they are listed monuments or not;
- Alteration of historic buildings that diminishes their historic characteristics and value to stakeholders;
- Reconstruction and/or construction of structures that may diminish the authenticity of the site, without due consultation with UNESCO and its advisory bodies;
- Construction of structures that diminish the view of or from historic buildings (i.e., visual impacts), and therefore their value to stakeholders; and
- Changes to the historic landscape that affect the context of individual historic buildings and/or the World Heritage Site as a whole, and thus their value to stakeholders.

Comment [PR1]: Question for IDB – is any demolition anticipated?

While the Program has the potential to adversely affect the historic character or authenticity of individual listed monuments and/or the historic landscape as a whole, it is intended to mitigate many of the factors listed above that are already negatively impacting the site. It is also intended to positively impact the physical integrity of individual monuments. It is ERM's opinion that completion of the Program without any negative impacts is an unrealistic goal as individual monuments and/or the historic landscapes will likely be affected (e.g., demolition of or damage to historic buildings, alteration of historic buildings in a way that adversely affects their historic character or authenticity, and changes to the urban landscape that affect the view of or from individual historic buildings). Negative impacts could be minimized, however, by the implementation of mitigation measures developed in consultation with cultural heritage stakeholders (e.g., identifying historic buildings that should not be demolished, instituting measures to protect historic buildings from inadvertent damage, following standards for the restoration and/or rehabilitation of historic buildings that maintain their historic character or authenticity, and limiting visual impacts to individual historic buildings). Residual impacts could then be offset by implementing management measures that result in the positive impacts described above. It is ERM's opinion that a realistic goal for the Program in regards to the World Heritage Site is therefore "no net negative impacts."

Comment [PR2]: To be updated once final plans are seen and exact scope kno

4.4.4 *Recommendations*

ERM recommends that the Borrower and the IDB undertake the following as part of the Program's development:

- Consult with the UNESCO World Heritage Committee and its Advisory Bodies (specifically ICOMOS), Expert Building Committee, , Suriname Conservation Ltd., and other cultural heritage stakeholders to develop specific mitigation and management measures for Program activities that will involve the demolition, alteration, restoration, or rehabilitation of listed monuments, including those located within the Designated Conservation Zone and Buffer Zones of the World Heritage Site. The final designs for restoration or new construction should seek approval by UNESCO.
- Utilize national standards or internationally recognized standards, specifically the ICOMOS "International Charters for Conservation and Restoration" (www.icomos.org/charters/charters.pdf), for the restoration and/or rehabilitation of listed monuments. These standards include maintaining the historic character of buildings, maintaining the design, color, texture, visual qualities, and materials (when possible) of historic buildings, and avoiding physical treatments (e.g., sandblasting) that cause damage to historic materials.
- Avoid changes to the historic landscape of the World Heritage Site, such as building in spaces that have been historically open and/or green, or constructing structures that will visually impact listed monuments. Update the Paramaribo World Heritage Site Management Plan (PWHSMP) 2011-2015 and ensure adequate budget and personnel for its implementation.

4.5 OTHER RISKS

In addition of the risks described in aforementioned sections, potential environmental and social impacts that may arise from Program-related activities are described below.

4.5.1 Potential Impacts

- **Air and Noise:**
  i. *Air quality*, currently air pollution occurs in the center of Paramaribo at peak hours, due to traffic congestion, the poor conditions of cars, trucks and busses and the inadequate waste collection, burning and illegal of solid waste. Furthermore, construction equipment, likely mostly diesel and gasoline powered, would produce air emissions typical of combustion engines. These impacts would be short term and minor relative to other vehicular emissions in the Program area.
  ii. *Noise and vibration,* construction area noise and vibration is dominated by heavy equipment use. Noise generated by the Program may have a large impact on receptors (people) near the active areas.

- **Traffic Circulation, Transportation and Car Parking:** considering the existing conditions of heavy traffic during peak hours, car parking issues, and bus routes and terminals representing a limiting factor in the center of Paramaribo, traffic in the Program area is likely to increase during its activities, as materials for construction are transported in, construction vehicles mobilize, and as construction activities temporarily close road segment changing traffic patterns and concentrating vehicular traffic on alternative routes. This would increase the potential for traffic congestion.

- **Public and Pedestrian Spaces:** social tension and safety issues are present at downtown due to pedestrian insecurity created by heavy traffic where many of the roads are close to saturation at rush hour, in parallel, the Program activities may hinder or prevent access to public and important community facilities, which as well, could impact the ability of households to access income and basic services sources.

- **Solid Waste:** solid (non-hazardous) wastes likely will be generated by the Program activities, such waste include domestic trash and garbage; and inert construction / demolition materials. Hazardous waste shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical, or biological characteristics that may pose a potential risk to human health or the environment if improperly managed.

4.5.2 Recommendations

- **Air and Noise:**
  i. *Air quality:* These impacts cannot be avoided, but can be minimized by ensuring construction vehicles are properly maintained and imposing limits on idling. Ground disturbing construction activities would generate fugitive dust during dry periods. Fugitive dust can typically be mitigated to minor or negligible levels through dust suppression with water spray trucks.
  ii. *Noise* impacts are likely to be unavoidable, but can be minimized by limiting the hours of construction (e.g., not working near any noise-sensitive receptors at night) and limiting construction vehicle idling (which, as noted above, will also reduce air emissions). Implementation of these measures, especially avoiding any construction at night (e.g., 10 p.m. to 6 a.m.), should minimize noise impacts on people.

- **Traffic Circulation, Transportation and Car Parking:** these impacts could be minimized through the development and implementation of a Traffic Management Plan, which would include early notification of road closures, detour signage, and safety programs/measures for pedestrians and bicyclists especially for the most vulnerable populations. Review parking and traffic management in an integrated manner to discourage car and motorcycle parking on sidewalks, as well as review public transportation systems and suggest accommodations/improvement to bus routes, stops, and terminals.

- **Public and Pedestrian Spaces: t**hese impacts would be avoided or minimized by developing and implementing an Access Management Plan, which would maintain continuous access for critical communities facilities for pedestrians and even vehicles if necessary through careful staging and sequencing of construction activities.

- **Solid Waste:** waste materials are still generated after the implementation of feasible waste prevention, reduction, reuse, recovery and recycling measures, waste materials should be treated and disposed of and all measures should be taken to avoid potential impacts to human health and the environment.

4.5.3 Biodiversity

ERM has not performed an assessment of potential biodiversity impacts given the current urban focus of the Program. If however the evolving plans involve the potential for biodiversity impacts, such as the felling of trees or dredging/construction within the Paramaribo River, appropriate levels of assessment will be required to be undertaken.

5.0 INSTITUTIONAL AND TECHNICAL STRENGTHENING

Based on information and analysis provided by the IDB, the historical center urban management falls under the responsibility of several agencies. Municipal affairs are handled by the National government, through the action of the different ministries. The most important ministry for the purposes of spatial, land use, and other affairs of the built setting is Public Works. The protection of this historical center is responsibility of the Ministry of Education, Science and Culture (MEC), particularly through the Suriname Built Heritage Foundation (SBHF). The Ministry of Transports, Communication and Tourism is responsible for the regulation and management of the public transport sector and for the policy development and monitoring of tourism. The Ministry of Regional Planning, in charge of overall national planning, appoints the 2 District Commissioners of Paramaribo. There are also local stakeholders involved, including diverse array of Community Based Organizations and Non-Governmental Organization.

This current institutional structure in Suriname seems to be broadly disconnected, hinders the agreement on a common vision for the historic center, affects the quality of public services and implies conflicting operational goals for these agencies.

The establishment and strengthening of a committee/institution in charge of the development, management, implementation and monitoring of the Program "Management Plan for the Preservation of the Area" is a key instrument to guide the historic center's revitalization process in a sustainable manner. The involvement of this main committee/institution will include technical training, consulting services and a project management system, as well as the update of the Paramaribo World Heritage Site Management Plan, raising public awareness about the historic center's cultural heritage. Additionally, an Environmental and Social Impact Assessment and mitigation plans for construction works and urban interventions, ought to be implemented.

6.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

6.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

The Borrower will develop an Environmental and Social Management System (ESMS) to supplement the Program's other management plans. This system will identify potential impacts of the Program and, in turn, describe steps for the mitigation, management, monitoring and assessment measures (Table 6-1) for the potential impacts identified in Chapter 4 and 5.

Table 6-1 Proposed ESHS management measures and monitoring programs

Topic	Potential Impact	Phase	Mitigation and management measures	Execution responsibility	Verification (as necessary)	Monitoring and Reporting
Climate	Air Quality	Construction	Ensure construction vehicles and equipment are properly maintained. Limit idling for construction vehicles. Use water spray trucks for dust suppression.	Construction Contractor	Site Inspection by a third party	Daily inspection reports and corrective action directives
	Bank Erosion	Construction	Use water spray trucks for dust suppression. Limit idling for construction vehicles and equipment	Construction Contractor	Site Inspection by a third party	Daily inspection reports and corrective action directives
Noise	Noise vibration	Construction	Identify if any noise sensitive receptors in the Project area (i.e. bird species, etc.) and develop an action plan if identified near site. Limit idling of construction vehicles and equipment	Construction Contractor	Site Inspection by a third party	Daily inspection reports and corrective action directives
Land Use and Urban Planning	Land development	Construction/ Operation	Develop a revitalization and urbanization plan that fits the urban fabric and enhances the value of the city.	Construction Contactor/SGES	Building Committee/SGES	Annual Inspection and corrective actions
Transportation	Traffic Circulation, parking	Construction/ Operation	Develop a Traffic Management Plan for the project Area. The plan may include methods for notification due to road closure, measures to limit congestion and parking. Review public transportation systems and provide recommendations /improvement for us routes, stops and terminals.	Construction Contractor/ Ministry of Transport		Monthly inspection and corrective active directives
Public Spaces	Social and Safety	Construction/ Operation	Implement an access management plan that maintains spaces for critical community, facilities for pedestrians and vehicles through careful construction activities.	Construction Contractor		Monthly inspection reports and corrective action directives
Solid Waste	Waste Generation	Construction	Recover waste material from the Project site and dispose appropriately.	Construction Contractor	Site Inspection by a third party	Daily inspection reports and corrective action directives

Cultural Heritage	Built Heritage	Construction/Operation	Consult with UNESCO, SGES, and Expert Building Committee to develop management and mitigation measures for Project activities that may involve demolition, alteration, restoration. Utilize national and international recognized standards for restoration/rehabilitation of listed monuments.	Construction Contractor	SGES, Building Committee	Develop monitoring plan specific to project activities.

6.2 PRELIMINARY PLAN FOR LIVELIHOOD RESTORATION

6.2.1 Overview

Based on ERM's initial assessment of the loss of livelihoods in Section 4.1, it has developed the below Livelihood Restoration Plan in accordance with international best practice, including the IDB's Involuntary Resettlement Policy (OP-710). The Plan identifies subsets and individuals within the Historical Center of Paramaribo who might be adversely impacted by the Program. These subsets and individuals include, but is not limited to:

- Well-established businesses with store fronts,
- Street vendors—most of which are indigenous,
- The SMS,
- The bus station,
- Commuter boat owners and employees,
- Telesur,
- Tourists, and

Area residents. These entities and individuals will likely only be affected temporarily by the Program as a result of construction. The Livelihood Restoration Plan will interact directly with the Stakeholder Engagement Plan.

6.2.2 Objective

The Livelihood Restoration Plan describes the measures that have been established and will be used by the Program in order to avoid, and when avoidance is not possible, minimize, adverse social and economic impacts from Program by (i) providing compensation for loss of assets and (ii) ensuring that activities are implemented with the appropriate disclosure of information, consultation and informed participation of those affected.

For the purposes of this plan, the following IFC PS5 definitions are used:

- **Involuntary resettlement** – refers to both physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood as a result of project-related land acquisition and/or restrictions on land use.)
- **Livelihood** - the full range of means that individuals, families and communities utilize to make a living, including wage-based income, agriculture, fishing, foraging, other natural resource-based livelihoods; and
- **Land acquisition** - includes both outright purchases of property and acquisition of access rights such as easements or rights of way.

6.2.3 Identification Process

ERM undertook specific actions to identify the degree and extent of the Program's economic displacement on subsets and individuals. These actions include:

- Identifying persons to be economically displaced and those eligible for compensation and assistance;
- Identifying the status of economically displaced persons according to their legal rights or claim to land; and
- Engaging with affected persons and determining adequate compensation.

6.2.4 Status of Plan

ERM is still determining the degree and extent of economic displacement as a result of the Program, and will thereafter develop appropriate mitigation measures and monitoring plans. However, such measures include:

- Minimizing negative impacts on livelihoods to every extent possible;
- Providing viable alternatives of market/venue (e.g., different location for street vendors and area businesses alike);
- Compensating those displaced with the equivalent of lost income;
- Immediately restoring capacity for existing livelihoods; and
- Introducing those displaced to alternative livelihoods (if impacts are permanent).

Note that a critical component of any livelihood restoration plan is the stakeholder engagement and grievance processes, which are outlined below.

6.3 DISASTER RISK MANAGEMENT PLAN

The Disaster Risk Management Plan (DRMP) recommends measures to prevent and/or mitigate the identified impacts and risks, and provides guidance relative to emergency preparedness and response.

6.3.1 Management Measures

This section discusses measures that could be implemented to help reduce Project risk to natural disasters. Since the project design is still at conceptual level and management plan is not complete, we expect these measures to be incorporated into the design, construction and final management plans for the project. This section is not a substitute for actual designs, construction management and operational management, but serves as a guide for those project elements.

Careful attention to the waterfront design must be taken to ensure the project is resilient to these natural disasters (floods, erosion, sea level rise, salt intrusion, and extreme winds). Some potential measures to prevent, adapt or mitigate the risks associated with natural disasters are discussed below and listed in ***Table*** 6-2.

- Monitor water quality and quantity at Suriname River;
- Keep monitoring sea levels, river water levels and discharges;
- Conduct geotechnical studies to evaluate soils conditions at the Project Site. This study will allow defining appropriate types of material to be used in the Project;
- Conduct a sediment transport study for the Suriname River.
- Design and construct measures that entail the infrastructural capacity to occasionally endure water excess from periodic flood events. For instance, levees, floodwalls (permanent or deployable), revetments, breakwaters or

tidal barriers considering total surge (storm surge, waves and SLR). These structures must be designed to sustain at least 50-years flood events. Through this type of structures, people may be able more closely enjoy and learn from natural process even during a flood event;

- Evaluate the alternative of using non-structural adaptation measures such as dry and/or wet flood proofing. These adaptations are aimed to inhibit the infiltration of water by designing the exterior of a building with waterproof coatings, impermeable membranes, aquarium glass, flood vents or additional layer of exterior concrete or masonry. These flood proofing are best suited for commercial, mixed use, or community facility buildings. Other non-structural adaptation measures include elevation of the existing flood wall, Emergency Preparedness and Response Plan, the use of appropriate building codes;
- Implement stormwater management plan for the Program. This plans must be synchronized with urban development and existing stormwater management plans for Paramaribo (e.g., MOGP)
- Strengthen the existing river defenses located along the Program's area.
- Implement a river restoration program that incorporates the Program's design to maintain a sustainable balance among economic, environmental and social benefits.
- Conduct regular inspections and provide routine maintenance of all existing river defenses;
- Coordinate with Ministry of Public Works, Department of Hydraulic on the requirements to convey stormwater generated from the Program's site to the Suriname River;
- Consider strategies for protecting building systems such as mechanical, electrical, fuel, HVAC systems, plumbing, elevator, and fire protection systems which are highly vulnerable to flood waters. Strategies for protecting these systems are usually aimed to relocate vulnerable equipment or conduits, secure specific components, or adapt their functioning to minimize damage. Example of these systems include relocating or sealing external utilities, anchoring, elevating, or constructing a flood proof enclosure around equipment, elevating mechanical equipment and electrical wiring, among others;
- Verify with local authorities for further human developments along vulnerable sections of the Suriname River neighboring the Project to prevent impacts due to new projects.
- Examine and verify that the proposed measures do not present implications for drainage and impacts on adjacent sites;

Implementation of these measures should adequately manage the overall risk to the Project from main natural disasters at the Project site. In addition to these measures, there are a variety of other paths for increasing riverine climate resilience, including preparing for extreme events through developing plans for evacuation, emergency response, and recovery, and adapting infrastructure systems to the impacts of climate change. All these combined strategies can be part of a multi-layered approach to reducing risks. However, it would be impossible to fully eliminate all risks because there could always be a storm larger than or different from what was planned for, and there is potential for failure in any strategy.

6.3.2 Emergency Preparedness and Response

As part of, and in addition to, risk prevention measures, there should be plans in place to assure emergency preparedness and response.

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

During operations, the Waterfront operator should also develop an Operations Emergency Response Plan that describes procedures to be implemented in the event of forecasted and unanticipated natural disasters.

Table 6-2: Disaster Risk Management Framework

Event	Specific cause	Effect	Plan	Prepare	Response	Recovery
Storms	Excessive precipitation	High water levels and overland flow exposes or damages	Design protective structures that consider high flow events and add climate change factor.	Complete regular integrity and condition inspections. Designate and retain an on-call engineering inspector Obtain on-call repair services contract	Isolate affected segment. Contact engineer for assessment Evaluate damages on homes and businesses	Complete repairs Identify and implement activities that will reduce or eliminate risk of repeat failure Test repaired systems
	Excessive precipitation	Erosion with exposure or damage to river's banks and/or facilities	Determine and install banks and slope protection or anchors if possible in most vulnerable areas.	Complete regular integrity and condition inspections. Designate and retain an on-call engineering inspector Obtain on-call repair services contract Conduct erosion monitoring along the banks of the Suriname River	Isolate affected segment. Contact engineer for assessment Evaluate damages on homes and businesses	Complete repairs Identify and implement activities that will reduce or eliminate risk of repeat failure Test repaired systems
Increase water levels	Storm Surge and/or Sea Level Rise	High water levels and overland flow exposes or damages	Design protective structures that consider high flow events and add climate change factor.	Complete regular integrity and condition inspections. Designate and retain an on-call engineering inspector Obtain on-call repair services contract	Isolate affected segment. Contact engineer for assessment Evaluate damages on homes and businesses	Complete repairs Identify and implement activities that will reduce or eliminate risk of repeat failure Test repaired systems
Salt Intrusion	Drought and/or Sea Level Rise	Extension of the salt wedge along the Suriname River	Monitor water quality and salinity profiles along the Suriname River. Release freshwater from Bokopondo Reservoir	Consider salinity resistant infrastructure	Contact engineer/specialist for assessment and maintenance	Complete repairs Identify and implement activities that will reduce or eliminate risk of repeat failure

6.4 STAKEHOLDER ENGAGEMENT AND CONSULTATION

6.4.1 Overview

The Stakeholder Engagement Plan (SEP) sets out the approach that the Borrower should follow to implement an engagement program with stakeholders over the life of the Program. A stakeholder is defined by the International Finance Corporation (IFC) as "*any individual or group who is affected by a project or may have an interest in, or influence over it. This may include individuals, businesses, communities, local government authorities, local nongovernmental and other institutions, and other interested or affected parties*." The SEP focuses on both engagement with external stakeholders and consultation with Affected Persons.

6.4.2 As defined by the IDB's Environment and Safeguards Compliance Policy, B.6, engagement is considered appropriate when interacting with the project's exhaustive group of stakeholders, while consultation is required in order to interact and incorporate the viewpoints of directly Affected Parties. Objective

The objectives of stakeholder engagement, outlined in this SEP, are to:

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

6.4.3 Stakeholder Analysis

Stakeholders and Affected Parties for the Program have been identified by the IDB, in consultation with ERM, and include:

- Government ministries;
- Local businesses and vendors;
- Indigenous vendors; and
- Area residents; etc.

In a future exercise, these stakeholders will be mapped denoting their interest in and influence on the Program, so the IDB can then better understand the type of engagement is best suited for each.

6.4.4 Stakeholder Engagement Methods

The IDB will engage stakeholders in a variety of ways, such as:

- Focus Groups/Mission Trips – Used to further develop the Program's design.

- Local Newspaper Articles, Radio, Television Pieces, or Digital Media – Used to convey information to local audiences about proposed Program activities and progress.
- Community Grievance Mechanism – Used by the public to lodge any grievances.

6.4.5 Consultation Methods

Consistent with the IDB's *Environment and Safeguards Compliance Policy, B.6,* Affected Parties as identified by the IDB will require additional engagement. Affected Parties in Category A projects will be consulted at least twice during project preparation, during the scoping phase of the environmental assessment or due diligence process, and during the review of the assessment reports; while Affected Persons in Category B projects will be consulted at least once, preferably during the preparation or review of the ESMP.

Consultation includes:

- One-on-one discussions with Affected Parties;
- Facilitated Focus Groups/Mission Trips; and
- Targeted Open Houses.

Affected Parties shall be kept informed throughout all project activities—especially when considering potential environmental and social impacts.

6.4.6 Stakeholder Engagement

To date, the IDB has engaged exclusively with the relevant government ministries and architectural firms, including:

- Ministry of Education and Culture
  - Mr. Stanley Sidoel, Director of Culture,
  - Mr. Stephan Fokké, Site Manager, Suriname Built Heritage Foundation,
  - Mr. Johan Roozer, Chair of the Monuments Commission,
  - Mrs. Malva Tooy;
- Ministry of Public Works
  - Mr. Anwar Hassankhan, Acting Permanent Secretary Building Constructions and Services,
  - Mrs. Lilian Krishnadath, Deputy Permanent Secretary of Planning Department,
  - Mr. Satish Mohan, Deputy Permanent Secretary of Civil Water Works,
  - Mr. Henk Wip, Head of traffic Department,
  - Mrs. Anushka Dewansingh,
  - Mrs. Rashni Soerdjlal,
  - Ms. Charissa Muntslag;
- Ministry of Transport, Telecommunication and Tourism
  - Mr. Bradley Fraser, Policy Officer at the Directorate of Tourism;
- Ministry of Finance
  - Mrs. Priscilla Setrowidjojo-Karijodono;

- Ministry of Regional Development – Mrs. Thanya Soke-Fonkel; (vi)
- Suriname Tourism Foundation
  - Mr. Jerry Akum, Managing Director;
- National Development Bank of Suriname
  - Ms. Wonnie Boedhe, Director of NOB;
- KDV Architects
  - Mr. Phillip Dikland, Architect;
- National Institute for Environment and Development in Suriname (NIMOS)
  - Mr. Cedric Nelom, Acting General Director;
- The Back Lot
  - Mrs. Hennah Draaibaar,
  - Mr. Eddy Wijngaarde

ERM is currently mapping non-governmental stakeholders.

6.4.7 Community Grievance Mechanism

It is critical that the Program has a procedure to receive, address, and respond to community grievances—especially during construction.

In this case, the Borrower shall hire a community liaison officer in order to directly receive and respond to community complaints. In addition, the borrower should open a dedicated email address and telephone number for the Program—especially for individuals who are unwilling, unable or afraid of interacting directly with the community liaison officer. The Borrower shall disseminate information of these mechanisms and how to access them within the Programme's area of influence via numerous modes (i.e., television, radio, news media outlets including newspapers and radios, etc.).

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

- Name,
- Contact information, and
- Grievance.

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

6.4.8 Monitoring

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

- Consultation activities conducted with government authorities and non-governmental stakeholders;
- Consultation with affected parties.

- The effectiveness of the engagement processes by tracking feedback received from engagement activities; and
- Any grievances received.

7.0 CONCLUSION

To be completed

8.0 REFERENCES

Amatali, M.A., and Naipal, S. 1999. *Country Study Climate Change Suriname. Water Resources Profile. Technical Report No. 4a.* December, 1999.

Amatali, M.A. 2007. *Promotion of Sustainable Livelihood within the Coastal Zone of Suriname, with Emphasis on Greater Paramaribo and the Immediate Region. Sector: Water Resouces and Infraestructure (Current Profile).* Netherlands Country Assistance Program, Phase 2 (NCAP-2). Ministry of Labour, Technological Development and Environment. Paramaribo, October, 2007.

Amatali, M.A. 2012. *Technical Paper Present Profile. Second National Communication. Sector Water Resources.* Report prepared for the Ministry of Labor, Technological Development and Environment. March 2012.

ARS Progetti. *Sustainable Management of the Built Heritage of the Inner City of Paramaribo*. Suriname, 2014.

FLO-2D Reference Manual, 2004. FLO-2D Software, Inc. © Copyright 1989, 1993, 2004. FLO-2D is copyrighted by J. S. O'Brien. http://www.FLO-2D.com/

Government of the Republic of Suriname. *Historic Inner City of Paramaribo – for the World Heritage List of UNESCO.* Suriname. November 2001.

Hokstam, M.A. 2012. *Extreme Weather Shocks Suriname's Leaders into Climate Action*. Thomson Reuters Foundation. Accessed October, 13, 2016 from: http://news.trust.org//item/20120628111500-n1ta0/

Karijokromo, C.A. 2011. *Disaster Management in Suriname: The Level of Preparedness and Mitigation.* Master of Public Administration in Governance 2009-2011. International Institute of Social Studies, Erasmus University Rotterdam.

Masterplan Ontwatering Groot-Paramaribo [MOGP]. 2001. *Materplan Onwatering Groot-Paramaribo.* Ministry of Public Works. DHV Consultants Nederland, WL Delfhydraulics Nederland, Adviesbureau Milieu en Infraestructuur Nederland, and Sunecon Raadgevend Ingenieursbureau Suriname. Paramaribo, June 15, 2001.

Ministry of Education and Community Development. *State of Conservation of the Historic Inner City of Paramaribo World Heritage Site*. Suriname, January 2014.

Ministry of Labour, Technology Development and Environment [MLTDE]. 2013. *Suriname. Second National Communication to the United Nations Framework Convention on Climate Change.* Paramaribo, February 2013.

Noordam, D. 2007. *Promotion of Sustainable Livelihood within the Coastal Zone of Suriname, with Emphasis on Greater Paramaribo and the Immediate Region. Sector: Geomorphology and Soils.* Netherlands Country Assistance Program, Phase 2 (NCAP-2). Ministry of Labour, Technological Development and Environment. Paramaribo, January 31, 2007.

Prevention Web. 2014. *Suriname Disaster & Risk Profile. Basic Country Statistics and Indicators (2014).* Accessed September 27, 2016 from: http://www.preventionweb.net/countries/sur/data/

Sijlbing, H. *Paramaribo World Heritage Site Management Plan 2011-2015*. Coordinated and compiled by Harrold A. Sijlbing on behalf of Stichting Gebouwd Erfgoed Suriname, May 2011.

UNESCO. *Historic Inner City of Paramaribo*. Accessed September 28, 2016 from http://whc.unesco.org/en/list/940 .

United Nations Educational, Scientific and Cultural Organization. *Convention Concerning the Protection of the World Cultural and Natural Heritage - World Heritage Committee – Fourth Session*. Istanbul, Turkey. July 2016.

United Nations University [UN]. 2014. *WorldRiskReport 2014. Focus: The City as a Risk Area. Alliance Development Works*. United Nations University, Institute for Environment and Human Security. Accessed on September 28, 2016 from: https://i.unu.edu/media/ehs.unu.edu/news/4070/11895.pdf

Appendix A

Appendix A: Register of Buildings, Structures and Businesses in Study Area

WATERKANT - FROM CONERHOUSE TO OEMRAWSINGH						
#	**NAME & LOCATION**	**ARCHITECTURE**	**HISTORY**	**ENVIRONMENT**	**INTEGRITY & USABILITY**	**CONDITION**
01	Corner House Waterkant 2	19th Century 2-story wood structure on red brick foundation; stately exterior, small front balcony with columns on high porch	Owned by Suralco/ Alcoa; former resi-dence of Managing Director; now used for receptions and company functions	Conspicuous land-mark in the Waterkant row; grounds intact with pool; small porch balcony facing the Suriname river	Excellent historical preservation; used for receptions and company functions; significant museum potential	Exterior:5 Interior: 5
02	Dixie Bar Independence Square	18th century 2-story structure, no balcony; wood on red brick foundation	Featured in 18th century painting (1750s) by John Greenwood	Facing Independence Square, grounds merged with garden of Waterkant 2 -1960s	Excellent preservation Used for receptions & company functions;	Exterior: 4 Interior: 5
03	La Petit Maison Waterkant 4	Classical three story wood frame with full balcony and two dormers on brick foundation	18th century in very good condition	Beautiful garden bar and restaurant	Excellent preservation; Bed and breakfast	Exterior: 5 Interior: 5
04	VSH-United Apparments Waterkant 6-8	Three story wood twin building with suspended balconies overlooking the river. Converted to apartments - 1990s.	19th century; purchased by VSH-United in late 1960s	Prominent part of the row houses facing the river on Waterkant	Gable preserved, building extended, interior modernized. Commercial use as rental apartments	Exterior: 5 Interior: 5
05	Findlay Residence Waterkant 10	Three stories, one of the less common brick buildings, wide balcony with 4 columns	19th century	Stately red brick structure in Water-kant row of buildings	Original architecture; use as residence & Indigenous and Maroon museum	Exterior 5 Interior 4
06	New owner? Waterkant 12	Wood frame on red brick foundation with high steps, small balcony and dormer	19th century	Was recently sold and is not occupied now, building is deteriorating	Architecture well preserved, needs to put into use ASAP. Nice bar in cellar	Exterior 4 Interior 4 (washing, paint)
07	AHKCO (academy) Waterkant 14	Two story Wood frame on stone foundation with dormer and wide balcony with 4 pillars	19th century	Prominent part of the row houses facing the river on Waterkant	Architecture reasonably well preserved	Exterior 4 Interior 3 (washing, paint)
08	CBvS (Central Bank) Waterkant 16	Narrow three story wood structure on stone foundation, two full balconies	19th century	No garden, connected to main CBvS building	Architecture well preserved; auxiliary building CBvS	Exterior 5 Interior 5
09	CBvS Waterkant	New two story stone	1950s or 60s	Stately building facing the	Architecture not original, some	Exterior 5

	18-24	structure with balcony in 19th century style		river	19th century style elements	Interior 5
10	CBvS Waterkant 26	Two story Wood frame with wide dormer on red brick foundation with wide balcony	19th century	Stately structure with five wide windows facing the river	Architecture style is well preserved; Auxiliary building, not connected	Exterior 5 Interior 5
11	Rekenkamer van suriname Waterkant 28	Two story wood frame on stone foundations with full balcony	19th century?	Small and simple but stately structure facing the river	Architecture style is well preserved;	Exterior 4 Interior 5 (washing)
12	Sociale Zaken Waterkant 30	Two story wood frame on stone foundations with high porch, partial balcony & large dormer	19th century	Critical location in the row of Waterkant structures	Dilapidated	Exterior 2 Interior 2
13	Sociale Zaken Waterkant 32	Two story wood frame on stone foundations with low porch, partial balcony & dormer	19th century	Critical location in the row of Waterkant structures	Dilapidated, about to collapse	Exterior 1 Interior 1
14	Parking lot with Cambio & car wash; Waterkant 34 – 36 ???	Some old garages and a steel/plastic container for the cambio	Building removed	Critical location in the row of Waterkant structures leaving a gaping hole	Steel/plastic container unsightly	1/1
15	Parking lot, fenced in; Waterkant 38-40-42 ???	Open space with 20 ft shipping container	Building removed	Critical location in the row of Waterkant structures leaving a gaping hole	Large gap on the corner of Waterkant and Keizerstraat; Parking	1/1
16	SMS Building Waterkant 44	Three story wood structure on stone foundation with two full balconies	19th century?	Only preserved building in this stretch. Krabbesteeg next to this building	Suriname Shipping Company (SMS) and Pristine Forest Cruise (tour operator)	4/4
17	Magic Island Casino, Pasha Global Waterkant 48 ?	Two story stone structure with double hipped roof	Recent structure (ten years?)	Critical location but building overdone with billboards	Old building removed, rood of new building has some aspects of traditional roofs	4/4
18	Pasha Global Parking Waterkant 50-52-54 ?	Large open parking space	Building removed	This section has many open spaced	Large gap in architecture row; parking	1/1
19	S. Oemrawsingh	Two story old style	19th century	Critical corner locations,	Building remodeled, some	3/3

	Waterkant 56	building with major modifications and balcony almost enclosed		could be much improved	remnants of original architecture; jeweler	
20	Medical Clinic Waterkant 58	Small two story stone & wood old style building with balcony	19th century	Facing south on the corner of Waterkant & Watermolenstraat	Architecture seems modified; used as medical clinic	3/3
WATERKANT – FROM MARINE TRAP TO PLATTE BRUG						
#	**NAME & LOCATION**	**ARCHITECTURE**	**HISTORY**	**ENVIRONMENT**	**INTEGRITY & USABILITY**	**CONDITION**
21	Marine Trap	Small peer	Used during holidays & sport events, dates back to the 18th century	Well known landing along the river	Restored with steel pilings & wooden deck	4/4 (needs cleaning and painting)
22	Monument Korean War 1950-1953	Realistic bronze statue of three soldiers made & cast in South Korea	Commemorating 102 Suriname soldiers who fought alongside the allies in the war	Set along the outer wall of the National Assembly	Monument	5/5
23	Monument to Suriname casualties WWII	Abstract square column with name of war casualties & gas chamber victims	WW II, 1940-1945	Nice open space	Monument	5/5
24	Niemboom (Neem tree)	Natural with plate and text	Commemorating 75 years immigration of indentured laborers from India	Natural at nice location	Natural, tree in good condition; plaque or name plate needs to be restored	3/3
25	Monument Commemorating Casualties Interior War	Obelisk, striker post	Monument commemorating persons who dies during the interior was 1986-1992	Nice open space with chain fencing surrounding the monument	Monument	5/5
26	Stenen trap (stone steps)	Historical brick steps in the river, formerly used as landing for people and cargo	Present in early illustration going back to the 18th century	Steps from the river wall leading down to the water level in the river	Restored in original state	5/5
27	Playground (now under construction)	No information available at this time	New item	Intended to provide recreation for kids at Waterkant	Playground; recreation	?
28	Crafts Stalls	Some 42 small stall for vendors of crafts under u-	A new item recently added	Open space within a U-shaped structure	Merchandising of crafts	5/5

		shaped roof with tables for showing ware				
29	Manicure Booth	Small steel and plastic container structure	Recent	On the sidewalk	Not really a good fit in terms of style	2/2
30	Food stands and bars	Three blocks of four stands each with seating spaces in between. Messy impression.	Established about 30 years ago	Stands have no storage spaces; beer crates stacked outside end stands	Needs considerable re-thinking and re-modeling to make spaces attractive	1/1
31	Boardwalk	Steel and concrete structure on river-wall	Established a few years back	Provides visitors with a view of the river over the concrete river embankment	Includes safety warnings, but not in classical style	5/5
32	Office of the Waterkant Management Board	Steel & plastic container with no classical style elements	Recent addition	Functional location near the food stands and bars	Architectural style not a good fit; could be modified	4/4
33	Paid toilets	Stone structure with low roof, rather run down	Been in use for several decades	Useful with paid attendant to ensure hygiene	Architectural style not a good fit; could be modified	2/2
34	SMS Lot	Main building concrete and glass with four auxiliary buildings or structures	Recent addition	Walled in space with 8-10 sales units, a bar under construction, roofed spaces on pier	Architectural style not a good fit; could be modified. Pier in poor condition, needs repair	2/2
35	Waaggebouw	Majestic two story stone building with high ceilings and original slate roofing	18th century architecture. Was the weight house for incoming cargo.	Beautiful open space leading from the bar to the restaurant section. River view blocked by SMS pier	Restored to original condition by Rotary Clubs, including slate roofing. Used as bar, restaurant & meetings	5/5
36	Broki – bar and restaurant	Three story steel structure with wood cladding, no balcony	Recent addition	Includes a pier with seating, probably the best part of the structure	Some attempt to add classical architectural features	4/4
37	Riverside bar and restaurant	Stone and wood structure	Several decades	Open bar and restaurant space with garden off to the side	No classical architectural features	3/3
38	Bus stop & parking	Rows demarcated by concrete blocks to place busses in arrival & departure order	Recent addition	Open space, rather dilapidated, needs to be upgraded or relocated	Messy appearance	2/2
39	Platte Brug	Concrete landing with roof cover	Probably 18th century, not certain	Open space for passenger boarding canoes that cross the	Recently restored	4/4

				river		
HEILIGENWEG – FROM CACTUS GOLD SHOP TO REVOLUTION SQUARE						
#	**NAME & LOCATION**	**ARCHITECTURE**	**HISTORY**	**ENVIRONMENT**	**INTEGRITY & USABILITY**	**CONDITION**
40	Cactus Gold Shop; Water-kant Veerplein	One-story concrete & wood structure	Old ferry ticket office	Along the river, retort for mercury recovery	1960s	3/3
41	Tjon Moek Sang Sandwich Shop; Heiligenweg #1	One-story concrete & wood structure	Not known	Prominent corner location, always busy	Also contains Phonetastic, small cell shop on west-side of the building	3/3
42	Maurits Snack Heiligenweg 3?	One story structure with three partitions	Not known	View on bus stop, persons hanging out front	Contains small clothing shop (no name) and Sandy's Gift shop (closed, owner left)	3/3
43	Wang Wah Jewelry Heili-genweg 5a & 5b? Not sure	Three story concrete and wood. Balconies enclosed with iron bars	Not known	First two or three story building in the row, looks out over the bus stop	Nam Shing Shop closed No clear architectural style (modified)	3/3
44	I Like You Clothing store Heiligenweg 7	3-story concrete building, 4 large double windows on each floor	20th century; two stores on the ground floor	Looks out over bus stop	Also Eagle clothing (sign says jewelry & shoes)	3/3
45	Hawai Shopping Center Heiligenweg 9a, 9b & 9c	3-story building, ground floor concrete, 1st & 2nd floor wood, balcony with glass windows	Not known Ground floor 3 stores, 3b closed	Looks out over bus stop	Hawai Shoes, bags, perfume; 9c no name; clothing, watches, bijoux	3/3
46	Julie's Snack Shop (3 stores) Heiligenweg 11	Two story building with dormer; partial balcony with 4 round columns Side covered with metal sheets	19th century but building in bad repair and modified	Looks out over the bus stop	Small shop off to the left of the building sells clothing & shoes; snack shop and then Gershom Jeweler	3/3
47	Hung Fat Heiligenweg 13	Concrete ground floor with wooden upper floor; narrow façade with full balcony	19th century?	Looks out over bus stop	Bags, cosmetics, lingerie, bijoux	3/3
48	Hengs Fong Trading Co. Music, clothing, shoes Heiligenweg 15	Two-story building, concrete ground floor; wooden full balcony, sun roof collapsing; metal cladding on side	19th century	Looks out over the bus stop	Also Shun Jewelry and Ragnie's Cafetaria & Roti Shop	2/2

49	Jung Hsiang Heiligenweg 17 Jewelry	3-story building; Concrete ground floor, full balcony enclosed with glass pane windows	19th century	Looks out over bus stop	Rare single store; side with metal cladding	2/3
50	Julie's Heiligenweg 19 General mechandise	Classical 2-story building with 2 attic windows; full balcony with carved columns and balustrade	19th century	Looks out over bus stop	General merchandise; electronics, clothing, bags, Tupper ware, toyus	3/3
51	Friendship Jewelry Heiligenweg 21	2-story building with dormer, upper floor and dormer cladded with steel sheets	19th century	Looks out over bus stop	Also "blue store" with clothing, underwear, bags & shoes (no name)	3/3
52	Cloe's Gen. Merchadise Heiligenweg 23	One-story concrete building in bad shape	Not known	Looks out over bus stop	General merchandise, cosmetics, school supplies	2/2
53	Telesur Main Office Building Valliantsplein	5-story modern stone building; large dark glass windows	20th century	Side of building faces Heiligenweg, front faces Valliantsplein	Modern building, no classical style elements	5/5
54	Suriname Post Spaar Bank Heiligenweg	3-story concrete and glass building; modern architecture	20th century	Looks out over Heiligenweg	No classical style elements	4/4
55	TCT Bus Terminal Office & waiting room	One story wooden building	20th century	At the end of the bus parking area	Waiting room, could be much improved	3/3
56	Fire Station Heiligenweg	2-story concrete structure with open balcony	20th century	Looks out over bus stop	Functional location, center of town	5/5
57	Large parking lot SPSB Heiligenweg	Parking lot with some small garages	20th century	Looks out over bus stop	Very large lot, belongs to the bank	4/4
58	Jingles Hair Dresser Heiligenweg	3-story concrete building with triple roof peaks (Curacao style)	20th century	Looks out over bus stop	Also JFC snack (airco) and Ali's snack (open corner shop)	4/4
59	Revolution Square	Monument constructed from remnant pillars of the former Police Station	20th century	Looks out over the river	One small sausage snack shack	5/5
WATERMOLENSTRAAT – FROM REVOLUTION MONUMENT TO KEIZERSTRAAT						
#	**NAME & LOCATION**	**ARCHITECTURE**	**HISTORY**	**ENVIRONMENT**	**INTEGRITY & USABILITY**	**CONDITION**

60	Tjoen Store Watermolen-straat 2-4	2-Story, stone ground floor, wood first floor with full balcony	20th century	Beginning Watermolenstraat	Includes Café 't Watermolentje	3/3
61	Jamaludin Pharmacy Watermolen-straat 6-8	2-story concrete, modern with painted gable panels	Late 20th century	Long building	Modern style architecture	4/4
62	Dr. Jamulaudin Watermolen-straat 10	Modern, 3-story stone and panels	Late 20th century	Narrow high structure	Also MyLab PrikPunt	4/4
63	XinYue Bar & Restaurant W-Molenstr . 12	3-story, ground floor stone, 2 wood floors, partial balcony	Early 20th century	Very poor condition	Krabbe Steeg next to building; very dirty	1/1
64	Gaatjes Place W-Molenstr. 16	2-story stone & wood Full balcony, large dormer & 2 small ones	19th century	Hotel?	Bar-Cafe	2/2
65	Hotel No name W-Molenstr 18	All wood, 3-stories, two full balconies	Late 19th century	Poor folks hotel	Hotel	2/2
66	Johan Glenn	3-story, 1 full balcony, wood upper facade	Late 19th or early 20th century	Very poor folks hotel	Hotel, no water & electricity	2/2
67	Parking lot W-Molenstr 1-3					
68	Choeng Hing Store W-Molenstr 5	3 story, ground cement, 2nd & 3rd floor wood, partial balcony	Late 19th century?	Store pretty run down	Mixed merchandise, probably pawn shop	3/3
69	Jetset W-Molenstr 7-9	3-story, stone ground floor, gable with metal cladding	Late 20th century	Fairly modern style	Clothing store	5/5
70	Parking lot W-Molenstr 11-13	Gated wall with five arches			Belongs to NH?	
71	Min. van NH Dienst Water-voorziening W-Molenstr. 15	Concrete with 3 floors and full balcony on 2nd floor	Late 20th century		Water services rural areas	3/3 or 4/4
72	Labor Inspection Office W-Molenstr. 17	3 floors, ground floor concrete, 2nd floor full balcony and 3rd floor partial balcony	19th century Very interesting architectural features	Could be nicely restored, has potential	Handles complaints regarding labor issues	3/3
73	Vacant lot W-Molenstr 19					
KEIZERSTRAAT (south side) – FROM WATERKANT TO VALIANTSPLEIN						

#	NAME & LOCATION	ARCHITECTURE	HISTORY	ENVIRONMENT	INTEGRITY & USABILITY	CONDITION
74	Vacant lot Keizerstraat 5					
75	A-Hong Store Keizerstraat 7	3-Story, ground floor concrete, no balcony, upper two floors wood with metal cladding	Late 19th century or early 20th century	Old shopping district	In poor condition	2/2 or 3/3
76	Toney's Fashion Keizerstraat 7	2-story wood, no balcony, Hipped roof with dormer & attic rooms	19th century	Old shopping district	Needs repair	3/3
77	Vacant lot Keizerstraat 11	Two lots, corner lot probably Watermolenstraat				
78	Me. S.M. Nibte Law Offices Keizerstraat 13	2-story narrow gable in wood with balcony enclosed with glass panes	20th century	Near corner with Watermolenstraat	Rear concrete structure added	3/3
79	Mac Nack architect & engineer Keizerstraat 15	2-story in wood narrow gable with full balcony	20th century			4/4
80	Residence Keizerstraat 17	2-story wood, ground floor with rolling steel door, no balcony	20th century		Rare residence building	3/3
81	The Hair Box Keizerstraat 19	3-story wood, narrow gable with 1st floor balcony	20th century			3/3 to 4/4
82	CHM Super Store Keizerstraat 21	Two story concrete, upper floor with extruding 3-sided elements, pyramid roof	20th century			3/3 to 4/4
83	Police Centrum Keizerstraat 23	One story concrete building	Recent		Modern style	5/5
84	Old Police Station Keizerstraat	2-story with hip roof and three dormers, one large and two small, no balcony	Classical 19th century structure	Prominent location corner of Keizerstraat and Kerkplein	Potential for restoration	2/2
85	Brakke Clothing Shop Keizerstraat	3-story concrete ground floor with two wood layers, 2 full balconies	Classical 19th century architecture		Excellently restored	5/5
86	Tjon Hing Bldg Keizerstraat	3-story concrete bldg. 2 full wrap around balconies	Mid-20th century		Four businesses, general merchandise, snack, security and copy center (closed	4/4

VALLIANTSPLEIN						
#	**NAME & LOCATION**	**ARCHITECTURE**	**HISTORY**	**ENVIRONMENT**	**INTEGRITY & USABILITY**	**CONDITION**
87	Telesur Complex Valliantsplein	Three buildings: 3-story concrete 2-story Customer Service 5 story office	Later 20th century	Prominent location at Valliantsplein fountain triangle	All modern buildings late 20th century	5/5
88	UN Mall Maagdenstr 2	2-story modern concrete and glass	Early 21st century	Prominent location corner Maagdenstr and Vallaintsplein	Jewelry, snack, photo shop	4/4
89	Tjin A Kiet Heiligenweg 33	2-story wood, partial balcony, round col8umns,	19th century	Facing Valliantsplein	General merchants Beautifully restored Swit Mofo snacks to left ground floor	5/5
90	Patricia Store Heiligenweg 35	2-story with dormer roof balcony with 4 square columns	19th century	Facing Valliantsplein	Clothing, lingerie store lower left Beautifully restored	5/5
91	Zhang Fashion Heiligenweg 37	2-story dormer roof partial balcony with 4 round columns, all wood	19th century		Clothing store and snack bar ground floor	3/3
92	Chee's Jewelry Heiligenweg 39	One-story concrete			Jewelry & watches	5/5
93	Star Shoes Domineestr 1	One-story concrete with 7 pyramid roofs, continues on Domineestraat	20th century	Facing Vallaintsplein	Star shoes & Shejed Apparel Recently remodeled	5/5
KEIZERSTRAAT (north side) – FROM KLIPSTENENSTRAAT TO WATERKANT						
#	**NAME & LOCATION**	**ARCHITECTURE**	**HISTORY**	**ENVIRONMENT**	**INTEGRITY & USABILITY**	**CONDITION**
94	Fernandes Klipstenen str	4 story bricks with steel cladding	20th century	Side building faces Keizerstraat	Store (closed & office	3/3
95	Moussi Issa Keizerstraat 51	3-story concrete ground floor, 1st & 2nd wood, full & partial balcony	20th century?		Textiles, clothing	4/4
96	Keizer Mall Keizerstraat 52	3-story concrete large glass windows	Moderns recent		Natraj Trading Electronics, kitchen appliances	4/4
97	Parking lot				Paid parking also for	

	Keizerstraat				Mirage Casino	
98	ME & CITY Keizerstraat	2-story concrete, no balcony	Modern		Clothing, bijoux, bags, shoes	4/4
99	Chung Fa Foei Kong Keizerstraat	Modern 2-story concrete building	Old building on Keizerstraat, 3 story with 1st floor full balcony		Newspaper and Chinese Business Organization	3/3
100	Sunil DVD Keizerstraat 40	2-story concrete ground floor with wood top with almost full balcony	Could be 19th century		Also Heritage Clothing	3/3
101	Store (closed) Keizerstraat 42	2-story concrete first and second wood with steel cladding dormer roof & attic windows	?		Was electronics store Also Vliegende Shotel sandwich shop (closed)	3/3
102	Post Office Keizerstraat	Side of the Post Office facing Kerkplein	1950s		Large building on kerkplein, now abandoned	2/2
103	JL Snacks Korte Kerkstr 2	2-story 1st concrete, 2nd concrete, gabled roof with dormer, full balcony	19th century			3/3 to 4/4/
104	Vacant lot Keizerstraat	Side of large building under construction Kerkplein				
105	Parking lot Keizerstraat	Jadnanansing Notary				
106	Parking lot Keizerstraat	BIZA Ministry of Home Affairs				
107	Min. of Home Affairs Keizerstraat 20	2-story concrete and wood 1st floor, no balcony, side section added	20th century		General Affairs Office	3/3
108	Deli bar-restaurant Keizerstraat	3-story concrete, two balconies facing Watermolenstraat	Originally 19th century		Not in use	3/3
109	Chitoe Notary Watermolenstr 28	Revival architecture, 2-story wood with dormer roof	21st century		Side faces Keizerstraat	5/5
110	Parling lot Keizerstraat					
111	Kasimbeg Keizerstraat	2-story concrete with iron cladding on gable	20th century			3/3
112	Natio Lottery Keizerstraat	2-story ground concrete, 2nd floor wood, with large	19th century		Also INTRALOT (lottery) 2-story attached bldg,	2/2

		dormer (7 windows)			concrete & wood, no balcony	