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Country: Suriname

Final Project Document

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EXECUTIVE SUMMARY

The proposed action falls under the Global Climate Change Alliance+ (GCCA+) Flagship initiative of the European Union (EU) Global Public Goods and Challenges programme and is designed to support Suriname in improving its current climate change adaptation capacity and mitigation efforts.

Climate Change is a major issue for the Republic of Suriname as it is particularly vulnerable to the increasing frequency and severity of droughts, floods and severe storms, and their impacts on sectors such as agriculture, fisheries, as well as infrastructure. Such climate-related hazards are having increasingly adverse effects on the country and future climate change is likely to further exacerbate the situation. A large proportion of the Suriname population has a low capacity to adapt to climate change and the predicted impacts are likely to be particularly negative on Suriname's rural population because of their high dependence on rain-fed agriculture and natural resource-based livelihoods. Suriname's capacity to adapt to climate-related hazards needs, therefore to be developed to limit the negative impacts of climate change and address the country's socio-economic and developmental challenges effectively.

One way to support effective adaptation planning, in particular for an increase in intensity and frequency of droughts, floods and severe storms, is to improve climate monitoring and hydro-meteorological data processing for improved land use and coastal resource management. For Suriname to improve the management of these climate-related hazards it is necessary to: i) enhance the capacity of hydro-meteorological services and networks to predict climatic events and associated risks; ii) develop a more effective and targeted delivery of climate information for planning purposes; and iii) improve mangrove management. Mangrove forests (including swamp/marsh and creek forests which in 2010 covered a considerable area in Suriname (2,291,544 ha¹) are an important component in maintaining biodiversity and storing carbon and will be integrated into the forest monitoring for REDD+ purposes. Mangrove conservation and rehabilitation is therefore an important consideration regarding future sea defence and climate change policies. Mangrove management can therefore be considered very important and as such, new intervention strategies are needed whilst being compatible with existing or proposed national development policies and strategies.

Based on problem analysis and needs assessment summarised above, the GCCA+ proposal is designed to consist of 2 Expected Result Areas (ERAs but also known as "outcomes"). It consists of nine (9) Outputs and twenty three (23) Activities. The proposal will support Suriname in two areas: 1) expanding the existing knowledge base on effects of climate change (focused on meteorological and hydrological data and on developing tools (modelling) and instruments (meteorological and hydrological stations) that will help to provide more reliable information and knowledge to help modernise climate change adaptation measures to benefit of the entire population and 2) strengthening national capacities for mangrove conservation.

The first component will focus on climate data collection, on the performance of the national meteorological service, on hydrological/hydraulic modelling as a basis for sustainable water resources management at country level, and on adaptive research in the agricultural sector aiming to reduce the sector's vulnerability to the negative effects of climate change. This is linked to the focal sector of the 11th EDF NIP, sustainable agriculture.

The second component will address the problem of ongoing destruction of the mangrove ecosystems which provide a natural defence of the coastal area against sea level rise and erosion. The activities under this component are complementary to ongoing initiatives in this field and respond to priorities indicated by the

¹ From "Suriname in Figures - Environment Statistics" GBS/CI 2014.

national stakeholders concerned with mangrove conservation and coastal area management. In this sense, the action will facilitate the development of a mangrove strategy, embracing the outputs of a complimentary economic (monetary) mangrove valuation study to help improve the conservational management of the still abundant but threatened mangrove areas. In both components, the focus will be on the development of capacity to adapt to climate change and contribute to mitigation of climate change in Suriname.

In the medium term, the knowledge and information generated by the proposed action will be essential inputs for subsequent climate change mainstreaming into national policies and strategies in concerned sectors. The proposed action will also directly contribute to global EU and international climate change commitments (REDD+, UNFCCC, SIDS etc).

ABBREVIATIONS

ABS- Algemeen Bureau voor de Statistiek (General Bureau of Statistics)

ADB- (Agrobiodiversity GEF SGP project: 'Conservation of agro-biodiversity and providing communities key crop planting materials').

AdeKUS- Anton de Kom University of Suriname

ARSD- Agricultural Research Sub-Directorate

ATM- Ministry of Labor, Technological Development and Environment (now obsolete)

AWLS- Automatic Water Level Monitoring Stations

AWP- Annual Work Plan

AWS- Automatic Weather Station

BBS- National Herbarium of Suriname

BPOA- Barbados Programme of Action

CBO- Community Based Organisation

CC- Climate Change

CCEG- Climate Change Expert Group

CCCCC- Caribbean Community Climate Change Centre

CELOS- Centre for Agricultural Research in Suriname

CFMP- Catchment Flood Management Plan

CfP- Call for Proposal

CI- Conservation International

CITES- Convention on International Trade in Endangered Species of Wild Fauna and Flora

CMO- Center for Environmental Research

CTO- Caribbean Tourism Organization

DAS- Division of Agricultural Statistics

DC- District Commissioner

DEM- Digital Elevation Model

DfID- Department for International Development

EBA-Ecosystem Based Adaptation

EDF-NIP- European Development Fund National Indicative Programme

EEZ- Exclusive Economic Zone

EIA- Environmental Impact Assessment

ERA- Expected Result Area

EU- European Union

EWS- Early Warning System

FAO- Food and Agricultural Organization of the United Nations

FCPF- Forest Carbon Partnership Facility

GCCA- Global Climate Change Alliance

GDP- Gross Domestic Product

GEF- Global Environment Facility

GIS- Geographical Information System

GoS- Government of Suriname

GLIS - Land Registration and Land Information System

GPRS- Global positioning recording stations

ICZMP- Integrated Coastal Zone Management Plan

IDB- Inter-American Development Bank

IDCS- Investment & Development Corporation Suriname

IICA- Inter American Institute for Cooperation on Agriculture

ITCZ- Inter-Tropical Convergence Zone

IWRM- Integrated Water Resources Management

JCCCP- Japan-Caribbean Climate Change Partnership

JSOOC- Jan Starke Training and Recreation Centre

KMS- Knowledge Management System

LVV- Ministry of Agriculture, Animal Husbandry and Fisheries

MCP- Multi-Purpose Corantijn Canal Project

MDGs- Millennium Development Goals (now known as Sustainable Development Goals)

MDS- National Meteorological Service (Meteorologische Dienst van Suriname)

OW- Ministry of Public Works

MSC- Marine Stewardship Council

MUMA- Multiple Use Management Area

NARENA - Natural Resources and Environmental Assessment

NBINS- National Biodiversity Information Network

NBAP- National Biodiversity Action Plan

NBS- National Biodiversity Strategy

NBSAP- National Biodiversity Strategy and Action Plan

NCAP- Netherlands Climate Assistance Program

NCCPSAP – National Climate Change Policy, Strategy and Action Plan

NCD- Nature Conservation Division

NCN- National Climate Network

NCSA- National Capacity Self-Assessment

NFI- National Forest Inventory

NGO- Non- governmental organization

NH- Ministry of Natural Resources

NIMOS- National Institute for Environment and Development in Suriname

NPD- National Project Director

NPM- National Project Manager

NRC- National Result Coordinators

NZCS- National Zoological Collection

OECS- Organisation of Eastern Caribbean States

OP- Development Plan Suriname 2012-2016

PA- Protected Areas

PMU- Project Management Unit

PPCR – Pilot Programme for Climate Resilience

PSB- Project Steering Board

REDD+- Reduced Emissions from Deforestation and Degradation (*"REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks*)

ROGB- Ministry of Physical Planning, Land and Forest Management

RO- Ministry of Regional Development

ROM- Coordination Office for Spatial Planning and Environment within NIMOS

R-PP- Readiness Preparation Proposal

SBB- Foundation for Forest Management and Production Control

SCPAM- Suriname Coastal Protected Area Management

SDI- Spatial Data Infrastructure

SEA- Strategic Environmental Assessment

SIDS- Small Island Developing States

SNC- Second National Communication

SWM- Suriname Water Company

SWRIS- Suriname Water Resources Information System

TA- Technical Assistance

TBI- Tropenbos Suriname International

TOR- Terms of reference

TWG- Technical Working Group

UNCBD- United Nations Convention on Biological Diversity

UNDP- United Nations Development Programme

UNFCCC- United Nations Framework Conventions on Climate Change

USAID- United States Aid.

VLТ- Fifth Suriname Census of Agriculture

WB- World Bank

WLA- Hydraulic Research Division (Waterloopkundige Afdeling)

WFS- Water Forum of Suriname

WMO- World Meteorological Organization

WTTC- World Travel and Tourism Council

WWF- World Wildlife Fund

1. Context

1.1 Country Context: Climate Change and Development in Suriname

1.1.1. Geography, Administration and Demographics

At just under 165,000 km² (64,000 sq. mi), the Republic of Suriname is the smallest sovereign state in South America (French Guiana, while less extensive and populous, is an overseas department of France). Suriname has a population of approximately 541,638 (67% of the population – ABS 2014) most of which (80%) live on the country's coast, where the capital Paramaribo is located. The population growth is approximately 1% per year. Males account for 49.96% of the population (ABS 2014).

Land formation features, rather than climate, are responsible for ecological and forest diversity in Suriname, and can be categorized into five broad ecological zones:

1. The Marine Zone, including all off and near shore environments;
2. The Young Coastal Plain, including coastal beaches, estuaries, mudflats, mangrove communities, and swamp and coastal forest environments;
3. The Old Coastal Plain, including higher sandy ridges, inland swamps, wetlands and forests;
4. The Savannah Belt, including a mix of open grasslands, xerophytic (dry) forest, deciduous forest and rainforest communities occurring in intermittent and isolated bands;
5. The Interior Forests, including wet tropical lowland and sub-montane forests, some elevated massifs, and the majority of Suriname's accessible mineral resources.

Suriname is divided into 10 administrative districts. Each of them is headed by a district commissioner. The districts are further subdivided into 62 resorts. Each district is headed by at least one District Commissioner. A District Council is the supreme political governance organ of the district, which is chaired by the District Commissioner. The District Commissioner, the representative of the Minister of Regional Development, is the head of the District's Governance and has executive power. The members are elected at the same time as the general elections for the National Assembly of Suriname, every 5 years.

The ten district governments manage their own revenues and budgets and deliver simple public services. Local authorities have a limited role on environmental responsibilities. This role is articulated through the Law on Regional Institutes (Wet Regionale Organen), which grants them some responsibilities for spatial planning/environment. This role is not elaborated in subsequent district level legislation and has not been linked to the national environmental system. The largest district Sipaliwini (which has four District Councils) has been subdivided in 3 management areas with each a district commissioner at the head. There are also 62 sub-district jurisdictions, Resorts, each with its own popularly elected Resort Council. District Councils, have little implementation capacity, having no local taxation possibilities and they do not receive any significant subsidies. As a result they have little authority and depend on transfer funds and personnel from the central government.

1.1.2 Economic and social situation and poverty analysis

Following years of economic volatility, Suriname has transitioned into a period of stable macroeconomic growth coupled with relatively low inflation. Growth is expected to average around 4 to 5 percent annually over the medium-term. Suriname is an upper middle income country but its levels of poverty and inequality remain worrisome. The country ranked 100th out of 187 countries in the 2014 Human Development Index of the United Nations Development Programme (UNDP). The Food and Agriculture Organization (FAO) estimates that 15 to 20 percent of its population is undernourished. There are also significant inequalities between coastal areas, generally more affluent, and the rural interior.

The country has a narrow economic base that is strongly tied to commodities: alumina, gold, and oil constituted more than 80% of current account receipts at the end of 2012. The largest contributors to Suriname's GDP are manufacturing (including crude oil refining), wholesale and retail, mining and quarrying, and agriculture. The agricultural sector, including livestock, fisheries, and forestry is especially relevant in the rural districts and contributes over 20% to national employment.

Suriname seems to be the fastest growing tourism destination in the Caribbean, according to data and analysis of the Caribbean Tourism Organization (CTO). Between January-May 2013 a total of 93,642 tourists visited Suriname, an increase of 5.7% compared to the same period in 2012. Tourism is divided between domestic tourism and international tourism, international tourism is sub divided between Diaspora and expatriates visiting family and friends and tourists without any family connections in Suriname. Despite this, Travel and tourism is a minor contributor to GDP in Suriname, in 2011, direct contribution of travel and tourism was SRD 207.6M, or 1.8% of GDP.

Domestic tourism is difficult to quantify in numbers of travellers / day visits without extensive survey and census, the General Bureau of Statistics has calculated that domestic travel spending generated 46.9% of direct Travel & Tourism GDP in 2011 compared with 53.1% for visitor exports (i.e. foreign visitor spending or international tourism receipts). Domestic travel spending is also forecast to grow by 0.6% in 2012 to SRD 220.3mn, and rise by 4.0% pa to SRD 325.7mn in 2022. Tourism also plays a moderate employment role, 3000 jobs are directly supported by tourism (1.6% of total employment) whilst another 7000 jobs indirectly (4.1% of total employment) (taken from "World Travel and Tourism Council (2012) Travel & Tourism Economic Impact 2012 Suriname London WTTC").

1.2 Sector Context (Climate Change and Mangrove Conservation)

1.2.1 Climate and Weather Patterns

Suriname has a tropical climate with abundant rainfall, a uniform temperature, and high humidity. Average daily temperature in the coastal region is 27.40 Celsius, with a daily variation of 5°C. Annual variation of the average temperature is 2-3°C. The interior has relatively similar figures, although variation of daily temperatures can be larger (10-12°C). Suriname's tropical hot and wet climate is influenced by several factors. The passage of the Inter-Tropical Convergence Zone (ITCZ) typically results in a short wet season from December to February and a long wet season from May to mid-August. In between these seasons are the short dry season (February to late April) and the long dry season (mid-August to early December). Average precipitation in Suriname is 2,200mm/year (ABS 2014). There are no statistically significant observations of precipitation change, and long-term trends are difficult to identify due to large inter-annual rainfall variability (Caribsava, 2012). Available data show that the highest amount of rainfall occurs in the centre and the lowest in the northwest. The highest variability in rainfall occurs in Paramaribo and Wanica (SNC, 2013).

Air temperature records at the national meteorological service, Meteorologische Dienst van Suriname (MDS), indicate average daily temperatures of about 27 degrees Celsius with an annual variation of 2-3 degrees Celsius. Temperature observations since 1966 in the coastal zone of Suriname show an average increase of approximately 0.016 degrees Celsius per year (SNC, 2013). No significant trends have been observed in the interior. It is important to note that these temperature observations may be affected by local conditions, such as urbanisation in the coastal zone, and land cover (such as forest) in the interior (SNC, 2013).

Another key climatic influence relates to Suriname's surface conditions, characterised by rivers and swamps and vegetation cover that produce a large amount of water vapour. This, combined with convection and orographic lifting, help contribute to the country's relatively abundant precipitation. Annual rainfall varies from 1750mm/yr – 3000mm/yr across the country (SNC, 2013). The abundant rains feed seven major rivers, and numerous creeks and swamps flowing generally south to north-west direction.

1.2.2 Water Resources and Hydrology

According to the ranking of the World Water Council Suriname is one of the most fresh water richest countries, being ranked 6th of those countries that have superfluous water resources. A study ‘Naar een geïntegreerd waterbeheer in Suriname’ (towards integrated water management in Suriname), was carried out for the World Wildlife Fund Guianas (2011). Natural freshwater resources, including rivers, creeks, swamps and marsh covering 12,000 square km, discharge 4,975 cubic meters per second into the Atlantic Ocean from the main seven rivers annually (i.e. approximately 30% of the annual rainfall). The Marowijne and the Corantijn Rivers contribute to 70% of the total discharge. However there are periods (the long dry season) where there is a shortage of water among others for irrigation purposes, hydro-power and drinking water supply (in the interior), whilst during the wet season periodically at some locations there are flooding problems due to excessive rainfall (from Second National Communication).

According to the above study, the production of surface and sub-soil water in Suriname, solely on the basis of annual precipitation, is around 117 km³. This amounts to an average of 641,000 liters of water per capita. Based on an annual population growth of 3% and a decrease of 200 mm of rain per year while all other parameters remain the same, it has been calculated that the availability of water in 2050 will have decreased by 60% and by 2100 even by over 99%.

The coastal area plays an important role in the maintenance of drinking water reserves, because freshwater aquifers are available in this area, which are the main source of potable water for people living here, and especially in and around the capital of Paramaribo. Of all the aquifers only the Zanderij aquifer is subjected to recharge, whereby rainfall in the savanna belt percolates into the ground and replenishes this aquifer.

Figure 1 shows an increase of water consumption (in litres). The increase in the period 2002-2008 is 28.6% and from 2009-2012 is 13.9%.

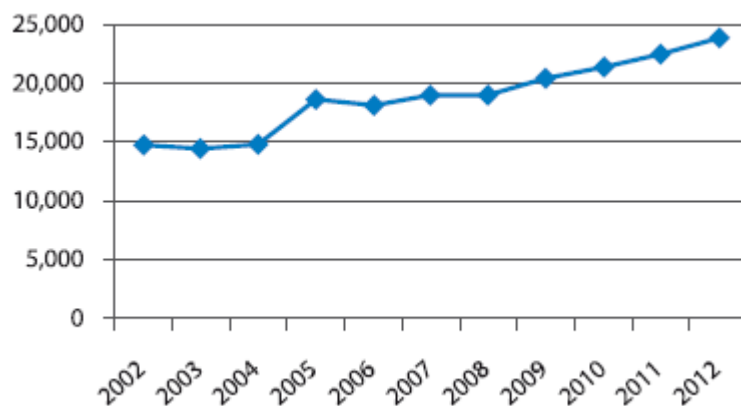


FIGURE 1: INCREASE IN WATER CONSUMPTION (LITRES) IN SURINAME (2002 – 2012)

When it comes to the water resources available for use, there is an increase. However, this statement can only be made for drinking water. There is no data for water resources used for agricultural, domestic/ municipal and industrial sectors. As a result it is difficult to draw any conclusions with respect to the target being met for these specific ways of use. The country does have an old water supply system in and around the capital, dating from 1933. Suriname Water Company (SWM) since this time has been responsible for the water distribution in coastal areas. Water consumption is dominated by household connection supply with approximately 71% of the total consumption in 2013 being for this purpose.

1.2.3 Agriculture

The agriculture sector in Suriname i.e. the horticulture subsector is mostly dependant on rainfall. Many farms are located near former plantations with existing infrastructure for irrigation connected with a river or a creek. Another great demand for water comes from the rice sector. One part of the rice sector of Nickerie makes use of the Multi-Purpose Corantijn Canal Project (MCP) which is meant to regularly provide enough water to the existing rice areas through the 66 km long Corantijn canal. At this moment nearly 6.500 ha of the 10.200 ha available for cultivation, is utilized.

The Fifth Suriname Census of Agriculture (VLT) completed in 2009 captured fundamental structural statistics for the agricultural sector. The Division of Agricultural Statistics (DAS), part of the Planning Directorate of the Ministry of Agriculture, Animal Husbandry and Fisheries (LVV), is the principal data source for agricultural data in Suriname. One important aspect that the census highlighted was the small holdings dominance of the agricultural landscape in Suriname. This signals the need for official recognition of the social and human development dimensions of development and the implications of development of the agricultural sector for poverty alleviation as well as food security and the sustainability of rural livelihoods. Small-scale agriculture represents about 80% of farming in Suriname, and contributes as much as 67% of production. However, climate change disproportionately affects small farms, with livelihoods being linked to fragile natural resources presenting the greatest vulnerability. Moreover, 66% of global poverty is concentrated in rural homes, most of which are farmers, and suffer from social and economic exclusion, lack of access to basic services, and insecure communication systems and services, inter alia. Indigenous communities, such as within the interiors of Suriname are particularly characterised by extreme poverty, lack of formal education and few productive resources.

In terms of gender statistics on agriculture employment, the following is taken from the 'Final report of the Fifth Agricultural Census 2008-2009, published by the Ministry of Agriculture, Animal Husbandry and Fisheries. It shows that 35% of the agricultural workforce is female.

District	man	woman
Paramaribo	380	70
Wanica	1681	323
Nickerie	1289	76
Coronie	120	29
Saramacca	801	85
Commewijne	917	130
Marowijne	662	917
Para	194	58
Brokopondo	22	107
Sipaliwini	586	1741
Total	6652	3536
Percentage Split	65%	35%

In Suriname, a national innovative agricultural strategy had been developed (draft) in 2013. The document proposes e.g. better coordination and collaboration within the system between different research actors, between research and extension, and between the public and the private sector. Another key reform is the integration of 'innovation-oriented research' and 'extension' activities into joint agricultural innovation projects, which should foster better collaboration and a stronger orientation on concrete innovation results.

The informal division of labour between the Agricultural Research Sub-Directorate (ARSD) of the Ministry of Agriculture, Animal Husbandry and Fisheries (LVV) and CELOS is that crop research by CELOS focuses on crop production in the interior areas, while ARSD focuses on crop production in the coastal zone and on

vegetables. In the case of CELOS the emphasis in its research approach is more on integrated agricultural production systems rather than on mono-cropping. Nevertheless, it has pioneered in recent years a cassava research program, which forms the technical backstopping for the current campaign to expand cassava production.

1.2.4 Biodiversity and Forestry

Suriname is home to many unique ecosystems. A complex mangrove ecosystem exists in the coastal plain. This area is an important breeding, feeding, and nursery ground for fish, marine invertebrates, sea turtles, and an enormous numbers of migratory birds. Forests in general (including mangrove forests) cover 94.7% of the total land area (covers 150,000 km² of the country of which about 2 million hectares), which is almost 0.4% of the total forests on earth (ABS 2014).

Suriname formulated a National Biodiversity Strategy in 2006 and a National Biodiversity Action Plan for the period 2012 – 2016. The country has also prepared five National Reports to the UN Convention on Biological Diversity since it signed the Convention in 1992 and ratified it in 1996. The last of these progress reports dates from March 2015.

The National Biodiversity Strategy (NBS) sets out the national vision, goals and strategic direction in order to conserve, protect and sustainably use our rich biological diversity and biological resources and distribution. It serves as a framework for the Biodiversity Action Plan for 2012 – 2016, which identifies activities, tasks and expected outcomes. The NBS is based on strengths and assets in our natural, social, institutional and infrastructure environment, since these serve as the basis for an achievable National Biodiversity Strategy. A vision statement of the country's Biodiversity Strategy was developed, in which the commitment of the people of Suriname is reflected to value and protect the national biodiversity.

The strategic direction is framed by several principles, including:

- Incorporation of biodiversity, cultural and nature conservation measures and values into national development plans and sector plans;
- Creation of financial and human resources to achieve and sustain the national vision;
- Improvement of the capacity of people to value biodiversity socially and economically and to understand the benefits of all forms of biodiversity;
- Establishment of an educational system that benefits from awareness on biodiversity issues.

The government signed the Convention on Biological Diversity and the Convention on the Law of the Sea, which address EIA. As part of the Biodiversity Strategy, the government aims to strengthen the government institutions, NGOs and private businesses engaged in the preparation of EIA.

1.2.5 Protected Areas

The protected areas in Suriname can be divided in 3 categories, namely: Eleven (11) Nature Reserves with a coverage of 1,881,100 ha, where Central Suriname covers about 1,592,000 ha, one nature park (1) with coverage of 12,200 ha and four (4) Multiple Use Management Areas (MUMA's) with coverage of 2,138,300 ha. In total there are 16 terrestrial protected areas and four proposed terrestrial protected areas in the country for research and biodiversity protection (see Figure 2). Through the creation of these nature reserves and other protected areas, about 14% of the Suriname forests are protected by law. Four MUMA's and six Nature Reserves (128,000 ha) are situated along Suriname's coastal zone. Despite this, there are currently no marine protected areas designated in Suriname.



FIGURE 2: MAP OF SURINAMESE PROTECTED AREAS

As shown in Figure 2, nearly the entire coastline of Suriname falls within the country's “protected area” system. Only a section near the eastern coast border and the highly urbanized central coastal area surrounding Paramaribo are excluded. Each protected area is roughly divided between terrestrial and marine systems, extending approximately 5 kilometres into the interior and 2 kilometres into the sea. The border of the EEZ (Exclusive Economic Zone) has been extended to 350 mile in 2010 to support Suriname economic interest, due to introduction and increase of different fishery and oil exploration activities in the last 15 years.

1.2.6 Mangroves

Mangrove ecosystems are among the most productive on earth, supporting globally significant biodiversity and providing resources and environmental services that underpin economic activities and ensure the environmental integrity of coastal areas. Moreover, their role in increasing the resilience of coastal ecosystems, communities and economic activities to climate change is increasingly recognized.

Suriname’s mangrove falls into the Atlantic East Pacific flora group, both ‘fringe’ mangroves fronted by mudflats and the estuarine mangrove are well developed along large areas of Suriname’s coast, inland from the fringe mangroves are characteristically swamp and lagoon systems that vary from hypersaline through to fresh water. About 1,100km² of mangrove is apparent in Suriname with most of it being the best conserved mangrove habitat in the world (ABS 2014). Mangroves are still being used by some fishermen as a medium to have their nets tied down to trap shrimps in the estuaries of the Suriname river. Mangroves are also used in the building industry as support materials.

Three species of the red mangrove belonging to the family Rhizophoraceae are:

1. *Rhizophora mangle* (L)
2. *Rh. racemosa* G.F.W Mey
3. *Rh. harrisonii* Leechm. (*a hybrid*)

Two species of black mangrove belonging to the family Avicenniaceae:

4. *Avicennia germinans* (L)
5. *A. schaueriana* Stapf & Leechm.

One species of the white mangrove (Family: Combretaceae)

6. *Laguncularia racemosa* (L) Gaertn.f.

In relation to mangroves, previous research and pilot projects have confirmed the important protective capacity of the mangrove ecosystem (amongst other functions) and explained the dynamics of natural formation and destruction, including the required conditions for its rehabilitation in critical places. Still, the potential role of the mangrove forests in protecting the coastal zone is generally underestimated by the population and by the decision-makers. This situation is reflected in the planning of a number of coastal defence projects predominantly based on infrastructure works that are costly in construction and maintenance and, if not carefully designed, destroy the mangrove ecosystem (e.g. by preventing the interaction between salt and freshwater).

There are therefore several challenges to face: management of mangroves in Suriname is subject to complicated institutional arrangements and mangrove management has never been of high profile and has not attracted regular resources either from government or donors. Consequently, even though the relevant agencies have a degree of technical competence, there is no track record of continuous, systematic mangrove management and monitoring programmes. It will be especially important to continue public awareness and to increase the level of community involvement in rehabilitation, protection and monitoring. Without this, long-term sustainability would be at serious risk.

Beekeeping provides one of the few sustainable ways to use mangrove. If the beekeeping is done without harming the bees, it has no negative impact (FAO, 2006). Bees are natural pollinators, and very important for the biological balance of the ecosystem as they increase crop sizes and harvests; thus safeguarding food security. Monitoring of trends within bee colonies can be used as indicator for ecosystem health (personal communication, November 2013). Biodiversity loss is usually rooted in economic, institutional and social factors. This underpins the importance of maintaining a good balance between conservation of the wetlands and the sustainable enjoyment of the ecosystem services provided by these areas.

Besides pollination, which in the case of Suriname is not intentionally promoted, beekeeping is most important for the harvesting of high quality honey. Throughout the years the sector has always positively conducted on a less or more extent to the local economy of Coronie and in the past on a national level as a result of the honey exports. Beekeeping in Suriname is executed by a total of 60 beekeepers and dispersed among the coastal zones of the districts of Coronie, Saramacca, Commewijne and Wanica. The annual production is estimated at 20.000 liters (LVV, 2013), while the local consumption is estimated at 50,000 liters. This shortage creates opportunities for the sector to increase its production to meet local needs in the first place and secondly expand production to export abroad taking international standards and food safety norms into consideration.

1.2.7 Land Tenure

Environmental issues are further impacted by land tenure issues. About 60% of the population lives in the urban areas, 30% in rural areas and the remaining 10% lives in the interior. The physical and geographic make up of Surinamese society brings with it an array of complex issues related to land rights. The government, particularly since 2000, has been taking steps to ensure inclusion of indigenous groups in the conversation on land rights. Thus, any effective policy changes that seek to meet international environmental commitments, which in so doing meet Suriname's sustainable development goals, will have to engage marginalized and minority communities in a meaningful way.

1.3 Climate Change Vulnerability and Predicted Impacts

Suriname's vulnerability to the effects of global climate change is mainly linked to the expected (and observed) rise of the level of the Atlantic Ocean. Suriname's coastline of 386 km is highly dynamic and characterised by cyclical accretion and erosion. The coastline ecosystem with mangroves, mudflats, fresh and salt water permanently interacting, is a very productive ecosystem and it plays an important role in maintaining shoreline stability, preserving biodiversity and providing an excellent fishery breeding habitat. Also, as indicated in the previous section, Suriname's population and economic activities are concentrated in the coastal area. As a result, the observed sea level rise clearly presents a major threat to Suriname's population, biodiversity and economy. According to statistics from UNDP, Suriname is on the list of the ten most vulnerable countries with low lying coastal plains which are threatened by sea level rise in this century (ABS 2014). The Netherlands Climate Assistance Program (NCAP) assisted on this issue by providing funds to help Suriname focus on conducting a vulnerability assessment of the coastal zone with regard to sea-level rise (1999). This is very strategic in nature and now needs updating.

The agricultural sector is highly dependent on water resources and climatic conditions, and currently employs outdated technology, increasing its sensitivity to climate change. Saltwater intrusion and variations in rainfall patterns could lead to a decrease in available productive land, which could have negative repercussions on national food security and export earnings. Saltwater intrusion, for example, has decreased the productive land available for agriculture, flooding has damaged homes in both the coastal zone and the interior, and increased temperatures and drought have reduced the amount of water available for hydropower electricity generation.

Other effects in Suriname that are attributed to global climate change are: a decrease in annual rainfall by 200 mm (almost 10% of the average yearly rainfall) over the past 100 years; an increased intensity of rainfall (inducing erosion processes); and a less reliable rainfall distribution pattern (longer dry periods). Obviously, agricultural production is suffering negative impacts from these changes and also the replenishment of groundwater reservoirs is affected. While Suriname used to benefit from a permanent and unlimited availability of fresh water, this situation seems to be compromised due to the combined effect of higher demand and changed rainfall regimes. To keep up the current standards of wellbeing and development, the agricultural sector must prepare for the changing conditions and a more careful and proper management of the country's water resources is needed.

From the paragraphs above, it is clear that Suriname is negatively affected and threatened by global CC effects. Making the situation more challenging, a solid institutional framework is lacking, mandates in the public administration roles are unclear and there is currently no validated CC policy or strategy available. To this end, coordination of project activities is vital in order to achieve successful project results from start to finish as whilst there is a good number of CC initiatives under implementation by a variety of stakeholders, a coordinated approach is lacking. Furthermore, staff capacity to address CC issues is fairly limited in addition to awareness on issues such as gender sensitivity, cultural specificity, and community participation.

Vulnerability assessments have been carried out in relation to the National Communications to the UNFCCC Secretariat. The following sectors were included: water resources, agriculture, ecology and geomorphology (impacts on ecosystems and coastal zones), socio-economy (population, government, economy, land-use, transport, energy supply, waste), tourism and human health. Although the vulnerability assessments provided valuable data and information, they remained too general and subjective, often based on too many assumptions and extrapolations. More specifically, the existence of data gaps and the unavailability of locally adapted numerical models clearly affected the quality of the outcomes which in turn provide the basis for the development of sectoral adaptation strategies. It is of high importance to ensure that these aspects are addressed in tandem with filling in these data gaps and to ensure an appreciation of existing ways of coping/adaptation are addressed.

1.4 Legislative, Policy and Institutional Capacity Context

1.4.1. National Development Policy and International Commitments

In terms of fulfilling international commitments under the MEAs, a number of policy documents, action programmes and legislations² have been developed in order to address the issues covered by the three Conventions. Several national reports and communications were prepared by the Government of Suriname (GoS). Previous activities in Suriname relevant to this GCCA+ project document include the formulation and implementation of the following policies and action programs:

- National Environmental Action Plan;
- National Biodiversity Action Plan (NBAP);
- Forest Policy Paper of the Ministry of Spatial Planning, Land and Forest Management ;
- Development Plan (OP) for 2012 – 2016;
- First (NC) and Second (SNC) National Communications to the UNFCCC (latter not yet submitted),
- RP-P document;
- REDD+ PRODOC and
- Small Island Developing States (SIDS) 2014 National Report.

The Barbados Programme of Action (BPOA) serves as a blueprint for sustainable development of Small Island Developing States (SIDS). The Mauritius Strategy for the Implementation (MSI) of the BPOA addresses important elements that cover the sustainable development of SIDS, as well as actions that should be taken in specific strategic sectors. Suriname joined SIDS in 1981, but only became active in 2002 in the process of the evaluation of the Barbados Programme of Action (BPOA). A National Assessment Report on the Barbados Programme of Action +10 Review was produced by Suriname in 2004.

² Suriname has recently completed the formulation of the Second National Communication to UNFCCC, which is to be submitted yet.

The country has also prepared five National Reports to the UN Convention on Biological Diversity since it signed the Convention in 1992 and ratified it in 1996. The last of these progress reports dates from March 2015.

The Mauritius Strategy was adopted on the understanding that it would complement other existing frameworks, such as the Millennium Development Goals (MDGs – now the Sustainable Development Goals). The integration in national plans and the monitoring thereof, however, has proved to be a challenge in most SIDS. The most difficult part of implementing a global framework seems to be to develop meaningful indicators of the main objectives and insert them into national development plans, strategic plans, plans of action, or local level work plans.

The “*Future We Want*”, the outcome document of the 2012 Conference on Sustainable Development calls for a wide range of actions, among other things:

- launching a process to establish sustainable development goals;
- detailing how the green economy can be used as a tool to achieve sustainable development;
- strengthening the UN Environment Programme and establishing a new forum for sustainable development;
- focusing on improving gender equality;
- stressing the need to engage civil society and incorporate science into policy; and
- recognizing the importance of voluntary commitments on sustainable development.

On the basis of the frameworks and criteria formulated and used during the stakeholder consultation workshop for BPOA on 19 June 2013, eight national priorities were initially identified for Suriname:

1. Agriculture and food security;
2. Natural resources management, incl. fisheries management and oceans governance;
3. Water resources management;
4. Energy, incl. renewable energy and energy efficiency;
5. Climate change and sea level rise;
6. Biodiversity conservation;
7. Waste management and chemicals management;
8. Sustainable tourism.

Suriname’s 2012-2016 National Development Plan (OP) and the 2013 Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) both recognise the significance of climate change impacts on Suriname and the opportunities for low carbon emission development. The OP is an overarching document and provides development direction for the country. It forms the base for the national sectoral policies developed by the respective ministries and the yearly district plans. The district plans are derived from resort plans which contain the requirements and needs of the population of each district. District plans cover infrastructure, health, education, utilities and spatial planning. The OP explicitly makes reference to the challenge of climate change, stating the Government of Suriname’s intention to develop a Climate Compatible Development Strategy. The OP states the GoS’s intention to develop a Climate Compatible Development Strategy. The OP pictures Suriname as a “country in transition” and aims to increase the wellbeing for all citizens, strongly promoting the concepts of inclusive development, equal opportunities, growth and poverty reduction. As it addresses 6 main policy areas and 15 thematic key topics, the Development Plan has a relatively wide coverage.

1.4.2 Sector Assessment (Policy, Legislation and Institutional Capacity)

Hydrology and Meteorology

The improvement of the Meteorological Service (MDS) and the WLA is a prerequisite for monitoring the ongoing climate change, meeting the stringent environmental requirements when drawing up projects, the pursuit of a healthy nation and not to forget the contribution to efficiency and economically sound operations. For more than fifteen years, there is a proposal to promulgating the Law on Meteorological Service. Government policy statements and last year's annual programs do recognize the intention for a Law on Meteorological service, but unfortunately to date it has not happened.

A keen priority for the GoS is the establishment of a climate institute to support its work in climate risk issues, and to address the weak structures of meteorology and hydrology which function separately and are clearly (at least meteorology) under-resourced (technically) and have limited engagement.

More specific detail on WLA and MDS capacity and equipment is presented in Section 1.7.

Environmental Management

The Constitution of the Republic of Suriname provides the legal basis for a sustainable environmental policy in its Article 6g, which states that one of the social objectives of the state is focused on the establishment and stimulation of conditions required for the preservation of nature and the safeguarding of ecological balance.

In the environmental field, the overarching body for the coordination of environmental policy is the Office of the President of the Republic of Suriname. The National Environmental Council is not operational and exists on paper only. The Ministry of Labour, Technological Development and Environment (ATM) is obsolete since March 2015. In addition, a number of agencies and departments in sectoral ministries hold responsibilities in environmental protection, such as enforcing existing environmental regulations and contributing to environmental planning activities.

Suriname's 2012-2016 Environmental Policy Plan, a policy document of the previous ATM, states that climate vulnerability analyses will be integrated into national policy implementation. The first analysis is underway, as part of the EU and CCCC GCCA Project, with a sector based vulnerability assessment for the agriculture sector in the district of Nickerie. It has since also recommended the integration of climate change into the national planning process.

Notwithstanding the above, there is currently no legal framework for EIA or strategic environmental assessment (SEA) in Suriname. Although EIA's were conducted before the existence of NIMOS (1998) there was never an established EIA system as such. The EIA approach that NIMOS has introduced was drafted in the year 2001 and disseminated from 2003 onwards. Besides an obligation to conduct an EIA for investments over US \$40 million, EIA is not formally mandatory. This generic EIA obligation comes from the 1991 environmental agreement. Several attempts at getting approval of draft Framework environmental law have been made, as earliest as 2002, 2008 and most recently 2014, with a draft initiative Environmental Framework law being provided directly to Parliament by technical experts. The position of the new government and parliament on the previous draft and how they wish to advance is yet to be communicated to the broader public. It is however anticipated that new Environmental framework law will provide in the regulation of pollution, waste management and environmental impacts for different commercial activities.

There is some level of practice in Suriname, with the number of EIA's produced doubling to a total of 8 between 2004 and 2008, increasing to 14 in 2009. Five (voluntary) guidelines have been issued including a generic guideline on EIA (updated in 2009) and guidelines for EIA for Power Generation and Transmission, Social Impact, one for EIA in Forestry and Mining whilst in 2013, NIMOS issued 2 more EA guidelines

respectively for aquaculture and agriculture projects. In 2014 the EIA guidelines for road projects was issued. NIMOS has issued guidance on EIA, and been tasked with review of EIA reports.

Although the government's development policy is based on an integrated approach towards economic, social and environmental sustainability, the sustainable development policy framework still contains gaps. There are no specific laws that focus on biodiversity, climate change (see below) though sectoral laws, such as the Forest Act, the Game Law and the Fish Stock Protection Law does (to a degree) cover biodiversity protection issues.

Climate Change

An analysis of existing legislation in Suriname in the context of climate change management (del Prado, 2014) indicates that the current legislative environment does not adequately support climate change governance. Sectoral laws are fragmented and do not address climate change, and there is no standalone climate change law. There is currently no climate change policy document for Suriname though it has chosen to submit a Readiness Project Proposal (RPP) to the Forest Carbon Partnership Facility (FCPF) and to use the REDD+ structures described in that document for the planning process for sustainable development in Suriname. The Final RPP was submitted in June 2013.

Suriname did submit an Initial National Communication to UNFCCC and has also completed the formulation of the Second National Communication to UNFCCC. Suriname ratified the UNFCCC since 1997, but no clear policy on climate change has so far been developed, although several national assessments of climate-change vulnerability have been conducted and progress reports have been submitted.

The National Climate Change Action Plan (NCCPSAP - 2015) which derives from the OP should build on and support the objectives of the national sectoral policies such as those on water, energy, transport, etc. and with district plans. ***NB: the Office of the President does not currently accept the NCCPSAP because the REDD+ programme isn't explicitly mentioned in this document. It is expected that the final draft of the NCCPSAP is to be used by the new government in its development plan.*** This NCCPSAP, which is still in its final draft status, is the logical next step in enabling Suriname to build resilience to the impacts of a changing climate, providing a clear roadmap to respond to the challenges of a changing climate, seize opportunities for climate compatible development and attract climate finance. In line with Suriname's Environmental Policy Plan 2012-2016, the aim of the NCCSAP is to reduce the country's vulnerability through the implementation of climate resilience measures in the coastal area as well as in the interior while bringing development through sustainable and clean technology. In addition emphasis will be placed on research to generate data on the vulnerability of Suriname, on awareness-raising campaigns and on delivering cross-sectoral climate resilience measures.

Agriculture

The agricultural sector was identified as a priority in the Government Policy Statement 2010-2015 ("Cross Road, Together to Better Times" and the National Development Plan 2012-2016 - OP). In April 2011 the Ministry of LVV presented its policy document 2010-2015 (*Beleidsnota* 2010-2015) as a roadmap for the agricultural sector. A total of 8 white papers were produced, which focus on the sub-sectors rice, banana, horticulture, livestock, fisheries, the interior development and documents on agribusiness, and food safety. The agriculture policy document has 7 main objectives:

- achieve and ensure food security for the entire population Suriname;
- guarantee the agricultural health and food safety;
- develop a sustainable agricultural sector;
- develop the agricultural sector to be the food producer and food supplier of the Caribbean;
- increase the agricultural sector contribution to the national economy;

- establish the institutional and infrastructural conditions for the sustainable development of the agricultural sector;
- manage the preconditions and risks in implementing the agricultural policy framework.

A concept master plan for agricultural development in the coastal area was developed in August 2014.

Water Resource Management

One of the most serious challenges facing Suriname are currently the lack of an adequate water policy, the lack of an umbrella law that regulates integrated management of water resources, and the lack of solid research data. Currently, there is no legislation in Suriname on water resource management, and therefore no formal environmental permits are issued. A national water law has been in draft since 1984. A set of regulations on groundwater protection areas was drafted in 2007, but there was no further development of this draft regulation.

Taking the growing importance of water resources for Suriname and globally into account and since Suriname is a fresh-water rich country, it is important that a national institution exists which is specialized in water resources. At this moment, WLA is in charge with collection of data and executing studies/research regarding water at national level. Like in several countries in Latin America and the Caribbean, among others Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Guatemala, Mexico and Peru, a central agency for water related issues need to be established in Suriname, and the WLA should be attached to this agency.

In 1984 the Inter-Ministerial Commission on Water management, with assistance of the Organization of American States (OAS) prepared the report “De Nationale Water Autoriteit, taak, vorm, inrichting en implementatie” as well as the draft Water-law. The purpose (as stated above) was to establish a “National Water Authority” for Suriname, whereby, according to the proposals in the report, the WLA would play an important role in the establishment of the water authority. However the proposals which are included in the report have not been implemented yet and the Water-law has not been submitted to the Parliament for approval. It is necessary to update the draft Water-law and the proposals and to implement.

1.5 Achievements to Date

Climate change is briefly addressed in the 2012-2016 Development Plan under the section on environment. Specifically, the Plan recognizes the imminent threat of sea level rise and its socio-economic effects and foresees the elaboration of a “Climate Compatible Development Strategy”. A National Climate Change Policy, Strategy and Action Plan (NCCPSAP) has recently been published as a final draft (June 2015). Amongst others, the NCCPSAP indicates the need for implementation of a “Comprehensive national research programme on social, environmental and economic baselines, climate science, vulnerability, impacts and risk management”. The proposed GCCA+ action will directly contribute to this research programme.

Public mandates and responsibilities for environment, including climate change, are in the process of being transferred from the ATM to the Office of the President. Within this Office, the sector “Environment” will be placed under the Department for National Security and climate change will be one of the environmental subsectors. This transfer is yet to happen at the time of writing.

Regarding the conservation of mangroves, the National Assembly has developed a concept legislation for protecting all mangrove forests in Suriname. At present, however, effective protection of mangroves is hampered by the lack of proper management structures, outdated management plans and insufficiently organised and equipped patrolling teams. Despite this, OW is currently working on zoning (currently in draft), which will result in modification of the Urban Planning Act. There is an opportunity here to create 'flood sensitive areas' which shall cover mangrove areas. The Ministry of Spatial Planning, Land and Forest Management (RGB) also provided written notice in 2014 that no development activities are allowed in coastal

nature reserves. This leads to biodiversity conservation and conservation of forest in nature reserves along the coast.

1.6 Complementary Actions and Donor Coordination

At present and in the area of climate change, the most active development and donor agencies are: UNDP, the IDB (focus on renewable energy and energy efficiency), the French bilateral agency AFD (plans to support coastal protective infrastructure), the Global Environment Facility (GEF) funding and World Bank/FCPF contribution to the REDD+ Readiness project), WWF Guianas (EUR2.5M) and the Flemish Interuniversity Cooperation having a long-term cooperation agreement with AdeKUS. Government led donor coordination is, however, at a nascent stage. Whilst regular general donor coordination exists, it is only very recently that the Government agreed to a government led donor coordination, with a first to start in the field of agriculture early 2015. The previously prominent cooperation with the Netherlands has been discontinued almost completely.

Suriname is a beneficiary of the Caribbean component of the Intra-ACP GCCA+ support programme (2011-2014), implemented by the Caribbean Community Climate Change Centre (CCCCC) based in Belize. This regional programme focuses on climate monitoring, climate modelling, vulnerability and risk assessments, development and implementation of adaptation projects and access to carbon financing. CCCCC with support under the EU Global Climate Change Alliance (GCCA+) is currently installing over 150 hydro-meteorological/agrometeorological stations across the Caribbean. To date, Suriname (specifically MDS) has benefited through: (1) the supply of 7 automatic meteorological network stations; (2) training in climate modelling; (3) training in vulnerability and risk assessment; and (4) technical assistance for the development of a national climate change policy and strategy (an advanced draft is now available) with its action plan.

The UNDP/GEF (United Nations Development Programme/Global Environmental Facility) supported project “Suriname Coastal Protected Area Management (SCPAM)”, with a budget of US\$2.6 M, is drawing to a close. Its aim is to promote conservation and improved management of protected areas (mangrove ecosystems) along the coast through improved management of protected areas along the western coast of Suriname. Its overall goal is to safeguard Suriname’s globally significant coastal biodiversity. The two components of SCPAM are: (1) to improve the management effectiveness and efficiency of the Multiple-Use Management Areas (MUMA’s); and (2) to increase and diversify the MUMA funding. CELOS (amongst others) participated in this project with regard to mud bank (soil) sampling, tarpon baseline studies and sampling monitoring protocols, water quality assessment, mangrove assessment (carbon measurements), capacity building (training of locals and game wardens in field sampling techniques). The proposed GCCA+ action will learn from successes and failures and build upon the achieved results and support the required continuation of activities undertaken in this context, in particular in relation to the management plans and the MUMA structures. Moreover, activities under ERA2 of the GCCA+ project which target diversified funding sources, can link with initiatives under this project, seeking broader financial sources for sustainable development financing in general. The work of CELOS shall be developed further regarding the support towards monitoring field personnel to better collect samples for interpretation and analyses by CELOS, ROGB, Adekus and other to.

A new UNDP/GEF project “Mainstreaming Global Environment Commitments for Effective National Environmental Management”, with a GEF budget of around US\$1M was approved by the GEF in April 2014. The objective of the project is to generate global environmental benefits through improved decision-support mechanisms and improved local planning and development processes in Suriname, by harmonising existing information systems that deal with the Rio Conventions integrating internationally accepted measurement standards and methodologies. To achieve this objective, the project will work towards: (1) Increased capacity of decision makers and stakeholders to manage environmental planning and processes that lead to decisions aimed at increasing global environmental benefits through better use of information and knowledge; and (2)

Improved national capacities for the effective coordinated management and implementation of the Rio Conventions, and for continued leverage of financial resources to support the Conventions' objectives. Obviously, this new project provides multiple opportunities for synergy; close collaboration with the bilateral GCCA+ action will be established.

The recently initiated implementation of Suriname's REDD+ Readiness project (with a budget of 3.6 Mio USD) is complementary in the sense that it also addresses the issue of global climate change and supports Suriname in improving its adaptation and mitigation approaches to climate change. The REDD+ Readiness project has been approved by the Forest Carbon Partnership Facility of the World Bank. The EU has financially contributed to the development of the REDD+ Readiness project proposal through its support to the Guiana Shield Facility implemented by UNDP.

Currently a desk study is also being conducted (WWF) about the need for sea dikes, where also the experience of the dikes in Guyana will be taken into consideration. The results will be available in December 2015.

Suriname participates in the regional Caribbean research project "Climate Modelling, and Impact and Economic Modelling Implementation Plan (2011-2021)". As part of this initiative, a modelling project called "Future Change of the Climate in Suriname" is currently under implementation by the Department of Infrastructure at the Anton de Kom University of Suriname (AdeKUS). The project mainly focuses on data accessibility rather than data collection and analysis and modelling.

A recent project of relevance to this GCCA+ initiative is the UNDP Barbados Implementing Entities "Japan-Caribbean Climate Change Partnership – JCCCP". The JCCCP is being managed by UNDP Barbados and OECS country office with support from UNDP Country Offices: Guyana, Jamaica, Belize and Suriname. Of relevance to Suriname, is that support in Suriname is planned (funds to Suriname of around US\$1m) as well as regional training and exchange, assessments that aim towards improving capacity on Climate Change Mitigation and Adaptation.

Global Environment Facility (GEF)/Small Grants Programme; a Strategic Project exists on agro- biodiversity conservation and propagation of planting material of key food crops for interior region. (Source: UNDP/GEF/CELOS and partner institutes). Focus on the production of upland rice varieties by LVV, ADRON, CELOS; characterization of cassava varieties by CELOS. LVV pilot project on greenhouses remain the key focus. LVV is also trialing the use of greenhouses with attention on small farm operations using hydroponic garden techniques. In addition, the EU and GoS are separately looking towards partnering in strengthening of value chain for the Horticulture (for Podosiri (Acai) and Pineapple).

Recently completed projects of relevance include the GEF-financed Capacity Building in the Mainstreaming of Sustainable Land Management (SLM) in Suriname project. This project's objective was "to reduce land degradation trends by creating an enabling environment for responses to land degradation through capacity development and mainstreaming of sustainable land management amongst key stakeholders." This project sought to create broad-based political and participatory support amongst key stakeholders for and mainstreaming of sustainable land management into national development strategies and policies, such as plans and legal and budgetary processes. The lessons learned from the SLM project will be beneficial to the proposed GCCA+ project.

This project is aware of and complementary to other relevant ongoing regional interventions and projects in South America. In order to avoid duplication, make efficient use of resources already invested and ensure value-added, this project will coordinate with initiatives (as appropriate) such as:

- Conservation of the Guianas Shield (UNDP) - There are some important lessons learned from this project which can be applied to the GCCA+ project. In particular, the project has contributed to institutional learning in the conservation arena by operationalizing protected areas. One can obtain an improved understanding of the challenges that lie with environmental stewardship at the local, district and national levels.
- Integrated and Sustainable Management of Trans-boundary Water Resources in the Amazon River Basin Considering Climate Variability and Climate Change (ACTO). This regional project seeks to contribute to the effective protection and sustainable use of water and land resources of the Amazon Basin, based upon the principles of integrated water resources management (IWRM) and manage the effects of climate change within Amazonian communities in a coordinated and coherent way. Lessons can be drawn through this project particularly on liaising effectively with remote and vulnerable communities that are involved in the management of environmental goods and services.

1.7 Stakeholder Assessment and Capacity Development Issues

1.7.1 Public Sector

National Environmental Policy Coordination is with the Office of the President of the Republic of Suriname. The National Institute for Environment and Development (NIMOS) is the executing foundation from the government but is limited in its execution because of lack of capacity. Many environmental projects are executed by researchers from the Anton de Kom (AdeKUS) University of Suriname as well as the Center for Agricultural Research in Suriname (CELOS), the National Herbarium of Suriname, the National Zoological Collection of Suriname and its Center for Environmental Research at the AdeKUS, the Foundation for Forest Control and Production (SBB) as well as the Medical Science Institute of the AdeKUS (with regard to research on medicinal plants). In addition, the Ministry of RGB also conducts research, education and awareness projects. Suriname Forest Service also conducts environmental research. Furthermore, the several NGO's and individuals also conduct environmental research.

Sustainable development is a principle that applies to a number of sector ministries in Suriname. NIMOS is now the focal point for sustainable development in Suriname (previously the responsibility of the former Ministry (ATM - now obsolete since the 2015 elections) and they were also the GEF operational focal point for Suriname. On 8th of August 2015 the Office of the President of the Republic of Suriname became the focal point for UNCBD, UNCCD and UNFCCC as well as for Basel, Stockholm and Rotterdam Conventions. NIMOS is also the focal point for the Montreal Protocol.

The Ministry of Natural Resources (NH) is responsible for sustainable management of natural resources, whereas the ROGB is responsible for development and enhancement of the living conditions of the people in the interior and coastal area. The overall institutional environment involves multiple ministries and institutes with overlapping and at times conflicting and/or divergent roles. In general, staff capacity to absorb external financial support and to engage in management and implementation of extra interventions is low in both governmental and civil society organisations.

The ministries and major department, divisions and institutions that participate in the overall institutional environment (primary stakeholders) are presented in more detail below:

- *The National Institute for Environment and Development in Suriname (NIMOS)* - NIMOS is, amongst others responsible for all environmental matters including research and environmental impact assessments (EIAs), training, awareness raising, execution of projects, support implementation of formulated environmental policy measures. NIMOS as the technical working body and research institute is, amongst others, the focal point of the implementation of the Montreal

protocol on substances that deplete the ozone layer as well responsible for the implementation of the R-PP-REDD+ and is the GEF operational focal point. NIMOS also supports the government on the post 2015-development agenda. The mission statement of NIMOS is to initiate the development of a national legal and institutional framework for environment policy and management in the interest of sustainable development. A General Director is responsible for the daily coordination of the tasks of NIMOS and is assisted by the offices as follows:

1. Administration (*currently operational*);
2. Environmental & Social Assessment (*currently operational*);
3. Environmental Monitoring & Enforcement (*currently operational*) ;
4. Environmental Legal Services(*currently operational*) ;
5. Environmental Planning & Information;
6. Environmental Public Education & Outreach (*currently operational*) ;
7. Environmental Funding & Investments;
8. Environmental Research.
9. Office of Environmental Conflict Resolution

Ministry of Public Works, (OW) – within this Ministry the National Meteorological Service (MDS), the Hydraulic Research Division (WLA), Urban drainage, Urban Planning (important with regard to Integrated Coastal Zone Management and Sea Level Rise) and the main infrastructure (including Shore and Riverbank protection) are included. *The Meteorological Service Suriname (MDS)* – This is the meteorological service responsible for collection, analysis, and distribution of atmospheric information. Their core business lies in providing data, giving technical advisory and having an awareness role within the community. MDS has experienced a decrease in service and staff last fifteen years. Currently MDS has 73 employees, down significantly from the 180 employees of the early 1980s. Most of them only have a high-school background. The head of the service is the only employee that has a tertiary education academic background. There is currently only one staffing member trained to undertake meteorological modelling work.

Rainfall data is collected mostly with rain gauges of which Suriname has 70 rain gauge stations spread in the country, there are currently 6 automatic stations (there used to be 7 but one is not working), 4 synoptic stations (used to be 5, one is not working) and 6 climate stations (there used to be 11, but 5 are not working anymore).

90% of the data is digitized and there are still hard copy data that need to be digitized. Automatic Weather stations (7) are installed with global positioning. However, not all AWS are functioning optimal. The rain gauges are serviced when needed, but not regularly due to lack of staff and other logistics. The expenditure for the rain gauges are covered within the Meteorological Budget.

MDS doesn't undertake groundwater monitoring, though agro-meteorology is designed within the structures of the MDS, which could make a start with agro meteorology though equipment expansion will be a requirement.

Suriname (MDS) has received support from the EU through the earlier mentioned GCCA and CCCCC project in the form of providing 7 hydro-meteorological stations for Suriname (see Table 1 below) at a cost of US\$140,000. Only some of these stations are currently in operation. The PPCR project (Component 2 (\$1.0M)) entitled “*Consolidating and Expanding the Regional Climate Monitoring Network and Global Platform Linkages*” includes a Sub-component Activity to “*Support for regional connectivity and data interpretation and use for the existing hydro-meteorological networks region wide*”.

Table 1: List of Hydro/Meteorological Stations to be installed under the EU project (\$2,2 M)

No.	Country	Hydrological Station		Met Station		Coral Reef Early Warning Monitoring Station	
		No. of Stations	Cost (Euros)	No. of Stations	Cost (Euros)	No. of Stations	Cost (Euros)
1	Antigua & Barbuda			1	12,000		
2	Bahamas			5	30,000		
3	Barbados			2	20,000	1	110,000
4	Belize	4	80,000	1	40,000	1	110,000
5	Cuba	10	200,000			1	110,000
6	Dominica	2	24,000				
7	Dominican Republic	5	100,000			1	110,000
8	Grenada			1	12,000		
9	Guyana	10	200,000				
10	Haiti	5	100,000				
11	Jamaica	2	24,000				
12	Saint Kitts & Nevis			1	12,000		
13	Saint Lucia			1	12,000	1	110,000
14	Saint Vincent & Grenadines			1	12,000		
15	Suriname	7	140,000				
16	Trinidad & Tobago	2	24,000			1	110,000
	Total	47	892,000	13	150,000	6	660,000

The Hydraulic Research Division (WLA) - This is a division of the Ministry of Public Works and is the principal agency in the country that collects and publishes hydrologic, hydraulic and water quality data and information. The WLA is in charge with collection of data and executing studies/research regarding water at national level including the coast and the sea, and is in charge with the operation and maintenance of the national basic hydrological network. The purpose of this division is to promote the optimum use, management, control and protection of the water resources. This institute has been mooted to consider (in the future) to be “upgraded” to a national institute for water (i.e. a National Water Resources Agency).

The activities of WLA are categorized into the following:

- Hydrometry and Hydrography (including measurement of parameters and monitoring related to the hydrological cycle, water quality, sediments, salt intrusion, water flow patterns, waves, measurements and description physical features of coastal areas, lakes, wetlands, streams and rivers);
- Hydrology (including studies regarding the hydrological cycle, water budget and water management);
- Hydraulics/Hydro-dynamics (including studies regarding the inter-action between (the flowing) water and the environment, erosion, sedimentation, sediment transport, waves, water flow patterns, calibration of sluices and other water management infrastructure, description of the

physical features of coastal areas, lakes, streams and rivers as well as with the prediction of their change over time);

- Water quality and environment (including studies regarding the impact on water resources due to human activities, disturbance of the water budget, pollution, chemical water quality, hydro-biology).

In terms of capacity and equipment, WLA has a hydrometric basic network consisting of around 140 measuring stations in operation till 1986. From these stations water levels, water discharges and water quality data were collected. At present, only 18 stations in the coastal area are in operation, and 2 stations are not in operation temporarily. The use of digital telemetric recorders and standalone data loggers for water level recording has successfully been introduced and a number of these instruments has recently been purchased as part of the planned modernization of WLA. At the 18 stations which are in operation a digital water level recording device is installed, of which one is telemetric. Currently 5 pieces of substations for digital telemetric water level recording are in stock and a number of standalone data loggers for water level recording, which soon will be installed to expand the operational hydrological basic network. In addition, the purchase of 8 pieces of substations for digital telemetric water level recording has occurred as well as a number of standalone data loggers for water level recording are in preparation.

Discussion of a potential future institutional “merger” of MDS with WLA has been informally discussed. There is already data-exchange between both institutions, and informally, key staff members have declared some mutual benefits in seeing the two divisions merging. It is understood that WLA is only luke warm on this prospect, since this institute is associated to the water sector and the still to establish water authority, and not climate change only. The possibility of transforming both existing institutions into privatized institutions (eventually falling under a Ministry), similar to the NIMOS institutional structure, could be something for the GCCA+ project to consider. In this way it will be less difficult to invest in equipment and human capital.

- *Ministry of Physical Planning, Land and Forest Management (ROGB)* - Responsible for the overall land policy including the implementation of forest and protected area management. The ministry is legally the mandated institute for the formulation of the national policy on land use planning. The Forest Service (LBB, which includes the Nature Conservation Division (NB)) supports ROGB in management and law enforcement with regards to conservation, nature reserves and wildlife. The Ministry of ROGB is also responsible for the formulation of national policy on land-use planning, sustainable forest use and nature conservation, and has several subdivisions that are responsible for regulation, implementation, monitoring and control. Forestry is managed via the associated Foundation for Forest Management and Production Control (SBB).
- *Ministry of Agriculture, Animal Husbandry and Fisheries (LVV)* – Responsible for formulation of policy on agriculture, livestock and fisheries, including food security and creating the environment for the implementation.
- *Ministry of Natural Resources (NH)* – Responsible for formulation of the national policy and control of the exploitation and management of minerals, water and energy.
- *Ministry of Regional Development (RO)* - Administers Suriname’s ten rural districts, coordinating development activities and governance in these areas. The Council for Development of the Interior, within the Ministry, represents the interests of Indigenous and Maroon tribal communities.

- *National Council for the Environment*- Is intended to support the Government by advising on national environmental policy and serve as an advisory body for the ATM (now obsolete since the 2015 elections), but thus far exists only on paper.
- *The Foundation for Forest Management and Production Control (SBB)* - supports ROGB in management and law enforcement with regards to forestry; JSOOC (Jan Starke Training and Recreation Centre) as Forest Management training institute ROGB and the sector by providing targeted training to actors within the Forest Management sector. SBB supports awareness on deforestation, monitoring on deforestation and develops sustainable forest management plans with communities. It plays an important role in mangrove management in Suriname.
- The University of Suriname, Faculty of Technology (AdeKUS) - AdeKUS and its associated research institutes (Center for Environmental Research (CMO), National Zoological Collection (NZCS) and the National Herbarium (BBS)) provide education and conduct research. Specifically, the AdeKUS hosts the Suriname Water Resources Information System (SWRIS), a web-based scientific framework with water-related information on Suriname. Its main goal is to promote and foster human resources development (knowledge and techniques) on integrated water resources management (IWRM) in Suriname, focused on sustainable use of water resources and as such promote the conservation of aquatic resources.
- The Center for Agricultural Research in Suriname (CELOS) - research and development institute under ADEK, with expertise in forestry, agro-forestry and agriculture. CELOS/NARENA is also a national authority on Geographical Information System (GIS) and has both the technical and human capacity to provide GIS-related maps and services to government ministries upon request. CELOS participates in the GEF SGP project ‘Conservation of agro-biodiversity and providing communities key crop planting materials’ (150,000 USD) (ABD project). General Description: Rural communities (from districts Brokopondo, Para and Marowijne) are provided with tools and methods for the production of good quality (adapted, healthy) and sufficient planting material to sustain food security and as such to assist them eventually when evolving from a traditional, sustainable subsistence way of life to more market oriented but still sustainable producing community. CELOS prefers to conduct more research within the ABD project as they are a research institute. To conduct research, funding is necessary. There is a possible synergy between the GCCA+ project and the ABD project. It is intended that the GCCA+ project can support the ABD project (through the CFP process) to help fund research that is needed.
- The NCCR (now under the office of the President) is the main actor within the national policies on disaster management. It has to safeguard the national safety and security regarding threats of a possible disaster: the “National Coordination Centre for Disasters Relief (NCCR) is developing the national policies on disaster management through the coordination, prevention and response to possible threats of disasters. The NCCR consists of a secretariat, staff and executives. On regional level, the NCCR collaborates with all regional governments such as the districts commissioners and their staff, local units of the police corps, the army, the fire brigade and other regional governmental units.

1.7.2 Committees, Forums and Steering Groups

In relation to the proposed GCCA+ action, two relevant multi-stakeholder forums that are very active in Suriname must be mentioned. One of them is the Water Forum which was established in 2012. It aims to promote an Integrated Water Resources Management (IWRM) approach for attaining water sustainability, as well as fostering regional and international partnerships with stakeholders sharing a common objective of sustainability. The Water Forum Suriname is a foundation that promotes sustainable water management in Suriname and it provides a platform for all stakeholders to discuss water related issues that require an

integrated approach. Members come from the drinking water sector, agriculture, environment, waste water, education, private sector and health. It has organized public debates and has published a number of articles in newspapers, for instance around World Water Day. In addition, it actively participates in water related workshops. Finally it presents annually the water award to the best water student in Suriname.

The other forum is the Mangrove Forum (MaFoSur), just recently established in August 2014. MaFoSur is created as an open platform for the protection, conservation and, possibly, expansion of the mangrove ecosystem in Suriname. To this end, MaFoSur plans to develop a national mangrove strategy, build capacity, enhance the involvement of communities in the protection and conservation of the mangroves, and promote a sustainable use of goods and services provided by the mangrove ecosystem. Both these forums, in their respective fields, have an important role of coordinating and steering relevant interventions and initiatives.

National Steering Committees for UNCBD, UNFCCC and UNCCD (respectively NBSC, NCCSC and NCLD) are currently disbanded, though in past were responsible for guidance, monitoring and evaluation of Rio Conventions' related projects and programs. The GoS is looking towards the installation of a coordination mechanism that supports the well-functioning of these ministries, institutions, Indigenous and Maroon and civil society organizations as a necessary means to respond adequately to Suriname's commitments towards the three Rio Conventions.

Through the Office of the President, the Climate Change Expert Group (CCEG) has been established to represent national issues relating to climate change impacts.

The CCEG was installed by the former Environmental Policy Coordinator (currently director to the Ministry of Foreign Affairs) to assist her in understanding the UNFCCC Convention and the work related to it. As such, some members from this group participated to international meetings such as the CoPs. The CCEG, that has no specific Terms of Reference, was created as an informal group and still is. Its membership consists of experts in hydrology, meteorology, climatology, financing, local and foreign policy, sustainable development and conflict resolution.

WLA has important linkages with the MDS regarding climate change. Both institutions shall benefit from the activities proposed and shall work together to ensure that knowledge and data on climate change effects are attained in an effective and efficient way.

Proposed Climate Institute

Last year the option for a climate institute was discussed between several stakeholders. The idea is that with a climate institute Suriname would be better able to battle the effects of climate change in an effective and efficient way. Currently, Suriname is participating in a Japan-Caribbean Climate Change Partnership project where funding is available to build capacity to cope with climate change. The GCCA+ project shall encourage links with the JCCCCP as part of the institutional upgrading assessment work that is required to take this concept further as the inevitable challenge associated with any new "institute" relates to limited institutional capacity, lack of equipment's and insufficient support of legislation. For now, the strategy for setting up a climate institute is bottom-up. First the relevant institutions needs capacity strengthening, upgrading the service and regulations needs to be put in place. The climate institute should only than be established if all the relevant stakeholders are ready and capable.

1.7.3 Civil Society Sector

A limited number of civil society institutions and organisations are important players in the area of CC adaptation and mitigation. These include the Amazon Conservation Team (ACT), Conservation International Suriname (CI-S), Tropenbos International Suriname (TBI Suriname), Green Heritage Fund Suriname and World Wildlife Fund (WWF) who all have been contributing expertise to various projects (protected areas, deforestation, mining etc). Despite this, there is not yet an overarching civil society structure that can represent

the diversity of stakeholders working on environmental stewardship, particularly of those smaller organizations working at the local level.

There is a weak culture of joint working between governments and civil society. Although some NGOs may be working with particular ministries (e.g. TBI and WWF works with ROGB on helping establish the forest inventory), the engagement is disparate and uncoordinated, and there is a lack of consultation and participation with local communities, indigenous and maroon communities. Not all individuals are, or feel, represented by NGO's or smaller community-based organizations, especially in the case of the most vulnerable people.

There is also the challenge of coordinating remote civil society with national governments. At times there may be a clash in approaches between national/global society and local traditions. This schism and lack of coordination can act as a barrier. There is also a geographic issue that can act as a barrier in communications between the central government and indigenous communities. Many of the communities residing in the Interior are remote and difficult to access. Coordination with NGOs and CSOs is vital to address this barrier.

2. Strategy and Description of Action

The proposed GCCA+ intervention has been formed in a participatory manner involving extensive consultation with national counterparts in Suriname (see Appendix 1), responding directly to national gaps and priorities identified within this process. To increase the impact and sustained benefits resulting from the planned GCCA+ intervention, it is essential that the project employs a robust feedback mechanism allowing lessons learnt and best practices to be incorporated within the project execution framework and which is mainstreamed into other donor project deliverables. This has been inculcated into the design process as far as possible (linkage with other donor projects – see Section 1.6).

The proposed GCCA+ interventions global aim is to contribute to the reduction of Suriname's vulnerability to the negative effect of climate change by enhancing *local capacity* to cope with these negative effects and to develop adequate solutions. In the present context, *local capacity* refers both to skills (culturally defined) as well as to facilitating equipment, tools and instruments. The action will support such capacity enhancing activities in two thematic areas which are reflected in the Expected Result Areas (ERAs).

The first ERA focuses on the generation of additional climate data and change analysis, on improving the understanding of climate change effects and on the development of adaptation measures or strategies in the water management and agricultural sectors. This is also crucial to set the appropriate knowledge basis allowing Suriname to further develop its national adaptation planning process, as recommended under the UN Framework Convention on Climate Change (UNFCCC). This is also a core strategic intervention area for the EU as defined in their 11th EDF National Indicative Programme (2014-2020).

The second ERA addresses specific capacity needs that are related to mangrove conservation. Mangrove ecosystems in Suriname (all 1,100km² of them) provide multiple services and products that are essential for the economy and people's livelihoods as well as an ecologically and economically sustainable protection against sea level rise and salt water intrusion. Still, mangroves are being threatened in their existence through poor regulation and land use planning. Consultations with stakeholders revealed that essential tools and instruments for effective protection are lacking. Consequently, this proposed ERA intervention aims to assist Suriname in developing a number of effective tools to support the mandated ministries and interest groups in their commitment to protect mangroves.

To a certain extent, both ERAs are interlinked and complementary. For example, water resource modelling and management (key outputs of ERA1) will include having to model and understand the hydrology and water resources of mangrove ecosystems plus the need for improved meteorological data and knowledge on climate change effects which all shall have to be incorporated in the National Mangrove Strategy and updated MUMA management plans (ERA2). The GCCA+ program will hereby improve the general knowledge on climate change by filling identified data gaps and developing local climate change-related model owned by public institutions. At present, hydrological models in Suriname are too strategic and poorly detailed to help advice at the local level and subsequently do not permit to develop appropriate sectorial or local adaptation strategies. The new generated and captured data will assist future pilot projects (agriculture) which shall be used to test the complementary support that is foreseen through the 11 EDF (which focuses on agriculture). ERA2 (mangrove conservation component) will have direct impact and will contribute to this increased knowledge on climate change within Suriname.

The project will be implemented over a period of 36 months and will be coordinated through a project management team with persons strategically positioned within the United Nations Development Programme (UNDP) Suriname (following full Country Office support to National Implementation Modality - NIM).

The project hereby consists of 2 Expected Result Areas (also known as “outcomes”), nine (9) Outputs and twenty three (23) Activities. These are all now described in detail below.

NB: the terms “hydrological network/stations and meteorological network/stations” are used in this GCCA+ proposal instead of “hydro-met network/stations” as “hydrometeorology” is the study of the atmospheric and land phase of the hydrological cycle, with emphasis on the interrelationships involved as defined in the UNESCO Glossary of Hydrology, and is just a part within the hydrology.

2.1 Objectives

See the projects Logical Framework (Section 3.1) for specific details, indicators and sources of verification.

PROJECT TITLE

Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection.

OVERALL OBJECTIVE (IMPACT)

To reduce Suriname’s vulnerability to negative effects of climate change.

SPECIFIC OBJECTIVE (PROJECT PURPOSE)

To support Suriname in improving its current climate change adaptation capacity and mitigation.

2.2 Component Title, Expected Results and Main Activities

2.2.1 COMPONENT 1: COLLECTING CLIMATE DATA AND DEVELOPING CAPACITY FOR SUSTAINABLE WATER RESOURCE MANAGEMENT

ERA1 Outcome: Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced

This ERA1 of the proposed project seeks to support an improved functional network of climate (meteorological and hydrological) networked monitoring stations and associated infrastructure (satellite based forecasting facilities and severe weather monitoring) as a basis for understanding climate change and building an early warning system (EWS) to increase resilience for the agriculture sector in Suriname. This ERA1 also enables the establishment of a “grant facility” framework for future climate change funds in Suriname, using GCCA+ and JCCCP funding streams to help set up and maintain a “secretariat” within an agreed institute (possibly using existing facility structures such as the Suriname Conservation Foundation for Biodiversity and PAs) to manage day-to-day operations of this grant facility.

Output 1.1: Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions.

The proposed support to the MDS and WLA will mainly consist of technical assistance (TA) for the digitization of historic climatological and climate change related data (old data tapes), hydrological modelling work as well as of training and supply of equipment (procurement and installation of additional automatic hydrological and meteorological stations, office equipment, specialised software. This Output involves the input of a number of key stakeholders including MDS and also the WLA.

Activity 1.1a: Finalize systems design, equipment requirements and technical specifications for the expansion of the existing MDS met network and the WLA hydro-met network..

The following interventions are proposed within this Activity:

- Evaluate current system design conform the data which needs to be collected;
- Using outcome of the above results, develop new system design.
- Upgrading where possible (within GoS constraints) the MDS and WLA workforces on meteorological and hydrological network related equipment;
- Purchase of new equipment including automatic hydrological and meteorological network stations.

Hydrological data is critical for making informed decisions regarding the development of Suriname's water resources. Data availability for water resources in Suriname is considered an important gap required to adapt to the impacts of climate change. This is mainly due to a lack in financial, instrumental and human resources. The existing hydrological and meteorological network stations managed by MDS and WLA are presently only a broad network, mostly developed for weather (rain and river flood) forecasting purposes though is far from accommodating the variable of local climate over the whole country. With climate change increasingly impacting the predictability and patterns of rainfall, the availability of more accurate and localized climate data becomes increasingly important for Suriname's rural population and agricultural production. Of relevance (and as stated in Section 1 – Table 1), MDS has received in 2013 seven (7) hydro-meteorological network stations from funding derived from the EU GCCA+ project Component 2 *“Improved climate monitoring, data retrieval and space-based tools for disaster risk reduction”* project.

At present, rainfall data is collected mostly with rain gauges of which Suriname has 70 rain gauge stations spread in the country, there are currently 6 automatic stations (there used to be 7 but one is not working), 4 synoptic stations (used to be 5, one is not working) and 6 climate stations (there used to be 11, but 5 are not working anymore). 90% of the data is digitized and there are still hard copy data that need to be digitized. Automatic Weather stations (7) are installed that are GPRS based at some stations. However, not all AWS are functioning optimal. The rain gauges are serviced when needed, but not regularly due to lack of staff and other logistics. The use of digital telemetric recorders and standalone data loggers for water level recording has successfully been introduced and a number of these instruments have been ordered as part of the planned modernization of WLA. The intention is to enhance the installation of hydrological network stations that once existed with staff gauge stations and water level recorders in all the major river system in Suriname (see Fig 2.1). This set up would allow the minimum monitoring of significant areas of low-lying coast areas which frequently flood at high tide and which often results in vast areas of mangrove swamp and also flat lands exposed to major flood risk (identified by MDS and WLA).

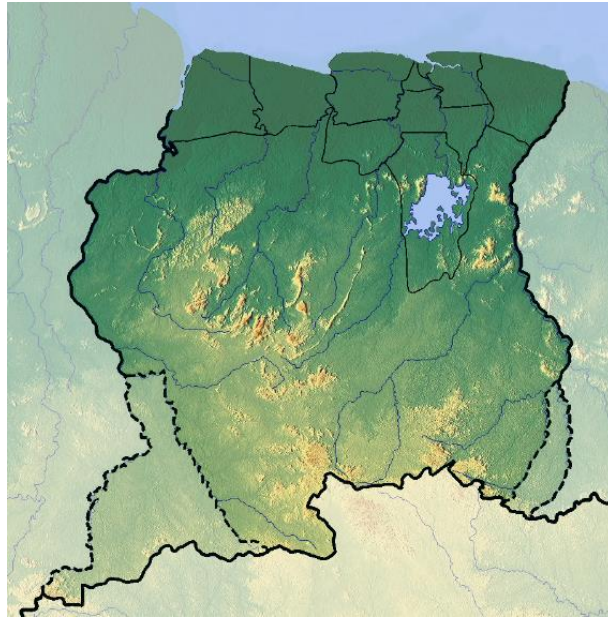


FIGURE 2.1: RIVER SYSTEMS IN SURINAME (SW DISPUTED AREA WITH GUYANA SHOWN).

The proposed hydrological systems design (stations etc) shall be set up for tendering purposes under Activity 1.1b.

Activity 1.1b: Tender, procure and install equipment and components for upgrading of the real-time automated weather stations, hydrological stations, and early warning stations.

This Activity is designed to set out appropriate tender, procurement and installation procedures for new equipment/instrumentation to help alleviate any risks or issues related to the actual placement of the new equipment and responsibilities over maintenance and where the equipment should be installed. This Activity shall consequently assess installation sites, practical location issues and installation approaches for the meteorological and hydrological network stations (referred to as Automatic Weather Stations - AWS) and will make necessary tender clauses to ensure that all arrangements (equipment housing, fence and security, personnel) to carry out installation of remotely transmitting AWS are appropriately included in the tender documentation.

Following the tender period, procurements will be carried out for acquisition and installation of a number of Synoptic AWS which are to be equipped with WMO standard sensors plus soil and surface temperature thermometry complete with remote transmission & faulty diagnosis facilities, solar power, central data collection, computer storage (with capacity for up to 50 AWS) and display system (locations shall be agreed with MDS during the Inception Phase). The installation of these stations will be such to create a meteorological and hydrological monitoring network (including up to 4 spares) which can interface with other existing AWS and central data collection & storage system. The installation of the AWS should follow a calendar so that procurement of equipment will coincide with initial trainings of MDS and WLA Technicians. The actual installation (by phases) will take place approximately 18 months after the capacity development review had been initiated and completed (Activity 1.1c) so that MDS/WLA has enough human capacity to handle the data management requirements needed. Security arrangements should be put in place beforehand at each location to guarantee the safety of the AWS. All AWS should also be provided with a lightning rod or a lightning conductor engineered to protect the AWS in the event of lightning strike so to avoid constant malfunction at the time meteorological information is most required.

The installation plan will pay particular attention to the distribution of past station locations according to Districts of the country. The coordination of these rainfall stations across the Districts will be carried out by four MDS Supervisors (Meteorologists WMO Class III) to be capacitated under this project (Activity 1.1c). Each of these staffs will (with support from other donors as appropriate) be equipped with a motorcycle to be able to have a better access to determine the condition of the equipment.

Tender documentation is likely to be prepared for the following equipment:

1. Automatic Weather Stations (AWS) with real-time data transfer capability (see tender specification in Appendix 4);

2. Automatic Water Level Monitoring Stations (AWLS)

- AWLS - Bubbler with real-time data transfer capability;
- AWLS - Radar with real-time data transfer capability;
- outlets a cable system for discharge measurement will be incorporated within the AWLS, to help flood forecasting and -modeling works at agreed locations;

3. Investment in equipment for the hydrological network (flood forecasting) and early warning systems is as follows:

- upgrade to existing flood forecasting warning equipment;
- Equipment for two “pilot” river-basin based control rooms;
- Data back-up system.

This project will support the MDS and WLA to agree on the approach towards the provision of each AWS with automatic data transmission devices (via mobile communications). In some cases, and after proper assessment, the project will make provision of SSB/VHF radios and/or mobile phone sets for transmission of data and meteorological information. Attention should be paid, however, to the cost of data transmission that can be cumbersome for a large AWS network if data transmission frequency is relatively high. Therefore, when installing the AWS there should be an assessment of how frequent the data for each meteorological variable should be read and transferred (e.g. every 60 sec rather than every 10 sec) so to minimize costs but maintaining data quality and representativeness. In addition, a partnership should be established beforehand between the MDS and the mobile communication provider so that the final cost of meteorological data transmission will be shared based on mutual interest. This GCCA+ project will support MDS to establish a reliable and fast communications channel between MDS and WLA members to guarantee real time dispatch of forecast products.

NB: While this project will establish and rehabilitate existing hydrological and meteorological monitoring stations, their long-term maintenance will be assured by the GoS and specifically by WLA that will need to secure the dedicated staff and associated budget allocations for continued maintenance and operation of monitoring and EWS.

Activity 1.1c: Create framework for improved MDS and WLA operation and maintenance support and capacity development of key staff using new operation and maintenance guidelines and manuals;

MDS has a capacity of about seventy three staff (down from 180 staff of the early 1980s). There has been (for some time) inadequate financing to rapidly alleviate the infra-structural and human resource constraints. This GCCA+ project will thereby bring additional resources to tackle this fundamental capacity weakness by creating a framework for operational support and staff capacity development.

The particular focus of this Activity is to strengthen the development of human resource capacities for key stakeholders (WLA and MDS - as well as other key policy makers as required) for using the equipment and instruments and the interpretation of collected and processed data to support the new equipment being purchased (in Activity 1.1b). As an initial precursor task, the Activity shall initiate an “institutional mapping” exercise to support the development of an improved institutional “link” between MDS with WLA as there is already data-exchange between both institutions and there seems some impetus towards reviewing the institutional benefits of combining MDS and WLA as a separately funded initiative (possibly from GCCA+ post 2018) to assess the feasibility of a Suriname “National Climate Network” (NCN) which could be established if all the relevant stakeholders are suitably trained and empowered. This activity shall assess the most suitable institutional approach to take forward and implement such an institution.

The mapping exercise shall be produced in collaboration with climate-sensitive sectors such as agriculture, hydropower, travel and tourism for climate information service, to develop and implement a system of producing and disseminating daily/weekly/monthly/annual weather bulletins and reports. Where possible, it shall seek to strengthen weather content development and reporting in broadcast (TV and radio) and print media by providing more detailed and localized analysis of climate data for public weather and climate information. This may include developing an internet-based national weather and climate information portal for the general public with relevant climate content. Finally, it shall seek to organize national/sub-national trainings targeting at least 100 officers from climate-sensitive sectors and sub-national administrations on climate information interpretation. This shall potentially be part of the new climate institute concept (likely to be semi-independent from the ministry). Support budget shall be used to help produce publications on climate change adaptation and resilience experiences for cross-sectoral evidence-based policy influencing, planning and mainstreaming.

From the outcome of the “mapping” exercise, to identify focused training needs, a clear strategy shall be proposed, It is likely that capacity development interventions will include, for example, the training of a significant number of Forecasting Superintendent Officers (WMO Class III) and also be the specific training of a number of Meteorologists (WMO Class II) and meteorologists (WMO Class I) and hydrologists to be technically skilled in developing weather and hydrological forecasting models and tools. For that, a gender sensitive national screening exercise will be developed for the selection of a number of pupils and make procurements/arrangements for a capacity development programme at national or international level. The Activity shall also support a programme in operational watershed monitoring and hydrological modelling for hydrological officers within WLA. This shall include budget to purchase hydrological modelling licenses (e.g. MIKE BASIN) and include budget for the training for two (2) technicians with modelling software and development of water resource (drought or flood) predictions.

The mapping exercise will seek to identify existing networks and centres of expertise, and to create a proposition that adds value to existing structures. The proposed NCN will eventually include national, regional and local level experts and policy makers. Technical experts will include climate change modelers, climatologists, agronomists, hydrologists, agro-meteorologists, economists (with resource economics experience), sociologists, ecologists (e.g. rangeland and freshwater) and adaptation and climate-related disaster reduction experts. Members of the network will then be drawn from a range of line ministries, institutes, NGOs, civil society organisations and representatives of key donor programs (UNDP, EU, DfID, USAID, WB). The needs and expectations of all of these groups will be identified under the mapping exercise. Involvement in the design and development of the network from an early stage will help support buy-in by the wider group. The NCN will support the project to map existing and planned climate related projects in Suriname, with a view to identifying existing best practices, financing structures, and impact data.

Whilst this activity stresses the involvement of WLA and MDS staff, other parties recommended for involvement in the Activity (as agreed by WLA and MDS) shall also be invited to attend any support activities proposed.

Output 1.2: Undertake water resources modelling and planning for integrated and sustainable water management

Activity 1.2a: Long term historical observation data collated, digitised and used in water resource planning and policy formulations.

Essential to the assessment of water resource planning and policy formulation is the use of historical data for all possible future variables. In addition, essential to the establishment of sustainable water management is the establishment of a water resource database which will be the central repository for all data. Such a database will be used to store historical data and receive data for water resource management from (for example) the new hydrological and meteorological network stations identified in Output 1.1.

Historical data records exist in many formats including paper and a major task will be the digitization of this historical data. Importantly, the proposed database will enable better manipulation and analysis of the extensive datasets, and their effective use in water resource management and policy setting. Evidence from the stakeholder Log Frame workshop held in Paramaribo on 27 August 2015 (see Appendix 1) showed that datasets on hydrology and meteorology are present, but considerable effort is likely to be needed to collate, compile and digitize this work into a format that is useable for modelling purposes (Activity 1.2b).

A paper by Nurmohamed, Naipal and Smedt (2007) outlined a hydrological modelling study undertaken in the Upper Suriname river basin and showed that daily and monthly series of six rainfall stations (1961-1983) in or close to the study area (station Brownsweg, Pokigron, Botopasi, Djoemoe, Ligorio and Tafelberg) were obtained from the MDS. Records of mean daily river discharge (1952-1985) at two stations (Pokigron and Semoisie) were obtained from the WLA and the Bureau for Hydroelectric Power Works. Only these stations were found suitable for use in this study in terms of data length and continuity. This is likely to be a unique situation in terms of historical data sets, though this Activity is designed to establish the current situation on this from a national perspective.

It is proposed that the definition of “long term” for this Activity (for digitizing data sets) is defined as circa 20 years old (i.e.: from 1995 to current day datasets). It is proposed that the responsibility to ensure datasets are digitized falls with the Ministry of Public Works with support from other institutions such as NIMOS. *NB: should MDS/WLA wish to alter this definition, this shall be agreed at the Inception Phase of the project.*

Those river basins with the most useable, long term and useable datasets shall be nominated as “pilot” basins for the hydrological river basin modelling in Activity 1.2b.

Activity 1.2b: Conduct new water resource assessment modelling (incl; ground water reserves) to inform future planning for integrated and sustainable water management.

It is proposed that two pilot river basins are modelled using information from Output 1.1 and Activity 1.2a to help inform future river basin planning in Suriname. The outputs (maps and models) shall be used to update the Vulnerability Maps identified in Activity 1.2c below. It is recommended that two pilot river basins should be nominated, including the Marowijne and the Corantijn Rivers as they contribute 70% of the total water discharge to the Atlantic Ocean. The other pilot modelling river basin shall be determined in close consultation with the key stakeholders, though there may be sense in selecting the Coronie area as some existing modelling work has taken place here. This second “pilot basin” could be selected because certain community raised real issues that need addressing.

It is recommended that each pilot River basin is divided into a number of distinct subareas which have similar physical characteristics, sources of flooding and level of risk. Two-dimensional (2D) flood modelling techniques will then be undertaken to help provide new information on floodplain management investigations. This will need to include (if information is available and sourced separately) the introduction of multiple 2D domain modelling. One model already used in Suriname is called WetSpa, This is a continuous, distributed, physically-based hydrological model with variable time step (hourly or daily). This model is developed by the Vrije Universiteit Brussel, Belgium (Liu and De Smedt 2004) and has been applied to small and medium catchments (34-1,176 km²) in Belgium, Luxembourg, Slovakia and Hungary. Liu et al (1999, 2004) and Seifu (2003) have shown that the model is suitable for simulation of spatial distribution of hydrological processes and analysis of land use changes and climate change impacts of hydrological processes. The model structure is shown in Figure. 3.

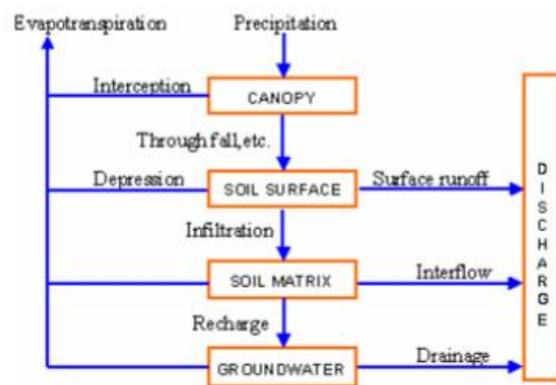


Figure 3: Schematic representation of the different components of the WetSpa model at a pixel cell level (Liu and De Smedt, 2004)

From the topographic contour map, a 10 m elevation contour map with grid size 50 m (slope factor 0.5, threshold factor 1.0) shall be first created from a 50 m elevation contour map using ArcView Contour Gridder extension. Different resolution digital elevation models (DEM) need to then be created (50 m, 100 m, 200 m, 500 m) using the TOPOGRID function in Arc/Info. From the resulting digital elevation model (DEM), the following physical parameters for each grid cell shall be created by ArcView: stream orders and network, slope of overland flow and river channels, flow direction, flow accumulation, sub-watersheds based on stream links and the hydraulic radius according to a flood frequency of 2 years etc. Soil information will need to be attained and reclassified from the Department of Agriculture and placed in WetSpa and then also converted to a 100 m grid map. From the soil map, different maps of physical properties such as porosity, hydraulic conductivity, residual moisture, pore index field capacity, wilting point will be created using the default parameters characterizing the soil of the pilot basins. The land use information will be converted into six land use classes used in WetSpa and then also converted to a 100 m grid. Hypothetical climate change scenario information shall then be used to assess scenario implications for the pilot river basins.

The model outputs will then be used to determine the impact of localised changes in land use or management on the entire river basin and not just discrete sections of the river. Large scale developments; changes to planning schemes; changes to land management; flood mitigation works; river works, and the effects of climate change can all be assessed at this broad scale to determine the impacts not only from a flooding perspective, but also from a planning perspective. The output shall help towards the production of updated vulnerability maps, but also (with separate donor support) the establishment of a series of strategic planning tools known as a Catchment Flood Management Plans (CFMP). The CFMP approach for Suriname can be used to identify broad policies for sustainable flood risk management that make sense in the context of the whole catchment, not just for localised townships or regions.

This Activity shall be completed by international consultants with expertise in 2d domain modelling. They shall also provide training courses on the use of the software used (Activity 1.2d).

Activity 1.2c: Prepare National Water Resources Vulnerability profiles, updated maps and associated Water Resource Plans for all regions of Suriname

The existing vulnerability profiles are deemed too strategic in their nature to provide any real tangible advice for vulnerable communities on flood or drought risk scenarios. What is now needed is to update the existing maps and plans with new up to date information in a format that is digestible and meaningful for decision makers. This is proposed to be undertaken in collaboration with AdeKUS and CELOS (NARENA dep) since NARENA specializes in GIS and RS and at present is working on a UNDP/SGP project with one output being to work on suitability mapping in high flood risk areas (for more info contact NARENA).

Hazard and inundation maps under different climate change scenario conditions will be developed for the entire project country. The challenge is in setting the most appropriate scale for mapping as there is a lack of any credible information/maps at the District and certainly the Resort level. The updated Vulnerability profiles shall therefore include improved water hazard and inundation maps, at an appropriate scale to be determined by the quality of new data derived from Activity 1.2b which shall prove essential for the assessment of current and future hazards and the design of flood management solutions that fully account for climate change considerations. Based on the hazard and inundation maps, GCCA+ resources will be used to enable “flood buffers” to be established, possibly using the following zoning categories:

- a climate change flood zone;
- a designated floodway fringe;
- a flood plain;
- a designated floodway; and lastly,
- the body of water itself.

With regard to updating the Water Resource Plans, a series of water resource focused policy decisions shall be made. These need to strike a good balance between the floodplain protection for its flood management function and supporting productive uses that serve development purposes that do not disturb the critical function that flood plains perform in reducing the risks of flood. Essentially, the strategic approach of the project is to design the water resource policy to take climate change considerations into account that also seeks to maximize the net-benefits from water bodies and flood plains, rather than a “policy” that aims solely at minimizing (for example) flood damage that might potentially enter into conflict with development oriented land-use. Decisions however, will be made based on updated vulnerability maps that identify critical hot spots and enable adequate zoning in order to maintain the natural capability of waterways to convey flood flows.

The tasks under this Activity will need to take account of the national requirements for enhancement of land use regulations. To ensure that land use policy is developed in line with the national requirements, an inter-agency working group will be established to determine current land use management functionality and to determine the most appropriate elements of a comprehensive land use policy framework. Given the fragmented nature of the current elements of land use regulations and policy in Suriname, this is an essential first step to ensure that all key agencies are involved and that consultation is as wide as possible to ensure buy-in to the final policy framework. The Activity will develop a robust set of policies to address the existing deficiencies in the regulations.

A key benefit of this Activity is that data sets used, and the models built from them, can be used (and updated) for use in future assessments and as such, water resource management related actions will be established for

this purpose. Importantly the flood risk maps will provide the basis for the Water Resource Plans and management of water resources and flood risk in Suriname both now and in the future. A key result of this Activity is the establishment of a single and comprehensive water resource management policy framework for Suriname that will ensure a holistic, proactive approach to managing water resources and flood risk under new improved understanding of climate change (updated data from Output 1.2).

Activity 1.2d: Develop capacity programme in water resource and hydrological modelling and sector tailored hydrological forecasting techniques and information packaging for water resource managers and hydrologists

There is a need to have mechanisms to transfer knowledge and from this, to use it to convince policy makers to implement current (improved) knowledge on hydrological forecasting outputs. Therefore, in a similar vein to Activity 1.1c, this Activity shall strengthen the development of human resource capacities required on two fronts: firstly, for using the water resource and hydrological technical staff using the new equipment and instruments and the interpreters of collected and processed data to support the new equipment being purchased (in Activity 1.1b); secondly for policy makers to ensure that the new information is understood and disseminated between Ministries. This Activity shall therefore undertake the following tasks:

- Formulation of a Hydrological Capacity Development Plan for hydrologists and modelers alike.
- Implement selected activities identified within the above Capacity Development Plan (Activity 1.1b), with priority to those related to collaborative capacities (multi-stakeholder) and support to and leveraging from GCCA+ project interventions. This may include conducting market research to determine weather and climate (change) data demand and develop sustainability strategy for demand delivery and cost-recovery of investments/maintenance of the network of hydrological and meteorological stations.

The GCCA+ funds shall also facilitate a feasibility study to develop a possible “Hydrological Modelling Unit” within WLA so to be able to timely forecast watershed components (rainfall, evaporation, run-off and drainage) and the potential of drought or flood occurrence. At present, there is no baseline activity addressing these issues. Therefore, an international hydrologist will be contracted to assist the WLA and the MDC in developing and operationalise the modelling component, working in collaboration with local institutions and national consultants.

Output 1.3: Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability

Activity 1.3a: GCCA+ Call for Proposals (CfP) tender process on agricultural sector risk reduction and management measures.

The global objective of this Call for Proposal (CfP) programme for Suriname is to develop new technologies to reduce the vulnerability of the agricultural sector to climate variability. This Activity will be implemented through a CfP involving local stakeholders. It is envisaged that a “grant facility” shall be set up, possibly under a new “secretariat”, possibly under an existing structure run by UNDP), to help manage future climate change related grant applications and to secure donor financial support beyond the time programme set for this GCCA+ project.. Whichever grant facility institute is proposed, the intention would be that each future donor would enter into a contractual agreement with UNDP for the administration of its funds. Contributions shall then be “pooled” and not tagged to activities in any way.

In the first instance, the CfP approach (to be developed as a grant facility modality) shall adhere to existing CfP guidelines for grant applicants (e.g.: the UNDP Small Grant Facility approach plus also the EU Budget Line DCI-ENV Reference: DCI-ENV/GCCA+/GM/PE2/Grants 2015) though the CfP process shall be

specifically implemented by UNDP Suriname and not the EU Delegation in Guyana. This Activity shall initiate an open Call for Proposals (CfP), where all documents are submitted together (Concept Note and Full Application Form) by applicants. It is recommended that a pre-application workshop to be held to help inform potential applicants of the process, the expectation and a guide as to how to complete the CfP applications.

This Activity shall also be co-financed through the support of UNDP Suriname's resource contribution to this GCCA+ project (circa 50% of the contribution), in addition to the strategic parallel links being established with the ongoing JCCCCP project resources that have been allocated, through grants and project management support. Particular focused links (under output 1.3) shall be in the following foreseen JCCCCP output areas:

- Output 2.2 *“Crop diversification practices tested for their ability to improve resilience of farmers to climate change impacts”*,
- Output 2.3 *“Community-based water capacity and irrigation systems improved or developed to test their ability to raise agricultural productivity”*
- Output 2.4 *“Climate resilient agro-pastoral practices and technologies (e.g. water management and soil fertility) demonstrated in selected target areas”*;
- Output 2.5 *“Small-scale infrastructure implemented to reduce climate change and disaster induced losses”*.

Activity 1.3a will be initiated with the preparation of a “Manual of Procedures” for the CFP Scheme. This manual (for future applicants) will include guidelines for applying to the Scheme, the eligibility and selection criteria, and the priorities for interventions to be financed. The manual shall include guidelines and procedures for applying to the scheme, the eligibility and selection criteria and the priorities for interventions to be funded. Various templates shall be annexed to the manual including the application form, the technical proposal and budget formats. All the draft documents for the CFP Scheme will be submitted to NIMOS, the Office of the President and UNDP Suriname for approval. Once endorsed at that level it will take full effect.

In the first instance, only the Concept Notes will be evaluated. Thereafter, for the applicants who have been pre-selected, the full proposal will be evaluated. After the evaluation of the full proposals, an eligibility check will be performed for those which have been provisionally selected. Eligibility will be checked on the basis of the supporting documents requested by the Contracting Authority and the signed ‘Declaration by the Applicant’ sent together with the application.

The main priority CfP support areas identified are (at this time) proposed to cover the following thematic areas:

1. Thematic Area 1: New agricultural technologies to reduce climate vulnerability

Attention in this thematic area is to focus on new research, trials or pilots that test out new approaches to climate resilient agricultural production. This may also focus on attracting research proposals on the EU and GoS partnership ideas for improving horticulture, notably for Podosiri (Acai) and Pineapple species (partnership ideas for improving horticulture). Research should also be encouraged to support agricultural diversification and adaptation in areas of high saline intrusion. As mentioned above, a clear research linkage and support with Outputs 2.2, 2.3, 2.4 and 2.5 of the JCCCCP project will be secured under this Thematic Area 1.

2. Thematic Area 2: Ecosystem Based Adaptation (EbA) approaches

Not all mangrove systems in the whole of Suriname have the same relevance for livelihood and the economy, so it makes sense to focus any protection effort on the most relevant areas, for instance Paramaribo Noord. Attention in this Thematic Area could mirror (if appropriate) the similar research being undertaken in Guyana on brushwood “polders” to create sedimentation traps that support

mangrove colonization and protection on mud shorelines (i.e.: soft coastal engineering options). It may also encourage proposals that relate to carbon storage in mangrove forests as they play an important role in climate regulation as sinks for greenhouse gases) plus soil studies (chemical, physical and biological studies) on mud banks plus soils in the mangrove ecosystems since mangrove roots hold heavy metals among other things in the soil, thus containing pollution. Professor S.Naipal of Anton de Kom University of Suriname is executing a research project regarding planting mangroves and improving sedimentation to improve soft coastal protection. This could be developed further under this Thematic Area.

3. Thematic Area 3: Livelihood Diversification in Mangrove areas:

Research titles in this Thematic Area may include studies to better understand the carrying capacity of the MUMAs. This is because in recent years a decline in the fisheries sector was noticed and a decline in the bird population was also noticed. Research, for example, is needed to adjust the licenses issued to fishermen, tour-operators (actually to all stakeholders that are carrying out economic activities in the area). Under the proposed GCCA+ grant facility framework, community consultation shall be encouraged in the selection process for research grants under this Thematic Area through the use of, for example, participatory vulnerability assessment tools as part of the grant selection guidelines. Vulnerable families within the community in particular the poorest and the landless/land poor families will be engaged in the prioritizing and plans of the grant proposal development.

4. Thematic Area 4. Dissemination, outreach and research on Mangrove Ecosystems Management

Research areas within this Thematic Area may include the following:

An editorial and graphic designer expert could be proposed to assist an Information Officer to compile multi-media productions throughout the GCCA+ project, though especially for the production of all public awareness materials (used for educational purposes). CELOS have, for example, recently developed various products for every target groups (from primary school to general public) i.e. interactive software in primarily English, documentary, info sheets and booklets (bilingual Eng/Dutch) on wetlands/ Suriname MUMAs.

Hard to reach groups (such as adolescent females) will be particularly targeted for the public awareness campaigns. Two specific tools will be introduced to help facilitate this. The first is a community “scorecard” where selected representatives from various interest groups such as adolescent women, youth groups, minorities, fisher’s association, and Red Cross volunteers, assess performance of administrations in terms of the use of a community’s natural resources. This scorecard will be a simple questionnaire and entails criteria such as “completion of proposed projects”, “level of beneficiary engagement” and “targeting of proposed beneficiaries”. The information from the scorecard will be compiled and considered as benchmarks for the implementation of this activity.

Creation of participatory videos (e.g.: You Tube etc) on mangrove ecosystems. This tool has been tested to enhance the accountability and information exchange of community based climate change small grant projects. Staff can then be trained with the support of ROGB staff whom in turn will train community members (most likely members of women’s associations etc), on how to use similar and available technologies such as a camcorders etc. This will help participants to assist towards developing an updateable mangrove ecosystem management “story-board”, and how also to help them to record their planned approaches plus edit videos to present their message. As such, each coastal Resort will be loaned a camcorder to visually record the progress of the investments. The compilation of the videos from all coastal Resorts can then be shown at the Annual Events which will help with information exchange and maintaining interests from coastal community members.

This area is addressed further under Output 2.6 (Activity 2.6a).

Activity 1.3b: Implementation of successful GCCA+ Proposals on agricultural sector risk reduction and management measures.

This Activity represents the period of time allocated to implement the successful CfP grant applications. It is proposed that this Activity should have a duration period of up to 24 months. To enable CfP outputs to be included into GCCA+ outputs. As stressed above, a clear link with the JCCCP shall be made in this Activity.

The outcome of this CfP process shall be the establishment of a more formalized “grant facility”. To this end, capacities for the management of the grant facility will serve as a basis to gain direct access to future international climate funds, and possibly to set up a “national climate fund” if this option is confirmed by the GoS. It is anticipated that the focus will be on the integration of the lessons learnt from the grant facility (identification and tracking of climate change finance, monitoring and evaluation mechanisms, pilot modalities for the delivery of climate change finance at national and sub-national levels, cost-benefit analysis, prioritization) into the broader national systems, including the national budget and procedures for future management.

It is likely that that key research centres, such as the Center for Agricultural Research in Suriname (CELOS), ‘Anton de Kom’ University of Suriname amongst others shall all be key towards providing support to successful applicants. CELOS, for example, is the key agency toward conducting crop and forestry research in Suriname and their tissue culture lab could be effectively used.

In addition, it is expected that the implementation of the successful CfP grantees will link closely with the ongoing mandate of the Ministry of Education. Where possible, the Ministry should be engaged on specific aspects, in particular with regard to proposals linked to Thematic Area 4 above.

Possible organisations to be approached to support UNDP on this matter may include:

1. NOB: National Development Bank;
2. SEMIF: Suriname Environmental and Mining Foundation;
3. Suriname Conservation Foundation (SCF)

2.2.2 COMPONENT 2: DEVELOPING CAPACITY AND THE FRAMEWORK FOR MANGROVE CONSERVATION AND MANAGEMENT

ERA2 Outcome: Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place

To achieve long-term sustainability of mangrove ecosystems within the existing national system and creation of a nationwide mangrove strategy, a supportive policy, regulatory and financing environment is necessary. To create this enabling environment, ERA2 will undertake the following tasks:

- develop a regulatory framework for the specific approaches needed to effectively manage mangroves (within and outside of protected areas);
- produce corresponding operational guidelines for their implementation;
- increase consistency in laws relevant to mangroves;
- clarify institutional procedures for mangrove management;
- strengthen capacities for implementing the new regulatory framework;

- test financial strategies and mechanisms applicable to mangrove resources.

This ERA2 will provide the broad framework at the policy level to address threats and allow mangrove conservation to function better and implementable. The improved regulatory framework (Output 2.1) will include a series of norms and regulations which, in part through improved licensing and enforcement, will require broader spatial and sectoral planning to take into consideration the needs of mangrove ecosystems so as to mitigate any potential negative impacts regional or sectoral development would otherwise have on these delicate ecosystems. Coupled with these mechanisms, the Project's nationwide mangrove strategy (Output 2.1) and the funding strategies and monetary values it will test (Output 2.2) will create a space for mangrove conservation in Suriname's environmental agenda, coastal PA system and biodiversity funding. The six (6) outputs in this outcome will develop and consolidate the necessary institutional, systemic and financial capacity to enable a long-term application of the Project's strategy and those of other successful mangrove-related initiatives.

Output 2.1: Develop a National Mangrove Strategy

Activity 2.1a: Preparation of a Draft National Mangrove Strategy Policy Document.

An overall strategy for all 1,100km² of Suriname's mangroves will be designed to guide and inform future initiatives which will build upon and, in some cases, replicate the Project's actions if appropriate. This Draft National Mangrove Strategy Policy Document shall include spatial planning guidance, zoning of activities used for economic activities (mining (oil), fisheries, tourism) and protected areas for aquatic organisms and waterfowl breeding areas etc.

Despite their importance, Suriname's mangroves are vulnerable to a number of anthropogenic threats. While Suriname is putting in place a comprehensive framework through a protected area approach for ensuring that coastal areas (including mangrove ecosystems) are conserved, there are a number of institutional and capacity weaknesses in the systems which act as barriers to the delivery of effective protection. The result is the loss of mangrove habitats and the provision of resources on which many communities and sectors depend. This project will directly address this problem by tailoring existing protected area management tools to address the specific characteristics of mangrove ecosystems and increase capacities for their implementation, thus establishing minimum standards and improved approaches to mangrove conservation and sustainable use across the country. The result would be direct conservation benefits to all Surinamese mangroves, positive impacts on the livelihoods of some of the poorest segments of Surinamese society and a framework through which lessons learnt could be replicated to all Surinamese mangrove ecosystems and others globally.

The studies, proposed regulatory framework and lessons learned from the other GCCA+ projects (such as that currently being completed in Guyana) will be utilized to develop a nationwide strategy for an integrated, systems approach to the conservation and sustainable use of Suriname's mangroves. It will include specific strategies to mitigate the various threats facing mangroves as well as concrete targets to be achieved within specific timeframes (linked to Activity 2.3b – Output 2.3). Key stakeholders involved in the delivery of this Activity will involve NIMOS, though the lead role should be the Ministry of Physical Planning, Land & Forest Management (Nature Conservation Division (NCD)).

The National Mangrove Strategy Policy Document will be developed in three phases with short, medium and long-term objectives. The first version will be prepared during the first 12 months of Project implementation and will be based on secondary data, including case studies and lessons learned of existing or past initiatives, policies and guidelines and from international treaties such as the Ramsar Convention on Biodiversity, the FAO Code of Conduct for Responsible Fishing, and many others. Consultations will be held within the Project intervention areas with various agencies, councils, water resources authorities, NGOs,

CSOs, universities and other research institutions, and relevant sectors to discuss this version of the plan and make preliminary commitments to implement the medium and long-term objectives of the plan, to be fleshed out in the subsequent version.

The second, medium-term phase for 2017 will compile lessons learned from the first year of Project implementation, including those related to proposed changes to the regulatory framework, sustainable fisheries practices, buffer zone definition, enforcement, zoning, mangrove-friendly water resources management, and financial mechanisms. To ensure the strategy is coordinated with broader SCPAM outputs, PA planning and environmental conservation, and to ensure the replication of the Project strategy on a national level, the medium-term version of the Strategy will be formally legalized during the Project implementation period. Additionally, it will be discussed with the relevant sectors to ensure their buy-in for increased conservation and sustainability.

The final phase, to be prepared during the third year of the GCCA+ project and will build on lessons learned from all the GCCA+ Project's activities, SCPAM findings/follow on work as well as lessons gathered in the years following Project end including instances of replication of the Project strategy, indicators of sustainability of Project actions and other relevant initiatives in Suriname and worldwide. As part of the National Mangrove Strategy, a longer-term capacity program shall be developed to address the medium and long-term capacity needs of mangrove managers.

It is envisaged that 100% of the countries mangroves (1,100km²) will be covered by legal instruments of essential planning "tools" to ensure their long term sustainable management by the end of the project.

Activity 2.1b: Regulatory framework and supporting operational guidelines developed including a Draft Code of Practice for mangrove conservation and sustainable land use development "Coastal Development and Environmental Policy Guidelines".

The reason for the need for this activity is that currently there is a general lack of centralized land-use planning in Suriname. The coastal zone is protected by law and is governed by MUMA regulations but mangrove forests may however be under threat (including from housing development) in the north of the capital city, which has not been declared a MUMA. Also, there are no written coastal specific guidelines on how to build or how to inculcate climate change resilience into land use planning, engineering and infrastructure development in the coastal zone.

This Activity will support the development of a sub-set of "norms" tailored to mangrove specificities and be developed within the framework of existing management categories that are the most prevalent for mangrove protection. The purpose of this Activity is therefore to formulate Surinamese specific sets of planning and engineering guidelines for climate risk resilient coastal infrastructure (sea defences/roads/housing etc), using a participatory approach that shall link directly to amend (as appropriate) existing Land Use Planning and Environmental Impact Assessment (EIA) regulations, existing Building Codes and Transport Plans to better consider and address climate change adaptation. The Activity shall provide pragmatic evidence based advocacy that shall be supported by high level political endorsement for standards and protocols produced.

The operational guidelines shall design a set of norms that are related to the development of MUMA management plans (see Output 2.3) and zoning requirements to address the needs of a diversity of stakeholders and the multi-use aspects of mangroves (such as specific requirements for the definition of buffer zones). This is needed as there is no specific methodology available in country for developing buffer zones for mangroves at present in Suriname. Mangrove ecosystems are particularly complex and buffer zones must be treated differently to respond adequately to the conservation needs of these vulnerable transition areas. This includes the definition of buffer zone boundaries, which may involve the use of temporal definitions in which larger areas are included during different seasons of the year or under different

fishing pressures, or it may involve buffer zones that encompass upstream watersheds so as to protect the quantity and quality of water flowing into mangrove PAs. Since imbalances caused by pollution, deforestation and the like in neighboring areas have a much more deleterious effect on the integrity of mangroves than on terrestrial ecosystems, it will also be necessary to take a differential approach to the types of activities permitted in mangrove buffer zones, such as restricting more closely actions that could lead to pollution of water sources.

As an input to the development of the regulatory framework, and to clarify the roles and responsibilities of each relevant government agency in Suriname, an evaluation of national policies and norms related to licensing activities in mangroves will be undertaken. This will include a review of the role of sectoral agencies and how they impact government decision-making when it impacts on biodiversity. This evaluation will be discussed at a national workshop to determine how to harmonize norms to ensure effective minimum standards for mangrove protection as well as how to approach coordination with sectors. Specific legislation amendment proposals will be suggested under this Activity which may include the following lines of action:

- Institutional norms related to the co-management of fisheries resources to integrate criteria related to improved socio-environmental sustainability and an ecosystem vision especially in the design and implementation of sustainable fisheries practices.
- Amendments will also be suggested to national norms to achieve a more consistent approach to the definition of the mangrove ecosystem, and ensure that the licensing of economic activities in mangrove areas is consistent across states and in line with protection of the entire mangrove ecosystem.
- Water resources authorities will work with the Project to define criteria and guidelines for water resources management related to mangrove conservation, and a proposal will be made to work closely with the Water Forum of Suriname (WFS) so that the process of water catchment planning is developed to consider the water demands of downstream mangrove areas for purposes of classifying water bodies and issuing water use permits.
- Regulatory norms that govern financial mechanisms for PAs will need to be made more specific to mangrove areas to ensure that funds are awarded or collected in line with such criteria as the proportionate services provided by mangroves or level of impact of extractive activities in these ecosystems.

This Activity shall also review existing environmental legislation especially regarding Environmental Impact Assessment (EIA) requirements in Suriname which are generic on the issues of coastal development or environmental policy guidance. This represents a major stumbling block towards the effective delivery of sustainable coastal management as. The Activity shall therefore produce an updated environmental policy guideline for Suriname as an addendum to the current EIA guidelines/procedures (NIMOS 2009) that helps to present a “standard” procedure for developments in the coastal zone that require an EIA. The specific activities shall therefore be, among others:

- i. critical review of the current NIMOS EIA guidelines (2009) in particular the decision-making procedure, including the categorization of projects and the approval of licenses for operations of development activities within the coastal zone; this review should particularly highlight the level of involvement of all stakeholders within the coastal zone and the actual practice of allocation of space and licenses for development in the coastal zone, especially when this is different from the stipulation in the EIA guideline.
- ii. critical review of current EIA guidelines as in ‘i’ above but focusing only on mangrove areas.
- iii. critical review of the EIA Regulation, focusing on development activities in the coastal zone.

- iv. based on above reviews, produce a guideline document that addresses deficiencies of, and enhancements for, both the EIA guidelines and Regulation bearing in mind:
 - improvement of decision-making process in the allocation of space, and approval of licenses, for coastal development activities;
 - improvement of stakeholders' participation in the above decision-making process;

This Activity shall be managed and supervised by NIMOS due to the fact that the knowledge of EIA is with this institute. It is anticipated that a Draft Code of Practice for mangrove conservation and sustainable land use development "Coastal Development and Environmental Policy Guidelines" produced by end of 2016.

Activity 2.1c Integration of GEF Environmental Mainstreaming project and the GCCA+ ICZM Project activities (i.e. data management and research tasks) to help develop the National Mangrove Strategy and wider ICZM.

A new UNDP/GEF project "Mainstreaming Global Environment Commitments for Effective National Environmental Management", with a budget of US\$1M was approved in August 2014. The objective of the project is to generate global environmental benefits through improved decision-support mechanisms and improved local planning and development processes in Suriname, by harmonising existing information systems that deal with the Rio Conventions integrating internationally accepted measurement standards and methodologies. The projects outcome is to help increase capacity of decision makers and stakeholders to manage environmental planning and processes that lead to decisions aimed at increasing global environmental benefits through better use of information and knowledge; and to improve national capacities for the effective coordinated management and implementation of the Rio Conventions, and for continued leverage of financial resources to support the Conventions' objectives.

This Activity will work closely with the GEF project (focusing specifically on climate change adaptation and mangrove management in particular) to help it deliver the two GEF proposed outcomes that are complimentary to this GCCA+ project, namely:

1. Increase capacity of decision makers and stakeholders to manage environmental planning and processes that lead to decisions aimed at increasing global environmental benefits through better use of information and knowledge.
2. Improve national capacities for the effective coordinated management and implementation of the Rio Conventions, and for continued leverage of financial resources to support the Conventions' objectives.

This GCCA+ project provides multiple opportunities for synergy. Hence this Activity is designed to ensure close collaboration with the bilateral GCCA+ action. At least 3 overlapping activities are scheduled to take place with the GEF Environmental Mainstreaming project by the end of 2017.

Output 2.2: Conduct an economic (monetary) valuation study of the mangrove ecosystems

Activity 2.2a: Valuation study initiated with value-added mangrove products identified and potential market opportunities explored.

An economic valuation study shall be initiated to help identify the selection of specific mangrove-related products to be included for more detailed financial strategic assessment (Activity 2.2b). The study shall build on existing work carried out by CELOS (from 2004-2008) who conducted an economic valuation and biodiversity study of the Bigi Pan MUMA with focus on fisheries and tourism. The Activity shall thereby explore in more detail the potential economic alternatives for income-generating measures (apiculture/fishing etc) and to offset the risk of communities' natural inclination to increase capture upon

seeing higher returns. It would also contribute to more income stability for local families that currently rely on the exploitation of mangrove resources as the single largest source of income.

Besides the potential strengthening or establishment of community enterprises based on mangrove products, this Activity will further investigate opportunities associated with crafts and production using mangrove materials, already marketed in small volumes in coastal communities. Such products could be certified as derived from mangrove related PAs, to offer value added and serve as an informational device to boost societal awareness of the importance of mangroves. Certification of products and services of mangroves (e.g.: apiculture) according to principles of fair and ethical trade would ensure more equitable distribution of benefits from mangrove biodiversity, as well as sustainable supplies of mangrove related products. This approach will be informed by the recently adopted principles for certification adopted by the Marine Stewardship Council (MCS), which establishes criteria for sustainable fisheries activities. A potential partnership will be developed with Wetlands International for certification of mangrove products.

The following possibilities are also identified as being included for closer assessment, as they are both feasible and promising based on the resources, needs and ongoing initiatives in the coastal communities:

- community-based ecotourism focused on local attractions and;
- honey production (apiculture) with native stingless bee species.

While other possibilities will be identified during the Project, the study may focus on these two options to provide specific examples that can be up-scaled through updated MUMA management plans (Output 2.3). Other potential economic activities will be discussed as possible alternatives for income generation. These would be grounded on feasibility and market studies and more in-depth analysis of community demands, aptitudes and available resources.

It is anticipated that at least 100 potential local small entrepreneurs (*or individuals with a view towards considering being a business entrepreneur in the future*) will benefit from the outcome of this Activity through the provision of training and support in the preparation of business plans with 100 families in the 4 MUMAs involved in sustainable alternatives including women and youth.

Activity 2.2b: Using outputs from the valuation study, propose financial strategies that are supported by Output 2.1.

One of the barriers to the effective management of mangroves is insufficient financial resources for operations. This is a barrier that is common throughout many countries; however, within the scope of this Project, a reduced set of strategies and mechanisms tailored specifically for mangrove PAs will be explored and tested. The Project will therefore support the exploration of value-added mangrove products as sustainable economic alternatives for local communities in the coastal areas of Suriname. Through this Activity, market opportunities identified from Activity 2.2a shall be developed in the form of draft business plans and financial strategies that are drafted for the preferred products with the collaboration (if possible) of the private sector. These initial business plans and financial strategies shall be reviewed and enriched with further information obtained by the Project team which will also refer the proponents to potential sources of seed financing for their implementation.

It is recognized that the Project will not resolve the entire funding gap of all mangrove PA financing. Nonetheless, it is expected that when the successful tests are adopted in the mangrove PA strategy, these, together with baseline actions, will provide an important advance. This Activity will involve complementary and parallel levels of actions based on exploratory studies carried out in Activity 2.2a. The end result shall be a validated set of funding approaches that would form part of the National Mangrove Strategy (Output 2.1) and be incorporated in its newly proposed regulatory framework (Output 2.4). It would include potential

resource generation mechanisms, improved cost efficiency strategies and assessments of the trade-off value of services lost if mangroves are destroyed, versus the costs of management through PAs, versus the costs of mangrove restoration³. Possible tasks to be considered within this Activity are described below.

1. Valuation: Surveys will be undertaken concerning the anticipated “flow” of goods and services from mangroves and from this, the identification of direct and indirect users and beneficiaries of mangrove conservation services. An assessment of their willingness-to-pay for such services using well accepted valuation tools, such as contingent valuation and (to the extent data is available) ecological-economic modeling of the links between onshore land use and fisheries productivity will also be undertaken. These will be used in the testing of how existing PA financing mechanisms can be tailored to manage Surinamese mangroves, recognizing the services they currently provide. One output from the CELOS 2004-2008 work which may be developed further was to introduce “day passes” for short-term visitors of the MUMA to generate income. In addition, methods such as 'Targeted Scenario Analysis' (an analytical approach that captures and presents value of ecosystem services within decision making) may be used in awareness campaigns in Output 2.6 and all the capacity building strategies throughout the project. Close links will be established with the results of valuation studies in Activity 2.2a as an input to determine the costs incurred through loss of ecological services if water classifications do not take mangroves into account.

2. Compensation mechanisms. The project will design, cost and negotiate the use of “compensation funds” for mangrove conservation in Suriname. It will work to determine more accurately actual management costs, and will cost potential impacts and identify processes and mechanisms for channeling resources to mangrove ecosystems within them, taking into account the valuation studies undertaken. This will also consider relevant institutional and regulatory issues related to making existing compensation mechanisms and valuation tools applicable to mangrove PAs.

3. Ecological value-added tax. This instrument rewards those districts which forego other sources of revenue due to creation of PAs in their administrative area, by allocating to them a greater share of the municipal revenue from value-added taxes on goods and services. These resources could be used for other municipal works if preferred. However, the quality of this management is determined yearly as the basis of future disbursement and thus indirectly ensures that mangrove management is maintained. The project will test adaptation of the existing ecological value-added tax instrument as a means to increase the long-term financial sustainability of mangroves. To make the instrument more effective as a means of transferring revenues toward PA management, local negotiation between municipal authorities and protected area managers will be required. This would include developing suitable criteria to enhance their management systems to ensure that mangroves within them are protected.

The Activity will continue assessing other potential mechanisms for funding future mangrove PAs. Amongst these, potential partnerships with the private sector will be explored and procedures established for collaboration with selected enterprises that are willing to channel part of their revenues toward mangrove conservation, for example, hotels or guest houses “adopting” mangroves, voluntary sports fishing payments or licensing fees, etc. This mechanism will be premised on the growing interest of the private sector in the environmental sustainability of their business endeavors and will allow them to increase their social value by using the “green seal of approval” as a marketing strategy. Such an endeavor could be a baseline for a future publication by the Suriname tourism industry of criteria for certifying ecotourism products, as well as efforts to establish overall socio-environmental criteria for observance by the hospitality sector.

³ UNEP-WCMC (2006) cites studies that show annual economic returns (some estimates are US\$200,000 to 900,00/ha) are higher than restoration costs (US\$225-216,000 per ha) or Marine Protected Area management (annual operations cost of US\$775 per km²).

The Activity shall therefore need to involve focused consultation with all the communities engaged in the project. A facilitated entrepreneurship training and business planning workshop will be conducted with each involved community. The workshops will aim to (i) clarify conceptions related to local communities' insertion in the market and its relationship to socio-environmental sustainability; (ii) identify opportunities for product development informed by local knowledge of sustainable resource use potential, (iii) investigate existing market conditions and scope for increased production and (iv) forecast financial returns associated with additional product development and promotion. In addition, events will be organized to showcase and market these products to serve as publicity events where information regarding their development will be disseminated to set the stage for the replication of these experiences. This output will work with the communities to consolidate their experiences and translate them into concrete income-generating activities.

It is anticipated that at least 2 private sector organisations shall participate in the implementation of new market initiatives as a result of improved access to micro-credit and capacity-building programs.

Output 2.3: Update and implement existing management plans of 4 coastal MUMAs

Activity 2.3a: Revision to National and District Development Plans with new land planning guidelines, tailored towards improving mangrove conservation (Output 2.1 and Output 2.2):

A series of updated National and District Development Plans shall be produced, each with a clearly defined objective that, among others:

- describes the physical and geomorphological conditions of the coastal zone for each District as defined in each MUMA management plan;
- provides detailed ecosystem based adaptation (EBA) advice for future-proofing coastal infrastructure in mangrove areas;
- proposes methods for enhancing understanding, by the population, of potential coastal hazards and associated risks within the context of climate change;
- presents each MUMA document before a national validation workshop for finalization and adoption by the Government of Suriname.
- proposes ways to better enforce the Game Law & the Nature Preservation Law within wetlands.

Local organisations (CBOs/NGOs) shall be invited to assist towards ensuring that local delivery mechanisms are appropriate and fit for purpose.

Activity 2.3b Preparation of updated coastal MUMAs (4) each defining sets of maintenance targets (aka "Investment Plans") and to integrate future recurrent and capital expenditure needs.

Four (4) MUMA Management Plans are scheduled to be updated and implemented with new land planning guidelines and tailored towards improving mangrove conservation by the end of 2017. Maintenance targets ("Investment Plans") are also scheduled to be formalised and signed that integrate future recurrent and capital expenditure needs by the end of 2017.

The SCPAM program has already produced a MUMA Management Plan for Bigi Pan plus also for North Coronie and North Saramacca following a number of iterations to better address implementation capacities. The extent of consultation/buy in at national institutional level with key informants is also believed to be lacking. In MUMAs (such as Bigi Pan), some livelihood and/or economic activities may be allowed within each MUMA plan, as in the past, assessments on economic activities in MUMAs has been conducted. The main issues and problems / threats for MUMA that shall be addressed in detail within each updated MUMA

includes ways to improve coordinated and integrated management, ways to prevent over fishing and illegal fishing, ways to address coastal erosion and loss of protected species by poaching etc.

It is proposed that this Activity shall, through consultation, agree on the selection of 4 MUMAs to update. It is possible that this shall include the management plan for North Coronie MUMA as no implementation effort has occurred in this District. The revised MUMA management plan shall be along the lines of the SCPAM produced MUMA for Bigi Pan, though it shall consider greater attention on providing clearer support and achievable actions to help create the necessary regulatory system in order to ensure that the necessary financial targets and budgets are capable of being set for the future to ensure MUMA sustainability. Targets, indicators and budgets shall be assigned for mangrove monitoring, regulation, engineering support, control measures and other necessary investment targets for respective Resorts within each MUMA plan.

The Activity shall produce a number of Annexes that shall (where possible) make effective use of new information and modelling outputs produced as part of Expected Result Area 1. The Annexes shall be as follows:

Annex 1: Documents supporting the management plan

- Annex 1a: Zoning document
- Annex 1b: Action plan
- Annex 1c: Background document for the management plan
- Determining Tourism Carrying capacity

Annex 2: Monitoring plan

Annex 3: Legal assessment

Annex 4: Economic Valuation

Annex 5: Business plan

Annex 6: Training plan

Annex 7: Government Financing Strategy

Activity 2.3c: A Mangrove Biodiversity Monitoring Program is developed and functioning.

This Activity relates to the monitoring of mangrove biodiversity and associated engagement of community based organisations (CBO) to help facilitate the process. At present, there is a significant knowledge gap relating to the conditions and exact extension of Suriname's mangroves which prevents effective adaptive management and sustainable use of mangroves and their resources. In addition, monitoring is generally *ad hoc* and pursued inconsistently across Suriname. To address this and building on preliminary mapping carried out to date (existing vulnerability maps), this Activity will complete the mapping of all of Suriname's mangroves to consolidate knowledge on the exact location, extension and conservation level of these areas. Additionally, a nationwide program will be designed and implemented to monitor existing management effectiveness and related capacity as well as vegetation coverage and species protection status in Suriname's mangroves. Through this program, mangrove monitoring activities will seek to be harmonized. Information gathered through this mapping exercise and monitoring program will then be used to guide the adaptive management and sustainable use of these ecosystems and will serve as the technical basis for lobbying for improved policies relating to mangroves. It shall also be used to update the National Mangrove Strategy (Output 2.1) as well as informing updates to the National Biodiversity Action Plan (2012-2016).

Specific activities of the program will include the monitoring of certain species as a measure of the integrity of the ecosystem and hence the effectiveness of NIMOS in meeting their conservation goals. Species to be designated as indicators include those that depend on mangroves and associated habitats and, more specifically, are: threatened with extinction either globally or regionally, overexploited economic resources,

bird species as well as indicators related to the sustainable use of species used for economic purposes and indicators to monitor the extension and quality of mangrove terrestrial habitat cover. Results of such monitoring will be used as part of the dissemination program to be implemented under Output 2.6 for means of publicizing the importance of mangrove areas as well as their current conservation status. The monitoring program will also contribute to analyzing the effects of rising sea levels on mangrove habitats, an issue to be further addressed under the capacity building program in Output 2.4.

In tandem with the above mangrove specific monitoring protocols, under this Activity, a feasibility assessment for a Knowledge Management System (KMS) will be prepared to assist with future evidence-based decision making needed to implement the new National Mangrove Strategy Policy Document (Output 2.1). Enhanced data management systems are often an integral part of improved mangrove management decision-making under a changing climate. Therefore, this “gap” needs to be filled in Suriname. The proposed Feasibility assessment work shall compliment ongoing/already established work in this area as follows:

- The Suriname Water Resources Information System (SWRIS) which is a database tool containing water-related information on Suriname. The main goal of SWRIS is to promote and foster knowledge techniques on integrated water resources management (IWRM), as well as to encourage the sustainable use of water resources and promote the conservation of aquatic resources. This system is an online information system, and includes a collection of hydro-meteorological field data, and presents awareness programmes about water resources for primary and secondary schools, videos, training, and academic courses at the BSc and MSc level.
- Another important baseline initiative which this project can build on is the Land Registration and Land Information System (GLIS) which was finalized and sought to develop institutional and individual capacities in land management. GLIS, as an outcome of the project, is now a governmental structure. It is a system that comprises a digital overview of the plots in Suriname and its associated information. The information being generated by GLIS may be useful to a variety of stakeholders at the local level, as well as overseeing bodies at the national level.
- ROGB has also developed a database on forest management; however this is not yet fully-integrated. ROGB has also developed a data-management and nature conservation plan. This plan includes considerations for working with local communities, particularly in the monitoring of certain species such as the marine turtle. Although these are sector-specific initiatives, the learning that has emerged from these processes can be extended in particular to Activity 2.1c of the proposed project.

Despite the generation of many of these information tools and databases, there remains a lack of consistency, coherence among these different tools. As such, this Activity will (in tandem with Activity 2.1c) advance an integrated approach that can build on this baseline of technical knowledge by ensuring that the development of the knowledge platform, takes into account the existing databases and skills so as to best integrate them.

Developing a mangrove management information system not only will assist in establishing the infrastructure for storing and managing information, engagement of coastal communities and Governments in monitoring of mangroves but it will also ensure that real time information can be effectively used for future decision making. This is required as currently a complex institutional architecture exists with respect to knowledge management and this is a key obstacle towards preventing informed decision making in Suriname. The ongoing GCCA+ mangrove project in Guyana is a good example of a project that has attempted to enhance key information collection capacity for both real time climate data (precipitation) and also tide data (sea level rise monitoring).

Without this Activity, there is a risk that the tremendous opportunities generated maybe lost if the mangrove information is not properly stored and managed in a manner that is more accessible to a wider group of stakeholders beyond some key technicians in NIMOS. To strengthen communication, knowledge sharing, and more active cooperation among various scientific and research institutions in mangrove related research across institutions, the database will be managed by a NIMOS team based in Paramaribo with clear guidelines produced to ensure national compatibility of system architecture and data management protocols (input/output etc). This will have immediate impact beyond the project sphere as local communities can start populating their specific coastal related database at no additional costs. The approach to be adopted is NOT to introduce an expensive GIS or complicated database system. Instead, a community focused “monitoring system” outline is to be “piloted” for future implementation.

Tasks under Activity 2.3c include:

- User Needs Assessment meeting to agree spatial data infrastructure requirements;
- Consultancy studies to identify needs for a Spatial Data Infrastructure (SDI) for future mangrove management needs;
- Training on data capture, storage and coastal database management, software design and document control at central level;

The Activity is therefore designed to develop a system that is functional to support planning, management and evidence-based decision-making. The monitoring program shall provide the information to be stored within the system, which shall be managed by NIMOS with partnering arrangements with each coastal District (through the support of CBOs). Clear roles of research institutions and CBOs shall also be set out in order to monitor and advise on aspects such as mangrove habitat change etc. Guidance for monitoring support roles of local committees shall thereby also be introduced at this time to help support delivery.

This output shall be designed to integrate with other donor funded initiatives, especially the GCCA+ project in Guyana and other UNDP /GEF support project for mainstreaming environmental management project in order to ensure synergy and complementarity (Activity 2.1c).

Output 2.4: Establish and adequately equip management structures at the 4 coastal MUMAs

Activity 2.4a: Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies (Project Management and Monitoring developed and implemented).

In addition to government level planning processes, sectoral planning plays an integral role in the sustainable use of mangroves by undertaking activities whose implementation locations and methods may have significant impact on the quality of water flowing into mangroves, levels of deforestation in and along their borders and the like. Thus, a consideration of sectoral activities will be mainstreamed into this Activity by coordinating with sectors whose activities impact on the PAs in the municipalities, to include the water, tourism, fisheries, agriculture, transport and aquaculture sectors. Coordination will be pursued through existing national commissions including the CCEG.

In order to ensure consistency and minimum standards in a nationwide approach to mangrove conservation, this Activity will update institutional procedures and sectoral approaches regarding mangroves in line with the clarified mandates and advances in the regulatory framework achieved through Output 2.1. It will also advise on capacity strengthening programs for the different institutions involved in mangrove management so as to better align procedures, staff profiles and capacities to the new regulatory framework (delivered in

Output 2.5 – Activity 2.5b). This Activity will align institutional procedures and capacities for the implementation of the new regulatory framework proposed in Output 2.1. Capacity building procedures will include building support for community, government and sectoral stakeholders and Districts/Resorts for effective consultation and participation. This shall include legal political and institutional aspects, training in conflict resolution, participation of Districts and Resorts in mangrove management; liaison with other institutions, including those outside mangrove boundaries; socio-economic and environmental importance of mangroves, the role of traditional activities and sustainable alternatives in the conservation and use of mangrove areas.

This Activity will explore a range of opportunities and support specific procedures to increase the effectiveness of mangroves through linking their management to a range of broader spatial planning practices. This shall focus on water resource planning processes at the watershed level seeking to include in watershed management plans the needs of the mangrove areas in terms of quality and quantity of fresh water. This will provide ground-proofed approaches that will be incorporated into the policy framework being defined in Output 2.1.

Activity 2.4b: Capacity building program designed and delivered for 4 coastal MUMAs.

The UNDP/GEF (United Nations Development Programme/Global Environmental Facility) supported project “Suriname Coastal Protected Area Management (SCPAM)”, promotes conservation and improved management of protected areas (mangrove ecosystems) along the coast. The SCPAM project focuses on management effectiveness and efficiency of the coastal Multiple Use Management Areas (MUMAs) and on diversification of MUMA funding. The project is in its final stages and close to having depleted its financial resources. The proposed GCCA+ action will build upon the achieved results and support the required continuation of activities undertaken in this context, in particular in relation to the management plans and the MUMA capacity building programmes.

This Activity will therefore design capacity-building components for 4 coastal MUMAs. This will build on approaches already adopted as part of the SCPAM (2014) project for Bigi Pan MUMA (for example) though shall include attention on training to support awareness raising initiatives, advice and support to planning, CZM related bodies and water authorities to include the needs, in terms of quality and quantity of fresh water, of the mangrove ecosystem and the people who depend on it for their livelihoods. It shall target all key national and local institutions, individuals and planning departments and will involve a detailed institutional analysis exercise and creation of clear and costed training and capacity action requirements.

Specifically, the training will focus on making effective use of coastal information services, coastal and climate risk assessments, and climate resilience management techniques. The knowledge and expertise of the CCCCC in Belize and research institutes in the Netherlands and regional NGOs will augment that of national institutions in Suriname. Special attention will be given to incorporating women and youth into capacity building programmes shall be made to ensure economic benefits are fairly distributed since they form the majority of underemployed or unemployed and since fishing activities generally involve the entire family, not just one male. Currently gender aspects of coastal management are not mainstreamed into national development policy. However, gender considerations play an important role in the successful integration of coastal management considerations into the GCCA+ project principles and also GoS development priorities. Understanding and addressing gender-differentiated consequences of climate related hazards and coastal change is critically important. The equitable participation of both men and women in implementing each coastal MUMA policy and interventions will help to ensure the long-term sustainability of both adaptation and coastal risk reduction measures. The Activity is also designed to address how to inculcate key performance measures into staff contracts and to set up incentive requirements to ensure that policies are implemented correctly within MUMA.

It is anticipated that at least 1 more specialized staff member is recruited within each MUMA for mangrove management by the end of the project. By the end of the project at least 20 staffs (at least 10 female) will have been trained on procedures of licensing & enforcement for mangrove conservation.

Output 2.5: Support towards improving patrolling activities

This shall include a range of support mechanisms including surveillance equipment and associated, training to support any new systems, equipment or procedures adopted. Focus shall be placed (where appropriate) on making use of local capacity, develop local training programs specifically tailored for local direct stakeholders (fishermen, tour operators, local game wardens) and involving local organizations (strengthen/capacity building of these organizations). Currently, and in terms of surveillance, there is a pilot project taking place that is assessing the use of drones in use for the nature reserves including the MUMAs. The idea is that these drones can be used instead of wardens; less expensive and efficient in use.

Activity 2.5a: Water resources management processes (Output 1.3) developed and tested to support mangrove conservation needs.

As wetlands, the functionality of mangrove forests is highly dependent on the quantity and quality of water flowing into them. Effective management of mangroves thus requires closer links to the authorities, institutions and sectors that plan, govern and undertake both development and water management in the surrounding areas. In the context of Suriname, with the complexities of its socio-economic and environmentally diverse coastline, achieving this presents challenges. However, there are a number of planning instruments that provide an opportunity to advance the integration of mangrove ecosystem requirements into this broader context and as such could set the stage for improved conservation. These are: (i) Coastal zoning exercises that are being completed at the District level (ii) Land use planning; (iii) watershed planning. There are no specific experiences of how mangrove specificities can be incorporated to increase the effectiveness of mangroves.

Water quantity and quality in mangrove areas are often compromised as upstream watershed planning and water use permits are undertaken without considering the impacts on water flows to downstream mangroves. Often, however, authorities that govern water resources neither have knowledge of mangroves requirements nor are they aware of the values of the services that might be lost when mangroves are destroyed by severe change in their hydrology. Thus, often permits are issued prior to classifying the bodies of water.

To set the stage in the Marowijne and the Corantijn River watersheds and to integrate mangrove concerns into water resource management and watershed planning, a pilot project is proposed (using the same pilot river basin watershed adopted in Activity 1.2b) to better integrate institutions that govern water resources. Capacity building will thereby be provided under Activity 2.5b to water resource authorities on the use and application of water management instruments including the classification of water bodies, determination of acceptable uses based on that classification and the issuing of use permits. Integration between authorities and water resource agencies will be promoted by developing protocols of agreement between these entities, harmonizing management practices of mangrove resources and water resources through, initially, negotiating the consultation and participation of authorities and management councils in the development of the 4 coastal MUMA management plans. Technical meetings will be held to negotiate and agree the specifics of this integration. The Activity will also define mechanisms to regulate the use of water resource instruments, especially those related to water permits. Close links will be established with the results of valuation studies in Activity 2.2a as an input to determine the costs incurred through loss of ecological services if water classifications do not take into account mangroves.

To provide technical inputs, the pilot will undertake an evaluation of relevant norms, procedures and practices employed by other countries (such as Brazil and Guyana) which could provide insight on how best

to undertake this integration. In addition, indicators will be developed to measure environmental quality of interstitial areas of marine and terrestrial ecosystems. Guidelines and priority actions to improve environmental quality will also be established. Levels of pollution and their sources will be discussed as part of the process to define the application of water resource instruments which will result in the development of basic parameters of water quality to ensure the maintenance of the integrity of mangroves.

Lessons learned through this demonstration will be used to propose changes to regulations governing the development of watershed management plans to make them more consistent with the water needs of downstream mangrove ecosystems. By the end of Year 1, five (5) briefing notes, five (5) fact sheets, and one (1) cross-sectoral guideline for climate-resilient coastal planning will be developed and disseminated.

Activity 2.5b: Training programmes on new regulatory/operational procedures set out in outputs 2.1/2.3 and 2.4.

In spite of the extensive system of protected areas, mangrove trees themselves do not benefit from a legal protection status in Suriname. Conservation of the protected areas (both Nature Reserves and MUMA's) are carried out by government agencies and to some extent by local communities (e.g.: Bigi Pan). However, this approach isn't effective. Many protected areas have no wardens stationed in the area, and other areas are only visited by wardens on occasion. Wildlife conservation is costly, and time- and labor-consuming. Constraints are not only limited staff and financial resources, but also a very limited delegation of conservation tasks to local bodies or communities. The aim is to establish a central point from which all activities in MUMAs are coordinated.

This Activity will therefore focus (where appropriate) on making use of local capacity, develop local training programs specifically tailored for local direct stakeholders (fishermen, tour operators, local game wardens) and involving local organizations (strengthen/ capacity building of these organizations). It shall provide capacity building and awareness training on the value of mangroves to sectors that impact their conservation and sustainable use. The training shall be designed on legal, regulatory and institutional aspects of mangrove management. Training shall also be provided on conflict resolution, participation of municipalities in mangrove management; liaison with other institutions, including those outside MUMA boundaries; socio-economic and environmental importance of mangroves, the role of traditional activities and sustainable alternatives in the conservation and use of mangrove areas.

The training programs shall include the National Mangrove Plan (Activity 2.1a) and the new regulatory and operational guidelines developed by the Project, thus acting as a vehicle for dissemination scaling-up. Beginning during Project implementation, this training program will be replicated on an ongoing basis as part of Suriname's NGO community environmental education and capacity building activities.

Specific mangrove-relevant issues to be addressed in developing training programs and trainers to target municipalities would be modules on the effective use, and enforcement, of environmental management instruments for mangrove conservation. This would comprise, inter alia, procedures for licensing processes including guidelines for the development and review of EIAs tailored to mangrove characteristics; the processes for developing zoning in PAs; the consideration of mangrove PAs in coastal zone management processes; and the integration of mangrove functionality requirements in water resources instruments.

As part of the process to update procedures, this Activity will undertake a three-pronged capacity building training program aimed at the following groups (i) key environmental agencies, (ii) managers of municipalities and (iii) sectoral agencies.

- i) Key environmental agencies. This first prong of the capacity building program would aim at creating capacity in the agencies responsible for overall environmental policies throughout their jurisdiction.

These agencies are responsible for all environmental policies in their administrative jurisdiction and are not limited to PA or mangrove-related activities. Rather, they must consider overall environmental integrity and impact. This prong would consist of two phases, the first spearheaded by the GCCA+ Project itself, and the second spearheaded by key environmental agencies which are responsible for delivering capacity building programs to municipalities. In the first phase, the GCCA+ Project will prepare materials related to the importance and value of mangroves for the key environmental agencies. All will receive training based on these materials to integrate such mangrove-specific elements into their existing capacity building programs. The GCCA+ Project will also explore partnerships through other ongoing capacity building processes and initiatives for delivery of more formal capacity to key environmental agencies and will work through regular meetings to discuss new procedures, share lessons and build capacities.

- ii) Managers. This second prong would be targeted at those responsible for the management of mangroves thereby creating immediate capacity for the GCCA+ Projects long term sustainability. Initially, it would be implemented on a limited scale to an estimated 30 managers (at least 50% being female).
- iii) Other sectoral agencies. The third and final prong of the capacity building program would target sectors that impact mangroves. This would include aquaculture, tourism, industry, infrastructure, fisheries and agriculture. Increased coordination with these sectors will be pursued at the national level created to enhance dialogue between the three levels of government. The Project would sponsor extraordinary meetings with the sectoral members of these commissions as fora for this awareness raising and dialogue on the value of mangroves to their respective activities, on lesson learnt through pilot projects regarding win-win solutions of sectoral participation in mangrove conservation. Similarly, these would be used to advance the discussion of potential adjustments to sectoral policy to enhance mangrove protection in key areas.

An initial step in delivering this capacity building will be to detail preliminary competency skills profiles for managers that encompass mangroves. This will include, inter alia, a knowledge base relating to mangroves since the clear comprehension of certain aspects of mangroves is necessary to manage them effectively. Inter alia this will address the importance of mangroves as fragile coastal wetlands and the essential nature of all the ecological zones forming mangroves which requires an ecosystem approach to resource management and an understanding of the effects of climate change related phenomena, such as rising sea levels, on mangroves. The skills profiles would also include specialized conflict resolution techniques and coastal zone management processes given the highly diverse users of these ecosystems and the economic pressures prevalent in the coastal area.

As GCCA+ Project implementation progresses, the standard competency profiles required for all mangrove managers would be tailored to incorporate specificities of mangroves. They would build on the preliminary skills profiles mentioned above and incorporate elements of the new regulatory framework and operational guidelines to be developed under Output 1.1.

By the end of Year 2, two (2) national training seminars for relevant national ministries and organizations on climate-resilient coastal planning conducted (2 in total). Also by the end of the project, at least 75% of civil servants at the national level (at least 50% of being female) will be able to identify climate risks and prioritize, plan, and implement measures for adaptation in coastal areas.

Output 2.6: Design and implement public and community awareness campaigns.

Activity 2.6a: Dissemination, outreach and research on Mangrove Ecosystems Management delivered to community and sectoral stakeholders and the broad public;

This Activity, and set tasks under it, intends to ensure that the adaptation benefits will be maintained within the project target areas beyond the project cycle. In particular, it will enhance the framework and capacity within local communities within each Resort to maintain and monitor the investments delivered, especially under Output 2.1 plus also link directly to the Knowledge Management System (KMS) being designed in Output 2.3. As described earlier, there is presently limited understanding among communities of effective mangrove management and resource use measures available.

Activity 2.6a will be implemented through a CfP (see Output 1.3) to create public awareness and ecosystem services education campaigns for vulnerable groups as appropriate including awareness in schools.

Communities/indigenous peoples (Maroons and a relatively small population of Amerindians) will be involved in activities related to development and testing of adaptation measures in agriculture, including subsistence shifting cultivation in the interior. These communities will benefit from the public awareness campaigns on Mangrove conservation and will be directly involved in sustainable management of mangroves ecosystems. Where relevant, they will also be involved in data gathering and analysis. It is anticipated that through the CfP process, one hundred (100) community members will be involved each year on sustainable mangrove management and resource use alternatives including women and youth. Also, 50% of all coastal Resort populations) (30% of which are women, youth, and/or vulnerable groups) will have been exposed to mangrove protection knowledge projects by the end of the project.

All information produced shall be tailored to the public it will be presented to.

Activity 2.6b: Awareness programmes for media (TV/Radio/Journalists) on appropriate Mangrove Ecosystems Management delivered to professionals in the media field.

Linked to Activity 2.6a, Activity 2.6b focuses more specifically on providing training for local reporters/radio station on mangrove ecosystem management related issues. Regular radio programmes and short community-made videos will be used to disseminate success stories around Suriname as activities aimed at enhancing mangrove ecosystem management implementation. The use of radio, video and internet to promote understanding of issues that affect communities in the area of biodiversity conservation and ICZM related issues will therefore be designed. It is proposed that a weekly radio show updating project implementation status will be designed and implemented.

It is anticipated that by the end of the project, 50% of reporters/media in Suriname will have been trained on mangrove related issues with at least 30% of trained communication officers being female. *(NB: the definition of a "reporter" is someone officially employed as a journalist or working for a media presentation organisation or broadcasting company).*

And also: who do you consider reporters/media? It will become difficult to measure the results when this isn't clear from the beginning.

2.3 Cross-cutting issues and challenges

Sustainable development is about integrating sectors that have so far been treated as independent and separate development components. There are a number of challenges to be faced as an integrated sustainable development vision, strategy and programme are formulated in Suriname.

There are rapid changes in the technology required and used to support and implement a sustainable development programme. Suriname has not formulated a vision or strategy on technological development yet, and this is essential if decisions are to be taken for the sustainable path forward. The capacities required to develop clear indicators to measure progress in complicated, integrated priority areas are scarce and/or lacking in country on the short term.

The current national planning system of Suriname needs to be adjusted, and aligned with the district decentralization programme this being implemented, so that efficient and adequate planning, decision-making, implementation and fundraising at district and local levels can take place.

Funding needs to be available for the continuous process of planning, implementation, monitoring and evaluation at all levels (international, regional, national, district, local).

The following cross-cutting issues have therefore been identified as particularly relevant for the GCCA+ project to develop during the 36 months of the study:

- Promotion of inter-institutional coordination, involving governmental entities, local organisations, private sector and civil society.
- Develop sustainable financial mechanism (e.g. for the management plans).
- Involvement of young local professionals: the action will provide opportunities for young professionals to develop their capacity by acquiring experience and on-the-job training. For example, local juniors will be assisting senior experts in the development of the mangrove strategy and in the mangrove valuation study. More opportunities will be created in the components financed under the call for proposals.
- Promotion of evidence-based decision at all levels.
- Creation of ownership of the outputs as well as of the work methodologies and approaches applied to get to the results.
- Promotion of community awareness, including men, women, children, elderly, disabled.
- Equal opportunities for men and women (see Section 2.4).

In response to the cross-cutting development challenges highlighted above, the GoS has also prepared an Integrated Coastal Zone Management Plan (ICZMP). The coastal zone of Suriname is endowed with many natural resources, such as fertile soils, fresh water, fish and shrimp stocks, forests, oil and mineral resources. Many of these resources are either underutilized used in an inefficient manner. For instance, agricultural, livestock and aquaculture potential is not fully optimized, whereas others tend to get overexploited, such as the fish and shrimp stocks. The ICZMP formulated a vision for sustainable use of water, soil and resources of the coastal zone and to protect natural ecosystems alongside socioeconomic development. The Plan includes recommendations for legislation and regulation and adaptation of the management organization. Preparations have also been made for a central coastal database with information generated by GIS.⁴ The ICZM Plan has been finalized but the implementation phase has not yet begun.⁵ This GCCA+ project shall pay due cognizance to this Plan especially towards the delivery of ERA2.

2.4 Gender

Gender infuses human cultures, and is reflected in such things as patriarchal versus matriarchal societies, the organization of sexuality, the roles attributed to women and men, and much more. Women are affected differently than men by environmental challenges, generally taking more of the brunt because of their role in food security and family organization. Gender also underlies other community relations, such as traditional governance systems, where authority and participation is different according to one's gender category. Here too cultural practices determine the way women, the elderly and the young, i.e. the less powerful, are able to respond to change, and thus how a society will adapt and survive as an entity in the long run. To address these points, the project will mainstream gender concerns and efforts to advance gender considerations in all

⁴ Deltares: Integrated Coastal Zone Management Suriname.

⁵ Inception Report, 2013

activities. However, for the purpose of the project the term “gender” will focus on women and children living in and deriving an income from the strip of land along the coastal zone.

One of the greatest challenges to formulating an effective gender policy in Suriname has been the lack of reliable information, data and statistics. While there seems to be an improvement in quantitative data collection that provide gender breakdowns, in general, national statistics are still not gender-specific, and gender analyses are either lacking or very weak in policies and plans developed by the different government and non-government players, as a result of which it is difficult to track gender equality in the different sectors. The Suriname Bureau of Statistics (ABS) has also disclosed that there is virtually no gender-disaggregated environmental data. There is some statistics in the ABS Census report (January 2014) that shows the number of females employed in 'agriculture, livestock and fisheries' is 1,725, though this is not exact enough to help disaggregate any meaningful information that is specific to this GCCA+ intervention regarding agricultural employment in coastal Districts, for example.

Suriname is fully aware of its international commitment to gender equality. The Development Plan 2012-2016 highlights the importance of gender equality and equal opportunities for men and women in all sectors of society. In this regard, priority has been granted to a number of important issues addressed in international fora, including women and development. One of the principles of Suriname’s human rights based development strategy indicates that a cross-cutting gender perspective should be mainstreamed in all plans and programmes. Suriname has had two integrated gender policy plans between 2000 and 2010, formulated on the basis of the Beijing Platform of Action. In 2011, a dialogue was started between the Ministry of Home Affairs and civil society at the initiative of one of the women’s organizations. Through this process, a gender plan of action for 2013 was drawn up with five priority themes, established in the consultation process, namely health, violence, education, economic empowerment, and decision-making. The next step in this process is to develop a new gender policy and plan of action for the period after 2013, as well as a monitoring and evaluation mechanism. Suriname has also ratified two gender related treaties: the Committee on the Elimination of Discrimination against Women (CEDAW) and the treaty of Belem do Para Inter-American Convention on the Prevention, Eradication, and Punishment of Violence against Women. The Suriname government has also committed to fulfilling the Declaration of Beijing, where gender mainstreaming is a central theme.

With regard to this GCCA+ project, it shall aim to take on board gender related issues and the participation of women using the following approaches and assumptions.

- Activities are designed that seek to appreciate the extent by which the livelihood of people working along the coastal strip (coastal MUMAs) is negatively affected by a “do nothing” strategy on mangrove management and collecting new meteorological/hydrological data within the stipulated time horizon of the study.
- Mitigating measures are to be formulated and monitoring plans put in place only in those coastal MUMAs where people’s livelihoods are presently threatened now or during the next 20 years (ERA2).
- Efforts shall be made to encourage the co-financing of a gender advisor, based in the Project Coordination Unit, who will be responsible for training project staff on gender related issues and contribute to all training programmes, awareness raising programmes and other capacity development activities that take place. The gender advisor shall also liaise closely with the UNDP/GEF Mainstreaming project (Activity 2.1c) to assess strategic project linkages to better determine long term environmental impacts of the quality of lives of women and children and the poor in the Project Areas.
- While progress is being made, in Suriname lack of data still is a serious constraint: most data is project- or program- based, fragmented, not easily aggregated and authenticity is also a concern. Despite this,

the GCCA+ project shall contribute to gender equality through the involvement (during ERA2) of the main NGOs operating in Suriname. ERA2 is designed to ensure the NGO community continue to work towards improving women's empowerment and gender equality where socio-cultural traditions and practices weigh heavily on the social status of women and girls (as part of coastal communities).

- The largest gender sensitive group which this project will affect is the coastal agricultural community though securing the coastal and interior agriculture and livelihoods. Agriculture and animal husbandry represents the main source of income for most economically active men women and agricultural interventions are thus already likely to be gender sensitive. On this matter, the project is consistent with the Development Plan Suriname 2012-2016 (OP). Thus, in terms of the agricultural areas supported by this GCCA+ project the high levels of participation of women mean that it is gender sensitive plus the approach outlined in ERA2 builds on the existing OP strategic foci for gender.

The proposed project will benefit over 541,638 people (as taken from the 2012 Census dataset and probably an underestimate).

2.5 Sustainability

2.5.1 Current Barriers to Sustainability

Barriers that need to be overcome to ensure long term sustainability include the following:

- i) Limited long term meteorological and hydrological knowledge and capacity to effectively predict future climate events;
- ii) Weak capacity for capturing and conveying climate and meteorological data and information;
- iii) Absence of a national planning framework to assess and integrate climate change risks into sectoral and development policies;
- iv) Absence of long-term sustainability plan for observational infrastructure and technically skilled human resources. Other stumbling blocks in the path include obsolete and inadequate weather and climate monitoring infrastructure, which limits data collection, analysis and provision of meteorological services; limited knowledge and capacity to effectively predict future climate events, uncertainty in long-term sustainability of observational infrastructure and technically skilled human resources and lastly the poor community level usage of climate information and responses to receive the data.

The project is designed with sustainability at the forefront of its implementation. The following provides some details on the sustainability of the approach.

2.5.2 Generic Sustainability

Sustainability is an integrated part of the project design, although it is not intended that the project, in and by itself will establish a sustainable climate resilient risk management framework. Regarding political and institutional sustainability, the project has strong government support at national level. Various stakeholders from the government and civil society were involved in the initial consultation process and (see Appendix A), and several of those agencies are keen in carrying forward the implementation of the top identified priorities (i.e.: mangrove conservation).

The long-term viability and sustainability of the project will also depend greatly on the extent to which national institutional capacities can be built upon. This will be achieved through capacity building at all levels (see Outputs 1.3 and 2.5) and climate resilient development rather than viewing the project as a short term activity. Institutional linkages will be strengthened (ERA1 and ERA2) and community based mangrove resource use will include innovative mechanisms for sustainable livelihoods, which in turn will enhance the sustainability of project outcomes (Output 2.1). The capacity building components of the project will empower stakeholders

at all levels with a greater understanding of climate change risks, adaptation options for agriculture and enhanced adaptive capacity. A number of measures are planned, to set the grounds for ensuring long-term institutional, political and financial sustainability. A phased approach will enable interventions to be scheduled within the absorptive capacities of existing institutions.

A key strategy of the project in engendering institutional sustainability is to create partnerships between national institutions (e.g.: WLA and MDS). The strategy is expected to greatly enhance prospects for assuring institutional sustainability, building on existing regional competencies (e.g.: CCCCC). Training at the MUMA and community level will be supplemented through participation in workshops, information exchange between communities and institutions, to be facilitated by the project management unit.

The cultural sustainability of the project activities will also be ensured through community consultation and participation in the design and implementation of specific interventions (such as bespoke mangrove management measures).

2.5.3 Institutional Sustainability

This is important at local and national levels. At local levels, the main measures in the project design to achieve this are: training for local officers and communities; supporting existing agencies and experts; empowering communities and decision-makers; and; strengthening existing consultation and decision-making structures. GCCA+ resources will build on existing organisations (local governments) and processes.

At the national level, although the stakeholders and issues are different, the approach to assure institutional sustainability is the same. Awareness raising initiatives to secure political commitment, and the direct involvement of several Ministries can help ensure that commitment as will the dedication of the WLA and MDS. The involvement of the Office of the President shall give the political robustness it deserves for successful implementation. In addition, the potential role of the proposed and future “climate institute” may prove very important towards achieving institutional commitment on climate change related matters.

2.5.4 Financial/Economic Sustainability

This is a particular challenge. Although many mangrove management measures are low cost or no-cost, many others are high to medium cost. Moreover, many coastal protection measures require ongoing maintenance (funding from a combination of public and private sector partnership arrangements depending upon the purpose of the coastal protection scheme), which can only be achieved if there is sufficient local organisational capacity. The project takes many steps to achieve financial and economic sustainability. First, the measures to be demonstrated are to be achieved at costs which are largely affordable in Suriname (and use local materials where possible). By building capacity to undertake all steps in constructing these measures locally, this will further lower the cost of these measures – all capacity will be available locally. Further, the project will build local organisational capacity to demonstrate that, in the Suriname context, communities can maintain the physical constructions.

Another step taken by the project is to build capacity in Suriname is to mobilise financial resources to mangrove management and improved climate change hydro-met data. Elements of this include (i) strengthening data and information management capacity, so that future designs can be improved and better targeted; and (ii) developing capacity to prepare proposals and designs, notably economic analysis capacity. In part, the project aims to demonstrate innovation, and to capture lessons learnt. Both of these are processes which require ongoing financing. Once something has been ‘demonstrated’, it does not require demonstrating again, so the costs associated with demonstration can be one-off (and do not need to be recovered).

To help ensure financial sustainability, the proposed action shall explicitly build on previous achievements, acquired knowledge, and existing structures. For example, the hydrological/hydraulic modelling will make use of already existing data on rainfall, seasonal river flows and replenishment of water reservoirs as well as

an existing hydrological model at District level (Nickerie); the support that will be provided to the Meteorological Service of Suriname (MDS) aims to expand the existing network for data collection (supported by the Intra-ACP GCCA+ 5C programme) and to optimize the use of already available data; and under the mangrove component, the proposed action will enable national stakeholders to put knowledge and insights gained under past initiatives into conservation-oriented management practice.

Particularly relevant proposed areas (similar projects) who are able to demonstrate similar position sustainable actions for Suriname are outlined below:

- The implementation of the project “Sustainable Coastal Zone Protection through Mangrove Management” in neighbouring Guyana showed that the success of mangrove planting and rehabilitation largely depends on the creation of favorable environmental and hydrological conditions. In support of creating optimal habitat conditions, retaining facilities that promote sedimentation and natural regeneration were designed and installed. The project also developed techniques for mangrove seedling production. Guyana also showed that protecting coastal areas through dikes and other infrastructure works results to be very costly, in particular when taking the high costs for recurrent maintenance operations into account. Therefore, ERA2 of this GCCA+ project will benefit from the experience gained from the Mangrove Project funded in Guyana under the previous GCCA+ programme. Exchange of experiences between both countries will be further developed.
- The experience on the GCCA+ 5C programme on climate modelling, meteorological field stations, its work on vulnerability assessments and its support to the Ministry of Environment for the preparation of the Climate Change Action Plan.

To help ensure sustainability of the project, UNDP Suriname has built within its implementation strategy the actions stated below as a means of ensuring sustainability of project actions.

1. Seek letters of commitment from the Government of Suriname ensuring the integration of national frameworks/ agencies, developed with the support of project funds, into overarching national structure with the complete support of government by end of project.
2. Involvement of key stakeholders early in the process to ensure that outcomes and outputs are appropriately aligned with national processes and institutional priorities.
3. Execute project utilizing a flexible framework allowing for adaptive management which takes into account the evolving needs of the participating institutions and the evolving climate change policy context.
4. Build synergies with related on-going national interventions. The project takes this in its development creating an enabling environment for the systematic adoption of climate change adaptation actions related to the management of other sectors.
5. Building of multi-sectoral teams, to allow climate-change adaptation to be integrated into planning in a wide range of sectors. The project takes advantage of the fact that key national institutions are part of its Management Support Group or project board. This ensures the creation of an enabling environment for climate change management and the opportunity for synergy building among climate change actors.
6. Commitment by the GoS to post project support for institutional structures created. All project actions have been developed in direct consultation of national counterparts/ partners as a result to existing strategies or work programmes or as a response to need identified by consensus.
7. Explicit consideration of costs and benefits, with endorsement of strategies, policies and measures only if they can be expected to provide overall net benefits and can be sustained by national networks/ structures.

2.6 Assumption, Risks and Risk Mitigation

The achievement of GCCA+ Project objectives is based on a number of assumptions which rest on maintaining at least the status quo in regard to government commitments, levels of threats and funding. The major assumptions on which the project strategy is based are listed below, along with the level of risk of them not holding and the mitigation measures to be undertaken to preempt that risk. A more complete list of assumptions can be found in the Logical Framework (Section 3.1).

The critical assumptions in this project include the hypothesis that climate change adaptation and mangrove management will continue to remain a priority for the Suriname government; that targeted cross-cutting capacity building will be sufficient to lead to measurable progress in meteorological and hydrological management processes; and that NGOs, local communities and the private sector seek to collaborate effectively within a joint framework around environmental priorities.

The most significant risk which could impact the implementation of this project is political instability, fluctuations in the institutional make-up of the government (based on the new Government reshuffle from the recent general election in 2015), and the resulting lack of coordination among government structures, as well as challenging financial situations and conflicting mandates. Some unpredictability and uncertainty for the public sector has been generated from the recent 2015 election and Ministries are aware that there may be significant changes that may result from the election, thereby impacting mandates, structures and budgets. The way to mitigate this risk is to ensure that there is good cross-collaboration and coordination from the project preparation to the implementation, and that regardless of who has the final responsibility of implementing particular actions, the project is supported cross-governmentally, so that if there are any transitions that collaborating partners can step in with the knowledge of project direction. It is also assumed that the proposed National Mangrove Strategy (Output 2.1) will be approved and implemented by the GoS. This budget support operation also requires absorption in a "sector" that has so far received little funding. This presents some risk, but there will be in activities that can fairly easily be scaled up. The mangrove rehabilitation and protection will also depend on the REDD+ process and performance payments for forestry, which will provide funding for the mangrove monitoring tasks. There is some risk that this process might be delayed or stalled.

Over the course of the project, a UNDP risk log will be regularly updated in intervals of no less than every six months in which critical risks to the project have been identified. At the time of project formulation, strong political commitment from national as well as municipal authorities is evident which will limit a number of risks from materializing. Consistent involvement of a diverse set of partners, including local District Officials, police officers, community organizations and NGOs will further reduce these risks.

Some key risks and assumptions of relevance are highlighted in more detail below. A specific GCCA+ Project Risk Log is presented in Appendix 2 (to be completed during the Project Inception Phase).

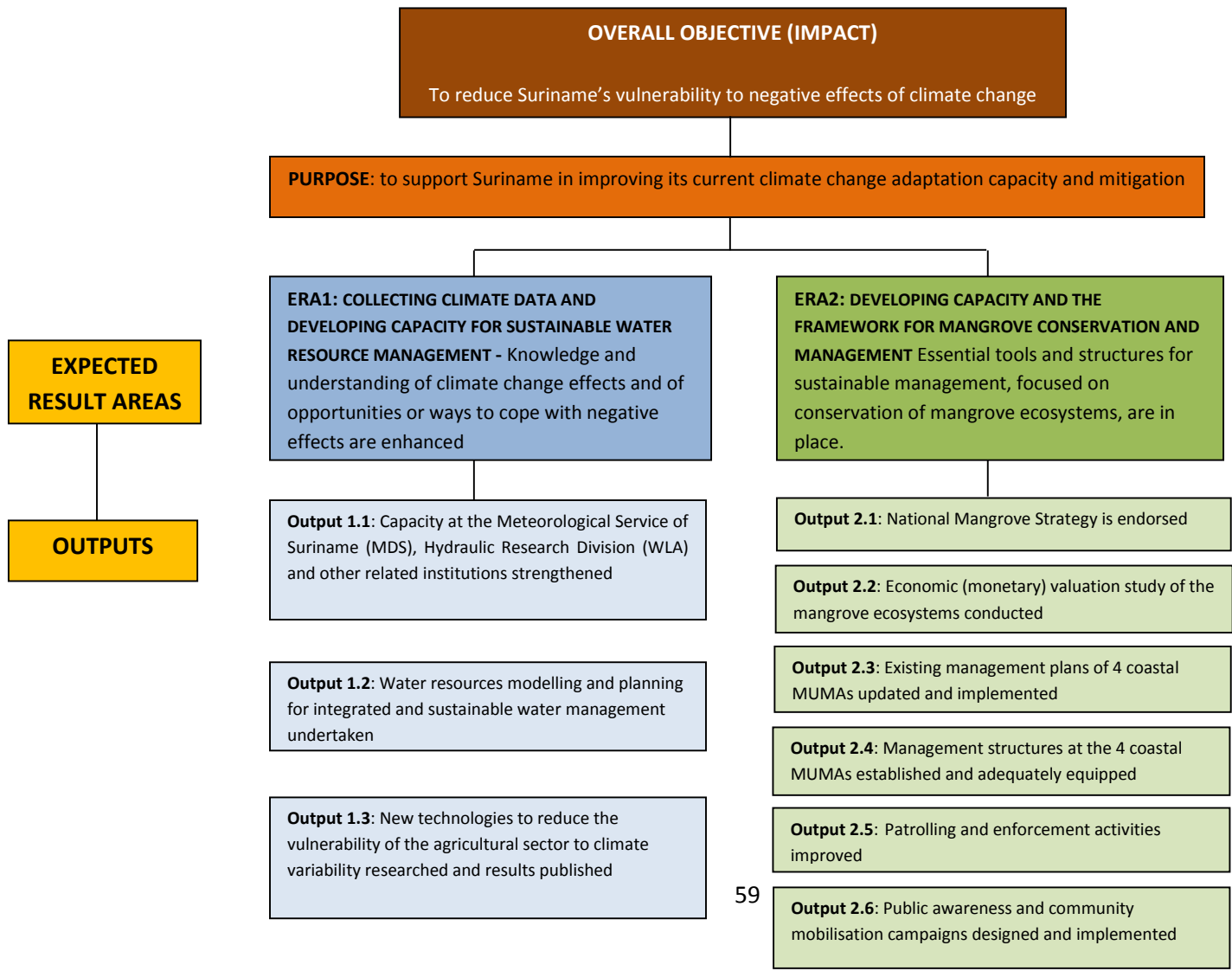
Risk Title	Probability and Assumptions	Risk Rating	Mitigating Measures
Climate change does not undermine conservation goals in MUMAs	Contemporary rates of climate change continue for the 36 months of the project.	Low	<ul style="list-style-type: none"> Updated MUMAs will take into account and promote specific instances of, for example, the need to establish buffer zones bordering the landward margins of mangroves to allow inland migration of mangroves under changing sea levels.
The sub-optimal funding for effective management of Protected Areas will not prove an insurmountable obstacle to the sustainability of improvements in PA effectiveness.	Donor coordination is to continue on mangrove management and sustainable land management.	Medium	<ul style="list-style-type: none"> The Project recognizes that one of the barriers to effective MUMA management in Suriname is sub-optimal funding levels. However, this is a barrier that is common across PAs in all ecosystems of the country and requires actions that go beyond the scope of an intervention of this scale. As a result, the GCCA+ Project will focus specifically on overcoming barriers to strengthening the capacity to deliver conservation to mangroves in MUMAs but will monitor and work closely with baseline actions and other initiatives that are addressing financial sustainability at a broader level. Notwithstanding this focus, the Project will explore approaches to PA financing that are of particular relevance for mangroves, for example the possibility of payment for ecological services, compensation mechanisms and increased cost-efficiencies through the management of clusters of MUMAs.
Lack of incentives for particular local communities to cooperate in activities that do not yield immediate financial value, but aim at longer-term resilience, may reduce stakeholder engagement and comprehensive participation. Envisaged end users do not make full use of the outputs of the action (data & information, models, technologies, strategies, equipment).	All outputs are used in an optimal way.	Low / Medium	<ul style="list-style-type: none"> Priority needs and corresponding activities have been discussed in detail with stakeholders but also the (cultural) habits have been taking into account. This is a way of both gathering useful information for getting the communities to engage, and in creating awareness and cooperation. The activities proposed have been locally endorsed and there is genuine interest in the GCCA+ project. Outputs will be promoted and disseminated; if appropriate, training and coaching will be provided. In relation to the valuation study of the mangrove ecosystem, the study results will be made public (press, television) and an information campaign will be carried out, particularly targeting decision-makers. The project incorporates activities that yield immediate benefits for communities in terms of awareness, preparedness, skill development and income generation (based on mangrove valuation study). This will be emphasized during all meetings and consultations with community representatives during the inception phase.
Due to staff turnover at the target Ministries the trained staff may leave for the other job opportunities undermining installed technical capacity	Staff development plans need to be written and accepted by all involved.	Medium / High	<ul style="list-style-type: none"> Special training conditions and / or training for trainers will be arranged to keep the trained staff at the target Ministries. Staff retention and succession plans will be developed.
Certain institutions fail to provide access to required data and databases under their custody.	Institutions collaborate in making data available that are relevant for e.g. the mangrove valuation study, water resources modelling.	Low/ Medium	<ul style="list-style-type: none"> A recently prepared UNDP/GEF project will work on harmonisation and accessibility of environment-related data and a specific Activity is set out (Activity 2.1c) to mitigate this risk.

Delays in recruitment of qualified project staff may affect the timeframe of different project activities.		Low	<ul style="list-style-type: none"> A pro-active coordination mechanism will be established by UNDP during the project inception phase. TORs for project staff will be prepared & finalized immediately after project signing.
It is feasible to integrate improved institutional procedures and regulations into the existing framework.	Clear consultation and evidence based actions shall be initiated once ground trothed.	Low	<ul style="list-style-type: none"> Suggested amendments to the existing regulatory frameworks will only be formally submitted to the appropriate authorities once their feasibility and utility have been validated on the ground and following consultations with the relevant government agencies and citizen groups. In this way, only those procedures and regulations that have been technically validated and approved by government and community stakeholders will be submitted ensuring empirical and political support for them.
The action involves a large number of different actors, covers several technical areas with the risk of dispersion	The action will be effectively coordinated.	Low	<ul style="list-style-type: none"> The project will be supervised by a Project Steering Board that will include representatives from civil society. In addition to the PMU, 2 part time technical assistants, one for ERA, will be placed at the Ministry of Public Works and ROGB and specific focal points will be nominated in each key ministry.
Lack of EU visibility for the action	EU visibility for the action fully assured	Low	<ul style="list-style-type: none"> Clear visibility provisions in the agreement with UNDP, joint agreement on a visibility plan and close monitoring throughout the project implementation

3 Project Results Framework

3.1 Strategic Results Framework (Log Frame)

The activities, the expected outputs and all the indicators, targets and baselines included in the log frame matrix are indicative and may be updated during the implementation of the action without an amendment to the financing decision.



**PROPOSED
ACTIVITIES**

Output 1.1: Capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions strengthened

Activity 1.1a: Finalize systems design, equipment requirements and technical specifications for the expansion of the existing MDS hydro-met network.

Activity 1.1b: Tender, procure and install equipment and components for upgrading of the real-time automated weather stations, hydrological stations, and early warning stations.

Activity 1.1c: Create framework for Climate Change operation and maintenance support and capacity development of key staff using new operation and maintenance guidelines and manuals.

Output 1.2: Water resources modelling and planning for integrated and sustainable water management undertaken

Activity 1.2a: Long term historical observation data collated, digitized and used in water resource planning and policy formulations.

Activity 1.2b: Conduct new water resource assessment (incl; ground water reserves) to inform future planning for integrated and sustainable water management.

Activity 1.2c: Prepare National Water Resources Vulnerability profiles and associated Water Resource Plans for all regions of Suriname

Activity 1.2d: Develop capacity programme in water resource and hydrological modelling and sector tailored hydrological forecasting techniques and information packaging for water resource managers and hydrologists.

Output 1.3: New technologies to reduce the vulnerability of the agricultural sector to climate variability researched and results published

Activity 1.3a: GCCA+ Call for Proposals tender process on agricultural sector risk reduction and management measures.

Activity 1.3b: Implementation of successful GCCA+ Proposals on agricultural sector risk reduction and management measures.

Output 2.1: National Mangrove Strategy endorsed

Activity 2.1a: Preparation of a Draft National Mangrove Strategy Policy Document. **Activity 2.1b:** Regulatory framework and supporting operational guidelines developed including a Draft Code of Practice for mangrove conservation and sustainable land use development “Coastal Development and Environmental Policy Guidelines”.

Activity 2.1c: Integration of GEF Environmental Mainstreaming project and the GCCA+ ICZM Project activities (i.e. data management and research tasks) to help develop national Mangrove Strategy and wider ICZM.

Output 2.2: Economic (monetary) valuation study of the mangrove ecosystems conducted

Activity 2.2a: Valuation study initiated with value-added mangrove products identified and potential market opportunities explored. **Activity 2.2b:** Using outputs from the valuation study, propose financial strategies that are supported by Output 2.1.

Output 2.3: Existing management plans of 4 coastal MUMAs updated and implemented

Activity 2.3a: Revision to National and Regional Development Plans with new land planning guidelines, tailored towards improving mangrove conservation (Output 2.1 and output 2.2); **Activity 2.3b** Preparation of updated coastal MUMAs (4) each defining sets of maintenance targets (aka “Investment Plans”) and to integrate future recurrent and capital expenditure needs. **Activity 2.3c:** A Mangrove Biodiversity Monitoring Program is developed and functioning.

Output 2.4: Management structures at the 4 coastal MUMAs established and adequately equipped

Activity 2.4a: Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies (Project Management and Monitoring developed and implemented). **Activity 2.4b:** Capacity building program designed and delivered for 4 coastal MUMAs.

Output 2.5: Patrolling and enforcement activities improved

Activity 2.5a: Water resources management processes (Output 1.3) developed and tested to support mangrove conservation needs.

Activity 2.5b: Training programmes on new regulatory/operational procedures set out in outputs 2.1/2.3 and 2.4.

Output 2.6: Public and community awareness campaigns designed and implemented

Activity 2.6a: Dissemination, outreach and research on Mangrove Ecosystems Management delivered to community and sectoral stakeholders and the broad public; **Activity 2.6b:** Awareness programmes for media (TV/Radio/Journalists) on appropriate Mangrove Ecosystems Management delivered to professionals in the media field.

	Intervention logic	Indicators	Baselines (incl. reference year)	Targets (incl. reference year)	Sources and means of verification	Assumptions
Overall objective: (Impact)	To reduce Suriname's vulnerability to negative effects of climate change	A) % NCCPSAP actions implemented and on track (incl. process and impact indicators).	A) The National Climate Change Policy, Strategy and Action Plan (NCCPSAP) is currently being developed.	A) 30% of NCCPSAP actions are implemented by mid of year two and 2018 NCCPSAP Monitoring Report is considered satisfactory by UNDP and EU.	A) National Climate Change Communications; Vulnerability assessments reports and updated physical development land use maps; CC Expenditure Review; GCCA+ progress monitoring reports as part of the projects mid-term and final review process.	A) Climate Change remains a priority of GoS & development partners with full support. GoS is successful in mobilizing additional public and private financing to invest in the Agriculture sector. Impacts of climate change do not outpace project adaptation responses. NCCPSAP is approved.
	PURPOSE "to support Suriname in improving its current climate change adaptation capacity and mitigation"	B) Share of agricultural production in GDP (%) remains stable.	B) The agricultural sector, including livestock, fisheries, and forestry is especially relevant in the rural districts and contributes over 20% to national employment. Share of agricultural production in GDP is 8.9% (2014). Agricultural production is suffering negative impacts from changing weather patterns, while also the replenishment of groundwater reservoirs is affected.	B) Share of agricultural production in GDP remains stable (or increases) from baseline level (8.9% in 2014) by mid of year two.	B) National Accounts reporting; Agricultural production statistics; General Bureau of Statistics of Suriname (ABS). Surinamese Agricultural Information System (SAIS).	B) High level support for the GCCA+ as climate change is a cross-cutting issue
Specific objective(s): Outcome(s)	To enhance Suriname's capacity for developing and undertaking appropriate and effective measures to adapt to climate change effects.	A) National and local water resources management plans are updated and in line with international standards	A) Final list of National and local water resources management is to be established at start project implementation.	A) National plan and at least 2 local plans updated by end of year two	A) Concerned management plans; National Climate Change Communications; Vulnerability assessments reports and updated physical development land use maps	Decision makers, line ministries, civil society and farmers committed to use their enhanced capacity to address the negative effects of climate change and to reduce Suriname's vulnerability
		B) Inclusion of climate change adaptation measures in Suriname Development Strategy post 2016.	B) Suriname Development Strategy to be developed in 2016.	B) Climate change adaptation measure are included in Suriname Development Strategy by end of year one.	B) Development plan post 2016; Climate compatible development strategy.	Climate change, natural disasters, and other environmental impacts beyond national do not exceed current expectations affecting the viability of management options

						and distract attention from GCCA+ issues.
		C) National Mangrove Strategy is prepared	C) No Mangrove Strategy currently available.	C) New Mangrove Strategy and Policy endorsed by end of year one and implemented by early year two.	C) New legally endorsed Mangrove Strategy and Policy for Suriname	Mangroves platform remains operational. Relevant institutions give full support to establishing the Mangrove Strategy.
COMPONENT 1: COLLECTING CLIMATE DATA AND DEVELOPING CAPACITY FOR SUSTAINABLE WATER RESOURCE MANAGEMENT						
OUTCOME	(EXPECTED RESULT AREA 1): Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced	1.1) Frequency and accuracy of climate related information and analysis provided by MSD, WLA and other climate change related institutions.	1.1) The existing hydrological and meteorological network stations managed by MDS and WLA are presently only a broad network, mostly developed for weather (rain and river flood) forecasting purposes though is far from accommodating the variable of local climate over the whole country. Data analysis from WLA is provided on quarterly basis with 80% coverage of coastal area region. No data is available for the interior regions. MDS provides data analysis (depending on the type of station) for the coastal regions on a daily and monthly basis and less frequented for the interior regions.	1.1) Climate change data for the whole country (coastal area region and interior) are analyzed and publicized on monthly basis. Furthermore, new baseline (real time) meteorological datasets are collated by mid-year two and calibrated for model use by end of year three.	1.1) Monthly meteorological reports and publications. MDS/WLA staffing reports.	1.1)The MDS/WLA continues to receive full support from the Ministry of Public Works
		1.2) Availability of a nationwide water resource (hydrological) model.	1.2) Hydrological models in Suriname are too strategic and poorly detailed to help advice at the local level and subsequently do not permit to develop appropriate sectorial or local adaptation strategies. Datasets on hydrology and meteorology are present, but considerable effort is likely to be needed to collate, compile and digitize this work into a format that is useable for modelling purposes	1.2) Hydraulic model is available and functional by end of year three.	1.2) Modelling outputs produced and used by MDS /WLA departments reports	1.2) The envisaged end users of the respective outputs (climate information, models, and technologies) make full use of the new tools and instruments. Government supports changes to land / water use plans and regulations.

OUTPUTS		1.3) Number of climate change adaptation measures developed for the agricultural sector.	1.3) No national level adaptation measures or policies are available.	1.3) Three (3) water resource related climate change adaptation measures are ready for implementation by mid-year three	1.3) Ministry of LVV reports, Projects reports, National Climate Change Communications etc, General Bureau of Statistics of Suriname (ABS).	1.3) Interior and coastal communities willing to participate in development of coping strategies and adaptation plans.
	Output 1.1: Capacity in place at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions Strengthened	1.1.1) % national coverage of climate/weather and hydrological monitoring infrastructure (expansion of the MDS meteorological network and WLA hydro network).).	1.1.1) Rainfall data is collected mostly with rain gauges. Suriname has in total 70 rain gauge stations to collect rainfall data, spread in the country. There are currently 6 AWS, 4 synoptic stations and 5 climate stations. Coverage can be estimated at 80% for the coastal regions and 20% for the interior. WLA has a hydrometric basic network consisting of only 18 operating stations in the coastal area. Two stations are temporarily not in operation. Coverage for the coastal area can be estimated at 50% and no coverage for the interior regions.	1.1. Coverage MDS increases up to 50% for the interior by taking steps in achieving MDS optimal monitoring arrangements as defined in GCCA+ support. WLA has an increased coverage of 20 % for the coastal area and for the interior at least 7 stations are situated at the main rivers and one station is located at sea by end of project.	1.1.1) Review report of budget spent on equipment procurement and rehabilitation	1.1.1) Procurement and installation of equipment is not delayed due to slow release of funds, lengthy processes and deficient data transmission systems locally.
		1.1.2) Training on how to use new hydro-met stations (operation and maintenance) using new guidelines and manuals);	1.1.2) No training or manual exists on gathering and disseminating timely information on a routine and emergency basis (during rapid onset flood events – early warning systems etc) for use by decision makers	1.1.2) At least 50 staff with gender balanced composition trained on operation and maintenance of met equipment (MDS) and hydro-met equipment (WLA staff only) and also both department staffs and others on vulnerability assessment and hydraulic modelling	1.1.2) Training manuals and documentation. Updated weather forecasting and localized climate information disseminated on a daily basis through an updated web-portal, media and other means as appropriate.	1.1.2) There is political will to invest in hydro-meteorological / extreme weather and climate change
Activities: Activity 1.1a: Finalize systems design, equipment requirements and technical specifications for the expansion of the existing MDS met network and the WLA hydro-met network. Activity 1.1b: Tender, procure and install equipment and components for upgrading of the real-time automated weather stations, hydrological stations, and early warning stations. Activity 1.1c: Create framework for MDS operation and maintenance support and capacity development of key staff using new operation and maintenance guidelines and manuals						

<p>Output 1.2:</p> <p>Water resources modelling and planning for integrated and sustainable water management are undertaken.</p>	<p>1.2.1) % of population benefitting from a new national hydrological / water resources model.</p>	<p>1.2.1). 90% of the data is digitized and there are still hard copy data that need to be digitized. Whilst some hydrological modelling has taken place in specific Districts of Suriname (under separate commissions or consultancies), there is no national level hydrological model available from which to provide effective flood warnings (short term) and land use planning advisories (long term). A national alert system concerned with extreme hydro-meteorological phenomena is not available. No mechanism exists for most vulnerable populations to be involved in the alert process to ensure its sustainability.</p>	<p>1.2.1) New baseline (real time) meteorological datasets are collated by mid-year two and calibrated for hydraulic model use by end of year three.</p> <p>50% of population with access to improved modelled output information.</p>	<p>1.2.1)) Disaggregated survey on receipt of alerts. Record of debriefings by MDS on post extreme weather events. MDS record of end-user feedback.</p>	<p>1.2.1) Hydrological/hydraulic modelling will need to make use of already existing data on rainfall, seasonal river flows and replenishment of water reservoirs as well as an existing hydrological model at District level (Nickerie).</p>
	<p>1.2.2) Frequency of automatic data transmission for all new hydrological and meteorological network stations</p>	<p>1.2.2) Deficient data transmission systems locally. Data transmission is mostly manually undertaken once a week in the coastal area and in the interior the frequency can be more than a week.</p>	<p>1.2.2) TARGET for automatic data transmission frequency is daily for all new hydrological and meteorological network stations by mid-year two.</p>	<p>1.2.2) Data held on servers to show that new equipment is operational. Analysis of data frequency transmission using storage servers within MDS . General Bureau of Statistics of Suriname (ABS)</p>	<p>1.2.2) Procurement and installation of equipment is not delayed due to slow release of funds, lengthy processes and deficient data transmission systems locally</p>
	<p>1.2.3) GoS Development Strategy and land-use Plans at National/District integrate climate information in their formulation and implementation.</p>	<p>1.2.3) Development frameworks do not incorporate any hydrological model output or “products” such as flood risk maps or climate change predictions into long-term land use and sustainable water management planning. Sector specific strategies (including agriculture) do not include climate information because the quality of weather forecasts and climate predictions are poor and not tailored for specific uses, particularly seasonal forecasts.</p>	<p>1.2.3) CC information integrated in at least GOS development strategy and at least 2 national/districts land use plans by end of year three.</p>	<p>1.2.3) Outputs produced (risk maps and/or climate change projections) and used by WLA and MDS department reports.</p> <p>Vulnerability Assessment (water resource assessments) reports updated to include the new modelled information.</p> <p>Surinamese Agricultural Information System (SAIS).</p>	<p>1.2.3) Government is committed to integrate climate change risk and adaptation needs in sector-specific strategic plans;</p> <p>Sectors willing to integrate climate risks into policies and activity designs, even though this may result in a more challenging complex working approach with likely higher budget requirements and thus in the short-term less perceived benefits.</p>

Activities:

Activity 1.2a: Long term historical observation data collated, digitized and used in water resource planning and policy formulations.

Activity 1.2b: Conduct new water resource assessment modelling (incl; ground water reserves) to inform future planning for integrated and sustainable water management.

Activity 1.2c: Prepare National Water Resources Vulnerability profiles and associated Water Resource Plans for all regions of Suriname

Activity 1.2d: Develop capacity programme in water resource and hydrological modelling and sector tailored hydrological forecasting techniques and information packaging for water resource managers and hydrologists

Output 1.3:

New technologies to reduce the vulnerability of the agricultural sector to climate variability researched and results published

1.3.1) Number of research opportunities presented to reduce vulnerability of the agricultural sector to climate variability using support from EU CFP grants.	1.3.1) Limited applied research is taking place on climate adaptive technologies for the agricultural sector in Suriname.	1.3.1) At least three new research opportunities awarded by mid-year one and 6 by end of year two.	1.3.1) Grant facility framework is set up and functional. CFP Grant agreements in place and awarded to successful applicants and associated research development output documentation.	1.3.1) GoS institutions and other key donors support more micro-projects regarding agricultural development.
1.3.2) Number of appropriate technologies developed from the CFP “grant facility” research initiatives in the agricultural sectors.	1.3.2) Lack of synergies and no innovative projects take place within the agricultural sector.	1.3.2) At least three new agricultural focused technologies developed by end of year two that link to the relevant outputs of the JCCCP (JCCCP Outputs 2.2-2.5).	1.3.2) CFP Grant agreements in place and awarded to successful applicants	1.3.2) envisaged end users of the respective outputs (climate information, models, and technologies) make full use of the new tools and instruments to help climate resilient agricultural practices to be implemented.
1.3.3) Number of knowledge sharing events on the opportunities and technologies developed for CC practitioners, researchers and policy-makers.	1.3.3) No compilation of number of knowledge sharing events available.	1.3.3) At least two national/regional knowledge sharing events per year (6 in total) with at least one associated with horticulture partnering initiatives.	1.3.3) Knowledge event reports and documentation that related to the JCCCP project. Surinamese Agricultural Information System (SAIS).	1.3.3) Government supports changes to land / water use plans and regulation. Interior and coastal communities willing to participate in development of coping strategies and adaptation plans.

Activities:

Activity 1.3a: GCCA+ Call for Proposals (CfP) tender process on agricultural sector risk reduction and management measures.

Activity 1.3b: Implementation of successful GCCA+ Proposals on agricultural sector risk reduction and management measures.

COMPONENT 2: DEVELOPING CAPACITY AND THE FRAMEWORK FOR MANGROVE CONSERVATION AND MANAGEMENT

OUTCOME	<p>(EXPECTED RESULT AREA 2):</p> <p>Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place</p>	<p>2.1) % of mangrove ecosystems under newly established management / legal instruments that allow sustainable use and or limit any use and targeted and enforceable protection “tools” (e.g.: no take zones).</p>	<p>2.1) Nearly the entire coastline of Suriname falls within the country’s system of protected areas. Only a section near the eastern coast border and the highly urbanized central coastal area surrounding Paramaribo are excluded. Still, effective protection is hampered by the lack of proper management structures, outdated management plans and insufficiently organised and equipped patrolling teams.</p>	<p>2.1) 100% of the countries mangroves are covered by legal instruments of essential planning “tools” to ensure their long term sustainable management by end of year three.</p>	<p>2.1) Mangrove Strategy Policy Document. Project reports, signed agreements.</p>	<p>2.1) Political climate has no negative effect on broad political and societal support for Coastal Ecosystem (Mangrove) conservation. Line ministries and stakeholders cooperation.</p>
		<p>2.2). % of “Mangrove” managed by a set of norms and guidelines agreed with and coordinated between key Ministries and Departments for the future management of mangroves.</p>	<p>2.2) In spite of the extensive system of protected areas, mangrove trees themselves do not benefit from a legal protection status.</p>	<p>2.2) At least 80% of the country’s mangroves are managed through a set of formalized guidelines by end of year two.</p>	<p>2.2) MUMAS implementation plans and reports. Mangrove valuation study report, PA reports, management plans, and project reports. Project M&E reports; other Project studies. General Bureau of Statistics of Suriname (ABS).</p>	<p>2.2) MUMAs receive continued support from the Government (staff, operational budgets) The envisaged end users of the respective outputs (strategy, data on mangrove economic value, management plans, management structures, equipment, operational protocols) make full use of the new tools and instruments.</p>
OUTPUTS	<p>Output 2.1:</p> <p>National Mangrove Strategy is endorsed</p>	<p>2.1.1) Existence of a national mangrove strategy policy document for Suriname.</p>	<p>2.1.1) There is currently no statutory plan for the 1,100km2 of mangroves in Suriname. Activities for conserving mangroves are ad hoc and un-coordinated with on-going plans and programmes.</p>	<p>2.1.1) Draft Mangrove Strategy Policy Document is prepared by end of year one and final endorsed Plan by year three.</p>	<p>2.1.1) Legal norm formalizing the Plan. Signed and GoS endorsed Mangrove Strategy Policy Document. Legal record of submissions to the judiciary.</p>	<p>2.1.1) GoS commitment towards improving mangrove conservation is sustained, facilitating the integration of improved institutional procedures and regulations frameworks.</p>
		<p>2.1.2) Number of regulations tailored to mangroves management in the forms of operational guidelines; codes of practice, financing mechanisms etc.</p>	<p>2.1.2) There are no coastal regulatory building codes that provide advice/recommendations on developments close to mangroves. There is also no coastal protection guidance manual (or environmental policy guidelines) to help developers to design climate resilient coastal developments or structures.</p>	<p>2.1.2) Draft Code of Practice for mangrove conservation and sustainable land use development “Coastal Development and Environmental Policy Guidelines produced by end of year one.</p>	<p>2.1.2) Minutes of meetings and Project reports.</p>	<p>2.1.2) GoS commitment towards improving mangrove conservation is sustained, facilitating the integration of improved institutional procedures and regulations frameworks.</p>
		<p>2.1.3) Number of overlapping/supporting actions</p>	<p>2.1.3) Alignment with projects e.g. the GEF Environmental Conventions Mainstreaming</p>	<p>2.1.3) At least 3 overlapping activities are taking place with the GEF Environmental</p>	<p>2.1.3) Mid-term review of projects (e.g. GCCA+, JCCCP and GEF project) progress reports as</p>	<p>2.1.3) Assumes that the GEF Environmental Mainstreaming project and JCCCP continues</p>

	with previous or current projects implemented	project, Japan Caribbean Climate Change Partnership (JCCCP) project to help take forward sustainable coastal and water resource management. Actions identified in previous projects such as the Integrated Coastal Zone Management (ICZM) project report, Suriname Coastal Protected Area Management Project (SCPAM), Capacity building for integrated water management in Nickerie, West Suriname	Mainstreaming project by the end of year two. At least 3 activities are implemented by end of year two.	well as national reports to multilateral environmental agreements.	and that it is aligned to the GCCA+ project.
Activities:					
Activity 2.1a: Preparation of a Draft National Mangrove Strategy Policy Document.					
Activity 2.1b: Regulatory framework and supporting operational guidelines developed including a Draft Code of Practice for mangrove conservation and sustainable land use development “Coastal Development and Environmental Policy Guidelines”.					
Activity 2.1c: Integration of GEF Environmental Mainstreaming project and the GCCA+ ICZM Project activities (i.e. data management and research tasks) to help develop the National Mangrove Strategy and wider ICZM.					
Output 2.2: Economic (monetary) valuation study of the mangrove ecosystems conducted.	2.2.1) Number of “value-added” mangrove products identified and potential market opportunities explored.	2.2.1) According to CELOS, in 2004-2008 an economic valuation assessment took place for Bigi Pan (MUMA in district Nickerie) especially for the fisheries sector. Apart from that, no other mangrove valuation assessment has been carried out for mangroves in Suriname despite a separate attempt to value fisheries and tourism, though emphasis here was placed on mapping of land use and to assess the value of mangroves as breeding grounds and protection barriers. Traditional coastal engineering measures employed often dismiss the important role of mangroves and hence do not take account climate change and fail in subsequent hazard events. Climate resilience is therefore not built into current	2.2.1) At least 100 potential local small entrepreneurs trained in the preparation of a business plan and 100 families in the 4 coastal MUMAs involved in sustainable alternatives including women and youth by end of year three.	2.2.1) Valuation study finalised that includes value-added mangrove products identified and potential market opportunities.	2.2.1) Key stakeholders maintain at least current levels of interest and willingness to work with Project actions. Mangrove conservation targets in PAs are agreed upon with local population.

		coastal engineering approaches to address direct flood intervention measures.			
	2.2.2) Number of economic strategies identified that support the “value added” products identified in Activity 2.2a.	2.2.2) No economic strategies are set out to encourage mangrove conservation in Suriname. At present, most local communities and populations lack the capacity to produce and market potential new products from mangrove areas.	2.2.2) At least 2 private sector organisations participating in the implementation of new market initiatives through improved access to micro-credit and capacity-building programs.	2.2.2) Business plans produced that outline community enterprise opportunities and returns (linking to eco-tourism/crafts/honey production etc).	2.2.2) Positive signs for agreement with local population on management and conservation targets continue at least at the same level as that indicated during project preparation.
Activities:					
Activity 2.2a: Valuation study initiated with value-added mangrove products identified and potential market opportunities explored.					
Activity 2.2b: Using outputs from the valuation study, propose financial strategies that are supported by Output 2.1.					
What about the training mentioned? Training/knowledge exchange is expected for this output however I cannot trace this as separated activity under the output					
Output 2.3: Existing management plans of 4 coastal MUMAs updated and implemented	2.3.1). MUMA Management Plans are updated and implemented with updated land use guidelines and tailored towards improving mangrove conservation.	2.3.1) Existing management plans exist for coastal MUMAs, though the only recently accepted plan is for Bigi Pan MUMA.	2.3.1) Four (4) MUMA by the end of year two.	2.3.1) Approved updated Management plans.	2.3.1) Key stakeholders maintain at least current levels of interest and willingness to work with Project actions.
	2.3.2) % of the key actors have signed on to the updated management plan documents, declaring adherence to proposed zoning regulations	2.3.2) Linked to this, most management plans do not involve local communities in the implementation of mangrove conservation measures and hence do not integrate agricultural and water use livelihood challenges.	2.3.2) Three (3) district council plans, including investment plans, incorporate MUMA zoning regulations and integrate future recurrent and capital expenditure needs by end of year two.	2.3.2) Annually approved district plans and sectoral policies and investment plans.	2.3.2) Coastal and Water resources use sector remains receptive to working with the project on integrated water resources management.
	2.3.3) Monitoring of mangrove land cover is in place as stated within the management plans.	2.3.3) There is no formalized monitoring of mangrove extent and health (or use). Uncoordinated mangrove monitoring takes place and there are no clear indicators to demonstrate biodiversity improvements.	2.3.3) M&E programs coordinated and linked to national system.	2.3.3) A Mangrove Biodiversity Monitoring Program is developed and functioning.	2.3.3) Mangrove “market opportunities” (Output 2.2) will deliver sufficient mangrove conservation benefits at the national level.
Activities:					
Activity 2.3a: Revision to National and District Development Plans with new land planning guidelines, tailored towards improving mangrove conservation (Output 2.1 and Output 2.2);					

<p>Activity 2.3b: Preparation of updated coastal MUMAs (4) each defining sets of maintenance targets (aka "Investment Plans") and to integrate future recurrent and capital expenditure needs.</p> <p>Activity 2.3c: A Mangrove Biodiversity Monitoring Program is developed and functioning.</p>					
<p>Output 2.4:</p> <p>Management structures at the 4 coastal MUMAs are established and adequately equipped.</p>	<p>2.4.1) Number of trained staff members at each coastal MUMA capable of implementing and using the new regulations set by the National Mangrove Strategy Policy Document.</p>	<p>2.4.1) Only one coastal MUMAs has a core group of trained staff in key aspects of MUMA management.</p>	<p>2.4.1) At least 1 more specialized trained staff member is recruited within each MUMA for MUMA management by end of year three.</p>	<p>2.4.1) Project reports; Progress reports on capacity-building programs.</p>	<p>2.4.1) Government policies allow for allocation of new staff.</p>
	<p>2.4.2) Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies.</p>	<p>2.4.2) Alignment procedures /capacities and management framework can be improved.</p>	<p>2.4.2) By the end of the project >50 people (at least 50% female) are trained on new regulatory framework for mangrove management and conservation.</p>	<p>2.4.2) Reports from the Audebon Society or similar</p>	<p>2.4.2) Integration and alignment between all levels of government for environmental management continues to increase.</p>
<p>Activities:</p> <p>Activity 2.4a: Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies (Project Management and Monitoring developed and implemented).</p> <p>Activity 2.4b: Capacity building program designed and delivered for 4 coastal MUMAs.</p>					
<p>Output 2.5:</p> <p>Patrolling, monitoring and enforcement activities are improved.</p>	<p>2.5.1) Number of patrolling, monitoring and enforcement activities agreed within updated MUMAs plans.</p>	<p>2.5.1) Coastal development planners / regulators currently take certain climate events into account at the national, district, and local levels, but the capacity to plan for and react to dynamic climate change risks is very low.</p>	<p>2.5.1) By the end of year one, five (5) briefing notes, five (5) fact sheets on patrolling, monitoring and enforcement activities are produced and disseminated.</p>	<p>2.5.1) Water Management Plan and classification, Minutes from council meetings; Project reports. Briefing notes, factsheets, and cross-sectoral guidelines</p>	<p>2.5.1) Key stakeholders maintain at least current levels of interest and willingness to work with Project actions.</p>
	<p>2.5.2) Number of trainees attending and passing training courses designed to implement the new National Mangrove Strategy and supporting guidelines/codes of practice.</p>	<p>2.5.2) capacity at the national level relevant to the integrated planning and management of climate change and adaptation issues is limited to a core group of experts within GoS and research institutions. Baseline is < 10</p>	<p>2.5.2) By the end of Year two 30 successful trainees from two (2) national training seminars for relevant national ministries and organizations on climate-resilient coastal planning conducted and one (1) cross-sectoral guideline for climate-resilient coastal planning are produced and disseminated. If the indicator is "number of trainees" the target has to</p>	<p>2.5.2) Capacity assessment report, training reports, and QBS/interviews.</p>	<p>2.5.2) Water resources use sector remains receptive to working with the project on coastal and water resources management</p> <p>Sustainable use categories (coastal protected areas) deliver sufficient mangrove conservation benefits at the national level.</p>

	2.5.3) Percentage of national sectoral planners with improved understanding of climate change risks and adaptation measures.	2.5.3) There is a lack of an integrated framework and human and institutional capacity for assessing, planning for, and addressing climate change-induced risks at coastal areas.	mention the number. See insertion. 2.5.3) By the end of year three, at least 75% of participating national sectoral planners have improved understanding of Climate change risks and adaptation and are able to identify climate risks and prioritize, plan, and implement measures for adaptation in coastal areas. The % in the indicator and the target are not the same. See revision	2.5.3) Reports from the Audebon Society or similar. General Bureau of Statistics of Suriname (ABS) publication.	2.5.3) GoS continues to support adaptation within coastal development programs, and to apply and maintain adaptive capacity built during the project.
Activities: Activity 2.5a: Coastal and Water resources management processes (Output 1.3) developed and tested to support mangrove conservation needs. Activity 2.5b: Training programmes on new regulatory/operational procedures set out in outputs 2.1/2.3 and 2.4.					
Output 2.6: Public and community awareness campaigns are designed and implemented.	2.6.1) Percent of population who have received or consumed knowledge products such as brochures, media releases, video and radio documentaries, feature press article, and websites produced, distributed and used in training and capacity building activities	2.6.1) Limited communication channels and materials to educate people on benefits of improving biodiversity and wider environmental conditions, including mangrove management issues.	2.6.1) One hundred (100) community members are involved each year on sustainable mangrove management and resource use alternatives including women and youth. - 30% of all coastal populations have been exposed to mangrove protection knowledge projects by end of year three.	2.6.1) Publication of an array of knowledge techniques (both in English and Dutch) that disseminate the approaches adopted within the Mangrove Strategy Policy Document and associated programme to all coastal communities. Reports from project annual M&E activities. GCCA+ reports.	2.6.1) Commitment of stakeholders in sharing lessons learnt and best practices.
	2.6.2) Number of reporters/ media trained and/or sensitized on mangrove ecosystem related issues. Number of male and female communication officers from participating institutes trained.	2.6.2) The Media/ journalists only have a basic understanding of mangroves in relation to the coastal area. Officers have insufficient skills and tools for community awareness.	2.6.2) 50% of reporters/media in Suriname trained/sensitized on mangrove related issues by end of year three. At least 30% of trained officers are female.	2.6.2) Communication and awareness materials (documents, video documentaries/web based products) produced and disseminated. General Bureau of Statistics of Suriname (ABS) publication.	2.6.2) Commitment of the media and journalists to be engaged in this process.
Activities: Activity 2.6a: Dissemination, outreach and research on Mangrove Ecosystems Management delivered to community and sectoral stakeholders and the broad public; Activity 2.6b: Awareness programmes for media (TV/Radio/Journalists) on appropriate Mangrove Ecosystems Management delivered to professionals in the media field.					

3.2 Total Budget and Workplan

DAC Code	41010	Project ID(s):	00083024
Award Title:	Suriname Global Climate Change Alliance (GCCA+) <i>Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection.</i>		
Business Unit:	SUR		
Project Title:	Suriname Global Climate Change Alliance (GCCA+) <i>Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection.</i>		
Implementing Partner (National Authorizing Officer)	Ministry of Finance		

GCCA+ Expected Result Area (ERA)	Responsible Party	SoF	Sub B/L	Sub B/L Description	Amount Year 1 (EUR)	Amount Year 2 (EUR)	Amount Year 3 (EUR)	GCCA Total (EUR)	Budget Notes
COMPONENT 1: COLLECTING CLIMATE DATA AND DEVELOPING CAPACITY FOR SUSTAINABLE WATER RESOURCE MANAGEMENT Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced	Ministry of Public Works (MPW) and UNDP	EU UNDP	71200	International Consultants	45000	45000	45000	135000	1a
			71300	National Consultants	30000	30000	30000	90000	1b
			71400	Service Contracts (Indv)	48205	48205	48205	144616	1c
			71600	Travel	40000	40,000	25000	105000	1d
			72100	Service Contracts	5000	5000	5000	15000	1e
			72200	Equipment	205000	85000	40000	330000	1f
			72300	Materials and Goods	17000	23100	16000	56100	1g
			72600	Grants	200000	200000	100000	500000	1gi
			73400	Rental (Vehicles)	1300	1000	1500	3800	1h
			74200	Audio-visual & Printing	1000	1000	4100	6100	1i
			74500	Miscellaneous	1255	2208	2858	6321	1j
			75700	Training	20000	5000	95000	120000	1k
			61100	Salary cost Nat prog Staff	7000	15000	12000	34000	1l
			61200	Salary costs Gen Staff	9000	12000	12000	33000	1n

			Sub-total Output 1		631046	514799	438949	1584793	
COMPONENT 2: DEVELOPING CAPACITY AND THE FRAMEWORK FOR MANGROVE CONSERVATION AND MANAGEMENT Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place	ROGB and UNDP	EU UNDP	71200	International Consultants	85600	140600	85600	311800	2a
			71300	National Consultants	60000	40000	55000	155000	2b
			71400	Service Contracts (Indv)	72308	72308	72308	216924	2c
			71600	Travel	35000	35000	35000	105000	2d
			72100	Service Contracts				0	2e
			72200	Equipment	22000	20000	15000	57000	2f
			72300	Materials and Goods	120000	80000	60000	260000	2g
			72500	Visibility & Communication	18334	19333	19333	57000	2h
			73100	Rent	12820	12820	12820	38460	2i
			73400	Rental (Vehicles)	25000	2000	5000	32000	2j
			74200	Audio-visual & Printing	3000	20000	25000	48000	2k
			74500	Miscellaneous	2758	2612	2612	7982	2l
			75700	Training	65000	75000	40000	180000	2n
			61100	Salary costs Nat Prog Staff	10000	18000	19000	47000	2p
			61200	Salary costs Gen Staff	13000	19000	19000	51000	2pi
64300	Miscellaneous Expenses (DPC Staff)	2428	2428	2428	7284	2q			
			SubTotal output 2	390600	452600	359600	1,202,800		
PROJECT TOTAL					1,187,294	1,080,899	914,049	3,182,243	
UNDP PROJECT TOTAL (PROJECT MANAGEMENT; Eligible Indirect Costs GMS 7% of total budget)					83,111	75,663	63,983	222,757	
PROJECT TOTAL					1,270,405	1,156,562	978,033	3,405,000	

3.2. Budget Notes

CODE	Sub Budget Line	Description
ERA1		
1a	International Consultants	EUR135,000 is set aside for international consultants during the 3 years of ERA1 activities. Day rates adopted for international consultants are averaged at EUR600/day.
1b	National Consultants	EUR 90,000 is set aside for national consultancy work as part of the digitization of historic climatological and climate change related data (Activity 1.1a) plus experts as required during the CfP exercise and also for local support in setting up/managing the proposed Grant Facility. Day rates adopted for national consultants are averaged at EUR400/day (circa 225 consultant days). These days also cover national consultant time to assist with the potential organizational restructuring as appropriate for the possible merging of MDS and WLA departments. This is relevant and influential on implementation but not a defining factor on the intervention logic.
1c	Service Contracts (Indv)	Costs to cover salaries for the PMU (project manager, PA/finance assistant). A Project Management Unit will be set up from the beginning of the project. Two part time Technical Officers, one for each ERA, will be contracted and placed at the Ministry of Public Works (Met and Hydro departments) and ROGB respectively.
1d	Travel	EUR105,000 is set aside for internal travel in Suriname for all project team members (including PMU staff, all National Result Coordinator Staff travel over the 3 year project). International travel is also to be covered by this budget to review hydrological research modelling companies or meteorological agencies to discuss equipment needs as required.
1e	Service Contracts	Project Audits and project evaluation mission
1f	Equipment	<p>EUR330, 000 is set aside for the tender, purchase, upgrade and installation of new (or existing) meteorological and hydrological network equipment as set out in Output 1.2. The existing 70 rain gauge stations spread around the country need potentially upgrading to ensure that 100% digital data is available (not the 90% of the data at present). The 7 Automatic Weather stations already installed need to be upgraded and make to function at their optimal. Regular servicing with co-finance expenditure for the rain gauges to be made available within the MDS budget. Groundwater monitoring equipment is proposed to be purchased as part of this budget. The budget is designed to cover purchase costs for the following equipment:</p> <ol style="list-style-type: none"> 1. Additional 8 Automatic Weather Stations (circa EUR18,000 each- EUR144,000) with real-time data transfer capability (see tender specification in Appendix 4); 2. Additional 10 Automatic Water Level Monitoring Stations (AWLS) (circa EUR15,000 each – EUR150,000); <ul style="list-style-type: none"> • AWLS - Bubbler with real-time data transfer capability; • AWLS - Radar with real-time data transfer capability; • outlets a cable system for discharge measurement will be incorporated within the AWLS, to help flood forecasting and -modelling works at agreed locations; 3. Investment (EUR36,000) in upgrading equipment for the hydrological network (flood forecasting) and early warning systems is as follows: <ul style="list-style-type: none"> • upgrade to existing flood forecasting warning equipment; • Equipment for one “pilot” river-basin based control room; • Data back-up system
1g	Materials and Goods	EUR56,100 is set aside for specific 3 year modelling licenses (software) needed for hydrological modelling purposes within WLA. The budget will help support the programme in operational watershed monitoring and hydrological modelling for hydrological officers within WLA. This shall therefore cover include budget to purchase hydrological modelling licenses (e.g. MIKE BASIN). The budget may be used for other modelling dongles and /or laptop computers as required to ensure the modelling output is effective.

1gi	Grants	EUR500,000 budget shall be used over the 3 years as part of the CfP process. This shall be divided accordingly based on the thematic areas as identified in the project document: UNDP links with the JCCCP project is important and the co-finance budget maybe used in support of parallel donor project initiatives to help enhance the CfP (Output 1.3) work. Co-finance budget is allocated for a senior (part time) gender advisor over the 3 years of the project.
1h	Rental (Vehicles)	EUR3800 is set aside for the use by MDS/WLA staff to access existing meteorological ad hydrological network stations that need retrieving and maintaining or upgrading.
1i	Audio-visual & Printing	EUR6100 is set aside for the hire of specific audio-visual equipment for training purposes, plus all printing costs incurred over the 3 year project period.
1j	Miscellaneous	A total of EUR 6,321 is set aside for miscellaneous purposes or redistribution purposes to specific ERA1 activities as required or requested from the NPD/PMU during the 3 years.
1k	Training	EUR120, 000 is set aside for training purposes over the 3 year period (circa EUR40,000 per year allocated) for two (2) technicians per year (from each of WLA/MDS/NIMOS etc to be trained on modelling software and development of water resource (drought or flood management) predictions.
1l	Direct project cost	Program Staff cost directly related to project implementation by the country office and not captured in the General management Service fee.
1n	Direct project cost	General Staff cost directly related to project implementation by the country office and not captured in the General management Service fee.
1p	Direct project cost miscellaneous	Miscellaneous staff cost directly related to project implementation by the country office under direct project cost.
ERA2		
2a	International Consultants	EUR311,800 is set aside for the consultancy costs of the Chief Technical Advisor (EUR800 day x 96 days per year = EUR230,400) plus consultancy costs for Output 2.1 (national mangrove policy work = 50 days @ EUR700/day = EUR35,000) plus consultants for the Economic Valuation Study (Output 2.2 Activity 2.1b and c = EUR30,000) and international consultant support to review Output 2.1/2.2 and 2.3 and to help produce the national mangrove Knowledge Management System Feasibility Study (budget allocation of circa EUR16,400 over a 3 year period).
2b	National Consultants	EUR155, 000 is set aside for the national consultancy costs to update and produce 4 MUMA plans (Output 2.3) over a 3 years period.
2c	Service Contracts (Indv)	Costs to cover salaries for the PMU (project manager, PA/finance assistant). A Project Management Unit will be set up from the beginning of the project. Two part time Technical Officers, one for each ERA, will be contracted and placed at the Ministry of Public Works (Met and Hydro departments) and ROGB respectively.
2d	Travel	EUR105,000 is set aside for internal travel in Suriname for all project team members (including PMU staff, all National Result Coordinator Staff, key counterpart staff travel related to the 3 year project). International travel may also to be covered by this budget to Guyana (for example) to visit GCCA mangrove project sites plus travel costs as required for the regular review and audit of Output 2.3 and 2.4 project outputs in coastal Districts and Resorts as required..
2e	Service Contracts	Project Audits and project evaluation mission
2f	Equipment	EUR 57,000 is set aside over a 3 year period for specific mangrove monitoring hardware that maybe required should this be identified in the Mangrove Knowledge Management System (KMS) Feasibility Study outcome.
2g	Materials and Goods	EUR 260,000 is set aside specifically for materials and good (surveillance equipment) that GoS key stakeholders and Districts (as requested by ROGB) are required to help with surveillance and regulatory compliance.
2h	Communication (PAGODA)	EUR 57,000 is set aside for communication and visibility to complement Education and awareness activities.
2i		

2j	Rental (Vehicles)	EUR 32,000 is set aside (over the 3 year project period) for the use by NIMOS/ROGB/MNR staff to access local communities/mangrove locations.
2k	Audio-visual & Printing	EUR23,000 is set aside for the hire of specific audio-visual equipment for training purposes, plus all printing costs incurred over the 3 year project period, especially for the outreach and education activities set out in Output 2.5 and 2.6.
2l	Miscellaneous	EUR 7982 is set aside for miscellaneous purposes or redistribution purposes to specific ERA2 activities as required or requested from the NPD/PMU during the 3 years. UNDP links with the parallel donor projects is important here and the co-finance budget maybe used in support of parallel donor project initiatives to help enhance the delivery of the National Mangrove Strategy Policy Document, mangrove surveillance equipment, implementation of MUMA plans or other mangrove related work/outreach support as required.
2n	Training	EUR180,000 is set aside for training purposes over the 3 year period (circa EUR56,600 per year allocated) for all training costs , for all coastal Districts and national events in Suriname to cover Outputs 2.5 and 2.6.
2p	Direct project cost	Program Staff cost directly related to project implementation by the country office and not captured in the General management Service fee.
2pi	Direct project cost	General Staff cost directly related to project implementation by the country office and not captured in the General management Service fee.
2q	Direct project cost miscellaneous	Miscellaneous staff cost directly related to project implementation by the country office under direct project cost

4 Management Arrangements

4.1 Financing

The delegation Agreement shall be signed between the EU and UNDP Suriname, with the project document being signed between the GoS and the UNDP. The delegation agreement for indirect management will be administered by UNDP according to the Financial and Administrative Framework Agreement between the European Community and the United Nations (FAFA) and UNDP rules and procedures.

4.2 Indicative Implementation Period

The indicative operational implementation period of this action, during which the activities described in Section 2 will be carried out through the PAGODA with UNDP is 36 months. Details of the project programme (per output and activity) are presented in Appendix 3.

4.3 Implementation Modalities

This action will be implemented in indirect management with UNDP in accordance with Article 58(1)(c) of Regulation (EU, Euratom) No 966/2012. This implementation entails the implementation of all activities of the programme and it is justified due to the high levels of expected synergies between this action and current and planned UNDP activities in the area of Environment and Climate Change in Suriname (see also separate annex on reasons going for this implementation modality and the partner chosen) involved in Environment and Climate Change in Suriname, its internal capacity and expertise in the mentioned fields. UNDP has a proven track of successful programmes as well as the necessary internal capacity and expertise in the mentioned fields.

The entrusted entity will carry out the following budget-implementation tasks: recruitment of Technical Assistance, procurement of supplies and works as well as grants to public institutions and NGOs and visibility activities.

The project will be implemented according to UNDP's full Country Office support to the National Implementation Modality (NIM) as per NIM guidelines⁶ agreed to with the GoS.

4.4 Project Organisational Structure

Details of the project organisation are set out in Figure 4.1. A **Project Steering Board (PSB)**, chaired by the Office of the President will be set up from the beginning of the project, as well as under the guidance of the Office of the President a **National Project Director (NPD)** will be designated. This person shall be a senior official duly identified by the Office of the President as government entity responsible Climate Change Policy in Suriname and shall be responsible for management oversight of the project. The PSB shall meet at least twice per year. It will be responsible for making management decisions for the project in particular when guidance is required by the **National Project Manager (NPM)**. The PSB plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the NPM and any delegation of its Project Assurance responsibilities.

Based on the approved Annual Work Plan (AWP), the PSB can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans. The responsibilities of the PSB will be to:

- Supervise and approve the annual work plans and short term expert requirements;
- Supervise project activities through monitoring progress and approving annual reports;

⁶[http://www.undp.org/content/dam/undp/library/corporate/Programme%20and%20Operations%20Policies%20and%20Procedures/NIM for Government english.pdf](http://www.undp.org/content/dam/undp/library/corporate/Programme%20and%20Operations%20Policies%20and%20Procedures/NIM%20for%20Government%20english.pdf)

- Provide strategic advice to the implementing institutions to ensure the integration of project activities with national and sub-national sustainable development and climate resilience objectives.
- Ensure inter agency coordination and cross-sectoral dissemination of strategic findings;
- Ensure full participation of stakeholders in project activities;
- Assist with organization of project reviews and contracting consultancies under technical assistance;
- Provide guidance to the NPM.

In order to ensure UNDP's ultimate accountability for the project results, the PSB decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

Membership of the PSB shall include individuals or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The PSB shall also provide guidance regarding the technical feasibility of the project. The NPD shall ensure that senior beneficiaries (individuals, group or individuals representing the interests of those who will ultimately benefit from the project) are either represented or opportunities for their voice to be heard made possible. The Ministry of Finance, UNDP Suriname and the EU shall be on the PSB and their primary function within the PSB shall be to ensure the realization of project results from the perspective of project beneficiaries. Other members of the PSB shall include Directors of NIMOS, MPW, ROGB, NH amongst others.

From the project implementation perspective, a **Project Management Unit (PMU)** shall be set up. The NPM shall head up the PMU. He/she has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the PSB. The NPM's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The NPM shall be supported by a project administrator and a project accountant (finance) to help with all administrative and financial monitoring requirements. The **Financial Officer** will prepare project financial reports on the use of GCCA+ resources and co-financing. He/she will supervise the financial implementation of project, signed agreements and sub-contracts and will also supervise the Project Administrative Assistant.

Supporting the PMU on specific technical issues shall be two **Technical Working Groups (TWGs)**. Members shall be nominated by the GoS which shall be set up to address technical issues for both ERAs as required. The TWG for ERA1, for example, shall have a key say on what research (CfP) applications are accepted or refused. They shall also be on hand to review outputs from the hydrological modelling work that is proposed for completion (by CfP research) by international consultants.

Under the NPM (within the PMU), there shall be two **National Result Coordinators (NRCs)**. Two part time Technical Officers, one for each ERA will also be contracted to support each NRC and placed at the Ministry of Public Works (Met and Hydro departments) and ROGB respectively. NRCs role provides project administration, management and technical support to the NPM as required. The NRCs role supports the PSB by carrying out objective and independent project oversight and monitoring functions. The NPM and Technical Officer roles should never be held by the same individual for the same project. The role of the NRC will thereby consist of the following:

1. capacity building and supporting program implementation;
2. technical input in development TORs for the goods and services and guidance of consultants;
3. liaising and building close collaboration with the various organisations
4. close communication between institutes and Departments.

The NRC for ERA1 shall be instrumental in ensuring that the linkage with the proposed **Grant Facility** is workable and achieves the intended outcomes of its existence. Details on the set up for the Grant Facility are included in Appendix 5.

With regard to international consultancy support, ERA 1 will focus on the supply of technical assistance (TA) to help provide the meteorological equipment support and implementation and subsequent hydrological modelling work (with training). ERA2 shall be implemented differently by engaging the non-continuous

services of a **Chief Technical Advisor (CTA)** to help deliver the mangrove conservation and coastal planning aspects of the project over the 36 month project period (see Appendix 5 for CTA ToR).

In line with the NIM guidelines, capacities will be built in the different counterparts as well as engender an enabling environment as integral part of project design and implementation to sustain programme activities beyond the life of the project.

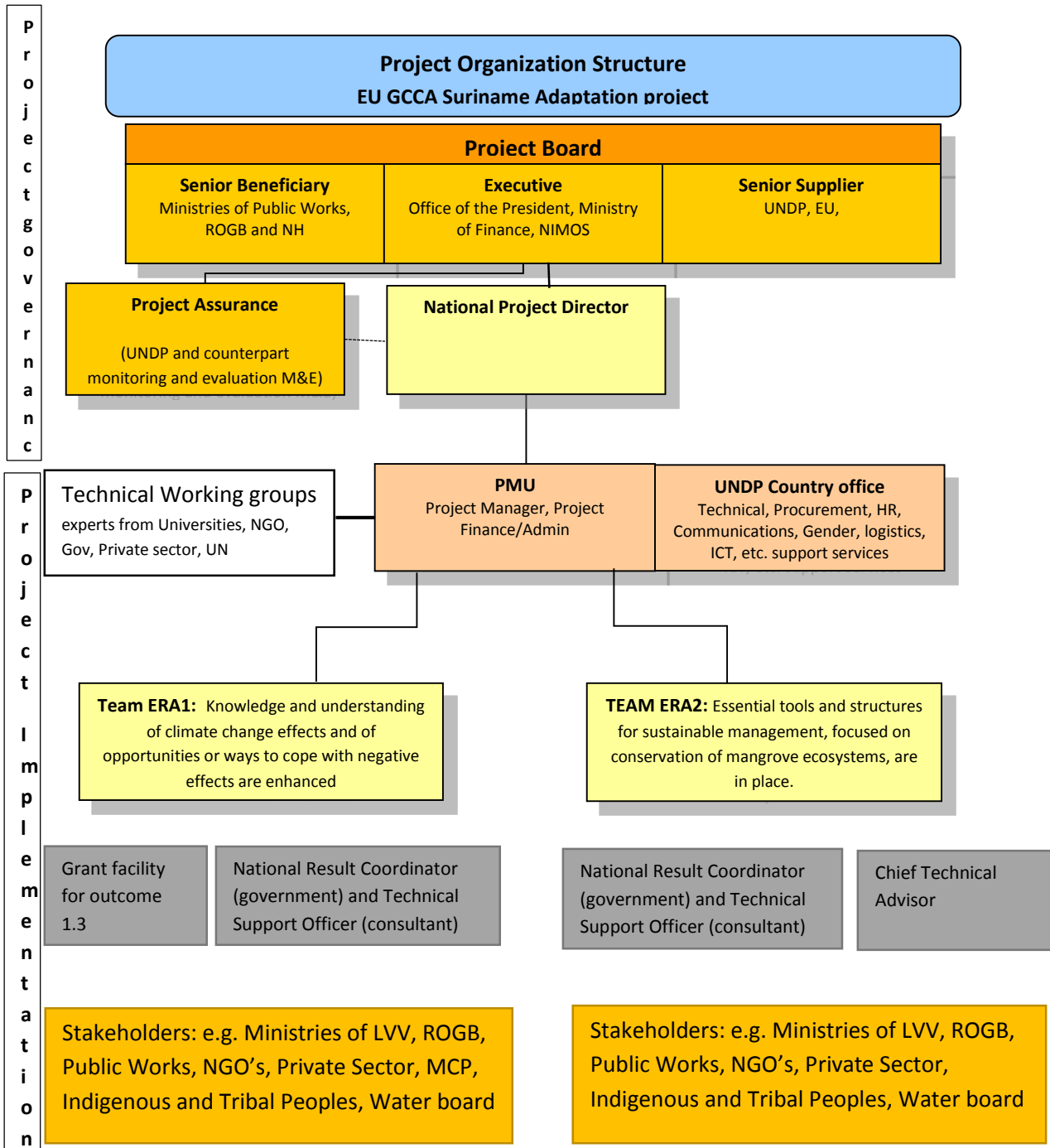


FIGURE 4.1: PROJECT ORGANOGRAM

4.5 Scope of geographical eligibility for procurement and grants

The geographical eligibility in terms of place of establishment for participating in procurement and grant award procedures and in terms of origin of supplies purchased as established in the basic act and set out in the relevant contractual documents shall apply.

Possible organisations to be approached to support UNDP on this matter may include:

1. NOB: National Development Bank;
2. SEMIF: Suriname Environmental and Mining Foundation;
3. Suriname Conservation Foundation (SCF)

5 Monitoring and Evaluation Framework

5.1 M&E Activities

The logical results framework for the GCCA+ programme is presented in Section 3.1. Whenever possible, the proposed indicators have been aligned with draft national indicators developed with GoS support for the Suriname Climate Change Strategic Plan, particularly in relation to process indicators, which are the main focus of this GCCA+ proposal. This will facilitate the monitoring of the GCCA+ projects contribution to the national climate change response. Within the programme, grants will be monitored on the basis of procedures established under the first phase of GCCA+, in line with applicable UNDP standards. GCCA+ internal procedures in that regard include monitoring visits and spot checks from the implementing partner (Ministry of Finance), the submission of quarterly progress reports from grantees, and a final evaluation and audit. The following outlines the intended activities throughout the duration of the GCCA+ project.

Project start: A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and program advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. The Inception Workshop will address a number of key issues including: (a) Assist all partners to fully understand and take ownership of the project. (b) Detail the roles, support services and complementary responsibilities of UNDP CO staff vis à vis the project team. (c) Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. (d) The Terms of Reference for project staff will be discussed again as needed. (e) Based on the project results framework and the relevant GCCA+ monitoring approaches if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks. (f) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled. (g) Discuss financial reporting procedures and obligations, and support arrangements for audit as per UNDP regulations and rules. (h) Plan and schedule Project Board meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 2 months following the inception workshop. An Inception Workshop report is a key reference document for production and therefore shall be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly: Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform. Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot. Other ATLAS logs can be used to

monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually (Annual Project Review/Project Implementation Reports (APR/PIR)): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GCCA+ reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following: (a) Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative); (b) Project outputs delivered per project outcome (annual); (c) Lesson learned/good practice; (d) AWP and other expenditure reports; (e) Risk and adaptive management; (f) ATLAS QPR; (g) Portfolio level indicators are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits: Monitoring and evaluation will be carried out as per the General Conditions, Annex 2 to the Delegation Agreement signed between the EU and the UNDP. In this context the UNDP CO and the EUD will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle: The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (approximately June 2017). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP/GCCA+. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

End of Project: An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GCCA+ guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and EUD.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results. A budget of EUR50,000 is set aside for both these evaluation exercises.

Learning and knowledge sharing: Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share

lessons learned that might be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

The day-to-day technical and financial monitoring of the implementation of this action will be a continuous process and part of the implementing partner's responsibilities. To this aim, the implementing partner shall establish a permanent internal, technical and financial monitoring system for the action and elaborate regular progress reports (not less than annual) and final reports. Every report shall provide an accurate account of implementation of the action, difficulties encountered, changes introduced, as well as the degree of achievement of its results (outputs and direct outcomes) as measured by corresponding indicators, using as reference the log frame matrix (for project modality) or the list of result indicators (for budget support). The report shall be laid out in such a way as to allow monitoring of the means envisaged and employed and of the budget details for the action. The final report, narrative and financial, will cover the entire period of the action implementation.

UNDP may undertake additional project monitoring visits both through its own staff and through independent consultants recruited directly by themselves for independent monitoring reviews (or recruited by the responsible agent contracted by UNDP for implementing such reviews).

5.2 Communication and Visibility

Communication and visibility of the EU is a legal obligation for all external actions funded by the EU. This action shall contain communication and visibility measures which shall be based on a specific Communication and Visibility Plan of the Action, to be elaborated at the start of implementation and supported with the visibility budget of UNDP as well as budget indicated above. The [Joint Visibility Guidelines for EC-UN actions in the field](#)⁷ shall be used to establish the Communication and Visibility Plan of the Action and the appropriate contractual obligations. The Annex 3 - Budget of the Action will foresee adequate financial means to cover for communication and visibility deliverables established in the Visibility & Communication Plan. The Commission will participate to the joint mid-term and final project evaluations performed by UNDP.

The principle focus of the visibility plan will be to publicize the EU contribution to all activities implemented by UNDP Suriname within the GCCA+ set of projects. Visibility activities will focus on raising awareness among key audiences as well as the general public on specific activities within this GCCA+ project. A key aim is for information on GCCA+ activities to be reported in the international and national electronic and print media in an accurate, favourable and timely manner in order to further support the GCCA+ overarching objectives.

In terms of legal obligations on communication and visibility, the measures shall be implemented by the Commission, the partner country, contractors, grant beneficiaries and/or entrusted entities. Appropriate contractual obligations shall be included in, respectively, the financing agreement, procurement and grant contracts, and delegation agreements. Communication and visibility measures have been included in the budget and will be specified in annual work plans. These measures build on experience from other GCCA+ initiatives in the region as managed by EU Delegation in Guyana. The exact timing and content of communication and visibility activities will be included in annual work plans, and take into account the relevant provisions of the General Conditions (Annex II), the Communication and the Joint Visibility Guidelines of the EC-UN Actions in the field. The Plan shall also include knowledge management and information sharing with the regional GCCA+ programme and other donors of climate change actions.

If appropriate, and in order to respect UNDP procedures due to the flow of production of materials, a Long Term Agreement (LTA) selection procedures may be instigated to recruit a production and graphic company in order to face the implementation needs of this visibility plan and of the project activities. Details on logs,

⁷ <https://ec.europa.eu/europeaid/node/45481>

websites and EU visibility elements shall all be clearly outlined within this LTA and reflected within the Visibility Plan.

Appendix 1: Stakeholder Consultation Events

Report

Stakeholders Re-engagement meeting

August, 5th 2015

Paramaribo

Ria Jharap, Local consultant GCCA project

Stakeholders Re-engagement meeting

Wednesday, 5 August 2015

Conference room, Ministry of Finance

09.00 am – 11.00 am

Attendees:

<i>Organization</i>	<i>Representative</i>	<i>Present</i>
<i>UNDP</i>	Bryan Drakenstein (BD), Programme Specialist, Energy and Environment Anuradha Khoenkhoen (AK), Programme Assistant Energy & Environment Armstrong Alexis (AA), Deputy Resident Representative UNDP Ria Jharap (RJ), Local Consultant GCCA	
<i>Ministry of Finance</i>	Anushka Ramdhani (AR), Officer Ministry of Finance	
<i>WWF</i>	Sofie Ruysschaert (SR), Biodiversity officer	
<i>Anton de Kom University of Suriname (AdeKUS)</i>	Riad Nurmohamed (RN), Researcher/Lecturer at FTEW, AdeKUS	
<i>Office of the President</i>	Haydi Berrenstein (HB), National Coordinator for Environmental Policy Theresa Elder (TE), Climate Change Desk, National Security / Environment Department	
<i>CELOS</i>	Anwar Helstone (AN), Researcher at the Centre for Agricultural Research in Suriname (CELOS)	
<i>Meteorological Service Suriname (MDS)</i>	Sukarni Salons-Mitro (SS), Climate Change Specialist	
		<i>Absent</i>

AdeKUS

*Waterforum
Ministry of LVV*

NIMOS

Prof. S. Naipal, CC expert group, Faculty of Technological Sciences, Anton de Kom University of Suriname

Manoj Hindori, Chair Waterforum Suriname and Overliggend Waterschap MCP

Hesdy Esajas, Head Forest Directorate, Ministry of Spatial Planning, Land and Forest Management

Cedric Nelom, Director National Institute for Environment & Development in Suriname

Opening

The representative of the Ministry of Finance, Anushka Ramdhani, opened the meeting and welcomed all the present stakeholders. Bryan Drakenstein then invited Mr. Armstrong Alexis to give a short welcome speech.

After the welcome speech, the floor was given to Ria Jharap for the presentation

Presentation and discussion

The local consultant, Ria Jharap, gave a brief summary of the process of the GCCA project conducted last year and the upcoming process for this year. The presentation can be found in Annex I.

The following discussions and remarks on the outputs/ activities were made by the participants:

- 1) Output 1.1 (Strengthen capacity at the National Meteorological Service)
RN indicated that besides MDS (Meteorological Service Suriname), the WLA (Hydraulic Research Division) also should be included within output 1.1. The participants agreed that the WLA has linkages with the MDS regarding climate change and both institution should actually be working together so that knowledge and data regarding climate change effect can be gained in an effective and efficient way. AA made the suggestion that the output should therefore be rewritten in: 'Strengthen capacity at the MDS and WLA and other related institutions'. SS pointed out that she already mentioned the inclusion of WLA within this project last year during the first mission, but as she can recall there was no budget left. The participants agreed that WLA must be consulted about this GCCA project.
As the discussion continues, AA mentioned that a climate institution could be a possibility where all related institutions, like the MDS/ WLA/ AdeKUS/MAS/environmental department office of the president etc. collaborate together.
- 2) Output 2.3 (Update and implement existing management plans of 4 coastal MUMAs)

Some participants mentioned the importance of identifying indicators within the activities.

RN pointed out to look at possibilities to support the activities through laws and regulations. On the other hand, most outputs do focus on a form of control.

- 3) Output 2.5 (Reinforce patrolling activities (equipment, training, operational procedures / protocols)

The participants did not understand the purpose of activity 2.5a. A suggestion is to rephrase the activity so that it is more in line with the objective of this output.

Remarks

All participants agreed that the sustainability of the project is important. Indicators are therefore needed to secure the accountability of the stakeholders in sustaining the project. Practical indicators are needed to monitor the process of the GCCA project. Incentives implemented within the activities and outputs was a suggestion.

SR mentioned a desk study currently being conducted (WWF) about the need for dikes, where also the experience of the dikes in Guyana will be taken into consideration. The results will be available in In December.

Actions

- All the present stakeholders will inform the local consultant if there are additional stakeholders to be consulted depending on the output and activities.

- Ria Jharap will contact some of the stakeholders (MDS, WLA, ROGB, CELOS) for additional information.

- Focus group meeting(s) will be held in the upcoming weeks with relevant stakeholders depending on the output/ activity. For example, one focus group meeting will be held with key stakeholder Prof Naipal (lecturer in CC and Water) for his knowledge and experience in Mangrove conservation.



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Project Document

Report Suriname GCCA Adaptation project Results & Resource framework finalization meeting

Bryan Drakenstein

Introduction

This is the report of the Suriname GCCA Adaptation Project Results and Resource framework finalization meeting held at the Royall Ballroom of Torarica on August 27, 2015.

Opening and Welcome

Welcome – Ria Jharap, National Consultant

Mrs. Ria Jharap welcomes everyone to the meeting and subsequently gives the floor to Mr. Armstrong Alexis.

Opening remarks - Armstrong Alexis, UNDP

Mr. Armstrong Alexis welcomes everyone to the meeting.

UNDP globally supports climate change interventions through strategies to assist at national, sub national and international level to develop and strengthen policies, institutions, capacities and knowledge for integrated green low emission and climate resilient development projects.

Suriname as a country is well placed, not just to receive funding for green initiatives, but also to contribute to global interventions given the unique nature of the country. Climate change mitigation is one of the important elements of the work conducted by UNDP. Integrated actions made from climate change mitigation entry points such as the REDD+ project in Suriname, have the objective to reduce greenhouse gas emissions that make it possible for global warming to stay below surviving thresholds. Those involved in debates with regard to climate change will know that globally developing countries are promoting no more than 1.5 degrees increase. There is a movement in fact called “*1.5 to Stay Alive*”.

Between 1992 and 2014 the sea levels have risen by over 8 cm. Suriname is a low lying country and it is naturally concerned, given the infrastructure along the coast and the fact that a large part of the population resides along the coast. It is hoped that interventions, such as the one that is discussed in this workshop, will have a significant impact on the adaptation and mitigation efforts that will be continued.

The extent of climate change requires to adapt and to reduce global greenhouse gas emissions, to make it possible to continue with economical livelihood activities that reduce the footprint and ensures the continuation of life on the planet. People can't continue to live as they have. The environment is not just changing it already has changed. In areas along the coast, heavy rains now result in flooded streets and flooded homes. This was not the case a decade or two ago. The interventions that will be made, will not just be towards raising the consciousness of citizens, governments and policy makers, it will also be to ensure to adapt to those changes and also ensure that through the adaptations, some of the issues Suriname is facing can be mitigated.

UNDP, through the Japan-Caribbean Climate Change Partnership (JCCCP), is providing support to the Caribbean sub region in preparing important assessments and reports, and through these secure funding that aims to position the Caribbean sub region to benefit from funds from the private and public sector to undertake initiatives. One such fund is the Green Climate Fund, which will work towards the capitalization of over one billion dollars. The smallest disbursement of the Green Climate Fund will be USD 10M. Suriname will need to have the capacity to access those funds and also make good use of the resources.

Political commitment and policy leadership will be essential and for that reason Mr. Alexis thanks and congratulates the government over Suriname for being an important partner in environment projects that have been implemented in Suriname. The EU has also shown commitment to support countries in the preparation to adapt to the effects of climate change. This GCCA project is funded by the EU and Mr. Alexis takes the opportunity to thank the EU for the funding. He trusts that the Government of Suriname and the EU, in

partnership with the UNDP, will deliver this project and ensure that the outputs and results are to the expectations of not just the donors, but of the entire community.

Another such commitment is that of Suriname in the participation in the REDD+ project, solidifying Suriname's commitment to maintain Suriname's high forest low deforestation status. Suriname can contribute to the global movement on the environment, since it still has significant forest coverage.

These types of commitment and leadership at global level and national level need to be multiplied and translated into local actions in communities and households that benefit the lives of the individuals. Many projects tend to get stuck in consultants, workshops and consultations ("CWC") and not move beyond that. It will be a challenge to ensure that this project, through the guidance of the ministry of Finance and the partnership of the UNDP and the EU and with the support of the consultant, will be more than just CWC.

Mr. Alexis ends his presentation by stating that other elements will need to be added to the CWC, such as people, lives, livelihoods and sustainability to ensure that Suriname survives this change in global environment. He will be looking forward to the conversations and thanks everyone for the time and efforts made to be present at the workshop.

Opening remarks – EU Delegation

Mr. Albert Losseau welcomes everyone.

It has been quite some time since the EU started the discussion for this initiative with the Government of Suriname. This was almost four years ago. Also, the move of the EU delegation to Georgetown and the lack of framework in Suriname did certainly not facilitate this process. However, the initiative of the Government of Suriname to place all environmental issues under the same umbrella at the Cabinet of the President is a good sign of the will of the government to move forward.

The GCCA, established in 2007, is the main tool of the European Commission to address climate change. Mr. Losseau briefly shares some information about the GCCA and GCCA+ initiative and refers to the website (www.gcca.eu) for more information. By fostering effective dialogue and cooperation on climate change, the Alliance helps to ensure that poor developing countries most vulnerable to climate change increase their capacities to adapt to the effects of climate change, in support of the achievement of the Millennium Development Goals.

In 2014 a new phase of the GCCA, the GCCA+ flagship initiative, began in line with the European Commission's new Multiannual Financial Framework (2014-2020). The GCCA+ aim is to boost the efficiency of its response to the needs of vulnerable countries and groups.

Actions with regard to climate change will not only be taken through GCCA. Climate change is one of the focus sectors in the EU's new Regional Program with CARIFORUM for 2014-2020. An amount of Euro 61.5M has been allocated to this program and the EU Delegation

in Barbados will manage this budget. This workshop is to ensure that ensure that all stakeholders are involved and everyone is on the same path.

Mr. Losseau thanks all the participants for the time they have taken to participate in the workshop.

Opening remarks – Government of Suriname

Mrs. Ria Jharap informs the participants that although opening remarks from a representative from the government of Suriname were scheduled, this has been cancelled due to unforeseen circumstances.

Review of the GCCA process and the project concept - Ria Jharap, National Consultant

Mrs. Ria Jharap welcomes everyone to the workshop.

Introduction GCCA

GCCA stands for Global Climate Change Alliance. The alliance was established by the European Union in 2007 to strengthen dialogue and cooperation with developing countries, in particular least developed countries (LDCs) and small island development states (SIDS). Suriname is part of the SIDS. The Alliance currently supports 51 programmes around the world and is active in 38 countries. The available budget is more than Euro 300M.

How GCCA operates

GCCA builds on the following two pillars: (i) serve as a platform for dialogue and exchanges in view of effective participation in the global climate change negotiations and (ii) technical and financial support to targeted developing countries.

The GCCA focuses its technical support on five priority areas: (i) mainstreaming climate change into poverty reduction and development efforts, (ii) adaptation, (iii) REDD+, (iv) enhancing participation in the global carbon market (CDM) and (v) disaster risk management. Especially adaption is important in the case of Suriname.

GCCA support in Suriname

The project will support Suriname in enhancing sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems. Suriname is a country at risk of the effects of climate change. These effects include:

Extreme weathers such as sea level rise, which is a major threat to the biodiversity, economy and population of Suriname.

Lack of protection of the coastal areas, which can lead to uncontrolled development, infrastructure and tree cutting. There is a lack of essential tools and instruments for effective protection and low staff capacity as well as a lack of financial means.

Threat of sea level rise and less reliable rainfall patterns. The sea level rise can be a major threat to Suriname's population, biodiversity and economy. Suriname is a low lying country and therefore threatened by sea level rise. Also, the combined effect of higher demand and changed rainfall regimes is a threat.

Suffering of the agriculture sector. This sector is subject to the threat of the intrusion of salt water, longer dry periods and lack of proper water management

It is clear that Suriname is a country at risk and is negatively affected by the global climate change effects. This is partly due an overall lack of solid institution, unclear mandates of public administration and subject to reform, a lack of a validated climate change policy or strategy and a lack of a coordinated approach.

The GCCA support will be focused on enhancing sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.

Purpose and objective of the project

The purpose of the project is to support Suriname in improving its current climate change adaptation capacity.

The overall objective is to reduce Suriname's vulnerability to negative effects of climate change.

The specific objective is to enhance Suriname's capacity for developing and undertaking appropriate and effective measures to adapt to climate change effects by: (i) expanding the existing knowledge base on effects of climate change and on developing tools and instruments that will allow developing targeted adaptation measures to the benefit of the entire population and (ii) strengthening capacities for mangrove conservation.

Focus of support in Suriname

In 2014 a consultant from Belgium visited Suriname to conduct a problem analysis. Based on the results of this analysis and a needs assessment, it was determined to focus the support in Suriname on the following two areas:

Expanding the existing knowledge base on the effects of climate change and on developing tools and instruments that will allow developing targeted adaptation measures to the benefit of the entire population. This will ensure awareness and capacity strengthening at different institutions and government agencies.

Strengthening capacities for mangrove conservation. It became apparent that the awareness with regard to mangrove preservation is not sufficient. This is clear in the way the protection of coastal areas is addressed. And if not done properly there are risks involved, such as mixing of salt and fresh water with adverse effects on biodiversity.

In both components the focus will be on the development of capacity to adapt to climate change and contribute to mitigation of climate change in Suriname.

Project information

The project period is 36 months. The allocated budget is approximately Euro 3M and will directly be contributed to global EU and international climate change commitments.

Main issues

Currently, the project is in a phase that a log frame has been developed. Jonathan McCue will present this log frame and based on the input received from the participants with regard to additional data, comments and suggestions for amendments the draft project document will be designed.

The focus of the project document will be on: (i) determining and analysing a thorough baseline and elaborate the identified adaptation measures from the action document (ii) capacity building and public awareness; identify needs and gaps, (iii) design of a strategy to realise the targeted output and (iv) elaborate roles and responsibilities for various project partners.

The follow up workshop will be held on September 3rd at the Courtyard Marriott Hotel.

Mrs. Jharap ends her presentation and gives the floor to Mr. Jonathan McCue.

Presentation of the draft Results and Resource Framework including feedback and discussion – Jonathan McCue, International Consultant

Mr. Jonathan McCue informs the participants that the project is working on a tight schedule. This workshop is approximately 4 weeks late. The first draft of the project document was scheduled for presentation on August 18 and the second draft on August 28. This is the draft that Suriname will need to agree on, the EU representatives in Georgetown need to accept and UNDP needs to be content with to take forward.

The main objective of this workshop is to inform the participants of the progress and get the acceptance of the activities he is proposing. Subsequently, a second workshop will be held on September 3rd to secure commitment of the stakeholders and move towards submission of the project document.

One of the key areas of the project is the support of the meteorology and hydrology network equipment. The project would like to propose intervention activities to ensure sustainable agriculture in Suriname and develop further improvement of the management of mangrove eco systems. The improved equipment will provide data with regard to how the water cycle influences agriculture and mangroves, which will allow better policymaking. The project also focuses on the development of Surinamese human resource capacity for the long term.

Some key documents were looked at during the design of the framework, including the 11th EDF National Indicative Program that focuses on, among others water management and the protection of biodiversity and key ecosystems and the national climate change policy that has not yet been officially endorsed. Mrs. Ria Jharap has represented Mr. McCue in during the time he was not in Suriname and held different meetings with key stakeholder groups.

The estimated project budget is Euro 3,405,000. The EU contribution will be Euro 3,000,000 and the UNDP will co-finance Euro 405,000.

Mr. McCue has adjusted the project title, which is now: *“GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems”*. The participants are given the opportunity to comment on this changed title.

The overall objective is to reduce Suriname’s vulnerability to the negative effects of climate change.

The specific objective is to support Suriname in improving its current climate change capacity and mitigation.

The project has the following two Expected Results Areas (ERA’s):

Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced.

Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place.

Linked to the abovementioned expected results areas are 9 outputs and 23 activities.

The information with regard to the ERA’s, outputs and activities has been handed out to the participants. Mr. McCue asks the participants to take the following questions into consideration for the ERA’s:

Questions to consider with concerning ERA 1:

- What met equipment is really needed by MDS and WLA?
- What locations should the hydrological and meteorological network stations be positioned? *(this needs to be agreed with MDS/WLA)*
- What complimentary support could be provided from the JCCAP project (UNDP?)
- GCCA Call for Proposals approach – is Suriname experienced in this?
- *(multi-partnerships are needed - links with Universities). US\$450k max CfP bid ceiling per project unless this is needed to be higher and declared within the Prodoc – what is the consensus on this? Should there be only 1 CfP or more that one over 3 yr period?).*
- What possible research proposal “themes” are required for this to be of value? *(Horticulture/improving land productivity/PPP initiatives/smallholder rural livelihood improvements/soil protection/EbA techniques etc.?)*

Questions to consider with concerning Expected Result Area 2:

- How should the project best integrate with the GEF Environmental Mainstreaming project?
- What details are needed to come out of the mangrove “Valuation Study”?
- What can feasibly be achieved towards revising new land planning guidelines to help update National/District Plans on mangrove conservation?
- What institutional management structures are needed to help equip regulators with the capacity required for MUMA Plan implementation?
- Water resource / pollution compliance and surveillance techniques? What is needed here?
- Dissemination and public awareness? Role of the media/schools/NGOs?

Exercise 1

Subsequently, Mr. McCue asks the participants to fill out the information requested in Exercise 1 (see Annex III). This exercise has to do with data availability, since it is important to understand what information is available.

Exercise 2

Exercise 2 (see Annex IV) has to do with stakeholder engagement strategy. For this exercise the definitions of primary and secondary stakeholder are explained and the participants are requested to provide the names, existing roles, proposed class and role in the project of stakeholders.

QUESTIONS & ANSWERS

Question: *What is the difference between activity 1.3.a and 1.3.b?*

Answer John McCue: *This activity has to do with the Call for Proposals. The first activity regards the process of going through the applications, awarding the contract etc. The second activity regards the actual management of the research, managing the contract etc.*

Working Groups

Exercise 3

The participants are handed out Exercise 3 (see Annex V). The purpose of this exercise is to give the participants the opportunity to allow or reject the proposed activities. Also, it is an opportunity to prioritize the activities for both him and Mrs. Jharap. In addition, they are provided the opportunity to suggest alternative project titles.

PRESENTATION FEEDBACK GROUP 1

There are no activities included in the sheet the group disagrees with.

All the objectives and activities mentioned are considered equally important. Increasing the capacity of the Meteorological Service of Suriname (MDS) and the Hydraulic Research Division (WLA) are important. Everyone involved knows how important it is to obtain data before moving forward.

Modelling is also important and the University of Suriname and CELOS play an important role in this regard. With regard to Output 1.2 MD and WLA are important because they have databases with information concerning water and other relevant meteorological data.

With regard to Output 1.3 it is important to take stakeholders into consideration such as LVV, ADRON and IKAK.

Also, when you look at Output 2.1, institutions such as NIMOS and SBB are also important.

The different institutions and ministries coming together throughout the implementation of the project will be essential, to ensure the support of all the stakeholders.

The training mentioned under Activity 2.5.b is also critical, because you indeed need experts to translate the information for the media, so the media in its turn, can transfer the information adequately to the community. The educational specialists in Suriname who can use this training are mostly in CELOS, the University of Suriname and the ministry of Education.

PRESENTATION FEEDBACK GROUP 2

There are no activities included in the sheet this group disagrees with.

The group agrees that obtaining data is important.

With regard to Activity 1.2.a that concerns long term historical observation data, you need to invest in the digitalization of the data. Prior to that however, you will need to look at who/what institutions disposes over this information. Also, you need to agree on what can be defined as “long term data”, how many years will you go back. And you have to take into consideration who/what institution will be appointed to enter/digitalize the information.

With regard to Activity 1.2.c where a reference made to the update of maps, it is not sure whether or not there are water maps to begin with. Also, where it states “for all regions of Suriname”, the General Bureau of Statistics in Suriname (ABS) usually collects data at national level, very seldom at district level. So it is important to look at how you will be collecting information at local level. It is expected that this will be difficult.

Concerning Activity 1.2. a reference is made to water resource managers and hydrologists. However, it should be taken into consideration that not many people with this specific expertise are available in Suriname. So perhaps it would be an idea to first identity the people that have the required capacity. And if additional specialists are needed, perhaps training sessions can be provided.

With regard to Activity 1.3.a it is recommended that the government work with evidence based projects to ensure the adequate implementation of the assignment.

PRESENTATION FEEDBACK GROUP 3

There are no activities included in the sheet this group disagrees with.

Concerning Output 2.1, the group thinks it is indeed important to develop a national mangrove strategy. And in this regard, it is important to include the ministry of Natural Resources. A draft Water Act has already been designed that addresses water management and water protection, and this could be included in the log frame. Also, the ministry of Education is important, because this ministry should be used to add mangrove management in the curriculum of the educational system.

PRESENTATION FEEDBACK GROUP 4

There are no activities included in the sheet this group disagrees with.

With regard to the “related institutions” mentioned in Output 1.1 the group asks which institutions are referred to.

With regard to Activity 1.1.b it is recommended to add the words “two way communication and the interaction...” after “install...”

Concerning Activity 1.2.a it is recommended to include the MDS, since only WA was mentioned. It is also suggested to include old data that has not been digitalized.

With regard to Output 1.3 it is recommended to include sector risk management reduction measures as an activity. This relates to a management system for people active in the agriculture sector who suffered damages.

PRESENTATION FEEDBACK GROUP 5

There are no activities included in the sheet this group disagrees with.

With regard the title this group suggests to add “law making and enforcement” to the title.

With regard to the specific objective the group added the word “capacity”. This is because it is not clear whether Suriname would receive assistance for capacity strengthening or assistance in the mitigation of climate change.

Referring to Activity 2.3.c where it is mentioned that a Bio Diversity Monitoring Program should be developed and functioning, it is recommended to include the update the National Bio Diversity Strategy and Action Plan.

Mrs. Ria Jharap clarifies that the word “mitigation” refers to the mitigation of the effects of climate change, this is something different than the mitigation of climate change itself.

Mr. Bryan Drakenstein adds that it is correct that it concerns the strengthening of the capacity to mitigate the effects of climate change.

PRESENTATION FEEDBACK GROUP 6

There are no activities included in the sheet this group disagrees with.

With regard to the title, the group is of the opinion that the current title implies that improved climate information, institutional capacity and governance systems will be provided by GCCA to Suriname. The group therefore suggests replacing the word “provision” with the word “support”. Another option would be to change it to: “... through the provision of a framework to improved climate information....”

With regard to Output 1.1 it is recommended to further explain what institutions are referred with the “related institutions”

Also, it is recommended to add Activity 1.1.d, that would concern involve the engagement of institutions and CSO’s.

With regard to Output 1.2 it is suggested to add an activity related to policy makers. Because reference is made to planning, then in would be recommended to add something that concerns to capacity strengthening of policy makers, with regard to the analysis of the results of the models.

With regard to Activity 1.2.b the consultants are informed that water resource assessments have in fact already been conducted.

With regard to Output 1.3 the group is of the opinion that it is not that new technologies necessarily will need to be developed. It is more important to exchange information concerning existing best practices. So it is recommended to change Output 1.3 into “Identify opportunities and exchange existing best practices to reduce....”

Referring to Output 2.3 the group recommends the addition of an activity, namely the engagement of CBO’s in monitoring activities. The MUMA system covers an extensive area, so it might be an idea to use smaller organizations that are already active in the area. Perhaps trainings can be given in this regard.

Concerning Output 2.4 the group also suggests the addition of an activity. The group proposes to work more with the decentralized structures and perhaps make efforts to get community based management in place if possible.

With regard to Output 2.6 the group didn't quite understand the meaning of the community mobilization mentioned there. Therefore, the relation with Activities 2.6.a and 2.6.b is not clear.

Mr. John McCue states to be very pleased with the feedback given so far. However, with regard to suggestions made to change the objectives, he informs the participants that this would be quite difficult since the objectives have been set by the EU.

Exercise 4

The participants are requested to provide input per Output with regard to links with existing national policy plans and donor programs.

The feedback from the different groups is included in Annex VI. Mr. McCue concludes that there are some common denominators in terms of what will be needed to make this project a success: outreach and education. This is often the case in projects where mangroves are involved and there are many opportunities this project would like to use for the introduction of mangrove education, but the ministry of Education is not always interested.

Also, this project will have a big problem demonstrating success unless there is a partnership. This means that institutes need to be willing to discuss new ways of thinking.

Thirdly, Mr. McCue points out that all stakeholders involved in the project need to be real. They need to be sure to introduce realistic targets and opportunities to make a difference. The value of having appropriate equipment is obvious. This equipment needs to be used to the wider benefit of all. And one of the benefits will be to ensure that the gender aspect is considered, as well as the vulnerable groups and disadvantaged communities. These aspects should be updated in the coastal MUMA plans. Mr. McCue thanks the participants for the provided feedback and gives the floor to Mr. Bryan Drakenstein.

Mr. Bryan Drakenstein emphasizes that this should not be just another project. The feedback received during this workshop will provide a good start for the total community and he thanks the participants for their contributions on behalf of the UNDP.

Next Thursday the project will move to the first phase of the project document and he states that the participants will be kept informed about the progress.

Shortly, the next step will be made, which will consist of the signing and implementation of the project.

Mr. Albert Losseau thanks the participants for their input that will be helpful when finalizing the frame. The importance of taking the gender aspect has been taken into consideration and the project should certainly do so.

QUESTIONS AND ANSWERS

Question: Is there a timeline set for milestones after today?

Answer – Jonathan McCue: The project term is 36 months. The timeline for specific activities will be set out in the project document. The urgency may be on Output 1.3. It will be recommended to start with the CfP as soon as possible, receive the tenders, award the contracts and allow successful research teams to get started. The process of modelling can't

start until the data has been compiled. So there is a clear stepped process on what tasks need to be done when, but the data is not yet available.

Question: The importance of the wider benefit for all was mentioned earlier. I fully agree, taking gender aspects and vulnerable groups into consideration will be important. Will this also be required for the proposals?

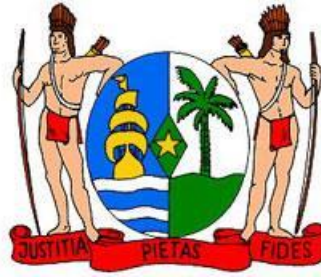
Answer – Jonathan McCue: From a strategic perspective it will be important because all donor programs require more detailed assessment with focus on certain groups. Therefore, each successful grantee should demonstrate how their research will benefit either disadvantaged groups or at least be gender sensitive.

Closing

Mr. Jonathan McCue thanks all the participants for their contributions and closes the workshop.



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Global Climate Change Alliance (GCCA) Suriname Adaptation project

Agenda Suriname GCCA Adaptation project Results and Resource framework finalization Meeting

Thursday, 27 August 2015 Venue Hotel Torarica, Royal Ballroom 1

08.00 – 08.30 am	Registration
08.30 – 08.35 am	Welcome - Ria Jharap, National Consultant
08.35 – 08.45 am	Opening remarks - UNDP
08.45 – 08.55 am	Opening remarks - EU Delegation
08.55 – 09.05 am	Opening remarks – Government of Suriname
09.05 – 09.35 am	Review of the GCCA process and the project concept – Ria Jharap, National Consultant
09.35 – 10.30 am	Presentation of the draft Results and Resource Framework including feedback and discussion - Jonathan McCue, International Consultant
10.30 – 10.45 am	Break
10.45 – 12.15 pm	Working groups
12.15 pm	Lunch
13.30 – 14.15 pm	Report back, discussion and Conclusion
14.15 – 14.30 pm	Closing and the Way forward

List of participants

No.	Name	Organization
1.	Renuka Bharos	Ministry of Finance
2.	Kathleen Burke	Anton de Kom University
3.	Henk Bhagwandin	Anton de Kom University
5.	Albert Losseau	EU
6.	Humro Blau	SPS
7.	Mohamed Firozali Amierali	Meteorological Service
8.	Moekiran Armand Amatali	Waterloopkundige dienst (MIN.OW)
9.	Marjory Danoe	NIMOS
10.	Anjali Kisoensingh	ABS
11.	Arioene Vreedzaam	SGP
12.	Zoe Samson	Global Shapers
13.	Gilbert van Dijk	SBC/SBF
14.	Ansmarie Soetosenojo	CELOS
15.	Sagita Jaggan	Ministry of Finance
16.	Anuska Ramdhani	Ministry of Finance
17.	Marijke Sonneveld	Stichting Projekta
18.	Verginia Wortel	CELOS
19.	Inez Demon	CELOS
20.	Cor Becker	MDS
21.	Ria Jharap	UNDP
22.	Nataly Plet	Cabinet of the President
23.	Haydi Berrenstein	Cabinet of the President
24.	Bryan Drakenstein	UNDP

25.	Anuradha Khoenkhoen	UNDP
26.	Armstrong Alexis	UNDP
27.	Hesdy Esajas	ROGB
28.	Jamille Haarloo	Global Shaper
29.	Ambimbola Abiola	IICA
30.	Lydia Ori	Anton de Kom University

Annex II

EXERCISE 1: GCCA+ DATA AND INFORMATION QUESTIONNAIRE

Do you or your organisation hold/have access to RELEVANT digital or printed reports/information/data relevant to climate change, agriculture, meteorology, hydrology, water resources or mangrove issues in Suriname? If yes please list or describe the data/report.
Do you or your organisation have information/data which has position or location data on water resource use in Suriname that may be useful in this GCCA project? (<i>This data does not have to be in a GIS or GIS format but it may be very useful</i>). If yes please list or describe the data
Do you own the data or information? Are there any restrictions in use for the GCCA+ project to be aware of? e.g. Licenses/cost/validity/copyright
Does the digital data have metadata associate with it? And is it to a specific standard?

EXERCISE 2 – GCCA+ STAKEHOLDER ENGAGEMENT STRATEGY

Current Stakeholder Class	Stakeholder Name	Existing Role/Responsibility	Proposed Stakeholder class and role in the GCCA project (define)
Primary			
Primary			

Current Stakeholder Class	Stakeholder Name	Existing Role/Responsibility	Proposed Stakeholder class and role in the GCCA project (define)
Primary			
Primary			
Primary			
Primary			
Primary			
Secondary			
Secondary			
Secondary			
Secondary			
Secondary			
Secondary			
Secondary			
Secondary			

Key:

Primary Stakeholder – an organisation/individual/body who has/should have a direct involvement in future management of the project.

Secondary Stakeholder – an organisation/individual/body who should play a supporting role in future management decisions associated with the delivery of the project.

EXERCISE 3 - EXPECTED RESULTS AREAS, OUTPUTS AND ACTIVITIES

NB: the terms “hydrological network/stations and meteorological network/stations” are used in this GCCA proposal instead of “hydro-met network/stations” as “hydrometeorology” is the study of the atmospheric and land phase of the hydrological cycle, with emphasis on the interrelationships involved as defined in the UNESCO Glossary of Hydrology, and is just a part within the hydrology.

PROJECT TITLE	Agree	Disagree	Alternative	Priority (H/M/L)	Primary Stakeholder
<i>GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.</i>				N/A	
OVERALL OBJECTIVE (IMPACT) <i>To reduce Suriname’s vulnerability to negative effects of climate change.</i>				N/A	
SPECIFIC OBJECTIVE (PROJECT PURPOSE) <i>To support Suriname in improving its current climate change adaptation capacity and mitigation.</i>				N/A	
(EXPECTED RESULT AREA 1): Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced					
Output 1.1: Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions.					
<i>Activity 1.1a: Finalize systems design, equipment requirements and technical specifications for the expansion of the MDS met network and the WLA hydro-met network. .</i>					
<i>Activity 1.1b: Tender and procure equipment and components for upgrading of the real-time automated weather stations, hydrometric stations, and early warning stations.</i>					
<i>Activity 1.1c: Create framework for improved MDS and WLA operation and maintenance support and capacity development of key staff using new operation and maintenance guidelines and manuals;</i>					
Output 1.2: Undertake water resources modelling and planning for integrated and sustainable water management					
<i>Activity 1.2a: Long term historical observation data collated, digitised and used in water resource planning and policy formulations.</i>					

PROJECT TITLE	Agree	Disagree	Alternative	Priority (H/M/L)	Primary Stakeholder
<i>Activity 1.2b: Conduct water resource assessment modelling (incl; ground water reserves) to inform future planning for integrated and sustainable water management.</i>					
<i>Activity 1.2c: Prepare National Water Resources Vulnerability profiles, updated maps and associated Water Resource Plans for all regions of Suriname</i>					
<i>Activity 1.2d: Develop capacity programme in water resource and hydrological modelling and sector tailored hydrological forecasting techniques and information packaging for water resource managers and hydrologists</i>					
Output 1.3: Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability					
<i>Activity 1.3a: GCCA Call for Proposals (CfP) tender process on agricultural sector risk reduction measures.</i>					
<i>Activity 1.3b: Implementation of successful GCCA Proposals on agricultural sector risk reduction measures.</i>					
EXPECTED RESULT AREA 2: Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place					
Output 2.1: Develop a National Mangrove Strategy					
<i>Activity 2.1a: Preparation of a Draft National Mangrove Strategy Policy Document.</i>					
<i>Activity 2.1b: Regulatory framework and supporting operational guidelines developed including a Draft Code of Practice for mangrove conservation and sustainable land use development “Coastal Development and Environmental Policy Guidelines”.</i>					
<i>Activity 2.1c Integration of GEF Environmental Mainstreaming project and the GCCA ICZM Project activities (i.e. data management and research tasks) to help develop the National Mangrove Strategy and wider ICZM.</i>					
Output 2.2: Conduct an economic (monetary) valuation study of the mangrove ecosystems					
<i>Activity 2.2a: Valuation study initiated with value-added mangrove products identified and potential market opportunities explored.</i>					
<i>Activity 2.2b: Using outputs from the valuation study, propose financial strategies that are supported by Output 2.1.</i>					
Output 2.3: Update and implement existing management plans of 4 coastal MUMAs					
<i>Activity 2.3a: Revision to National and District Development Plans with new land planning guidelines, tailored towards improving mangrove conservation (Output 2.1 and Output 2.2);</i>					

PROJECT TITLE	Agree	Disagree	Alternative	Priority (H/M/L)	Primary Stakeholder
<i>Activity 2.3b Preparation of updated coastal MUMAs (4) each defining sets of maintenance targets (aka "Investment Plans") and to integrate future recurrent and capital expenditure needs.</i>					
<i>Activity 2.3c: A Mangrove Biodiversity Monitoring Program is developed and functioning.</i>					
Output 2.4: Establish and adequately equip management structures at the 4 coastal MUMAs					
<i>Activity 2.4a: Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies (Project Management and Monitoring developed and implemented).</i>					
<i>Activity 2.4b: Capacity building program designed and delivered for 4 coastal MUMAs.</i>					
Output 2.5: Support towards improving patrolling activities					
<i>Activity 2.5a: Water resources management processes (Output 1.3) developed and tested to support mangrove conservation needs.</i>					
<i>Activity 2.5b: Training programmes on new regulatory/operational procedures set out in outputs 2.1/2.3 and 2.4.</i>					
Output 2.6: Design and implement public awareness and community mobilisation campaigns.					
<i>Activity 2.6a: Dissemination, outreach and research on Mangrove Ecosystems Management delivered to community and sectoral stakeholders and the broad public;</i>					
<i>Activity 2.6b: Awareness programmes for media (TV/Radio/Journalists) on appropriate Mangrove Ecosystems Management delivered to professionals in the media field.</i>					

EXERCISE 4 - EXPECTED RESULTS AREAS, OUTPUTS AND ACTIVITIES

PRESENTATION FEEDBACK GROUP 1:

GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.

OVERALL OBJECTIVE (IMPACT)

ALCOA FOUNDATION (AF)

<i>To reduce Suriname's vulnerability to negative effects of climate change.</i>	SGP Guiana Shield Facility (GSF)
SPECIFIC OBJECTIVE (PROJECT PURPOSE)	
<i>To support Suriname in improving its current climate change adaptation capacity and mitigation.</i>	

Links with national policy and other donor programmes (please describe them)	
(EXPECTED RESULT AREA 1): Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced	
Output 1.1: Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions.	Greenhouse Inventory (second national communication) REDD+ scheme Ocean Monitoring Project (UNESCO) Caribbean Large Marine Ecosystem (CLME) Project (GEF donor)
Output 1.2: Undertake water resources modeling and planning for integrated and sustainable water management	Meerjaren Ontwikkelingsplan (MOP) 2010-2015 Ocean Monitoring Project (UNESCO) CI CLME Environment Act (legal framework) Good agricultural practices Draft agricultural legislation
Output 1.3: Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability	

Links with national policy and other donor programmes (please describe them)
EXPECTED RESULT AREA 2: Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place

Output 2.1: Develop a National Mangrove Strategy	National Environmental Action Plan National Environment Strategy WWF & CI (Fresh water project Legislation with regard to the forest (Boswetgeving)
Output 2.2: An economic (monetary) valuation study of the mangrove ecosystems	Nature Preservation Act (Natuurbeschermingswet) CLME
Output 2.3: Update and implement existing management plans of 4 coastal MUMAs	
Output 2.4: Establish and adequately equip management structures at the 4 coastal MUMAs	
Output 2.5: Support towards improving patrolling activities	
Output 2.6: Design and implement public awareness and community mobilisation campaigns.	

PRESENTATION FEEDBACK GROUP 2:

PROJECT TITLE	Links with national policy and other donor programmes (please describe them)
<i>GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.</i>	
OVERALL OBJECTIVE (IMPACT) <i>To reduce Suriname's vulnerability to negative effects of climate change.</i>	ALCOA FOUNDATION (AF) SGP Guiana Shield Facility (GSF)

SPECIFIC OBJECTIVE (PROJECT PURPOSE) <i>To support Suriname in improving its current climate change adaptation capacity and mitigation.</i>	AF SFG (for all following outputs) GSF
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Links with national policy and other donor programmes (please describe them)	
(EXPECTED RESULT AREA 1): Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced	AF SGP Supports and promotes development and vulnerability assessment to increase overall resilience and environmental sustainability
Output 1.1: Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions.	AF
Output 1.2: Undertake water resources modeling and planning for integrated and sustainable water management	
Output 1.3: Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability	

Links with national policy and other donor programmes (please describe them)	
EXPECTED RESULT AREA 2: Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place	AF
Output 2.1:	

Links with national policy and other donor programmes (please describe them)

Develop a National Mangrove Strategy

Output 2.2:

An economic (monetary) valuation study of the mangrove ecosystems

Output 2.3:

Update and implement existing management plans of 4 coastal MUMAs

Output 2.4:

Establish and adequately equip management structures at the 4 coastal MUMAs

Output 2.5:

Support towards improving patrolling activities

Output 2.6:

Design and implement public awareness and community mobilisation campaigns.

PRESENTATION FEEDBACK GROUP 3:

GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.

OVERALL OBJECTIVE (IMPACT)

To reduce Suriname's vulnerability to negative effects of climate change.

SPECIFIC OBJECTIVE (PROJECT PURPOSE)

To support Suriname in improving its current climate change adaptation capacity and mitigation.

<u>Links with national policy and other donor programmes (please describe them)</u>	
<p>(EXPECTED RESULT AREA 1): Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced</p>	<p>Take gender into consideration. Take all vulnerable groups (women, indigenous people, tribal community and disadvantaged people) into consideration. Adjustment of legislation (Environmental Act) UNDAF/UNDAP implementation and other existing projects SDG's</p>
<p>Output 1.1: Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions.</p>	<p>Existing programs of the Ministry of Natural Resources (SWM & Dienst Water Voorziening) Existing programs of the Ministry of Public Works Conservation International UNICEF (WASH & MICS) data collection for evidence based policy Research of effects of women in agricultural sector WWF UNDP</p>
<p>Output 1.2: Undertake water resources modeling and planning for integrated and sustainable water management</p>	
<p>Output 1.3: Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability</p>	

<u>Links with national policy and other donor programmes (please describe them)</u>	
<p>EXPECTED RESULT AREA 2: Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place</p>	<p>Adjustment of legislation or new legislation Check the implementation of legislation Inform the community and participation of the people ADEK/CELOS and SBB</p>
<p>Output 2.1:</p>	<p>RGB control and monitoring</p>

Links with national policy and other donor programmes (please describe them)

Develop a National Mangrove Strategy

Conservation International
UNDP

Output 2.2:

An economic (monetary) valuation study of the mangrove ecosystems

Output 2.3:

Update and implement existing management plans of 4 coastal MUMAs

Output 2.4:

Establish and adequately equip management structures at the 4 coastal MUMAs

Output 2.5:

Support towards improving patrolling activities

Output 2.6:

Design and implement public awareness and community mobilisation campaigns.

PRESENTATION FEEDBACK GROUP 4:

GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.

OVERALL OBJECTIVE (IMPACT)

To reduce Suriname's vulnerability to negative effects of climate change.

SPECIFIC OBJECTIVE (PROJECT PURPOSE)

To support Suriname in improving its current climate change adaptation capacity and mitigation.

Links with national policy and other donor programmes (please describe them)

(EXPECTED RESULT AREA 1):

Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced

Output 1.1:

Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions.

Draft Water Act (Ministry of Natural Resources)
 Draft Water Authority Law
 OW National Plan (urban drainage)
 Environment Act (draft)
 ACTO Project

Master Plan Research draining of Paramaribo

Output 1.2:

Undertake water resources modeling and planning for integrated and sustainable water management

Draft Water Act
 OWMCP Policy – WWF Donor Program
 Environment Act
 ACTO Project – Integrated Water Management
 National contingency plan in collaboration with MAS
 WASH Project

Output 1.3:

Pesticides Act
 Plant Protection Act
 Peace Corps Programma

Links with national policy and other donor programmes (please describe them)

Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability

Links with national policy and other donor programmes (please describe them)

EXPECTED RESULT AREA 2:

Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place

Draft Mangrove Act
SPCAM in execution – UNDP
ICZM Plan – IDP Program
Environmental Act (draft)
Waste Act (draft)

Output 2.1:

Develop a National Mangrove Strategy

Output 2.2:

An economic (monetary) valuation study of the mangrove ecosystems

Output 2.3:

Update and implement existing management plans of 4 coastal MUMAs

Output 2.5:

Support towards improving patrolling activities

Output 2.6:

Design and implement public awareness and community mobilisation campaigns.

PRESENTATION FEEDBACK GROUP 5:

GCCA support to enhance sustainable agriculture productivity and mangrove protection through the provision of improved climate information, institutional capacity and governance systems.

OVERALL OBJECTIVE (IMPACT)

To reduce Suriname's vulnerability to negative effects of climate change.

SPECIFIC OBJECTIVE (PROJECT PURPOSE)

To support Suriname in improving its current climate change adaptation capacity and mitigation.

Links with national policy and other donor programmes (please describe them)

(EXPECTED RESULT AREA 1):

Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced

Output 1.1:

Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Divisioning (WLA) and other related institutions.

WLA received field equipment from the GEF SLM project through the previous ministry of Labour, Technological Development and Environment
NOAA

Output 1.2:

Undertake water resources modeling and planning for integrated and sustainable water management

UNEP: 2 National Program of Action Against Land Based Sources of Pollution
ACTO Amazone Project
The Ministry of Natural Resources has 3 Water Acts in draft

Conservation International
World Wildlife Fund- NOAA
Outreach/Education – Force people to talk about these issues. Ensure education in schools, programs, and the Suriname organization for radio and television

Output 1.3:

Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability

Links with national policy and other donor programmes (please describe them)

<p>EXPECTED RESULT AREA 2: Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place</p>	<p>Conservation International World Wildlife Fund Anton de Kom Universiteit Suriname Conservation Fund</p>
<p>Output 2.1: Develop a National Mangrove Strategy</p>	<p>Anton de Kom University Ministry of Natural Resources</p>
<p>Output 2.2: An economic (monetary) valuation study of the mangrove ecosystems</p>	<p>Track increase of value that might be generated through tourism, honey production and REDD+ carbon credits (CI or WFF can monitor)</p>
<p>Output 2.3: Update and implement existing management plans of 4 coastal MUMAs</p>	<p>LBB, SBB and ministry of Natural resources.</p>
<p>Output 2.4: Establish and adequately equip management structures at the 4 coastal MUMAs</p>	<p>Ministry of Natural Resources Audobon society Other bird societies</p>
<p>Output 2.5: Support towards improving patrolling activities</p>	<p>Audobon society, nature conservation Tourism outlets</p>
<p>Output 2.6:</p>	<p>NGO's – WWF, CI</p>

Links with national policy and other donor programmes (please describe them)

Suriname Conservation Foundation

Design and implement public awareness and community mobilisation campaigns.

PRESENTATION FEEDBACK GROUP 6:

In addition to everything else the other groups has already mentioned, there is a Japan – Caribbean Climate Change Partnership. However, the group has no information with regard to the progress made with planning.

Appendix 2: Risk Log

NB: This Risk Log represents a framework structure only at this stage and shall be completed upon acceptance of the Risks and Assumptions set out in Section 2.6 of this Project Document at the Project Inception Workshop planned within the first 2 months of the project in 2016.

Project Title: Suriname Global Climate Change Alliance (GCCA+) <i>Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection</i>						Award ID:		Date: September 2015	
#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1		Sept 2015					UNDP	Sept 2015	
2		Sept 2015					UNDP	Sept 2015	
3		Sept 2015					UNDP	Sept 2015	
4		Sept 2015					UNDP	Sept 2015	

Appendix 3: Provisional Programme and Annual Targets

Component	Outcome	Outputs	Activities	Relevant Parties (excluding NIMOS – responsible party)	Yr 1 Q1	Yr 1 Q2	Yr 1 Q3	Yr 1 Q4	Yr 2 Q1	Yr 2 Q2	Yr 2 Q3	Yr 2 Q4	Yr 3 Q1	Yr 3 Q2	Yr 3 Q3	Yr 3 Q4		
COMPONENT 1 COLLECTING CLIMATE DATA AND DEVELOPING CAPACITY FOR SUSTAINABLE WATER RESOURCE MANAGEMENT	Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced	Output 1.1: Capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions strengthened	Activity 1.1a: Finalize systems design, equipment requirements and technical specifications for the expansion of the existing MDS hydro-met network..	Hydraulic Research Division (WLA); Meteorological Service of Suriname (MDS);	X													
			Activity 1.1b: Tender, procure and install equipment and components for upgrading of the real-time automated weather stations, hydrological stations, and early warning stations.	Hydraulic Research Division (WLA); Meteorological Service of Suriname (MDS); National Security Office of the President's Office.	X	X												
			Activity 1.1c: Create framework for Climate Change operation and maintenance support and capacity development of key staff using new operation and maintenance guidelines and manuals.;	Hydraulic Research Division (WLA); Meteorological Service of Suriname (MDS); National Security Office of the President's Office. Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS).			X	X	X									
		Output 1.2: Water resources modelling and planning for integrated and sustainable water management undertaken	Activity 1.2a: Long term historical observation data collated, digitized and used in water resource planning and policy formulations.	National Security Office of the President's Office Water Forum of Suriname (WFS) Ministry of Spatial Planning, Land and Forest Management (RGB); Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS) Hydraulic Research Division (WLA) Meteorological Service of Suriname (MDS) Inter-American Institute for Cooperation on Agriculture (IICA)		X	X											
			Activity 1.2b: Conduct new water resource assessment (incl: ground water reserves) to inform future planning for integrated and sustainable water management.	National Security Office of the President's Office Water Forum of Suriname (WFS) Ministry of Spatial Planning, Land and Forest Management (RGB), Foundation for Forest Management and Production Control Agency (SBB); Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS) Hydraulic Research Division (WLA) Meteorological Service of Suriname (MDS) Centre for Agricultural Research in Suriname (CELOS) Inter-American Institute for Cooperation on Agriculture (IICA)			X	X	X									
			Activity 1.2c: Prepare National Water Resources Vulnerability profiles and associated Water Resource Plans for all regions of Suriname.	Water Forum of Suriname (WFS) Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS) Hydraulic Research Division (WLA) Centre for Agricultural Research in Suriname (CELOS) Inter-American Institute for Cooperation on Agriculture (IICA)						X	X							
			Activity 1.2d: Develop capacity programme in water resource and hydrological modelling and sector tailored hydrological forecasting	National Security Office of the President's Office Water Forum of Suriname (WFS) Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);							X	X	X					

			techniques and information packaging for water resource managers and hydrologists.	National Institute for Environment and Development of Suriname (NIMOS) Anton de Kom University of Suriname (AdeKUS) Hydraulic Research Division (WLA) Meteorological Service of Suriname (MDS) Centre for Agricultural Research in Suriname (CELOS)																
		Output 1.3: New technologies to reduce the vulnerability of the agricultural sector to climate variability researched and results published	Activity 1.3a: GCCA+ Call for Proposals tender process on agricultural sector risk reduction and management measures.	National Security Office of the President's Office SRF Inter-American Institute for Cooperation on Agriculture (IICA)	X	X														
			Activity 1.3b: Implementation of successful GCCA+ Proposals on agricultural sector risk reduction and management measures.	National Security Office of the President's Office National Mangrove Forum Water Forum of Suriname (WFS) Ministry of Spatial Planning, Land and Forest Management (RGB), Foundation for Forest Management and Production Control Agency (SBB); Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS) Centre for Agricultural Research in Suriname (CELOS) Inter-American Institute for Cooperation on Agriculture (IICA)			X	X	X	X	X	X	X	X	X	X	X	X		
COMPONENT 2: DEVELOPING CAPACITY AND THE FRAMEWORK FOR MANGROVE CONSERVATION AND MANAGEMENT	Essential tools and structures for sustainable management, focused on conservation of mangrove ecosystems, are in place	Output 2.1: National Mangrove Strategy endorsed	Activity 2.1a: Preparation of a Draft National Mangrove Strategy Policy Document.	National Security Office of the President's Office Conservation International (CI), Suriname Conservation Foundation (SCF), Green Heritage Fund Suriname (GHFS) National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Foundation for Forest Management and Production Control Agency (SBB); Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS)			X	X	X											
			Activity 2.1b: Regulatory framework and supporting operational guidelines developed including a Draft Code of Practice for mangrove conservation and sustainable land use development "Coastal Development and Environmental Policy Guidelines".	National Security Office of the President's Office National Mangrove Forum Water Forum of Suriname (WFS) Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Anton de Kom University of Suriname (AdeKUS)			X	X	X	X										
			Activity 2.1c: Integration of GEF Environmental Mainstreaming project and the GCCA+ ICZM Project activities (i.e. data management and research tasks) to help develop national Mangrove Strategy and wider ICZM.	Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Output 2.2: Economic (monetary) valuation study of the mangrove ecosystems conducted	Activity 2.2a: Valuation study initiated with value-added mangrove products identified and potential market opportunities explored.	National Security Office of the President's Office Conservation International (CI), National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS) Centre for Agricultural Research in Suriname (CELOS)			X	X	X											
			Activity 2.2b: Using outputs from the valuation study, propose financial strategies	National Institute for Environment and Development of Suriname (NIMOS) National Security Office of the President's Office Conservation International (CI),								X	X	X						

			that are supported by Output 2.1.	National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Anton de Kom University of Suriname (AdeKUS) Centre for Agricultural Research in Suriname (CELOS)																	
		Output 2.3: Existing management plans of 4 coastal MUMAs updated and implemented	Activity 2.3a: Revision to National and Regional Development Plans with new land planning guidelines, tailored towards improving mangrove conservation (Output 2.1 and output 2.2);	National Security Office of the President's Office National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);														X	X		
			Activity 2.3b Preparation of updated coastal MUMAs (4) each defining sets of maintenance targets (aka "Investment Plans") and to integrate future recurrent and capital expenditure needs.	National Security Office of the President's Office National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);		X	X		X	X			X	X				X	X		
			Activity 2.3c: A Mangrove Biodiversity Monitoring Program is developed and functioning.	National Security Office of the President's Office Conservation International (CI), National Mangrove Forum Anton de Kom University of Suriname (AdeKUS)				X	X						X	X			X		
		Output 2.4: Management structures at the 4 coastal MUMAs established and adequately equipped	Activity 2.4a: Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies (Project Management and Monitoring developed and implemented).	National Security Office of the President's Office Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);														X	X	X	X
			Activity 2.4b: Capacity building program designed and delivered for 4 coastal MUMAs.	National Security Office of the President's Office Conservation International (CI), Suriname Conservation Foundation (SCF), Green Heritage Fund Suriname (GHFS) National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Foundation for Forest Management and Production Control Agency (SBB); Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);				X			X								X		X
		Output 2.5: Patrolling and enforcement activities improved	Activity 2.5a: Water resources management processes (Output 1.3) developed and tested to support mangrove conservation needs.	National Security Office of the President's Office National Mangrove Forum Water Forum of Suriname (WFS) Ministry of Agriculture, Animal Husbandry and Fisheries (LVV); Centre for Agricultural Research in Suriname (CELOS)						X	X			X	X						
			Activity 2.5b: Training programmes on new regulatory/operational procedures set out in outputs 2.1/2.3 and 2.4.	National Security Office of the President's Office National Mangrove Forum Ministry of Spatial Planning, Land and Forest Management (RGB), Ministry of Natural Resources; Ministry of Agriculture, Animal Husbandry and Fisheries (LVV);				X					X							X	
		Output 2.6: Public and community awareness campaigns designed and implemented	Activity 2.6a: Dissemination, outreach and research on Mangrove Ecosystems Management delivered to community and sectoral stakeholders and the broad public;	National Security Office of the President's Office Conservation International (CI), Suriname Conservation Foundation (SCF), Green Heritage Fund Suriname (GHFS) National Mangrove Forum. Inter-American Institute for Cooperation on Agriculture (IICA)			X			X				X						X	
			Activity 2.6b: Awareness programmes for media (TV/Radio/Journalists) on appropriate Mangrove	National Security Office of the President's Office Conservation International (CI), Suriname Conservation Foundation (SCF), Green Heritage Fund Suriname (GHFS)		X	X													X	X

			Ecosystems Management delivered to professionals in the media field.	National Mangrove Forum. Inter-American Institute for Cooperation on Agriculture (IICA)													
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Appendix 4: Breakdown of Costs per Output (Excluding Project Management Costs).

Component	Outcome	Outputs	Activities	Yr 1 Budget	Yr 2 Budget	Yr 3 Budget	GCCA TOTAL (EURO)	UNDP (COFINANCE) TOTAL (EURO)
COMPONENT 1: COLLECTING CLIMATE DATA AND DEVELOPING CAPACITY FOR SUSTAINABLE WATER RESOURCE MANAGEMENT	Knowledge and understanding of climate change effects and of opportunities or ways to cope with negative effects are enhanced	Output 1.1: Strengthen capacity at the Meteorological Service of Suriname (MDS), Hydraulic Research Division (WLA) and other related institutions	Activity 1.1a: Finalize systems design, equipment requirements and technical specifications for the expansion of the existing MDS met network and the WLA hydro-met network.	31000			31000	5,000
			Activity 1.1b: Tender, procure and install equipment and components for upgrading of the real-time automated weather stations, hydrological stations, and early warning stations.	92000	150000	30000	272000	6,000
			Activity 1.1c: Create framework for MDS operation and maintenance support and capacity development of key staff using new operation and maintenance guidelines and manuals;	11000	26000	11000	48000	10,000
		Output 1.2: Undertake water resources modelling and planning for integrated and sustainable water management	Activity 1.2a: Long term historical observation data collated, digitised and used in water resource planning and policy formulations.	30200	25000	7500	62700	
			Activity 1.2b: Conduct new water resource assessment modelling (incl; ground water reserves) to inform future planning for integrated and sustainable water management.	70000	60000	15000	145,000	10,000
			Activity 1.2c: Prepare National Water Resources Vulnerability profiles and associated Water Resource Plans for all regions of Suriname	12000	45000	25000	82,000	
			Activity 1.2d: Develop capacity programme in water resource and hydrological modelling and sector tailored hydrological forecasting techniques and information packaging for water resource managers and hydrologists	10100	1000	1000	12,100	
		Output 1.3: Identify opportunities and develop new technologies to reduce the vulnerability of the agricultural sector to climate variability	Activity 1.3a: GCCA+ Call for Proposals (CfP) tender process on agricultural sector risk reduction and management measures.	30,000	10,000	10,000	50,000	7,000
			Activity 1.3b: Implementation of successful GCCA+ Proposals on agricultural sector risk reduction and management measures.	140000	140000	140000	420,000	128,000
		COMPONENT 2: DEVELOPING CAPACITY AND THE FRAMEWORK	Essential tools and structures for sustainable management, focused on	Output 2.1: Develop a National Mangrove Strategy	Activity 2.1a: Preparation of a Draft National Mangrove Strategy Policy Document.	20000	20000	10000
Activity 2.1b: Regulatory framework and supporting operational guidelines developed including a Draft Code of Practice for mangrove conservation and sustainable land use	9000				15000	2000	26,000	

FOR MANGROVE CONSERVATION AND MANAGEMENT	conservation of mangrove ecosystems, are in place		development “Coastal Development and Environmental Policy Guidelines”.							
			Activity 2.1c Integration of GEF Environmental Mainstreaming project and the GCCA+ ICZM Project activities (i.e. data management and research tasks) to help develop the National Mangrove Strategy and wider ICZM.	3000	3000	3000		9000		
		Output 2.2: Conduct an economic (monetary) valuation study of the mangrove ecosystems	Activity 2.2a: Valuation study initiated with value-added mangrove products identified and potential market opportunities explored.	60000	25000			85000	27,000	
			Activity 2.2b: Using outputs from the valuation study, propose financial strategies that are supported by Output 2.1.	15000	58000	23000		96000		
		Output 2.3: Update and implement existing management plans of 4 coastal MUMAs	Activity 2.3a: Revision to National and District Development Plans with new land planning guidelines, tailored towards improving mangrove conservation (Output 2.1 and Output 2.2);	10000	20000	25000		55,000	19,500	
			Activity 2.3b Preparation of updated coastal MUMAs (4) each defining sets of maintenance targets (aka “Investment Plans”) and to integrate future recurrent and capital expenditure needs.	12000	12000	12000		36,000		
			Activity 2.3c: A Mangrove Biodiversity Monitoring Program is developed and functioning.	7000	15000	14000		36,000		
		Output 2.4: Establish and adequately equip management structures at the 4 coastal MUMAs	Activity 2.4a: Institutional procedures and capacities aligned to new regulatory framework for mangrove management and coordinated with sectoral policies (Project Management and Monitoring developed and implemented).	35000	35000	35000		105,000	33,000	
			Activity 2.4b: Capacity building program designed and delivered for 4 coastal MUMAs.	35000	35000	35000		105,000		
		Output 2.5: Support towards improving patrolling and enforcement activities.	Activity 2.5a: Water resources management processes (Output 1.3) developed and tested to support mangrove conservation needs.	50000	68000	60000		178,000	60,000	
			Activity 2.5b: Training programmes on new regulatory/operational procedures set out in outputs 2.1/2.3 and 2.4.	65000	70000	70000		205,000		
		Output 2.6: Design and implement public and community awareness campaigns	Activity 2.6a: Dissemination, outreach and research on Mangrove Ecosystems Management delivered to community and sectoral stakeholders and the broad public;	25000	25000	30000		80,000	19000	
			Activity 2.6b: Awareness programmes for media (TV/Radio/Journalists) on appropriate Mangrove Ecosystems Management delivered to professionals in the media field.	20000	25000	25000		70,000		
		TOTALS				792300	883000	583500	2258800	337,000

Appendix 5: Terms of Reference

5.1 GCCA+ Grant Support Facility Secretariat

Overall mandate:

The Secretariat is established to support and ensure effective implementation of decisions that are made for the GCCA+ grant facility by the Project Steering Board (PSB). The Secretariat will provide administrative support to the project Steering Board for grant proposal appraisals as well as oversee day-to-day operation of the grant facility. The Project Steering Board will designate the Secretariat to:

- Develop projects and programs and coordinate, monitor and evaluate the implementation of all climate change activities related projects and programs in Suriname; and
- Mobilize required resources, particularly to attract grants for implementation of policy, strategy, legal instruments, plans and programs on climate change.

Composition:

In order to ensure full national ownership, the Secretariat will be coordinated by a Government appointee while UNDP will provide technical support. The Secretariat is placed under the responsibility of the National Project Manager, who reports to the PSB.

Responsibilities:

The Secretariat shall have the following responsibilities:

- Provide administrative support to the Board for grant proposal appraisals, including preparation of agenda and minutes and follow-up on the decisions.
- Develop and update relevant guidelines for grant facility management and grant implementation.
- Develop project review guidelines.
- Develop and launch calls for proposals based priorities and funding allocations approved by the Board.
- Oversee the entire grant process from solicitation, selection, fund disbursement, monitoring and evaluation and closure.
- Provide technical support and guidance to grantees to ensure their compliance with their respective agreements.
- Monitor the performance of the grantees using established M & E framework.

- Monitor and update resource requirements and status of allocations/expenditures.
- Facilitate project or programme evaluations and audits, including following up on the implementation of the recommendations.
- Develop and updating of GCCA website to post information related to GCCA-funded activities and funding.
- Document lesson learned and best practices.

5.2 ERA2 Chief Technical Advisor (Mangrove and Coastal Planner)

Suriname European Union Global Climate Change Alliance (GCCA+)

Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection.

Terms of Reference

Chief Technical Advisor (Mangrove and Coastal Planner)

Background

The Suriname Global Climate Change Alliance project falls under the Global Climate Change Alliance+ (GCCA+) programme of the European Union (EU) Global Public Goods and Challenges programme.

The overall goal of this 3.4 mln EUR project is primarily to support Suriname in improving its current climate change adaptation capacity in two Expected Results Areas (ERA):

expanding the existing knowledge base on effects of climate change and on developing tools and instruments that will allow developing targeted adaptation measures to the benefit of the entire population and

strengthening capacities for mangrove conservation.

Outcome (ERA) 1 will focus on climate data collection, on the performance of the national meteorological service, on hydrological/hydraulic modelling as a basis for sustainable water resources management at country level, and on adaptive research in the agricultural sector aiming to reduce the sector's vulnerability to the negative effects of climate change. This is linked to the focal sector of the 11th EDF NIP, sustainable agriculture.

Outcome (ERA) 2 will address the problem of ongoing destruction of the mangrove ecosystems which provide a natural defense of the coastal area against sea level rise and erosion. The activities under this component are complementary to ongoing initiatives in this field and respond to priorities indicated by the national stakeholders concerned with mangrove conservation and coastal area management. In this sense, the project will facilitate the development of a mangrove strategy and the conduct of an economic (monetary) mangrove valuation study and improve the conservational management of the still abundant but threatened mangrove areas.

In both Expected Results Areas, the focus will be on the development of capacity to adapt to climate change and contribute to mitigation of climate change in Suriname. Knowledge and information generated by the project will be essential inputs for subsequent climate change mainstreaming into national policies and strategies in concerned sectors. The project will also directly contribute to global EU and international climate change commitments (REDD+, UNFCCC, SIDS etc.).

The project will be implemented over a period of 36 months and will be coordinated through a project management team located within the United Nations Development Programme (UNDP) Suriname (following full support to National Implementation Modality - NIM). This implementation support encompasses all activities of the programme in close synergy with the current and planned UNDP support projects as well as other projects in the area of Environment and Climate Change in Suriname. One such UNDP regional project implemented in Suriname is the Japan Caribbean Climate Partnership Project. The project is now seeking a qualified Project Manager for the daily operational management of the project.

General Functions

The Chief Technical Advisor (CTA) will provide overall technical guidance and support to the National Result Coordinator (NRC), Project Management Unit (PMU), Project Steering Board and other government counterparts in the course of the implementation of the GCCA+ project for Expected Result Area 2. The CTA will support on all activities associated with ERA2 with regard to mangrove conservation and coastal planning needs in Suriname. The CTA in consultation with the NRC will coordinate the provision of the

required technical inputs, reviewing and preparing Terms of Reference and reviewing the outputs of consultants and other sub-contractors for the GCCA+ project activities.

Duties and Responsibilities

Project Implementation:

Assist the Project Manager, NRC and project partners with drawing up of Terms of Reference (ToRs) for technical consultancies (including policy revisions as and when necessary);

In collaboration with the Project Manager, the CTA will coordinate the work of all consultants and sub-contractors, ensuring the timely delivery of expected outputs, and effective synergy among the various sub-contracted activities in order to achieve targetted project outputs.

Contribute to the procurement of suitable experts, including approach and support in the selection process and recommend best candidates or supplier;

Provide technical peer review function to deliverables from consultants and experts; provide training and backstopping where necessary;

Provide quality assurance and technical review of project outputs;

Support the Project Manager during project implementation in the provision of technical supervisory function to the work carried out by national and international consultants hired by the project.

Guide the coordination of the National Mangrove Policy and develop indicators for climate change resilience related elements to be developed as part of the process.

Remain in close communication with the NRC on all technical aspects of the ERA2 component and assist in the organization and implementation of activities (workshops, training courses, etc.) in order to facilitate coordination.

Contribute to the development of a full work plan for ERA2 and contribute to the more detailed scoping out of all project activities with the PMU.

Project Management and Monitoring:

Undertake technical review of project outputs (e.g. studies and assessments);

Provide quality checks of the work of consultants;

Assist in monitoring the technical quality of project M&E systems (including Annual Work Plans (AWPs), project indicators and targets);

Assist the Project Manager in the preparation of the Project Implementation Reporting/Mid-term Review processes and reporting, technical reports, quarterly financial reports for submission to UNDP, the GEF and Government Departments, as required;

Provide advice on best suitable approaches and methodologies for achieving project targets and objectives, suggest mitigation measures where appropriate.

In addition, guide the development of a monitoring and evaluation framework for this component.

Prepare quarterly progress summaries and yearly progress reports that will describe in detail activities undertaken, problems and achievements and impact, lessons learned, conclusions and recommendations.

Perform other related duties, as assigned.

Communication:

CTA will assist in knowledge management, improved communications and awareness raising and advice on the documentation of lessons derived from project implementation and make recommendations as necessary for more effective implementation and coordination of project activities;

Facilitate the development of strategic regional and international partnerships for the exchange of skills and information related to climate change adaptation;

Facilitate the development of communication for results project documents including factsheets and programme reports.

Ensure close coordination and integration of fisheries and agriculture activities, particularly as regards support to mangrove conservation and coastal area management.

Ensure coordination for technical inputs to activities in the MUMA's by initiating and/or participating in coordination meetings with Government officials and other stakeholders in the Mangrove sector to provide guidance to parties on both policy and technical matters in the sector.

Review available information and regularly brief the NRC on ongoing and planned activities and assessments related to Mangrove sector.

Partnership building:

Provide guidance to the project manager in liaison work with project partners, donor organizations, NGOs and other groups to ensure effective coordination of project activities.

Competencies

Demonstrated strong project planning and project management experience, including financial management and monitoring and evaluation

Demonstrated ability for report writing, technical papers and ability to communicate to a wide range of audiences and cultures.

Demonstrated excellent interpersonal and networking skills and establish effective working relationships both within and outside the organization.

Computer skills, incl. internet navigation and various office applications

Ability to work effectively under pressure and meet deadlines.

Education

Minimum of Advanced University degree in Natural Resource Management, Forestry or other related field.

General Work Experience

At least 10 years of experience in integrated coastal area management, specific experience with the management of mangrove ecosystems is an advantage.

Demonstrated experience on the issues regarding Climate Change Adaptation.

Specific Work Experience

Proven experience in the management of EU funded development.

Proven experience in setting up and delivering innovative research and community grants scheme is a strong asset.

Proven experience in resource mobilization and preparation of funding proposals is a strong asset.

Previous work experience in Suriname is an asset.

Language

Full proficiency in English

Full proficiency in Dutch is a strong asset

Duration

250 workdays in Suriname over twelve (12) months, starting tentatively from **March 2016**.

Supervision

The Chief Technical advisor will lead on the ERA2 progress reports in close consultation with the project manager and ERA2 results coordinator. He/She reports directly to the NPD and UNDP Programme Manager. On a day-to-day basis, the Project Manager will work in close coordination with the UNDP Country Office staff.

Price Proposal and Schedule of Payments:

Daily Fee – The contractor shall propose a daily fee, which should be inclusive of his professional fee, local communication cost and insurance (inclusive of medical health insurance and evacuation). The number of working days for which the daily fee shall be payable under the contract is 250 working days.

The contractor shall include a Living allowance at the Paramaribo applicable rates.

Travel & Visa – The contractor shall propose an estimated lump-sum for home-Paramaribo-home travel (economy most direct route) and Suriname visa expenses.

The total professional fee, shall be converted into a lump-sum contract and payments under the contract shall be made on submission and acceptance of deliverables under the contract in accordance with the schedule of payment linked with deliverables.

Evaluation Method and Criteria:

Individual consultants will be evaluated based on the following methodology

Cumulative analysis;

The award of the contract shall be made to the individual consultant whose offer has been evaluated and determined as:

Responsive/compliant/acceptable;

Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

Technical Criteria: weight 70%

Financial Criteria weight 30%

Only candidates obtaining a minimum of 64 points of the total technical points would be considered for the Financial Evaluation.

Technical Criteria – Maximum 100 points:

Criteria A: Relevance of education - Max 20 points;

Criteria B: General work experience in similar project management - Max 30 points;

Criteria C: Specific work experience with similar Climate Adaptation project – Max 50 points.

Interested individual consultants must submit the following documents/information to demonstrate their qualifications:

Duly accomplished Letter of Confirmation of Interest and Availability using the template provided by UNDP (Annex II);

Personal CV or P11, indicating all past experience from similar projects, as well as the contact details (email and telephone number) of the Candidate and at least three (3) professional references.

Technical proposal:

Brief description of why the individual considers him/herself as the most suitable for the assignment;

A methodology, on how they will approach and complete the assignment;

Financial proposal that indicates the all-inclusive fixed total contract price, supported by a breakdown of costs, as per template provided (Annex II).

UNDP is committed to achieving workforce diversity in terms of gender, nationality and culture. Individuals from minority groups, indigenous groups and persons with disabilities are equally encouraged to apply. All applications will be treated with the strictest confidence.

5.3 National Project Manager (NPM)

TERMS OF REFERENCE

Position: Project Manager

Project Title: Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection.

Duration: 1 year renewable

Location: Paramaribo, Suriname

Supervisor: UNDP Programme Manager/National Project Director

Source of Funding: EU Suriname Global Climate Change Alliance (GCCA+) program;

Status: Service Contract

Background

The Suriname Global Climate Change Alliance project falls under the Global Climate Change Alliance+ (GCCA+) programme of the European Union (EU) Global Public Goods and Challenges programme.

The overall goal of this 3.4 mln EUR project is primarily to support Suriname in improving its current climate change adaptation capacity in two Expected Results Areas (ERA):

expanding the existing knowledge base on effects of climate change and on developing tools and instruments that will allow developing targeted adaptation measures to the benefit of the entire population and

strengthening capacities for mangrove conservation.

Outcome (ERA) 1 will focus on climate data collection, on the performance of the national meteorological service, on hydrological/hydraulic modelling as a basis for sustainable water resources management at country level, and on adaptive research in the agricultural sector aiming to reduce the sector's vulnerability to the negative effects of climate change. This is linked to the focal sector of the 11th EDF NIP, sustainable agriculture.

Outcome (ERA) 2 will address the problem of ongoing destruction of the mangrove ecosystems which provide a natural defense of the coastal area against sea level rise and erosion. The activities under this component are complementary to ongoing initiatives in this field and respond to priorities indicated by the national stakeholders concerned with mangrove conservation and coastal area management. In this sense, the project will facilitate the development of a mangrove strategy and the conduct of an economic (monetary) mangrove valuation study and improve the conservational management of the still abundant but threatened mangrove areas.

In both Expected Results Areas, the focus will be on the development of capacity to adapt to climate change and contribute to mitigation of climate change in Suriname. Knowledge and information generated by the project will be essential inputs for subsequent climate change mainstreaming into national policies and strategies in concerned sectors. The project will also directly contribute to global EU and international climate change commitments (REDD+, UNCCC, SIDS etc.).

The project will be implemented over a period of 36 months and will be coordinated through a project management team located within the United Nations Development Programme (UNDP) Suriname (following full support to National Implementation Modality - NIM). This implementation support encompasses all activities of the programme in close synergy with the current and planned UNDP support projects as well as other projects in the area of Environment and Climate Change in Suriname. One such UNDP regional project implemented in Suriname is the Japan Caribbean Climate Partnership Project. The project is now seeking a qualified Project Manager for the daily operational management of the project.

2. OVERALL SCOPE OF THE WORK

The Project Manager (PM) has the responsibility to ensure the effective and efficient day to day implementation of the project under the overall guidance and supervision of the National Project Director (NPD) and the UNDP Programme Manager with assistance from the National Coordinators for both Expected Results Areas, 2 technical officers and the Chief Technical Advisor for ERA2. The PM will ensure the functioning of the project from beginning to the end including project inception activities, annual and quarterly planning and reporting, and implementation of project activities, project reviews and project closure.

KEY FUNCTIONS AND RESPONSIBILITIES

The Project Manager (PM) will provide high quality technical support under guidance of the UNDP Country Office. S/he will work with government, inter-governmental organizations, NGOs, donors, and the private to coordinate project implementation in line with current and future country office programming, the objective and outcomes of the European Union funded and UNDP supported Suriname Global Climate Change Alliance Project. The Project Manager will liaise with other project management teams such as for example the local focal point of the Japan Caribbean Climate Change Partnership project and the Suriname REDD+ project to explore and maximize synergies in project implementation.

Partnership building

Develops and maintains relationships with main counterparts within country (e.g. with government departments, NGOs, farmers' organizations', community leaders) to ensure buy-in and successful implementation.

Maintain linkages with the other regional and national projects, dealing with climate change related issues and identify opportunities for partnership and collaboration with other agencies, organizations and donors for enhancing the quality of the project.

Project implementation and development

Conduct operational management of the project in consistency with the Project document, AWP and UNDP policies and procedures for UNDP full support to national Implementation modality project with guidance from the UNDP country office.

In close consultation with the UNDP country office, NPD and National Coordinators, Technical Officers and Chief Technical Advisor, ensure all implementation arrangements are carried out smoothly and that project outputs as identified in the Project document are achieved as advised and instructed by the Project Steering Board.

Prepare and update project annual and quarterly work plans, progress reports and any other deliverable for each Expected Result Area, and ensure timely submission of these to the NPD and UNDP country office for agreement and approval.

Coordinate and organize that all necessary documentation for the Project Steering Board meetings, review meetings and evaluation missions are prepared, in coordination with UNDP country office.

Supervises PMU staff and coordinates the work of the National Result Coordinators, Chief Technical Advisor and local or international consultants working for the project.

Identify the needs and prepare TORs for specific technical outputs (i.e. personnel, sub-contracts, training, and procurement) in collaboration with the Chief Technical Advisor and technical officers, National Results Coordinators, NPD and UNDP.

Oversee the management of consultants and delivery of quality outputs within the specified time.

Oversee the financial management of the project in consultation with the Project Director and the UNDP country office.

Ensure timely preparation and submission of financial reports.

Coordinate in collaboration with the National Result Coordinators technical advice to project beneficiaries, review technical reports and monitor technical activities carried out by responsible parties.

Project monitoring

Monitors and analyses project development and implementation, including coordinating and participating in monitoring missions, conducting field visits.

Identifies problems and issues to be addressed and proposes corrective actions; liaises with relevant parties; identifies and tracks follow-up actions, captured in periodic monitoring reports.

Participates in or leads field missions, including provision of guidance to external consultants, government officials and other parties and drafting mission summaries, etc.

Other activities

Coordinates activities related to budget and financing (project preparation and submission, progress reporting, financial statements, etc.) and prepares related documents/reports (pledging, work programme, programme budget, etc.).

Supports capacity building activities in-country: undertakes outreach and advocacy activities; conducts training workshops, seminars, etc.; makes presentations on assigned topics/activities.

Provides substantive support to consultative and other meetings and conferences to include proposing agenda topics, identifying participants, preparation of documents and presentations, etc.

Supports the work of the Chief Technical Advisor and other specialist, including research and data collection, coordinating stakeholder consultations, conducting surveys, identifying strategic partners and synergies.

Participates in the development, formulation, implementation and evaluation of national activities related to Climate Change, particularly Adaptation; reviews relevant documents and reports.

Researches, analyses and presents information gathered from diverse sources related to climate change adaptation; prepares various knowledge products, e.g. draft background papers, analysis, sections of reports and studies, inputs to publications, etc.

Performs other duties related to the work of the project as required.

4. EDUCATION/PROFESSIONAL EXPERIENCE

Education

Master's degree in environmental sciences, social sciences, natural resource management or related fields.

Work Experience, Skills and Knowledge

- At least 10 years of relevant project management experience, with at least five years' experience in facilitating/managing natural resource management related projects.
- Proven experience working with Government, civil society, international organizations and donors.

Familiarity with donor funded development projects is an asset.

- Excellent command of written and spoken English; demonstrated ability for report writing and ability to communicate to a wide range of audiences and cultures.
- Demonstrated excellent interpersonal and networking skills and establish effective working relationships both within and outside the organization.
- Computer skills, incl. internet navigation and various office applications. A working knowledge of Microsoft Project Planner would be an advantage.
- Ability to work effectively under pressure and meet deadlines.
- Time management skills.

COMPETENCIES

Professionalism:

Knowledge and understanding of theories, concepts and approaches relevant to climate change, risk management and sustainable development.

Ability to identify issues, analyze and participate in the resolution of issues/problems.

Ability to exercise good judgment, think laterally and resolve complex issues in a dynamic and changing environment.

Conceptual analytical and evaluative skills to conduct independent research and analysis, including familiarity with and experience in the use of various validated research and data sources, including electronic sources on the internet, intranet and other databases are required.

Ability to apply judgment in the context of assignments given, plan own work and manage conflicting priorities.

Shows pride in work and in achievements; demonstrates professional competence and mastery of subject matter; is conscientious and efficient in meeting commitments, observing deadlines and achieving results; is motivated by professional rather than personal concerns; shows persistence when faced with difficult problems or challenges; remains calm in stressful situations.

Takes responsibility for incorporating gender perspectives and ensuring the equal participation of women and men in all areas of work.

Teamwork:

Works collaboratively with colleagues to achieve organizational goals; solicits input by genuinely valuing others' ideas and expertise; is willing to learn from others.

Places team agenda before personal agenda; supports and acts in accordance with final group decision, even when such decisions may not entirely reflect own position; shares credit for team accomplishments and accepts joint responsibility for team shortcomings.

Planning and organizing:

Develops clear goals that are consistent with agreed strategies; identifies priority activities and assignments; adjusts priorities as required.

Allocates appropriate amount of time and resources for completing work.

Foresees risks and allows for contingencies when planning; monitors and adjusts plans and actions as necessary; uses time efficiently.

ESTIMATED DURATION

1 year renewable beginning in March 2016

REPORTING

The Project Manager will lead on the project's progress reports and received input and guidance from the NPD and the UNDP Programme Manager. He/She reports directly to the NPD and UNDP Programme Manager. On a day-to-day basis, the Project Manager will work in close coordination with the UNDP Country Office staff.

Appendix 6. Social and Environmental Screening

The completed template, which constitutes the Social and Environmental Screening Report, must be included as an annex to the Project Document. Please refer to the [Social and Environmental Screening Procedure](#) and [Toolkit](#) for guidance on how to answer the 6 questions.

Project Information

Project Information	
1. Project Title	Suriname Global Climate Change Alliance (GCCA+) <i>Contributing towards the provision of new climate information and institutional governance to help support sustainable agriculture productivity and mangrove protection.</i>
2. Project Number	00083024
3. Location (Global/Region/Country)	Suriname

Part A. Integrating Overarching Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Overarching Principles in order to Strengthen Social and Environmental Sustainability?

Briefly describe in the space below how the Project mainstreams the human-rights based approach

This Activity relates to the monitoring of mangrove biodiversity and associated engagement of community based organizations (CBO) to help facilitate the process.

The project will advise on capacity strengthening programs for the different institutions involved in mangrove management so as to better align procedures, staff profiles and capacities to the new regulatory framework. Capacity building procedures will include building support for community, government and sectoral stakeholders and Districts/Resorts for effective consultation and participation

This project will therefore focus (where appropriate) on making use of local capacity, develop local training programs specifically tailored for local direct stakeholders (fishermen, tour operators, local game wardens) and involving local organizations (strengthen/ capacity building of these organizations). It shall provide capacity building and awareness training on the value of mangroves to sectors that impact their conservation and sustainable use. Public awareness and ecosystem services education campaigns will be created for vulnerable groups as appropriate including awareness in schools.

Communities/indigenous peoples (Maroons and a relatively small population of Amerindians) will be involved in activities related to development and testing of adaptation measures in agriculture, including subsistence shifting cultivation in the interior. These communities will benefit from the public awareness campaigns on Mangrove conservation and will be directly involved in sustainable management of mangroves ecosystems. Where relevant, they will also be involved in data gathering and analysis

In addition training for local reporters/radio station on mangrove ecosystem management related issues will be provided.

Hard to reach groups (such as adolescent females) will be particularly targeted for the public awareness campaigns. Two specific tools will be introduced to help facilitate this. The first is a community "scorecard" where selected representatives from various interest groups such as adolescent women, youth groups, minorities, fisher's association, and Red Cross volunteers, assess performance of administrations in terms of the use of a community's natural resources

The project shall thereby explore in more detail the potential economic alternatives for income-generating measures (apiculture/fishing etc.) and to offset the risk of communities' natural inclination to increase capture upon seeing higher returns. It would also contribute to more income stability for local families that currently rely on the exploitation of mangrove resources as the single largest source of income.

Briefly describe in the space below how the Project is likely to improve gender equality and women's empowerment

The project will mainstream gender concerns and efforts to advance gender considerations in all activities. However, for the purpose of the project the term "gender" will focus on women and children living in and deriving an income from the strip of land along the coastal zone.

The equitable participation of both men and women in implementing each coastal MUMA policy and interventions will help to ensure the long-term sustainability of both adaptation and coastal risk reduction measures. The project is also designed to address how to inculcate key performance measures into staff contracts and to set up incentive requirements to ensure that policies are implemented correctly within MUMA.

Efforts shall be made to encourage the co-financing of a gender advisor, based in the Project Coordination Unit, who will be responsible for training project staff on gender related issues and contribute to all training programmes, awareness raising programmes and other capacity development activities that take place. The gender advisor shall also liaise closely with the UNDP/GEF Mainstreaming project (Activity 2.1c) to assess strategic project linkages to better determine long term environmental impacts of the quality of lives of women and children and the poor in the Project Areas.

The project is designed to ensure the NGO community continue to work towards improving women's empowerment and gender equality where socio-cultural traditions and practices weigh heavily on the social status of women and girls (as part of coastal communities).

Capacity building programmes will be provided for women and youth thus to ensure economic benefits are fairly distributed since this group form the majority of underemployed or unemployed and since fishing activities generally involve the entire family, not just one male.

Training and support in the preparation of business plans will be offered to at least 100 families in the 4 MUMAs involved in sustainable alternatives included women and youth.

It is anticipated that at least 100 potential local small entrepreneurs (or individuals with a view towards considering being a business entrepreneur in the future) will benefit from the outcome of this Activity through the provision of training and support in the preparation of business plans with 100 families in the 4 MUMAs involved in sustainable alternatives including women and youth.

Briefly describe in the space below how the Project mainstreams environmental sustainability

The project will enhance knowledge and understanding of climate change effects and also opportunities or ways to cope with negative effects in identified sectors, through strengthening the development of human and institutional capacities, which are critical inputs for climate change mainstreaming into national policies and strategies.

The project will provide a broad framework at the policy level to address threats and allow mangrove conservation to function better and implementable. Mitigation of any potential negative impacts that regional and sectoral development will have, shall be achieved through the framework which will include a series of norms and regulations.

The project will directly address the loss of mangrove habitats and the provision of resources on which many communities and sectors depend resulting in direct conservation benefits to all Surinamese mangroves. Other results will be positive impacts on the livelihoods of some of the poorest segments of Surinamese society and a framework through which lessons learnt could be replicated to all Surinamese mangrove ecosystems and also globally on integration of productive landscapes and mangrove conservation.

The project shall support to produce an updated environmental policy guideline for Suriname as an addendum to the current EIA guidelines/procedures (NIMOS 2009) that helps to present a “standard” procedure for developments in the coastal zone that require an EIA.

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks? <i>Note: Describe briefly potential social and environmental risks identified in Attachment 1 – Risk Screening Checklist (based on any “Yes” responses). If no risks have been identified in Attachment 1 then note “No Risks Identified” and skip to Question 4 and Select “Low Risk”. Questions 5 and 6 not required for Low Risk Projects.</i>	QUESTION 3: What is the level of significance of the potential social and environmental risks? <i>Note: Respond to Questions 4 and 5 below before proceeding to Question 6</i>			QUESTION 6: What social and environmental assessment and management measures have been conducted and/or are required to address potential risks (for Risks with Moderate and High Significance)?
Risk Description	Impact and Probability (1-5)	Significance (Low, Moderate, High)	Comments	Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.
Risk 1: Risk 1: Commercial use of climate-adapted crop varieties (checklist 1.9)	I = 2 P = 1		The limited number of interior project sites are yet to be identified. Coastal communities have been engaged through SCPAM project and other interventions	Existing agricultural field assessments and practices utilized for Interior and coastal communities will be used. After identification of interior project sites project to initiate early information sharing and subsequent stakeholder engagement.
Risk 2 Relating to possible tangible and/or intangible forms of cultural heritage (4.2)	I = 2 P = 1		Based on identified location, culturally appropriate Stakeholder engagement.	Project implementation will include culturally-appropriate stakeholder engagement process

Risk 3: Relating to possible interventions in indigenous communities (6.1, 6.2, 6.4)	I = 2 P = 1		Based on identified location, culturally appropriate Stakeholder engagement.	Project implementation will include culturally-appropriate stakeholder engagement process
Risk 4: No risk identified	I = P =			
[add additional rows as needed]				
QUESTION 4: What is the overall Project risk categorization?				
Select one (see SESP for guidance)			Comments	
<i>Low Risk</i>		<input checked="" type="checkbox"/>	The project will include activities with minimal or no risks of adverse social or environmental impacts	
<i>Moderate Risk</i>		<input type="checkbox"/>		
<i>High Risk</i>		<input type="checkbox"/>		
QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are relevant?				
Check all that apply			Comments	
<i>Principle 1: Human Rights</i>		<input type="checkbox"/>		
<i>Principle 2: Gender Equality and Women's Empowerment</i>		<input type="checkbox"/>		
1. Biodiversity Conservation and Natural Resource Management		<input checked="" type="checkbox"/>		
2. Climate Change Mitigation and Adaptation		<input type="checkbox"/>		
3. Community Health, Safety and Working Conditions		<input type="checkbox"/>		
4. Cultural Heritage		<input checked="" type="checkbox"/>		
5. Displacement and Resettlement		<input type="checkbox"/>		
6. Indigenous Peoples		<input checked="" type="checkbox"/>		
7. Pollution Prevention and Resource Efficiency		<input type="checkbox"/>		

Final Sign Off

<i>Signature</i>	<i>Date</i>	<i>Description</i>
QA Assessor	21 Oct 2015	Bryan Drakenstein Programme Specialist UNDP Suriname UNDP staff member responsible for the Project, typically a UNDP Programme Officer. Final signature confirms they have “checked” to ensure that the SESP is adequately conducted.
QA Approver		Armstrong Alexis Deputy Resident Representative UNDP Suriname UNDP senior manager, typically the UNDP Deputy Country Director (DCD), Country Director (CD), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have “cleared” the SESP prior to submittal to the PAC.
PAC Chair		Armstrong Alexis Deputy Resident Representative UNDP Suriname UNDP chair of the PAC. In some cases PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

Appendix 6: SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks		
Principles 1: Human Rights		Answer (Yes/No)
1.	Could the Project lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	NO
2.	Is there a likelihood that the Project would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups? ⁸	NO
3.	Could the Project potentially restrict availability, quality of and access to resources or basic services, in particular to marginalized individuals or groups?	NO
4.	Is there a likelihood that the Project would exclude any potentially affected stakeholders, in particular marginalized groups, from fully participating in decisions that may affect them?	NO
5.	Is there a risk that duty-bearers do not have the capacity to meet their obligations in the Project?	NO
6.	Is there a risk that rights-holders do not have the capacity to claim their rights?	NO
7.	Have local communities or individuals, given the opportunity, raised human rights concerns regarding the Project during the stakeholder engagement process?	NO
8.	Is there a risk that the Project would exacerbate conflicts among and/or the risk of violence to project-affected communities and individuals?	NO
Principle 2: Gender Equality and Women’s Empowerment		
1.	Is there a likelihood that the proposed Project would have adverse impacts on gender equality and/or the situation of women and girls?	NO
2.	Would the Project potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	NO
3.	Have women’s groups/leaders raised gender equality concerns regarding the Project during the stakeholder engagement process and has this been included in the overall Project proposal and in the risk assessment?	NO
4.	Would the Project potentially limit women’s ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? <i>For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being</i>	NO
Principle 3: Environmental Sustainability: Screening questions regarding environmental risks are encompassed by the specific Standard-related questions below		

⁸ Prohibited grounds of discrimination include race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to “women and men” or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender people and transsexuals.

Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management		
1.1	Would the Project potentially cause adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? <i>For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes</i>	NO
1.2	Are any Project activities proposed within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	NO
1.3	Does the Project involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	NO
1.4	Would Project activities pose risks to endangered species?	NO
1.5	Would the Project pose a risk of introducing invasive alien species?	NO
1.6	Does the Project involve harvesting of natural forests, plantation development, or reforestation?	NO
1.7	Does the Project involve the production and/or harvesting of fish populations or other aquatic species?	NO
1.8	Does the Project involve significant extraction, diversion or containment of surface or ground water? <i>For example, construction of dams, reservoirs, river basin developments, groundwater extraction</i>	NO
1.9	Does the Project involve utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)	Yes
1.10	Would the Project generate potential adverse transboundary or global environmental concerns?	NO
1.11	Would the Project result in secondary or consequential development activities which could lead to adverse social and environmental effects, or would it generate cumulative impacts with other known existing or planned activities in the area? <i>For example, a new road through forested lands will generate direct environmental and social impacts (e.g. felling of trees, earthworks, potential relocation of inhabitants). The new road may also facilitate encroachment on lands by illegal settlers or generate unplanned commercial development along the route, potentially in sensitive areas. These are indirect, secondary, or induced impacts that need to be considered. Also, if similar developments in the same forested area are planned, then cumulative impacts of multiple activities (even if not part of the same Project) need to be considered.</i>	NO
Standard 2: Climate Change Mitigation and Adaptation		
2.1	Will the proposed Project result in significant ⁹ greenhouse gas emissions or may exacerbate climate change?	NO
2.2	Would the potential outcomes of the Project be sensitive or vulnerable to potential impacts of climate change?	NO
2.3	Is the proposed Project likely to directly or indirectly increase social and environmental vulnerability to climate change now or in the future (also known as maladaptive practices)? <i>For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding</i>	NO
Standard 3: Community Health, Safety and Working Conditions		
3.1	Would elements of Project construction, operation, or decommissioning pose potential safety risks to local communities?	NO

⁹ In regards to CO₂, 'significant emissions' corresponds generally to more than 25,000 tons per year (from both direct and indirect sources). [The Guidance Note on Climate Change Mitigation and Adaptation provides additional information on GHG emissions.]

3.2	Would the Project pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	NO
3.3	Does the Project involve large-scale infrastructure development (e.g. dams, roads, buildings)?	NO
3.4	Would failure of structural elements of the Project pose risks to communities? (e.g. collapse of buildings or infrastructure)	NO
3.5	Would the proposed Project be susceptible to or lead to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions?	NO
3.6	Would the Project result in potential increased health risks (e.g. from water-borne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	NO
3.7	Does the Project pose potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning?	NO
3.8	Does the Project involve support for employment or livelihoods that may fail to comply with national and international labor standards (i.e. principles and standards of ILO fundamental conventions)?	NO
3.9	Does the Project engage security personnel that may pose a potential risk to health and safety of communities and/or individuals (e.g. due to a lack of adequate training or accountability)?	NO
Standard 4: Cultural Heritage		
4.1	Will the proposed Project result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: Projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	NO
4.2	Does the Project propose utilizing tangible and/or intangible forms of cultural heritage for commercial or other purposes?	Yes
Standard 5: Displacement and Resettlement		
5.1	Would the Project potentially involve temporary or permanent and full or partial physical displacement?	NO
5.2	Would the Project possibly result in economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	NO
5.3	Is there a risk that the Project would lead to forced evictions? ¹⁰	NO
5.4	Would the proposed Project possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	NO
Standard 6: Indigenous Peoples		
6.1	Are indigenous peoples present in the Project area (including Project area of influence)?	Yes
6.2	Is it likely that the Project or portions of the Project will be located on lands and territories claimed by indigenous peoples?	Yes

¹⁰ Forced evictions include acts and/or omissions involving the coerced or involuntary displacement of individuals, groups, or communities from homes and/or lands and common property resources that were occupied or depended upon, thus eliminating the ability of an individual, group, or community to reside or work in a particular dwelling, residence, or location without the provision of, and access to, appropriate forms of legal or other protections.

6.3	<p>Would the proposed Project potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the Project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)?</p> <p><i>If the answer to the screening question 6.3 is “yes” the potential risk impacts are considered potentially severe and/or critical and the Project would be categorized as either Moderate or High Risk.</i></p>	NO
6.4	<p>Has there been an absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?</p>	Yes
6.5	<p>Does the proposed Project involve the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?</p>	NO
6.6	<p>Is there a potential for forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources?</p>	NO
6.7	<p>Would the Project adversely affect the development priorities of indigenous peoples as defined by them?</p>	NO
6.8	<p>Would the Project potentially affect the physical and cultural survival of indigenous peoples?</p>	NO
6.9	<p>Would the Project potentially affect the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?</p>	NO
<p>Standard 7: Pollution Prevention and Resource Efficiency</p>		
7.1	<p>Would the Project potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?</p>	NO
7.2	<p>Would the proposed Project potentially result in the generation of waste (both hazardous and non-hazardous)?</p>	NO
7.3	<p>Will the proposed Project potentially involve the manufacture, trade, release, and/or use of hazardous chemicals and/or materials? Does the Project propose use of chemicals or materials subject to international bans or phase-outs?</p> <p><i>For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol</i></p>	NO
7.4	<p>Will the proposed Project involve the application of pesticides that may have a negative effect on the environment or human health?</p>	NO
7.5	<p>Does the Project include activities that require significant consumption of raw materials, energy, and/or water?</p>	NO

Appendix 7: AWS Specifications and Tender Applicant Requirements

To be considered for any future tender, interested suppliers must meet the following conditions:

- Be ISO Certified;
- Provide reasonable Warranty for the whole system;
- Provide support service to the MDS for the duration of the GCCA+ Project at least up to 31 December 2018.
- Failure to meet the expected life-time of the equipment of more than 10 years will lead to automatic disqualification of tender.
- Provide a recent and credible reference relating to past experience in the supply and installation of AWSs in the Caribbean and provision of training on the installation, operation and maintenance of the equipment.
- Installation of the equipment and training must be carried out **no more than two months** from the date the contract is signed by both parties, that is UNDP Suriname and the contractor.
- No payment will be made for any expenses or losses that may be incurred by the Tenderer in connection with the preparation of his/her tender or in visiting the site/s for project implementation.
- All materials incorporated in the works and all workmanship employed in its construction shall be consistent with good practice and applicable and otherwise stated in the Contract, shall comply with the relevant approved international standards.
- All equipment/materials shall be new and re-use of salvaged equipment/materials shall NOT be permitted.
- Tenderers must provide a detail list of products supplied as part of the tender and clearly specified in the bid.
- Tenderers with subcontracted arrangements will be held fully accountable for any issues arising out of such arrangements. Sub-contractors will therefore be treated as if it were a supplier.
- Offers would be valid for 60 days from the closing date of tenders.

The successful tenderer will be required to install the AWSs (at agreed locations) within one month following the award of tender in consultation with the MDS. It is also required that the necessary training on the new system is provided during the installation to designated staff of MDS.

