



FINAL PROGRESS REPORT

FED/2015/371 615

Global Climate Change Alliance +
Seychelles Climate Change Adaptation Project
La Digue Island, Seychelles

This project is financed by the EU and implemented by UNDP



FINAL PROGRESS REPORT

Supporting adaptation to climate change in coastal areas

1st April 2017 to 28th March 2021

FED/2015/371 615

Global Climate Change Alliance Plus (GCCA+)

La Digue Island, Seychelles

Table of Contents

S No.	Title	Page
1.0	Project Description.....	5
1.1.	Title of Action	
1.2.	Target Country	
1.3.	Target Location	
1.4.	Final Beneficiaries and Target Groups	
1.5.	Project Context	
1.6.	Executive Summary	
2.0	Activities and Results.....	7
2.1.	Result 1 - Integrated Shoreline Management Plan	
2.2.	Result 2 - Enhanced hydrological dynamics and productivity of stream channels and wetlands and increased flood buffering capacity	
2.3.	Results 3 - Enhanced beach berms	
2.4.	Results 4 - Mitigated effects of coastal flooding / saltwater contamination	
3.0	Management Arrangements.....	20
4.0	Grant Award and Procurement Process.....	23
5.0	Monitoring and Evaluations.....	23
6.0	Risks and Assumptions.....	24
7.0	Cross Cutting Issues.....	25
8.0	Stakeholders and Project Partners.....	27
9.0	Communication and Visibility.....	28
10.0	Lessons Learned and Exit Strategy.....	29
	Annexes	

ACRONYMS AND ABBREVIATIONS

AF	Adaptation Fund
CBD	Convention on Biodiversity
CC	Climate Change
CCA	Climate Change Adaptation
CCD	Climate Change Division
CCM	Climate Change Mitigation
COP	Conference of Parties
CPI	Climate Promise Initiative
DRDM	Department of Risk Disaster Management
DTF	Drainage Task Force
EbA	Ecosystem Based Adaptation
EU	European Union
GCCA	Global Climate Change Alliance
GCCA+	Global Climate Change Alliance Plus Initiative
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Risk Reduction
GOS	Government of Seychelles
Ha	Hectares
ICZM	Integrated Coastal Zone Management
IPCC	Inter Governmental Panel on Climate Change
ISMP	Integrated Shoreline Management Plan
M&E	Monitoring & Evaluation
MEECC	Ministry of Environment, Energy and Climate Change (changed to MACCE)
MACCE	Ministry of Agriculture, Climate Change and Environment
MDA	Ministries Departments and Agencies
MEA	Multilateral Environment Agreements
MFTEP	Ministry of Finance, Trade, Economic Planning
NBSAP	National Biodiversity Strategy and Action Plan
NCCP	National Climate Change Policy
NDC	National Determined Contribution
NEP	National Evaluation Plan
NWG	National Working Group
OECD	Organization for Economic Cooperation and Development
PCCB	Paris Committee on Capacity-building
PES	Payment for Ecosystem Services
PMS	Performance Management System
PPBB	Programme Performance Based Budgeting
PPP	Public Private Partnership
PUC	Public Utility Corporation
R&D	Research and Development
RBM	Results Based Management
SCCHAP	Seychelles Climate Change and Health Adaptation Plan
SCMP	Seychelles Coastal Management Plan
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
SMART	Specific Measurable Achievable, Realistic Time bound
SME	Small Medium Enterprise
SNC	Second National Communication (UNFCCC)
SSDS	Seychelles Sustainable Development Strategy
TEC	Technical Evaluation Committee
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

1.0 Project Description

1.1. **Title of Action:**

Supporting adaptation to climate change in coastal areas

Reference : FED/2015/371 615

1.2. **Target Country:**

Republic of Seychelles

1.3. **Target Location :**

La Digue Island, Seychelles.

La Digue is part of the Seychelles Inner Islands, being the 3rd most populated with a total landmass of just over 10 sq. km; it is the 4th largest island in the archipelago.

The island is located 43KM North-East of the mainland of Mahé and accessible mostly through ferry operations.

1.4. **Final Beneficiaries and Target Groups:**

The main beneficiary of the project is the Government of Seychelles under the ownership of the Ministry of Agriculture, Climate Change and Environment (MACCE) along with the Ministry of Finance, Trade and Economic Planning (MFTEP). The project's direct beneficiaries include the population of Seychelles, more specifically targeting and enhancing the lives of 3000 residents of La Digue Island. Other stakeholders benefiting from the project are the University of Seychelles and local NGO's including the La Digue Fishermen's association and Sustainability for Seychelles.

1.5. **Project Context:**

Climate Change and its devastating effects are being experienced in all corners of the globe with Small Island Developing States (SIDS) continuing to be amongst the most vulnerable to its impacts. La Digue, an island of just under 1000 ha, and the 3rd most populous island in the Seychelles archipelago, relies heavily on tourism for its economic growth. In recent years, the island has experienced extensive flooding due to heavy rainfall, combined with increasing coastal developments that have resulted in associated risks to both health and environment. The Government of Seychelles (GoS) has found it imperative to seek assistance in addressing issues related to extreme climate events which are becoming increasingly common.



H.E. EU Ambassador, SALL, with UNDP Resident Representative, Simon Springett, and Minister, Didier Dogley, at the project signing ceremony at Foreign Affairs). December 2015.

According to the Government's Nationally Determined Contributions (NDCs) of July 2021, adaptation to climate change is becoming an urgent priority as most of the Seychelles population and the country's critical infrastructures are located along the coast. Past experiences clearly demonstrate the detrimental effects coastal flooding and coastal erosion has on socio-economic activities and natural ecosystems.

Feasibility studies on coastal flooding and erosion and emergency remedial works around affected areas on Mahé, Praslin and La Digue used varied approaches to address the issue in recent years.

This project, funded by the European Union through the Global Climate Change Plus Initiative (GCCA+), aimed to support adaptation to climate change by increasing coastal and flood protection in the vulnerable areas of La Digue Island. The project, referred to as Component B under the EU GCCA+ Initiative, combined cost-effective EBA methods with various engineering technologies to address site-specific issues and opportunities towards enhancing community resilience to coastal flooding.

The United Nations Development Programme (UNDP) in Seychelles has significant experience in implementation of EBA approaches on Mahé and Praslin, and in the successful implementation of several other EU funded projects in the country.

Component B of the GCCA+ project was implemented directly by the UNDP through the Delegation Agreement (PAGODA), following discussions between parties.

1.6. **Executive Summary of Action:**

The overall objective of the programme is “to ensure that the people, economy and environment of Seychelles are able to adapt to and develop resilience to climate change and its effects, thereby safeguarding the sustainable development of Seychelles”.

The specific objective of the EU support is to contribute to the implementation of the Seychelles Climate Change Strategy (SCCS) through:

- (i) Strengthening the climate change sector policy framework (Component A).
- (ii) Supporting adaptation to climate change in coastal areas (Component B).

This progress report is concerned with Component B of the EU funded GCCA+ project only. Under Component B, the project’s aim was to increase coastal and flood protection in the vulnerable areas of La Digue Island. This was achieved mainly by the formulation and adaptation of an integrated shoreline management plan, engaging civil works to enhance hydrological dynamics and productivity of stream channels and wetlands, mitigating saltwater contamination, and improving the flood buffering capacity along the coast.

Sustainability of key actions and maintenance will be taken on by relevant authorities and through the continued involvement of the inhabitants of La Digue as current and future custodians of the island.

2.0. Activities and Results



The expected results and main activities of Component B are as follows:

- 2.1. Results 1 – Integrated Shoreline Management plan in place.
- 2.2. Result 2- Enhanced hydrological dynamics and productivity of stream channels and wetlands and increased flood buffering capacity.
- 2.3. Result 3 - Enhanced beach berms.
- 2.4. Result 4 – Mitigated effects of coastal flooding / saltwater contamination.

H.E. EU Ambassador Sall with Mr. Wills Agricole (PS-Climate Change and Energy) with the then Project Manager, Mr. Rodney Quatre, at the tree planting ceremony at La Passe on La Digue. February 2017.

	Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Overall objective	To ensure that the people, economy, and environment of Seychelles can adapt to and develop resilience to climate change and its effects, thereby safeguarding the sustainable development of Seychelles.	Develop the resilience of MDGs to climate change impacts, i.e., MDGs do not degrade.	MDG reports SDG Baseline Report VNR/Others	There is no major economic/financial or political crisis.
Specific Objective	To contribute to the implementation of the Seychelles Climate Change Strategy through support provided in adaptation to climate change in coastal areas.	Reduced flooding events in coastal areas of La Digue island.	Ministry of Environment and Energy (MEE) monitoring reports, Press releases and articles, reports of the Project Manager in charge of the implementation of this project.	The Government and the other agencies concerned are committed to the implementation of the La Digue Wastewater Master Plan.
Results	R1 Integrated shoreline management plan in place. Ecosystem-based adaptation approaches have been established along the shorelines of the islands, reducing the risks of climate change exacerbated coastal flooding.	Hectares of coastal ecosystems covered by the Integrated Shoreline Management Plans – targeted area: La Digue Plateau (approx. 300 ha)	Project reporting by MEE on coastal management planning. Technical reports of the Project Manager on shoreline management assessments.	No exceptional series of climatic events. Participation of the local institutions and communities to management system and operation and maintenance. Government allocating sufficient resources for operation and maintenance.
	R2 Enhanced hydrological dynamics and productivity of stream channels and wetlands and increased flood buffering capacity.	Hectares of wetlands rehabilitated (approx. 10 ha). Total capacity providing flood attenuation services (approx. 100,000 m3). Length of stream channels rehabilitated /enlarged (approx. 2 km). Length of key drains rehabilitated/enlarged (approx. 1 km). Number of outlet gates improved/enlarged (2 Units).	Reports of the Project Manager on flooding incidence and on erosion incidence.	

		Including equipment, operation, and maintenance manuals in place for control; Number of people trained (10u).		
	R3 Enhanced beach berms	Length of rehabilitated beach berms with increased resilience to climate change impacts (approx. 1 km). Operation and management protocols and number of people trained (5 u).	Idem	
	R4 Mitigated effects of coastal flooding/saltwater contamination.	Conductivity measures with decrease in salt content in water table, wetlands, and farm ponds (reduction targeted 50% in ponds/wetlands in dry season). Stabilisation or increase in productivity yields on coastal plateau. Rehabilitation of farm ponds; Control of salinity levels in water table and ponds; Operation and maintenance protocols and number of people trained (5 u).	Reports of the Project Manager on conductivity measures; yield data.	
		Means	(TOTAL BUDGET FOR ALL ACTIVITIES 1,043,028 EUR)	
Activities for R1	1.1 Large scale assessment of erosion and flood risk of the project area, and the ecological integrity and functional connectivity within and between the different ecosystems that provide flood buffering environmental services to the coastal communities. It will involve the specification of coastal use and management regimes to ensure that integrity is enhanced in the long-term through providing adequate connectivity.	Technical Assistance. Staff costs. Costs for the organisation of Workshops. Incidental costs.	Integrated shoreline management plan. Other technical studies and reports. Community Engagement.	No exceptional climatic events. Participation of the local institutions and communities and commitment to a sustainable management system and operation and maintenance. Participation of the local farmers and agricultural services to monitoring and to a management

				system and operation and maintenance.
Activities for R2	<p>2.1 Hydrological and topographic studies.</p> <p>2.2 Rehabilitation of input and output channels.</p> <p>2.3 Channel and shoreline landscaping.</p> <p>2.4 Design and installation of tidal sluice gates systems and associated infrastructure.</p> <p>2.5 Key drains, stream channel and wetlands rehabilitation and enlargement/extension.</p> <p>2.6 Other measures as required including specific equipment (level control, gates mechanisms, pumps, generators...) strengthening of maintenance & management capacity.</p>	<p>Technical Assistance</p> <p>Staff costs</p> <p>Works</p> <p>Supervision costs</p> <p>Supplies</p> <p>Incidental costs</p> <p>Workshops</p>	<p>Design and construction of outlets and groynes.</p> <p>Rock armouring for wetlands.</p>	
Activities for R3	<p>3.1 Reshaping the beach berms.</p> <p>3.2 Stabilising and planting for ecosystem and flood protection.</p> <p>3.3 Sand nourishment of the beach.</p> <p>3.4 Setback demarcation using bollards and walkways so that the vegetation in these areas is not disturbed following planting.</p> <p>3.5 Maintenance and management capacity will also be strengthened.</p>	<p>Works</p> <p>Supervision costs</p> <p>Staff costs</p> <p>Incidental costs</p> <p>workshops</p>	As above	
Activities for R4	<p>4.1 Ecosystem based salinization control measures.</p> <p>4.2 Hydrological assessment and intervention in coordination with activities 2.1 to 2.6</p>	<p>Technical assistance</p> <p>Staff costs</p> <p>Works</p> <p>Supervision costs</p> <p>Incidental costs</p> <p>workshops</p>	<p>Scientific monitoring and reports</p> <p>Related costs.</p> <p>Construction of 2 non-return dykes through the Environment Trust Fund.</p>	

2.1. Integrated Shoreline Management Plan

Activities

Production of an Integrated Shoreline Management Plan, including large-scale assessment of erosion and flood risk of the project area, and the ecological integrity and functional connectivity within and between the different ecosystems that provide flood buffering environmental services to communities; specification of coastal use and management regimes to ensure integrity and enhancement in the long-term through adequate connectivity.

This action included the large-scale assessment of erosion and vulnerable communities therein to erosion and sea level rise and flood risk mapping of the la Digue plateau, taking into consideration the affected communities and areas of socio-economic importance therein.

Selected Ecological Mapping exercises were carried out to assess ecological integrity and functional connectivity within and between the different ecosystems that provide flood buffering environmental services to the coastal communities.

A detailed assessment on the existing multi-coastal users and conflict generated was mapped and developed. All the above studies contributed to the development of the Shoreline Management Plan, provided to the Government of Seychelles through the Ministry responsible for Environment, with specification of coastal use and management regimes for the area and various mitigation options.

A major recommendation of the Shoreline Management Plan was to conduct a marine mapping exercise to provide a detailed shallow water ecological mapping, benthic surveying, and high-end bathymetry modelling of sea floor from the beach to reef edge, and to expand the coastal and port development for the future to link minor coastal access through reef passages for artisanal fishermen.

Key Actions and Results

- The TORs for the development of the Integrated Shoreline Management Plan completed and approved by the SC.
- Tender processes launched for Request for Proposals (RFP) as per the UNDP procurement guidelines and posted on the UNDP procurement website.
- The Evaluation of Bids and selection was carried out by the Technical Evaluation Committee with the GCCA+ Project team, the UNDP, Ministry observers and the National Drainage Task Force.
- *Artelia Environnement et Eau* from France, was the successful bidder with contract signed on 14th of February 2017 for a total value of USD 157,300/-.
- Groundwork commenced at the end of February 2017 and included preliminary field visits and meetings with various stakeholders.

- Scientific survey mission began on the 10th of March 2017 to collect both terrestrial and marine data required for the project.



Community consultations on La Digue with team members from Artelia Environment et Eau. April 2018.

Work under Component 1 was completed by April 2018. The major milestones are captured below:

- Meetings were held with various Government institutions on Mahé and La Digue to present the results of the sediment dynamics studies, proposed Shoreline Management Plan and proposed erosion mitigation measures.
- Public meeting held on the 1st of June 2018 to present the Shoreline Management Plan to the La Digue community.
- A consensus from the La Digue community that they should have the responsibility for the implementation of the Shoreline Management Plan.
- Six potential sites identified by the sediment dynamics study for potential mitigation measures. Main finding was that the cost of implementing all six would be beyond the available GCCA+ budget and therefore, the sites that would have the most impact have been selected after discussions with the relevant authorities.
- The Shoreline Management Plan was completed and launched on La Digue in November 2019 by the Head of the EU Delegation, the previous Minister of Environment, Energy and Climate Change and was attended by the French Ambassador and various stakeholders, including the La Digue Business Association, school children, officials of the UNDP, MEECC and the La Digue District Administration.

- The Ministry's Coastal and Adaptation Management (CAMS) Unit has the responsibility for implementing the recommendations of the Shoreline Management Plan as part of their ongoing activities funded through the Government's national budget.

The key deliverables Artelia completed include:

- Community consultations with **7** major national institutions and **30** individuals on La Digue representing various sectors.
- Detailed Bathymetry modelling of reef edge to beach berm inclusive of full coastal topography and sea-depth in 3D models.
- Comprehensive Marine and Ecological Mapping of shallow marine benthos for marine survey from headland at Anse Severe to edge of L'Union Estate.
- Ecological mapping for the wetlands and tributaries.
- Legal review and analysis of existing policy and planning legislation on coastal offences.
- Validation of existing flood maps prepared following major flood after the cyclone "Felleng" in 2013.
- Detailed Beach monitoring programme with latest in RTKS DGP system.
- Sediment dynamics study conducted and presented with recommendations.
- Mitigation measures to reduce erosion were proposed.
- Integrated Shoreline Management Plan.

The Integrated Shoreline Management Plan and other related documents are attached in Annex.

Media and Coverage:



**Minister Cosgrov
(Minister for
Environment Climate
Change and Energy)
with EU Ambassador
and UNDP
Programme Manager
at the launch of the
Integrated Shoreline
Management Plan on
La Digue, 15th
November 2019.**

<http://www.mecc.gov.sc/index.php/news/launching-of-the-shoreline-management-plan/>

2.2. Enhanced Hydrological Dynamics and Productivity of stream channels and wetlands and increased flood buffering capacity

Activities

The main activities originally proposed in the project document included:

- Detailed hydrological, hydraulics and catchment analysis for the contributing systems to flow.
- A two phased topographic survey of the coastal plateau will be conducted with general overview of the plateau from river bounds down to the coastal front and detailed topography surveys for identified drainage outlet areas to assist in designs.
- Rehabilitation and augmentation of outflow capacity at major outlet via implementation of significant storm water channel, inclusive of the designs, and implementation of 5 major outlets onto La Digue coastal front (DTF master plan).
- Wetland's outlet embankment stabilization and down stream flow control weirs for salinity control.
- Design and installation of tidal sluice gates/water gate systems and associated infrastructure.
- Stream and inland wetlands rehabilitation via major channel de-silting and deepening, storm water overspill buffer area enlargement/extension.
- Other measures as required including specific equipment (level control; gates mechanisms, pumps; generators); strengthening of maintenance and management capacity.

Key Actions and Results

- Discussions with the Government, the UNDP and the EU delegation were held to readjust the expected activities under Result 2 and merged with Result 3 due to budgetary constraints.
- The Addendum to the project was signed on 24th September 2018.
- The key actions and progress are combined with Result 3 below.

2.3. Enhanced Beach Berms

Activities

- Reshaping the beach berm, stabilizing, and planting for ecosystem and flood protection, and sand nourishment of the beach as required through the following:
 - Usage of beach profiling and beach mapping data from the Shoreline Management Program to gain net sediment cell needs in terms of sand loss/accretion.
 - Provision of sand recharging options for the selected beaches and to provide grey engineering for containment of recharged beaches via design and implementation of low lying groynes and armoring to enhance and further improve the beach conditions, including provision of access over structures, stabilizing and planting beach berms for ecosystem and flood protection.
 - Provision of landscaped and non-intrusive set back demarcation for beach berm protection, using dedicated entry walkways and amenities to beach access so that the vegetation in these areas is not disturbed following planting.
 - Strengthened maintenance and management capacity.

Key Actions and Results

Under Component 2, the project design envisaged the construction of 5 major outlets on La Digue. The actual cost implications for the construction of these outlets turned out to be significantly higher than anticipated in the project document and as stipulated in the signed PAGODA .

Due to heavy coastal flooding owing to the change in rainfall patterns, the Government had commissioned and completed the construction of 2 major outlets at La Passe and L'Union Estate, prior to the commencement of the project. In the Government's redefined priorities, the Drainage Task Force envisioned only minor/smaller connecting drains to be built along the coastal stretch from the two main outlets. This needed a re-alignment in project design to meet national objectives.

As the progress commenced, the logistics and expenses working on La Digue made it clear that the project budget would be insufficient for the construction of outlets as planned.

To align the project objectives with national priorities, extensive discussions were held between the Government of Seychelles, the EU Delegation and the UNDP to revise the original Financing Agreement (refer to Addendum signed between the EU and the UNDP for use of Contingency Funds for Component 2 &3).

Further meetings were held with the Minister for Environment and Climate Change and community members of La Digue to identify and prioritize sites guided by the availability of all the necessary data (topo surveys, wayleaves etc. as some sites were on private lands).

The fundamental advantages of the extensive revisions and reallocation of funds towards the project Results 2 and 3, were (i) the cost effectiveness - in both time and money - through streamlining of procurement and tendering processes, and (ii) the economic viability for the design and supervision of construction, given the capacity limitations at Ministry level and the turnover of staff at project level.

Planning approval was sought from designated authority by the Ministry responsible for Environment and Climate Change (as the Client) on behalf of the UNDP and obtention of way leave formally for all plots, was secured. The Tender for Design and Supervision was launched in May 2019 and awarded to GIBB and on approval from Planning, the tender process for construction was launched in November 2019. As UNDP had launched its e-tendering process, training to staff and potential bidders had to be conducted prior to the reception and approval of bids. Site visits were organized for 6 potential contractors but only 3 bids were received.

The challenges and delays in project implementation were attributed to:

- a) Approvals pertaining to permits and obtention of way leave
- b) Restrictions imposed by the Public Health Authority due to the COVID-19 pandemic and adherence to new protocols.
- c) Changes in processes and procedures that needed to be streamlined.

To mitigate the above, a request for extension was submitted by the National Authorizing Officer with inputs from the UNDP and approved, and the UNDP team in Seychelles had regular progress meetings with the Project Supervisor and Contractor

to ensure the civil works could be completed on time. The UNDP team also met with the newly appointed Minister under the Ministry of Agriculture, Climate Change and Environment, and relevant team members from the department to ensure timely completion of project activities. The Civil works for Components 2 and 3 were completed by 28th March 2021.

The scope of work included the following sites:



The pictures above are in line with the Outlets 1,2,3,4,5 as listed below

- Outlet 1- **Chez Marston**: Located next to the Doctor's House on La Digue Hospital property. This is a 60m drain that included culverts to the sea.
- Outlet 2- **La Digue Island Lodge**: This covered drain is 155m along the stone wall adjoining the La Digue Island Lodge towards property previously earmarked for Pension Fund.
- Outlet 3- **Bibianne**: This covered 50m box drain is on the private property of Ms. Bibianne at the junction of La Digue Island Lodge on the south side.
- Outlet 4- **Rabadia**: This 75m drain and culvert is located at Anse Reunion near the church.
- Outlet 5- **Helipad**: This 50m drain is located by the Helipad with outlet to the sea.

Other Constructions include:

- Groyne at La Passe with a 2m wide walkway.



- Groyne at L'Union Estate with a 2m wide walkway.



- Embankment of 90m at Lanmar Soupap at Union Estate.



The construction of these 5 outlets has greatly reduced flooding along the coastal areas during heavy rains, enabling water to flow out quickly into the sea. The groynes have reduced beach erosion in populated coastal zones, and the embankment helps with the reduction of saltwater intrusion into freshwater channels.

2.4. Mitigated effects of coastal flooding / saltwater contamination

Activities

- Salinization control measures of the aquifer and wetlands and enhancement of farm ponds and wetlands productivity.
- Strengthening of maintenance & management capacity.
- Saltwater Intrusion Mapping, through dedicated water sampling from marshes and determining saltwater intrusion intensity.
- Study and Survey of Borehole Recharge.
- Hydrology and Volumetric analysis of direct borehole recharge via usage.
- Construction of non-return dykes across wetland bodies.
- The engineered design, costing, Environmental Assessment and tendering for construction of 2 non-return Dykes across entrance of wetland at 2 specific sites.
- Construction of a shallow borehole into one location near farming grounds to act as long-term monitoring station for continued surveillance of saltwater intrusion.



Project Manager Rodney Quatre with team members from Greentech assessing water sampling, 5th November 2018.

Key Actions and Results

- The Tender for this work was awarded to Greentech (Sri Lankan Firm) in February 2017 and all deliverables were completed since 2018.
- Greentech prepared the Tender Documents for construction of dykes which was approved by the Planning Authority.
- Discussions with the UNDP, the EU and the Ministry led to agreement that the construction and supervision of the dykes will be carried out by the Ministry and funded through the Environmental Trust Fund (ETF).

The following deliverables were completed by Greentech:

- Saltwater Intrusion Mapping and maps produced.
- Hydrology and Volumetric analysis conducted on possibility for direct borehole recharge and completed.
- Tender documents for the design, costing, EIA and tendering for *construction of 2 non-return dykes*.
- Oversee the completion of construction work for 2 non-return dykes.

- Management plan for maintenance and operation of non-return dykes, including capacity building.
- Set up of Long-Term Monitoring station.

3.0. Management Arrangements

Based on the Financial and Administrative Framework Agreement (FAFA) between the European Community and the United Nations, signed on 29 April 2003, this project was implemented directly by the UNDP. The Delegation Agreement, following the PAGODA format, was signed between the EU and the UNDP (based in Mauritius) in December 2015 and the project management team were recruited by April 2016.

As per the DA, Project Steering Committee meetings were expected to be held at least twice annually but due to scheduling conflicts and non-availability of EU representatives, it wasn't always possible. The ROM mission commissioned by EU referenced this as an issue and proposed that the steering committee meetings be held even in the absence of EU delegates. The last PSC was held in September 2019. A PSC was scheduled for May 2020 but due to COVID-19 and restrictions on travel, this was not realized. Further request to the EU to organize a PSC in April 2021 had to be cancelled as both countries had a surge in COVID-19 cases.

The project also faced issues of staff turnover with the Project Assistant leaving her post in February 2018 for career advancement and the Project Manager in March 2019 upon expiry of his contract. Subsequent recruitment to fill the vacant posts proved unsuccessful and the lack of job security beyond the duration of the project was a key factor. Between October 2019 to March 2020, the UNDP office in Seychelles was supported by a Programme Manager on detailed assignment from the Belarus country office, who supported the Seychelles team on programmatic issues including the GCCA+ project.

Main Partners

Government of Seychelles

The Department of Foreign Affairs acted as the National Authorizing Officer for all EU cooperation and the technical Ministry responsible for Environment, and Climate Change (now referenced as MACCE) sits on the Steering Committee.

European Union



EU Ambassador H.E. Mr. Vincent Degert with H.E. Minister Flavien Joubert and team members from the Ministry of Agriculture Climate Change and Energy on project site. October 2021.

The EU is the main donor under the project and organized the mid-term evaluation of the project. It is expected that the EU will also conduct a final evaluation, but this may depend on public health advisories in the current pandemic. The EU responsibility also includes providing relevant feedback regarding the various documents (tender documents/terms of reference/reports) produced under the project as required and in a timely manner. Participation in regular project review meetings/briefings on the project status will be undertaken during planned missions to the Seychelles and coordinated with the UNDP and DFA as the lead organization for all preparation of programmatic visits of EU missions to the Seychelles.

United Nations Development Programme (UNDP)

The project is being implemented through the Direct Implementation Modality (DIM) by the UNDP Seychelles unit. During the last PSC, it was agreed that the Evaluation will be scheduled around end of 2020. However, due to COVID-19 and the extension of the Financing Agreement, the dates for the final evaluation are not confirmed.

Project Steering Committee

The Project Steering Committee (PSC) provided overall guidance and technical orientation of the programme, and as per the Terms of Reference, monitors progress of the project components, with the role of reporting and mitigating bottlenecks and finding solutions. The UNDP Resident Representative or his/her designated representative acts as the Chairperson of the Project Steering Committee (PSC). The Project Manager of the Project Management Unit is the secretary to the PSC and is responsible for the preparation of all documentation prior to the PSC meetings.

The UNDP and the Project Manager are members of the Global Steering Committee for the overall GCCA Project, which will include Component A, to ensure there are synergies between the 2 Components.

The Project Steering Committee for Component B of the GCCA+ initiative comprised of:

- EU Member States
- The UNDP including the PMU for GCCA+
- Project Coordinating Unit including the EbA Project Manager
- Ministry of Foreign Affairs and Tourism
- Ministry of Agriculture, Climate Change and Environment (previously MEECC)
- Ministry of Social Affairs and Community Development** (check name)
- Public Utilities Corporation
- Seychelles Agriculture Agency
- Sustainability for Seychelles (NGO)
- La Digue Island Board

Project Management Unit

The Project Management Unit consisted of a dedicated Project Manager (PM) and a Project Assistant (PA) recruited by the UNDP and based in the UNDP offices in Seychelles.

The PM was recruited in April 2016 and left the project in March 2019. The PA was recruited in June 2016 and left the post in February 2018 for further career advancement.

This high staff turnover impacted on the project significantly, as subsequent recruitments were unsuccessful and the then UNDP Programme Manager had to manage the project. It is to be noted that the UNDP Programme Manager retired in December 2020, and the project has been guided by the UNDP National Project Coordinator and the UNDP Programme and Operations Specialist between October 2020 until project completion.

4.0. Procurement and Grant Award Procedures

Methodology

In accordance with the UNDP's Programme and Operations Policies and Procedures (POPP), all procurement relevant Request for Proposals (RFPs) were advertised on the UNDP procurement notice website and in 2019 through the e-procurement site. All recruitments and acquisitions for the project realized within project duration followed UNDP policy and procedures.

Given the high value of bids, the Country Office required the approval and clearance of the Regional Advisory Committee on Procurement. All selected firms were contracted as per UNDP rules and regulations. All procurement processes followed the principle of transparency.

Contracts Awarded

- For Results 1 - Integrated Shoreline Management Plan - Artelia Environnement et Eau was contracted.
- For Results 2 & 3 - Enhanced hydrological dynamics and productivity of stream channels and wetlands and increased flood buffering capacity and enhanced beach berms contracts were awarded to GIBB Seychelles for the Design and Supervision of works while ASCENT Projects were awarded the contract to carry out the civil works between June 2020- March 2021.
- For Results 4 - Mitigating effects of saltwater intrusion - the contract was awarded to Greentech.

5.0. Monitoring and Evaluation

In compliance with the UNDP's monitoring, evaluation and reporting requirements, M&E activities were carried out as outlined in the UNDP's POPP.

Annual Progress Reports were prepared and submitted to the Delegation as well as Minutes of Project Steering Committee meetings.

The EU commissioned a ROM mission in March 2017 for the GCCA+ project.

The project team, along with contractors, scheduled regular site visits, community consultations and other interventions during the lifetime of the project.

The UNDP team in Seychelles visited the various sites with the newly appointed Minister in February 2021 and requested the Government's intervention on pending wayleaves. It was also important for the Minister to understand the importance of the drains and identifying relevant partners for the maintenance and upkeep of the outlets upon project completion.

The final evaluation was planned but not actioned by the EU, at the time of writing this report. 2 PSCs were scheduled annually until 2019, however in 2020 and 2021, no PSC were held due to restrictions on travel, meetings etc. in place attributed to COVID-19.

In lieu of the PSC, the UNDP National Project Coordinator and UNDP Programme and Operations Specialist met with the MACCE and other relevant parties at regular intervals to ensure timely completion of project activities. A site visit with a team from Foreign Affairs and the MACCE were also organized. Weekly progress updates were received from the contractors and progress meetings were held monthly between July 2020 and March 2021.

6.0 Risks and assumptions

Seychelles enjoyed political stability for over 4 decades, and although the 2020 Presidential and National Assembly saw a complete change in government, political risks remain low for the project.

As a SIDS, Seychelles still faces significant development challenges and vulnerabilities with its over-reliance on tourism despite being a high-income country with macroeconomic stability and forecasted steady economic growth prior to the pandemic.

The country is ranked as a highly vulnerable country according to the latest Environmental Vulnerability Index prepared by UNEP. Potential risks identified in the project document include:

- **Climate finance:** The climate change sector has no medium-term expenditure framework and the public investment plans are not integrated with ministerial expenditures or linked to the national macroeconomic revenue and expenditure scenario. The risk was mitigated by Component A of the EU GCCA+ programme and retired.
- **Climatic events:** Seychelles being highly vulnerable to climate change, a fundamental assumption is that there are no exceptional climatic events during the implementation phase, which may considerably delay project activities. During the project duration, apart from heavy seasonal rainfall, no adverse climatic conditions impacted project activities negatively. This risk was retired on completion of civil works.
- **Processes and Procedures:** Due diligence had to be exercised throughout the project to ensure all works were carried out with the proper approval processes. Delays were encountered in seeking changes to Component 2 and 3, receiving approval of way leave from private landowners and other Government institutions, and other unforeseen changes in processes. All bottlenecks were addressed, and civil works were completed by expected project closure in March 2021.
- **Budgetary Constraints:** Bids may be too high given the location and transportation of goods and materials to La Digue.

COVID-19 related risks:

Some risks related to the pandemic were not previously considered. These include:

- Currency fluctuations - To mitigate the risks of currency devaluation, contracts were paid in USD. This risk was retired.
- Limitations on travel, public health orders and restriction of movements of people.
- Shortage of goods and materials due to import/forex restrictions.

Change in Government:

- The Presidential and National Assembly elections saw a complete change in Government, and changes at highest political level may disrupt or delay ongoing processes. However, UNDP engagement with the technical staff of the Ministry and the Minister ensured that political buy-in and commitment remained high and that the project was able to achieve its milestones within the stipulated time frame. The risk was retired.

7.0 Crosscutting issues

Gender

- The project beneficiaries include both men and women on La Digue and visitors to the island as flooding impacts all households and establishments indiscriminately. The benefits of building community resilience and mitigating coastal floods impacts both genders equally under this project. While it is difficult to quantify the benefits of the project towards different genders, it is to be noted that one of the outlets was constructed on a property belonging to Ms. Bibianne, who had expressed her concerns about the effects of climate change, beach erosion and flooding of her property. Since the construction of the outlet, she has indicated that her property doesn't flood anymore and was appreciative of the project's interventions.

Climate Action

- The project's interventions directly supported the Government's policies on climate change adaptation through soft (policy) and hard interventions. Climate change adaptation remains a key priority for the newly elected Government and having witnessed the benefits of adaptation measures in the country through hard engineering solutions, they are keen to ensure adaptation techniques can be applied across the country to build community resilience against sea level rise, coastal erosion, floods and droughts.

Community Resilience

- Being a small island developing state, many communities and local infrastructure are located along the coastal areas, which are often vulnerable to the impacts of climate change. Offering a mix of solutions that reduce these vulnerabilities of flooding, erosion and improving local infrastructure (such as drains/outlets) builds community resilience and protects existing structures to withstand climate pressures. Furthermore, engaging the community and building awareness also enhances the people's capacity to act, adapt and mitigate effects of climate change.

Coastal Zone management

- Integrated Shoreline Management is an effective planning and development tool that enabled various government agencies to make informed decisions in the development of La Digue and requisite infrastructures, as the Government considers infrastructure priorities, such as the expansion of the port or construction of the new hospital.

Blue Economy

- "In the Seychelles context, the Blue Economy refers to those economic activities that directly or indirectly take place in the ocean and coastal areas, use outputs from the ocean, and place 'goods and services' into ocean activities, as well as the contribution of those activities to economic growth, social, cultural, and environmental wellbeing. It aims to transform economic development and human well-being through the judicious use of the resources that exist in the ocean. By conceptualizing the ocean as a development space where spatial planning integrates conservation, sustainable use, resource extraction, and sustainable energy production and transport, the Blue Economy offers an alternative economic approach that is guided by environmental preservation principles."

[http://www.finance.gov.sc/uploads/files/The Blue Economy strategy.pdf](http://www.finance.gov.sc/uploads/files/The_Blu_economy_strategy.pdf)

- The scope of Blue Economy as defined in Seychelles includes activities that protect and utilize coastal and marine resources and those that benefit the local communities. The interconnectedness of climate action and coastal and ocean conservation cannot be overstated. The GCCA+ is a clear example of how the project's interventions are directly linked to enhancing the Blue Economy's strategic objectives of building community resilience and safeguarding those aspects that enable the country to thrive from related economic activities.

Ridge to Reef/Environment

- The *ridge to reef approach* aims to protect the coastal areas through interventions that reduce environmental degradation in the uplands ("ridge") which impact coastal ecosystems through sedimentation, to the restoration of shoreline and protecting marine ecosystems ("reef"), by mitigating storm surges, coastal and inland flooding and reducing people's exposure and vulnerabilities to these hazards, whilst

simultaneously providing direct livelihood benefits to targeted households and stakeholders. The GCCA+ project interventions have directly supported the coastal protections and will greatly assist the Government in planning the internal drainage networks to reduce flooding in low lying areas of the island.

8.0 Stakeholders and projects

In terms of partnerships and cooperation, GCCA+ worked in close collaboration with the:

- **Drainage Task Force (MACCE):** DTF was set up by former President James Michel in the wake of the flooding caused by cyclone “Felleng” in 2013, especially on the island of La Digue. The DTF had a drainage master plan from 2014 to 2017 to address these flooding issues and the GCCA+ project was designed as part of the solution. The GCCA+ project teams worked in close collaboration with DTF to ensure that there are no overlaps and that the project contributes to the alleviation of extensive flooding occurring because of extreme events and climate change. The DTF team were instrumental in providing guidance and the necessary clearances for the civil works to continue despite several challenges.
 - **UNDP-AF- Ecosystem Based Adaptation** Project team: The project worked closely with the UNDP AF EbA project. The PM for the GCCA+ sat on the EbA Project Steering Committee and the EbA Project manager is a member of the GCCA+ PSC.
 - **La Digue Board** is the governing body that guides the management La Digue. The GCCA+ team presented the project to the board and took note of the various concerns, and the board is kept updated with the activities of the project.
 - **La Digue School:** The project team established a partnership with the school engaging students and teachers in tree planting activities and showcasing some of the work and studies completed. The school supported the project as a de-facto meeting venue for many stakeholder consultations.
- Ports Authority:** The Seychelles Ports Authority is currently working on the expansion of the La Digue port and has significantly benefited from the many works conducted within this project. The SPA was instrumental in providing guidance and approval for the construction of the *groynes* to ensure that it does not impact the plans for expansion.
- **Others:** Various other agencies were also contacted and provided the necessary approvals for the project. These include Seychelles Pension Fund, the Ministry of Land Use and Habitat, the Seychelles Land Transport Division, the Public Utilities Corporation, telecom providers, private estate owners for the provisions of wayleave among others.

9.0 Communication & visibility



Minister Joubert and H.E. Ambassador Vincent Degert addressing the Press at the Tree Planting on La Digue with UNDP delegate. October 2021.

- Brochures produced in English and creole were distributed on La Digue.
- A Facebook page was created for audience to follow activities.
- Tree planting ceremony in February 2017 by H.E Ambassador Salle.
- T-shirts and reusable bags were produced as awareness materials.
- Television interviews to showcase some of the ongoing activities.
- Public meetings with stakeholders on La Digue.
- Door to door meetings with stakeholders.
- Two-day visit of a team of journalists contracted by the EU to produce a video to showcase activities which will be aired during the Bonn COP.
- Launching of the Shoreline Management Plan on La Digue with Minister of Environment, Energy and Climate Change.
- Production of fact sheets on the project.
- Tree-planting activities for coastal vegetation with the head of EU delegation, French Ambassador and Minister of Environment.

➤ 10.0 LESSONS LEARNED AND EXIT STRATEGY

Access to Information:

- Obtaining relevant reports and data from various institutions in a timely manner was a critical issue. Although these reports were stated to be publicly available, repeated requests went unanswered and in total experienced a 4-month delay to complete the sediment dynamics, the flood risk maps and the shoreline management plan.
- Recommended that GoS ensures that reports and feasibility studies are easily available on the agency website or digital archives for free or requested access.

Data Restrictions

- Information on reclamation works on La Digue were not shared, which may have impacted the precision of the shoreline erosion model. Permissions from PUC were also not forthcoming regarding data collection and access to unused wells. The whole process took a year, by which time the collection of data from the other drilled boreholes had already been collected. The consultants were requesting a further USD 22,000/- to monitor the five PUC wells, for which permission had only been given in July 2018. However, due to the budget constraints, they were instructed to proceed with the data from the wells they accessed. The extra data from the PUC wells would have provided a more accurate model from the ones that had been collected.
- It is recommended that intra-Government sharing of information be made possible to provide relevant feedback to consultants undertaking scientific assessments.

Stakeholder engagement

- Despite extensive meetings with local partners and stakeholders, there were delays in feedback on submitted reports and results that impacted the validation of the works.
- It would be imperative to ensure that feasibility studies required for future projects be made available prior to project signature or be part of the agreement signed with the Ministry.

Geographical Location

- The geographical location and access to La Digue needs careful consideration in budget planning and preparation, as transportation costs remain high.
- The considerations of working on La Digue need to be well factored into project design, with the option of having a project team on site to facilitate the process of engagement of beneficiaries and the community.

- A positive aspect of project management which happened by accident and not by design was the recruitment of the former Programme Assistant who happened to be originally from La Digue (although now based on Mahé). This facilitated the engagement with the La Digue community, and the consultants from ARTELIA were able to access the community members mostly on an individual basis.
- There is a need for stronger engagement of the District Administration in the process of mobilizing communities and stakeholder from La Digue in the planning process and the various studies being undertaken.

COVID-19:

- The pandemic caused several setbacks, but not necessarily to the GCCA+ project as some of the financial risks were mitigated. Public Health Advisories, Restriction of Movement, Currency Fluctuations, Forex and import restrictions all had a moderate impact on delaying some of the planned project activities.

E-Tendering/ E-Procurement:

- The UNDP introduced the above modules in 2019, around the time when tendering for Civil works was being undertaken. As UNDP staff were still being trained on the systems and processes, there was a delay in submission and evaluation of bids.
- The UNDP Procurement Assistant provided training for Contractors on the E-procurement site to successfully submit their bids.
- Furthermore, all tender documents from a Government format (National tender Board) had to be changed to fit the UNDP requirements.
- While it is to be noted that new processes can often streamline business practices that initially start-up, delays may be experienced.

Approval Processes:

- Changes to the project document and mergers of Component 2 AND 3 along with budget reallocation resulted in some delays.
- The Contractor ASCENT Projects faced additional delays and obstruction to carrying out civil works from various departments and agencies and some landowners. This required constant intervention by the Project Supervisor, the UNDP in Seychelles and the MACCE. Delays in obtaining way leave for selected sites was also another issue.
- It is important for the Government of Seychelles to better coordinate an approval system to ensure smoother processes.

Budgetary Constraints

- Under-estimation of costs at design stage was one of the key challenges, as the project was unable to fund the construction of 2 dykes estimated around USD 300,000. It is to be noted that from concept to approval stage of projects, many factors can and do change. It is important for projects that focus on construction to factor some inflationary trends in the market and conduct pre-feasibility studies to ensure the project can deliver to its intended outcomes.

Impact and Sustainability:

- The hard engineering and construction of open and covered outlets along the coastal road of La Digue has assisted the low-lying areas to fight flooding during the rainy season and other unexpected climatic events. Several MDAs will be involved in the upkeep and maintenance of these outlets to ensure it is kept free from debris and flood waters can easily be drained.
- Recommendations from the Project Supervisor's final report need to be addressed in the exit strategy in terms of identifying responsibilities of government stakeholders.
- Furthermore, the drainage network system within the island can connect to these outlets preventing low lying areas from getting waterlogged.
- Adaptation to climate change can bring about greater resilience through soft and hard approaches as demonstrated by the GCCA+ project.
- Enhancing community awareness and integrating priorities for climate action into national or district level plans has long term implications for sustainability and resilience for small islands such as La Digue.

Exit Strategy

- The UNDP will provide the documentation and requisite material (Final Reports) to the Minister of Agriculture Climate Change and Environment and relevant discussions will be held by the Minister and his team, with various ministries agencies and departments to ensure the cleaning and maintenance of the drains. It is expected that the Drainage Task Force in collaboration with relevant agencies on La Digue and Mahé will be responsible for ensuring regular maintenance and upkeep through MoUs or inter-ministerial or departmental agreements.
- The Contractor - Ascent Projects has provided guarantees for the Defect Liability period of 1 year which will provide any cover for contingencies within the 12 months cycle (from date of completion).