

GRANT AGREEMENT

(Micro-Capital Grant Agreement)

For Non-Credit Related
Activities

DESCRIPTION

Standard Grant Agreement (Micro-Capital Grant Agreement)

This Memorandum of Understanding is provided as a tool that can be adapted to the specific needs of a particular programme. Micro-Capital Grant Agreements should be approved by an independent mechanism such as a steering committee or Steering Committee. This grant agreement serves to register the commitments and results that the recipient institution has agreed to produce. It is recommended that funds be released in tranches, based on results. These results should be clearly specified, such that it is clear to all parties when a recipient institution qualifies for release of tranches of funds.

TERMINOLOGY

1. This Agreement utilizes the harmonized terminology in line with the revised financial regulations and rules (FRR) which have introduced new/redefined terms as follows:
 - a. 'Execution' is the overall ownership and responsibility for UNDP programme results at the country level which is exercised by the government, through the Government Coordinating Agency by approving and signing the Country Programme Action Plan (CPAP) with UNDP. Therefore, all activities falling within the CPAP are nationally executed.
 - b. 'Implementation' is the management and delivery of programme activities to achieve specified results, specifically the mobilization of UNDP programme inputs and their use in producing outputs that will contribute to development outcomes, as set forth in the Annual Work Plans (AWPs).

These two terms are elaborated under the Legal Framework section of the Programme and Project Management Section of the POPP.

2. It is important to note that at the level of project management, the terms "execution" under the non-harmonized operational modalities, including global and regional projects and "implementation" under the harmonized operational modalities have the same meaning, i.e. management and delivery of project activities to produce specified outputs and efficient use of resources. Therefore, this Agreement uses the term "implementation" in line with the "harmonized operational modalities" to cover also at the project level the term "execution" under the non-harmonized operational modalities. More specifically, all references to "Executing Agency" have been replaced with "Implementing Partner".
3. When using this Letter of Agreement in non-harmonized or non-CPAP countries, change the following terms as follows:
 - a. Execution instead of Implementation
 - b. Designated Institution instead of Implementing Partner

A. MICRO-CAPITAL GRANT AGREEMENT

MICRO-CAPITAL GRANT AGREEMENT BETWEEN THE IMPLEMENTING PARTNER AND THE RECIPIENT INSTITUTION FOR THE PROVISION OF GRANT FUNDS

Micro-Capital Agreement (hereinafter referred to as the "Agreement") made between the Implementing Partner **Ministry of Finance** and the Recipient Institution **RESEARCH DEPARTMENT of "CLIMATE CHANGE AND WATER" OF THE ANTON DE KOM UNIVERSITEIT VAN SURINAME**.

WHEREAS Ministry of Finance has agreed that the United Nations Development Programme ("UNDP") may manage the Global Climate Change Alliance Suriname Adaptation project under which the Mangrove rehabilitation project at Nickerie (hereinafter referred to as "the Project"), will be implemented at the request of the Government of Suriname.

WHEREAS the Implementing Partner **Ministry of Finance** and UNDP desire to provide funding to the **RESEARCH DEPARTMENT of "CLIMATE CHANGE AND WATER" OF THE ANTON DE KOM UNIVERSITEIT VAN SURINAME** in the context of a Project and on the terms and conditions hereinafter set forth, and

WHEREAS the **RESEARCH DEPARTMENT of "CLIMATE CHANGE AND WATER" OF THE ANTON DE KOM UNIVERSITEIT VAN SURINAME** is ready and willing to accept such funds from the Implementing Partner **Ministry of Finance** and UNDP through the administration of UNDP for the above-mentioned activities on the said terms and conditions.

NOW, therefore, the parties hereto agree as follows:

I. Responsibilities of the RESEARCH DEPARTMENT of "CLIMATE CHANGE AND WATER" OF THE ANTON DE KOM UNIVERSITEIT VAN SURINAME

1.1 The RECIPIENT INSTITUTION agrees to: 1) Undertake the activities described in its **Workplan** and **Budget** (attached), and updates related to the subsequent release of funds in **tranches**; 2) Provide quarterly reports to the Steering Committee; and 3) Provide Annual Audited Statements [Income Statement and Balance Sheets]. In projects where a technical contractor is providing assistance to the RECIPIENT INSTITUTION, the contractor shall be responsible for verifying the accuracy of these reports/statements. Funds provided pursuant to this Agreement shall be used for purposes related to producing results specified in its annual performance targets [Section C].

1.2 The RECIPIENT INSTITUTION agrees to reach the performance targets contained in Section C. If the RECIPIENT INSTITUTION fails to meet its responsibilities outlined in article 1.1, or to attain at least 70% of any one performance target for any given year, then this will be considered grounds for the Steering Committee to suspend any further micro-capital grant support. The suspension shall remain in effect until the RECIPIENT INSTITUTION has achieved the target. In projects with a technical assistance contractor, the contractor may, at its discretion, continue to provide technical assistance to the RECIPIENT INSTITUTION during this suspension period.

1.3 The RECIPIENT INSTITUTION agrees to inform the Steering Committee about any problems it may face in attaining the objectives agreed upon.

II. Duration

2.1 This Agreement will come into effect on **December 13th, 2017** and shall expire on **August 30th, 2018**, covering the anticipated term of the project. It can be extended, if necessary by exchange of letters, noting the new expiration date.

III. Payments

3.1 The Implementing Partner shall provide funds to the **RESEARCH DEPARTMENT of "CLIMATE CHANGE AND WATER" OF THE ANTON DE KOM UNIVERSITEIT VAN SURINAME** in an amount up to **USD NINETY-NINE THOUSAND SEVEN HUNDRED AND SIXTY (USD 99,760.00)** according to the schedule of the project budget set out below. Payments are subject to the **RECIPIENT INSTITUTION** meeting the outputs as specified in the Performance Targets [Section C].

TRANCHE 1: USD 43,760.00 payable in SRD against UNORE, upon signature of this Agreement

TRANCHE 2: USD 46,00.00 payable in SRD against UNORE, upon approval of Financial and narrative progress reports.

TRANCHE 3: USD 9,976.00 payable in SRD against UNORE, upon approval of Final report of completion.

3.2 All payments shall be deposited into the **RECIPIENT INSTITUTION's** bank account of which the details are as follows:

De Surinaamsche Bank N.V.
SURBSRPA
Anton de Kom Universiteit van Suriname
SRD: 11.10.993
Henck Arronstraat 26

3.3 The amount of payment of such funds is not subject to any adjustment or revision because of price or currency fluctuations or the actual costs incurred by the **RECIPIENT INSTITUTION** in the performance of the activities under this Agreement.

IV. Records, Information and Reports

- 4.1 The **RECIPIENT INSTITUTION** shall maintain clear, accurate and complete records in respect of the funds received under this Agreement.
- 4.2 The **RECIPIENT INSTITUTION** shall furnish, compile and make available at all times to the Implementing Partner, UNDP any records or information, oral or written, which UNDP may reasonably request in respect of the funds received by the **RECIPIENT INSTITUTION**.
- 4.3 Within sixty days after completion of project activities, the **RECIPIENT INSTITUTION** shall provide the Implementing Partner and UNDP with a final report with respect to all expenditures made from such funds (including salaries, travel and supplies) and indicating the progress made toward the goals of the activities undertaken, utilizing the reporting format contained in Annex I.
- 4.4 [Optional: For projects with Technical Assistance] The **RECIPIENT INSTITUTION** agrees to submit required Performance Reports to the CONTRACTOR within 21 days of the close of each quarter using the attached reporting format (Annex 1) reporting on project progress. At the beginning of the project, the **RECIPIENT INSTITUTION** can request CONTRACTOR assistance for the preparation of the forms. The **RECIPIENT INSTITUTION**, however, should develop its own capacity to generate these reports, as they are critical to manage its activities.
- 4.5 All further correspondence regarding the implementation of this Agreement should be addressed to:

For the **Implementing Partner**
Nataly Plet, National Project Director GCCA+ Suriname Adaptation Project
Office of the President of the Republic Suriname
Kleine Combe weg 2-4, Paramaribo-SURINAME

For UNDP:
Armstrong Alexis, UNDP Deputy Resident Representative
UN HOUSE
Gonggrijpstraat 25, Paramaribo, SURINAME

For the **RECIPIENT INSTITUTION**:

Jack Menke
President of the board
Anton de Kom Universiteit van Suriname
Leysweg 86, Paramaribo-SURINAME

V. **General Provisions**

5.1 This Agreement and the Annexes attached hereto shall form the entire Agreement between **RESEARCH DEPARTMENT of "CLIMATE CHANGE AND WATER" OF THE ANTON DE KOM UNIVERSITEIT VAN SURINAME** and the Implementing Partner, superseding the contents of any other negotiations and/or agreements, whether oral or in writing, pertaining to the subject of this Agreement.

5.2 The **RECIPIENT INSTITUTION** shall carry out all activities described in its Workplan with due diligence and efficiency. Subject to the express terms of this Agreement, it is understood that the **RECIPIENT INSTITUTION** shall have exclusive control over the administration and implementation of the activities referred to above in paragraph 1.1 and that the Implementing Partner and UNDP shall not interfere in the exercise of such control. However, both the qualities of work and the progress being made toward successfully achieving the goals of such activities shall be subject to review by the Steering Committee. If at any time the Steering Committee is not satisfied with the quality of work or the progress being made toward achieving such goals, the Steering Committee may advise the Implementing Partner to: (i) withhold payment of funds until in its opinion the situation has been corrected; or (ii) declare this Agreement terminated by written notice to the **RECIPIENT INSTITUTION** as described in paragraph 5.7 below; and/or seek any other remedy as may be necessary. The Steering Committee's determination as to the quality of work being performed and the progress being made toward such goals shall be final and shall be binding and conclusive upon the **RECIPIENT INSTITUTION** insofar as further payments are concerned.

5.3 The Implementing Partner and UNDP undertakes no responsibilities in respect of life, health, accident, travel or any other insurance coverage for any person which may be necessary or desirable for the purpose of this Agreement or for any personnel undertaking activities under this Agreement. Such responsibilities shall be borne by the **RECIPIENT INSTITUTION**.

5.4 The rights and obligations of the **RECIPIENT INSTITUTION** are limited to the terms and conditions of this Agreement. Accordingly, the **RECIPIENT INSTITUTION** and personnel performing services on its behalf shall not be entitled to any benefit, payment, compensation or entitlement except as expressly provided in this Agreement.

5.5 The **RECIPIENT INSTITUTION** shall be solely liable for claims by third parties arising from the **RECIPIENT INSTITUTION**'s acts or omissions in the course of performing this Agreement and under no circumstances shall The Implementing Partner and UNDP be held liable for such claims by third parties.

5.6 Assets (Equipment) supplied by UNDP funds to the **RECIPIENT INSTITUTION** shall be the property of UNDP until the end of the project, at which time UNDP shall determine the best use of these assets. In cases where the **RECIPIENT INSTITUTION** has met its responsibilities under this agreement, and handover of the asset would contribute to the sustainability of activities, UNDP would normally handover these assets to the **RECIPIENT INSTITUTION**. The assets shall be used for the purpose indicated in the Workplan throughout the period of this Agreement.

5.7 This Agreement may be terminated by either party before completion of the Agreement by giving thirty (30) days written notice to the other party, and the **RECIPIENT INSTITUTION** shall promptly return any unutilized funds to UNDP as per paragraph 5.6 above.

5.8 The **RECIPIENT INSTITUTION** acknowledges that the Implementing Partner and UNDP and its representatives have made no actual or implied promise of funding except for the amounts specified by this particular tranches Agreement. Although project related documents may indicate a total amount of

funds that could be available for this **RECIPIENT INSTITUTION**, actual disbursements will be based upon the **RECIPIENT INSTITUTION** meeting performance targets. If any of the funds are returned to the Implementing Partner and UNDP or if this Agreement is rescinded, the **RECIPIENT INSTITUTION** acknowledges that the Implementing Partner and UNDP will have no further obligation to the **RECIPIENT INSTITUTION** as a result of such return or rescission.

5.9 No modification of or change to this Agreement, waiver of any of its provisions or additional contractual provisions shall be valid or enforceable unless previously approved in writing by the parties to this Agreement or their duly authorized representatives in the form of an amendment to this Agreement duly signed by the parties hereto.

5.10 Any controversy or claim arising out of, or in accordance with this Agreement or any breach thereof, shall unless it is settled by direct negotiation, be settled in accordance with the UNCITRAL Arbitration Rules as at present in force. Where, in the course of such direct negotiation referred to above, the parties wish to seek an amicable settlement of such dispute, controversy or claim by conciliation, the conciliation shall take place in accordance with the UNCITRAL Conciliation Rules as at present in force.

The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy or claim.

5.11 Nothing in or relating to this Agreement shall be deemed a waiver of any privileges and immunities of the United Nations, or UNDP.

IN WITNESS WHEREOF, the undersigned, duly appointed representatives of the Implementing Partner, and the **RECIPIENT INSTITUTION**, respectively, have on behalf of the Implementing Partner and the **RECIPIENT INSTITUTION** signed the present Memorandum of Agreement on the dates indicated below their respective signatures.

On behalf of Implementing Partner:



On behalf of the **RECIPIENT INSTITUTION**:

Name: Armstrong Alexis
Title: Deputy Resident Representatives

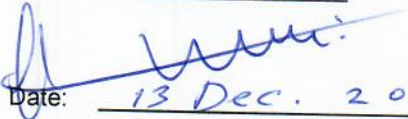
Date: 13/12/2017

On behalf of the **RECIPIENT INSTITUTION**:

Name: Jack Menke

Title: President of the Board

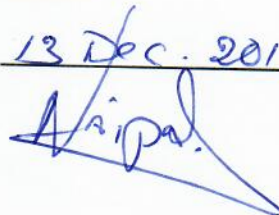
Date: 13 Dec. 2017



Name: Siewn Sewnath Naipal

Title: Research Department of Climate Change and Water

Date: 13 Dec. 2017



B. BUDGET

TO BE PREPARED BY THE RECIPIENT INSTITUTION. THIS BUDGET WILL BE SUBMITTED TO THE STEERING COMMITTEE FOR APPROVAL

PROJECT BUDGET OF RECIPIENT INSTITUTION

Project Number:

Date: December 13th, 2017

Project Title: Set up of steel scaffold for autonomous water measurement stations

Name of the RECIPIENT INSTITUTION: **Research Department of "CLIMATE CHANGE AND WATER", ANTON DE KOM UNIVERSITEIT VAN SURINAME**

Total Amount of Funds under the Agreement: USD 99,760.00 (payable in SRD against UNORE)

Date of the Agreement: December 13th, 2017

PROJECT BUDGET (in USD)

PERIOD COVERING FROM December 2017 TO August 2018

General Category of Expenditures	Tranche 1	Tranche 2	Tranche 2	TOTAL
ACTIVITY 1	4,760.00	2,000.00	3,000.00	9,760.00
ACTIVITY 2	16,500.00	20,000.00	0.00	36,500.00
ACTIVITY 3	16,000.00	13,500.00	3,000.00	32,500.00
ACTIVITY 4	6,500.00	10,524.00	3,976.00	21,000.00
Misceleaneous				
TOTAL	<u>43,760.00</u>	<u>46,024.00</u>	<u>9,976.00</u>	<u>99,760.00</u>

* Please note that all budget Lines are for costs related only to project activities.

** These budget categories and number of tranches are suggested guidelines. The Recipient may choose alternates which more accurately reflect their expense items and needs.

C. RECIPIENT INSTITUTION Performance Targets

NAME OF RECIPIENT INSTITUTION: **Research Department of "CLIMATE CHANGE AND WATER",
ANTON DE KOM UNIVERSITEIT VAN SURINAME** _____

PERFORMANCE TARGETS	BASELINE	Period 1		Period 2	
		Proposed	Actual	Proposed	Actual
1. Data gathering	0%	50%		50%	
2. Construction of the Sediment Trapping Unit (3)	0%	40%		60%	
3. Awareness raising	5%	60%		35%	
4. Monitoring	0%	30%		70%	

ANNEX 1

Annual Reporting Format

Year _____

Recipient Institution: _____

OVERALL TARGETS FOR ENTIRE GRANT	BASELINE	PROPOSED ANNUAL TARGETS	ANNUAL BUDGET	ACTUAL ANNUAL RESULTS	ACTUAL ANNUAL EXPENDITURES	PROGRESS TOWARDS TARGETS
1. Data gathering	0%	Wave parameters determined at Bering hole (Bigipan)				
		Current and stream flow parameters Bering hole (mapped)				
		A bathymetry map of the entire area after slack				
2. Construction of the Sediment Trapping Unit (3)	0%	Parameters of the sediment budget of the area determined				
		Soil parameters of the Bering hole (Bigipan) are determined and made available.				
		1 STU constructed				
		Stakeholders of the Nickerie district, with involvement of stakeholders (Women 20%)				
		pre-fab" bamboo boxes (±400) ready women participation (40%)				
		Permeable dam in place. Dimension of the dam is 150m x 200m				

3. Awareness raising	5%	At least 10 women and 10 fishermen are trained; 5 tour operators, 5 Government servants; 5 other stakeholders (merchants, volunteers, entrepreneurs)				
		500 hundreds of mangrove plants at planted at the demonstration site				
4. Monitoring	0%	Functioning of the STU is guaranteed. Monthly checks. Hydraulics & Hydraulics monitoring protocol is developed.				
		Rehabilitation and recovery fixed. Biology monitoring protocol developed.				
		Up-to-date information on the condition and functioning of the sediment trapping unit is available.				

ANNEX II

PROJECT FORMAT – UNITED NATIONS IN SURINAME

Project title	Mangrove rehabilitation project at Nickerie
Implementing partner	De Anton de Kom Universiteit van Suriname (AdeKUS)
Contact person	Prof. Dr. J. Menke
Other partners	Ministry of Regional Development represented by the District Commissioner, Ministry of Spatial Planning, Land and Forest Management.
Project Duration	8 months
Estimated budget	Total budget: 112,000USD Divided in: Grant contribution: 99,760 USD Own contribution: 10,310USD Other contribution: 1,930USD

Executive Summary (in English)

The Bigi Pan MUMA can be divided into several subcatchment areas, out of which the Bigi Pan Lake area together with the Beringhole is the most important and interesting subcatchment in terms of hydrology, fishery and biodiversity, including tourism. It's relative low lying topography favours inflow of both penetrated Ocean water from the north as well as fresh swamp water from the southeast. The existing hydro-meteorological parameters, such as wind, rainfall, water depth, flow and other conditions, promote the formation of a brackish environment, supporting the existence of a wide range of species, including fish, birds, and other mammals. Changes in this environment obviously affect the existence of this rich biodiversity, including the fishery. One of these most adverse changes is the ongoing erosion, due to which the ideal water quality for the fishery has worsened, fish stock is declined, loss of mangroves on large area is now evident and last but not least the threat from the sea to the local capital, NW Nickerie, will become real if this continues and keep pace. Efforts of the local government and the stakeholders, e.g. the tour operators and the fishermen, have failed in stopping, reversing and / or mitigating this threat. In this respect a new approach has been suggested, encompassing the building with nature concept, which include the establishment of sediment trapping units. Experiences gained at Weg naar Zee with the implementation of this concept and the corresponding technique have shown that this approach is applicable to the Beringhole Bigipan area, and has been translated in this project document. Three sediment trapping units, each of a size of 150m by 200m will be constructed over a length of 600m at the location where the erosion is severe. For this purpose local material, such as bamboo and Walaba poles will be used and as much as possible and the support of the local people will be asked and recruited. Capacity building of the locals has high priority since

monitoring and fixing of the sediment trapping units will be required to keep these functioning. The total costs of this project is 112000 USD and includes approximately 10% own contribution. The expectation is that with the implementation of the sediment trapping units the erosion will be drastically reduced and finally stops, promoting the rehabilitation of the mangrove. This project has also a component to rehabilitate the mangrove ecosystems by planting.

To be completed by resource person from the IP or the UN

UNDAF Outcome(s)	
Expected Outcome(s)	The implementation of the Sediment Trapping Unit in Beringhole, Nickerie
Expected Output(s)	<ul style="list-style-type: none"> - Data gathered on wave energy, currents / flows, depths and others - Data gathering of soil characteristics at the beginning and the end of the project - One pilot sediment trapping unit - Awareness rising and training, including the best selection based on their responsiveness - Demonstration on mangrove planting
Programme Title	Mangrove rehabilitation project at Nickerie
Allocated resources: <ul style="list-style-type: none"> - UN agencies - Government - Other Donors 	United Nations Development Programme Global Climate Change Alliance Suriname Adaptation Project, output 1.3

Experience with similar projects				
List these				
Name	Period	I. REQUESTING ENTITY		
Project title	Date of submission	Location	Brief description	
Mangrove rehabilitation project at Nickerie	2016 - 2016	Netherlands	Mangrove rehabilitation Weg naar Zee, Monitoring. Piloting on larger scale through establishment of 5 additional STU's to demonstrate the protection of the coast of Weg naar zee and data collection	
Project title	Mangrove rehabilitation project	Suriname	Embassy, Information of the requester	
Name of the organization	Anton de Kom University of Suriname	Antoni de Koning	Name	
Date of establishment	Nov 1968	University of Suriname	Capacity building of locals to use juveniles in afforestation efforts	
Address	Leysweg 86			
City	Paramaribo		Elaboration and demonstration of Soft technology as an alternative method of coastal protection.	
E-mail	board@uvs.edu; s.naipal@uvs.edu; naipal.sieuwnath@gmail.com	CI en AdekUS	Telephone 1 +597 465558 Telephone 2 +597 8583190	
Telephone 1	+597 465558		Telephone 2 +597 8583190	
Contact person	J. Menke			
Position	President of the Board of the Anton de Kom University of Suriname	Suriname	Demonstrate that in tissue culture of mangroves delivers viable options for coastal protection.	
E-mail	menkejack@yahoo.com			
Telephone 1	+597 465558	Conservation Foundation	Telephone 2 +597 8583190	
Telephone 2	+597 8583190			
Information implementing organization				
(Complete only if the project is requested by another organization than the implementing organization)				
Name of the organization	Anton de Kom University of Suriname			
Date of establishment	2004	SCF/WWF	Preliminary calculation of the economic value of Bigi Pan (tourism, rice cultivation, fishing sector)	
Mission of the organization	The Anton de Kom university is an leading institute in Suriname and in the region, that stands for high qualified scientific education, research and service provision for the benefit of the social development.	Guianas		
Members	>500	SCF/WWF	Data collection regarding the environment of the Coronie swamp	
City	Paramaribo			
Address	Leysweg 86			
E-mail	board@uvs.edu	AdeKUS - KUL	Development of a tool hardware as well as software into an Integrated Navigation System, to be used for observing the hydrodynamic in the mudbank and the corresponding flow patterns	
Telephone 1	+597 465558		Telephone 2 +597 8583190	
Contact person	J. Menke			
Position	President of the Board of the Anton de Kom University of Suriname			
E-mail	menkejack@yahoo.com			
Telephone 1	+597 465558		Telephone 2 +597 8583190	
Telephone 2	+597 8583190			
Project coordinator				
Last Name	Naipal			
First Name	Sieuwnath			
E-mail	s.naipal@uvs.edu	Telephone	+5978715714	
Address	Leysweg 86			

II. PROJECT DESCRIPTION

Project title <i>(max 10 words)</i>		Mangrove rehabilitation project at Nickerie
District:		Nickerie
Ressort/Village/Community		Bering hole – Bigipan Area
Program Focus area <i>(input by the Country Office)</i>		Ecosystem Based Adaptation approaches (EbA)
Related UNDP full Project: GCCA+		
GCCA+ output(s) if applicable	<input type="checkbox"/> Output 1.1 <input type="checkbox"/> Output 1.2 <input checked="" type="checkbox"/> Output 1.3 <input type="checkbox"/> Output 2.1 <input type="checkbox"/> Output 2.2 <input type="checkbox"/> Output 2.3 <input type="checkbox"/> Output 2.4 <input type="checkbox"/> Output 2.5 <input type="checkbox"/> Output 2.6	
Project duration (months)	8 months	
Financing	Total resources required	US\$ 112,000
	Total allocated resources	Grant GCCA+ project: 99,760 USD Co- Financing: In Kind Contributions: 12,240 USD
Pilot location(s)	Bering hole – Bigipan Area, located at the most northwestern part of Suriname's coast	
Brief pilot description <i>(200 words max)</i>	<p>The Bering hole – Bigipan area is comprised out of marine clay originated from the Amazon Basin, locally overlaid with a relative thin layer of sand and shells occurrences. The vegetation, comprised generally out of Black Mangrove, is not uniformly distributed over the territory. Large open areas of dead mangroves are found leaving space for open pans where a variety of birds are found. Topographically the area is very flat allowing the tides to penetrate far into the area. This area is very important in terms of fishery, tourism and protection of the local capital, the second largest town in Suriname, Nieuw Nickerie. However, ongoing erosion has put the locals under desperate conditions. Efforts to mitigate the negative impacts have let to mal adaptation and therefore have exaggerated and worsened their situation. Among others, loss of habitat for the fishery and birds have been noticed, including the drastic decrease of fish and shrimp population. Worth mentioning is the fact that the Bering hole – Bigipan area a Western Hemisphere Shorebird Reserve Network (WHSRN) site and a proposed RAMSAR site with growing national and international tourism interest.</p>	
Project type	<input type="checkbox"/> Water management <input type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Climate Change Mitigation <input checked="" type="checkbox"/> Disasters (natural prevention)	
Summary of expected results		
Target Area(s)	<input type="checkbox"/> Agri tech <input checked="" type="checkbox"/> Ecosystem Based Adaptation approaches (EbA) <input type="checkbox"/> Livelihood Diversification <input type="checkbox"/> Dissemination	

2.1 Summary of the project (max 250 words)

District Nickerie covers 5,353 km² and has approximately 35000 inhabitants and is generally comprised of Hindustani (the largest group), Javanese, Creoles and Chinese. The main source of livelihood is agriculture (rice), banana and fishery. Fishing activities are found on the Corantijn and Nickerie river. Except cattle, farming in livestock also comprises sheep, goats, chickens and ducks.

Fishery is an important activity for these group of people. Large amount of fish is harvested annually, from which a significant part ends up at the market in Springlands - Guyana. Therefore, the Bigipan MUMA Bigipan is a very important fishing area. However, the area is undergoing a strong erosion resulting in loss of land, but more tragically loss of fishing grounds. The fishermen have problems since they have to invest more in order to reach their minimum income. The District Commissioner together with these fishermen and representatives of other ministries has attempted to take measures, but has unfortunately so far, no results. On contrary, a large part of the mangrove forests is extinct. This happens when a correct and well-balanced, ecologically-based solution, is missing. Also, the ad-hoc measures have led to degradation of the ecosystem and loss of the fishing grounds.

Against this background it is not only necessary to take technical measures, but also to educate the fishermen and the people of this area, and made them aware of the present and future dangers and what the place and the role of the population is in this context.

2.2 Problem Statement (problem that is to be addressed) (max 500 words)

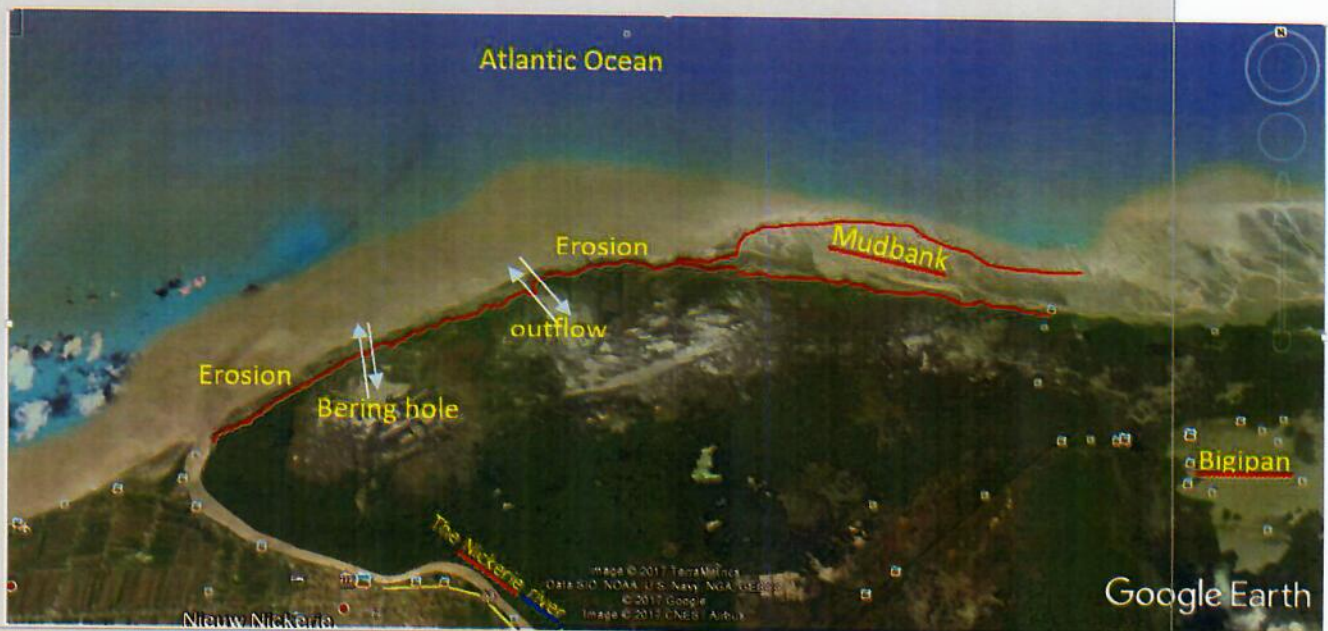


Figure 1. Location of Bering hole and the mudbank

Source: Google image Oct 2016

The Bering hole – Bigipan area is a wetland, covered with mangrove that has many important functions, such as breeding and feeding location for fisheries, local and migrating birds, and hence became an important site for tourists and many fishermen. In addition, this area offers the necessary protection against erosion and inundation to the local capital Nieuw Nickerie. This district is susceptible to erosion. Approximately 8km coastline is protected by seawall. In case of disappearance of the Beringhole –Bigipan area, the sea wall shall extend with several more kilometers. Being aware of the threats, the local government and stakeholders are engaged in looking for a sustainable solution for this problem. Lessons from the past and those recently taken have revealed that “wild” human interventions may have led to further degradation of these values or even to its extinction.

Stopping these adverse impacts of the ongoing erosion, including those associating with climate change and consequently the sea level rise, can in this case been done through application of the ecosystem based solutions. These solutions require also a good understanding of the biophysical processes in the area and its surroundings. In additions, necessary skills are required when implementing these ecosystems based solution.

Mitigation of the adverse impacts and rehabilitation the mangrove ecosystem is expected to achieve through application of wave breaking and sediment trapping techniques (STU), which is based on mimicking the function of the mangroves at the shore lines. Energy of the incoming waves will therefore be dissipated and new conditions created for regeneration of new mangrove juveniles.

In realizing this technique support of the locals is required. In this context the locals, e.g. the fishermen, tour guides and other interested parties will be trained and equipped to carry out this work. Necessary materials, such as Walaba and Bamboo, will be withdrawn from the forest in a way that no harm will occur. Furthermore, knowledge in gathering data, how to observe and to interpret, will be educated.

Expected results of the implementation of the STU will be obvious if the STU will be maintained in its initial condition. For this purpose, the fishermen and tour operators will be trained. Failure to do this may not result in what was expected.

Rehabilitation of the mangrove ecosystem will obvious within 3-5 years, however, its improvement will be seen after a year, provided the STU is maintained in its initial position. To ensure this, necessary efforts will be taken to create the understanding amongst the stakeholders. Data generated from this site will be disseminated amongst the stakeholders and other interests. Report should be issued per 6 months, capturing the dynamics of the hydraulics, hydrology, geomorphology and biodiversity. Measurements of these parameters will be carried out in cooperation with the Anton de Kom University, whereby participation of students and stakeholders will be promoted.

2.3 Number of people whom are affected by the problem? (max 250 words)

The number of people affected by the problem can be grouped as follows:

1. Those who are direct impacted by the loss of the goods and services of the Bering hole – Bigipan wetland.
 - a. This category comprises people such as the fishermen and the tour operators
 - i. Amongst this category there are those who are permanent working and depend on this resources and those who are like hobbyists, coming to this area when having time and or will have fun.
 - ii. Another category of people are those not living and working in Suriname, but in Guyana, and hence not on the list.
2. The intermediate persons. These group of people are those who are the intermediate between the fishermen and the seller. This number of people are not large.
3. The group of sellers. This group is found in the bazaar, every day, with exception of Sunday. The majority sellers under the Bazaar are women. The percentage of women in this district is about 49.7%
4. The purchasers. This is the largest group. Tilapia and other fish out of the Bigipan area are relatively cheap and affordable to the average locals.

Taking into account the cultural and religion background of the large majority of people living in Nickerie, daily demand of fish will be kept high.

Given the above mentioned outlines, it is certain that hundreds are affected at present, but thousands in addition will be affected in the near future, if this degradation will be continued. The problem exaggerate if the protection function of this wetland will be lost.

2.4 Beneficiaries and partners involved and how are they involved? (max 250 words)

The prime group of beneficiaries are the fishermen and the tour operators, followed by the intermediators and the sellers. Indeed, the byers are also the beneficiaries, as they will have good, healthy and relative affordable fish. The category foreigners, (including the Guyanese fishermen) should not be overlooked.

The partners are the locals, all the stakeholders, including the foundations offering the services to the tourists.

An important category is the category Government employers. To this group belongs also the representatives of the various ministries and the District commissioner.

Since this problem include the majority population of the Nickerie district, members of the district council are also involved and hence can become important partners.

The knowledge centers, such as schools, institute and the University, are also partners to this project.

2.5 Coordination/Synergy-building How does the project intend to coordinate or collaborate with other existing initiatives in the similar thematic or geographical area, in order to avoid duplication and promote synergies? (max 500 words)

The Anton de Kom University of Suriname, founded in 1968, is an authoritative and respected institute in Suriname and the region that stands for high qualified scientific education, research and services to sustainable social development. The starting point is to achieve sustainable social development. The Faculty of Technological Sciences is established by the governmental decree of 10 July 1986 (Staatsblad 1986, no 39, and goes back up to 17 October 1983).

The associated partner is the chair "Climate Change and Water", resorting under the department of Infrastructure of the FTeW and has the following research lines (see figure 2 here below):

- climate change and water resources;
- climate change and adaptation.

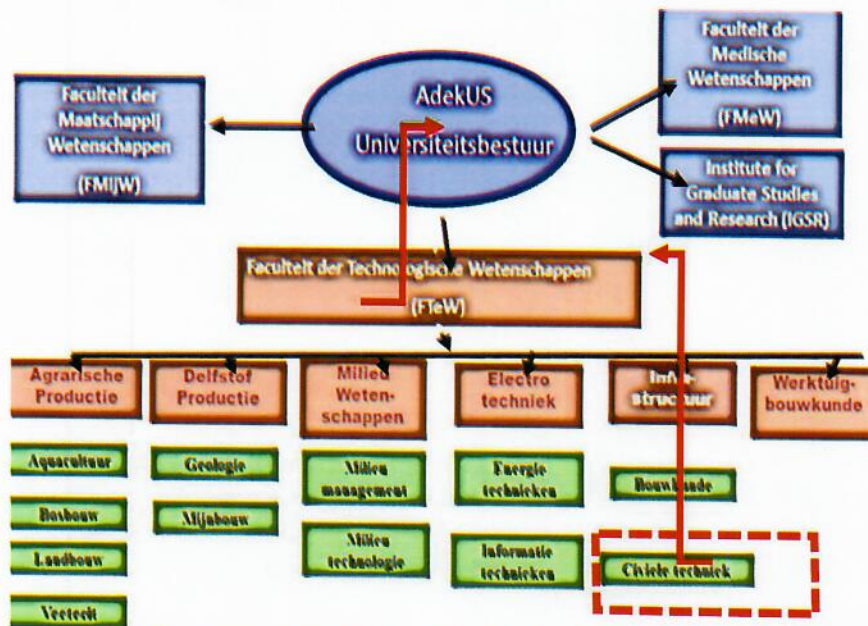


Figure 2. The Organogram of the Faculty of Technological Sciences

The University has the necessary Laboratories, equipment, knowledge and experience in order to be used for the objectives as indicated.

Climate related developments and in particular, the impacts of sea level rise, ecosystem based adaptation measures, are some of the topics which the chair greatly interest. How to protect the coastal ecosystems and to make wise use of its goods and services that is sustainable for the generations to come is a great challenge. This challenge is become serious when considering a number of present and future developments, such as the growing economic pressure on the coastline, climate change, including the sea level rise and its impacts.

In this respect many organizations, institutions, except the FTeW, are working in this geographical area aiming to raise the resilience of the local communities in combating the adverse impacts associated with climate change, and climate change related issues and events. Some efforts, particularly dealing with awareness rising, methods and technics to involve the local communities in the project, evaluation and monitoring will be taken into consideration and where possible to build further on when implementing this project. Exchange of information amongst these and other partners supposed to be one of the pillars of success of this project. The intention is to invite all the actors at the kick off of this project in district Nickerie.

2.6 Are their earlier projects/activities carried out by you or by others with the same purpose and in the same area? If so, which ones, and how to connect this project thereupon to? (maximum 500 words)

1. Building with Nature project, Weg naar Zee, Paramaribo, Suriname, started in June 2015. This project, financed by Conservation International Suriname was coordinated by prof. S. Naipal. The project encompasses the construction of the first ever in Suriname a sediment trapping unit.
2. The work titled: "Enhancing resilience of the coastline through removing stress, rehabilitation and mangrove planting", has been coordinated and carried out under the technical guidance of the Prof. S. Naipal.

Other important successes of AdeKUS in cooperation with other local partners, dealing with the issue of preservation of Biodiversity in the coastal zone, are:

3. Assessing valuation of the wetland "Bigipan MUMA" for the first time in 2006. The achievements of this project are documented in many publications and reports. In addition a number of presentations have been given at various levels and to various interested groups and classes. This project was carries out under the coordination of Ms Minu Parahoe
4. Rapid assessment of the Coronie freshwater swamp in 2007. Within this framework a remarkable expedition has been undertaken through the largely unknown and virgin Coronie swamp by members of the AdeKUS researches and representatives of other local organizations. The findings and experiences met during this expedition have been made available through publications, presentations and film. This project was carries out under the coordination of Ms Minu Parahoe

Projects mentioned under bullets 1 and 2, have contributed the expertise we have today in constructing the STU's as well as in monitoring the STU over time. In addition, members of out of the local communities are also engaged in these projects and further trained to continue monitoring. In this respect we have also worked towards awareness rising and gained experiences in working with the communities.

Projects 3 and 4 provided us valuable information's and knowledge about the hydrology and hydrological processes in the project area. We have a relative good understanding of the biophysical characteristics of the area. These information's are very useful for this project and its success.

2.7 Logical framework

Main purpose:

<i>Project Output</i>	<i>Objectives</i>	<i>Activities</i>	<i>Indicator</i>	<i>Method of measurement</i>	<i>Target</i>
Data gathered	Carry out data gathering	Data gathering on wave energy	Data report on wave characteristics	Field measurements using instruments such as AWAC (Acoustic Wave and Current meter)	Wave parameters during the neap tides (2x) and springtides Full and New Moon determined at the shallow waters of Bering hole (Bigipan)
		Data gathering on currents / flows	Data report on current and flow characteristics	Field measurements using instruments such as ADV (Acoustic Doppler Velocity meter)	Current and stream flow parameters at the shallow waters of the Bering hole (Bigipan) during the neap tides (2x) and springtides Full and New Moon mapped
		Data gathering on depths	Data report on depths.	Field measurements using echo sounder	A bathymetry map is produced of the entire area of the shallow water up to a depth of 3meters a low water slack
		Data gathering on the amount of sediment	Data report on sediment	Field measurements using echo sounder and integrated navigation system	Parameters of the sediment budget of the area of the shallow water up to a depth of 3meters a low water slack have been determined during the neap tides (2x) and springtides Full and New Moon

		Data gathering of soil characteristics at the beginning and the end of the project	Data report on soil characteristics	Drawing soil sample and its lab analysis	Soil parameters of the shallow waters of the Bering hole (Bigipan) are determined and made available. These are: pH, temp, salinity; EC, turbidity, nutrients, DO, texture, Org. C., N-tot., P-tot., P-Olsen, Uitw. Acidity, Uitw. Al., Exch Na., Exch K., ExchCa., Exch Mg, pH H2O + E.C., pH KCL., These parameters will be measured 2x (once at the start of the project and the second at the end)
One pilot sediment trapping unit	Establish a sediment trapping unit	Awareness rising and training	Report on training activities	Report available	1 STU is constructed All stakeholders of the Nickerie district, but mainly the fishermen and the tour operators
		Gathering materials required to construct the sediment trapping	List of available materials, Walaba poles, bamboos and others	Necessary receipts and money transfers are available	Materials are on location through efforts done local participation, including Women (20%)
		Preparation materials, including the necessary logistics	Necessary materials on location	List of the material published and made available	The bunch of pre-fab" bamboo boxes (± 400) are made ready under women participation (40%)
		Constructing a permeable structure	Permeable structure	Structure physically measured	Permeable dam in place. Dimension of the dam is 150m x 200m

Participation of the local increased	Raise awareness	Awareness rising and training, including the best selection based on their responsiveness	Report on training activities, participation lists, (digital) manual and protocol	A number of people active in the Bering hole Bigipan area	At least 10 women and 10 fishermen are trained; 5 tour operators, 5 Government servants; 5 other stakeholders (merchants, volunteers, entrepreneurs)
		Demonstration on mangrove planting	Report published	A number of mangrove plants on site planted	500 hundreds of mangrove plants at planted at the demonstration site
Monitoring reports and recommendations available	Establish a monitoring program	Monitoring on Hydrology & Hydraulics	Monitoring report	Monitoring data sheets available with this information	Functioning of the STU is guaranteed. The STUs will be checked twice a month after its construction until the end of the project. Hydrology & Hydraulics monitoring protocol is developed. This monitoring does not include measurements, but personal observation performed according to the developed protocol.
		Monitoring of Biology	Monitoring report	Monitoring data sheets available with this information	Rehabilitation and recovering is fixed Biology monitoring protocol developed. This monitoring does not include measurements, but personal observation performed according to the developed protocol

		Recommendations	Analysis and recommendations	Report published	Up-to-date information on the condition and functioning of the sediment trapping unit is available. This will be a report at the end of the project, with conclusions and recommendations.
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2.8 Description of the activities

Activity	Description
1.1.Data gathering on wave energy	Gathering all historical data available on wave and wave energy at this site. Setting up a measuring plan, including all necessary logistics and required technical personnel to carry this out the plan in order to get a good picture of the wave characteristics at the location.
1.2.Data gathering on currents / flows	The same approach will be carried out for mapping the currents
1.3.Data gathering on depths	The same approach will be carried out for mapping the depths
1.4.Data gathering on the amount of sediment	The same approach will be carried out for mapping the sediment occurrences
1.5.Data gathering of soil characteristics	Soil samples will be taken and analyzed in the lab on two moments: one at the beginning of the project and the second at the end of the project.
2.1. Awareness rising and training	The problem the location and the stakeholders are facing should be addressed very broadly, including the schools, governmental institutions and to other interests groups. This will be carry out by distributing flyers, radio and TV programs, organizing meetings with the stakeholders and workshops. At the end a number of people has to be ready to do the job in the field and monitor activities regarding this issue and development. Gender balance will be taken into consideration.
2.2. Gathering materials	Materials required to construct the sediment trapping unit will be mapped and indicated where to find and how to transport to the location. This regard particularly the walaba poles and the bamboo. Gathering of the material will be particularly done taking into the consideration the lessons learned and gained skills.
2.3. Preparation materials, including the necessary logistics	The gathered and transported materials will be prepared and “prefabbed” in order to get the construction done easily, fast, neatly, correctly and with high quality leading to a firm and robust structure that requires less correction and simple monitoring. Contribution of the women are here significant.

2.4. Constructing a permeable structure	Having the materials on site and the necessary logistics, the implementation will go fast. The trained and well instructed people having the necessary skills and willing to participate will be asked to join the constructing team in order to get the permeable structure constructed.
3.1. Awareness rising and training	This will be focused on the monitoring and observing the well-functioning of the sediment trapping unit (STU). What to do and how to act, where the information to pass and convey if some information need to be shared. Since the STU will be addressed frequently by the fishermen and the tour operators, their view and observations are of high importance. This group of people / stakeholders will be trained in conveying the necessary data, so that the organization is charge can act immediately if this is needed. For this purpose a manual and protocol will be prepared, including version in digital format.
3.2. Demonstration on mangrove planting	Those areas cleared of mangrove and/ or dead zone mangrove but not eroded yet will be used as demonstration site for planting mangrove juveniles to show and teach the stakeholders how to help the nature in over winning the stress. Women participation is required. The planting methodology includes: germination of the mangrove seeds to mangrove juveniles. Starting at the beginning of the project and will be done by women participation; mangrove juveniles can also be obtained from the nature; planting at the end of the project phase.
4.1. Monitoring on Hydrology & Hydraulics	A protocol will be elaborated on how to monitor the parameters and how to do the first analyses on field level.
4.2. Monitoring of Biology	A protocol will be elaborated on how to monitor the biological parameters and how to do the first analyses on field level.
4.3. Recommendations	Based on these data necessary recommendation will be done on what to do and how to act, in order to guarantee the well-functioning of the STU

2.9 Summary Timetable in months (per activity)																	
Activity	Months																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

i) Who will be responsible for ensuring project results are achieved?

Department of Infrastructure of the Faculty of Technological Sciences of the Anton de Kom University of Suriname (AdeKUS) is the overall responsible Department, represented by Mr. Naipal S. (Figure 3)

2). On task level the responsibility is represented in the table here below: Table "Overview of the responsibilities"

Table: Overview of the responsibilities

Activities	Responsible
1.1. Data gathering on wave energy	Mr. Naipal S. (Dept. IS)
1.2. Data gathering on currents / flows	Mr. Naipal S. (Dept. IS)
1.3. Data gathering on depths	Mr. Naipal S. (Dept. IS)
1.4. Data gathering on the amount of sediment	Mr. Naipal S. (Dept. IS)
1.5. Data gathering of soil characteristics	Mr. Naipal S. (Dept. IS) & Ms. Narain M. (Dept. DP)
2.1. Awareness rising and training	Stichting Solom (Nickerie)
2.2. Gathering materials	Locals (DC Nick)
2.3. Preparation materials, including the necessary logistics	Mr. Naipal S. (Dept. IS) & Locals (DC Nick)
2.4. Constructing a permeable structure	Mr. Naipal S. (Dept. IS)
3.1. Awareness rising and training	Solom (Nickerie) & DC Nickerie & Dept. IS
3.2. Demonstration on mangrove planting	Mr. Naipal S. (Dept. IS)
4.1. Monitoring on Hydrology & Hydraulics	Mr. Naipal S. (Dept. IS)
4.2. Monitoring of Biology	Mr. Lugt van der Dept. MW + Solom
4.3. Recommendations	Mr. Naipal S. (Dept. IS)

Explanation of the abbreviations in the table:

Dept. IS – Department of Infrastructure of the Faculty of Technological Sciences

Dept. DP – Department of Mining (Delfstof Productie)

Dept. MW – Department of Environmental Sciences (Milieu Wetenschappen)

DC – District Commissioner

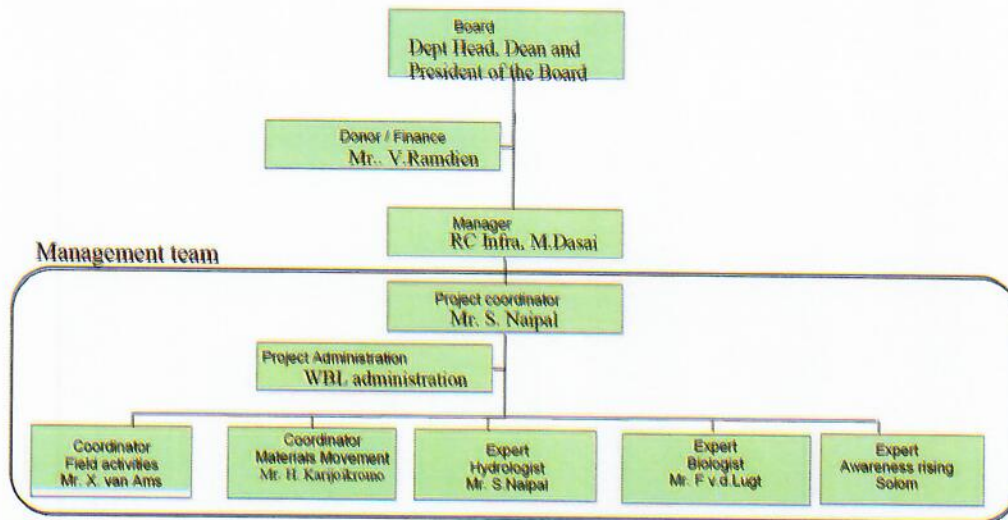


Figure 3. Management structure

2.11 Monitoring and Evaluation		
Type of M&E activity	Responsible Parties	Time frame
Inception report	President of the Board of the Anton de Kom University of Suriname)	December 2017
Progress reports	Board (Department Head, Dean of the Faculty of Technological Sciences, President of the Board of the Anton de Kom University of Suriname)	March 15, 2018, June 15, 2018
Financial Reports	Board (Department Head, Dean of the Faculty of Technological Sciences, President of the Board of the Anton de Kom University of Suriname)	March 15, 2018, June 15, 2018, August 2, 2018
Field Monitoring and Evaluation		August 2, 2018
Final Project Report		August 30, 2018

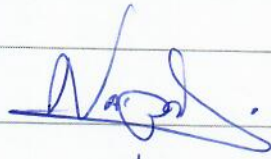
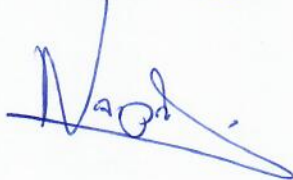
III. SUMMARY BUDGET

	Grant contribution	Own contribution	Other contribution	Total Cost
ACTIVITY 1	\$7,760.00	\$860.00	\$180.00	\$8,800.00
ACTIVITY 2	\$38,500.00	\$2,850.00	\$850.00	\$42,200.00
ACTIVITY 3	\$32,500.00	\$4,000.00	\$700.00	\$37,200.00
ACTIVITY 4	\$21,000.00	\$2,600.00	\$200.00	\$23,800.00
TOTAL COST	\$99,760.00	\$10,310.00	\$1,930.00	\$112,000.00

Background documents

	Attached	Yes/No
1. Statutes of the organization		
2. Photo ID of 3 signatory members of the Board		
3. Copy of the registration in the National registry for foundations		
4. Initialed copy of at least one financial reports or audits of the organization		
5. Letter of support in case of partnerships		

Signatures

Signature of the Secretary and the Treasurer of the requesting organization		Date
Signature Project Manager		Date

13/12/17