

3.2.1.6 Risks and their mitigation

The risks in the implementation of this present project would be as follows:

Risk	Level (Low, Medium, High)	Response
Dunes are eroded following an extreme event	High	Appropriate measure would have to be taken within the lagoon and would include the use of breakwaters
Reluctance or opposition of general public	Medium	Information and awareness campaign would have to ensure proper understanding of measures put forward
Reluctance and delay in amending the local legislation	High	Proper briefing of officials and political actors on the importance of dunes and the necessary amendments.
Native plants not properly stabilizing the dunes	Low	Necessary research undertaken in view of ensuring the most appropriate plants are used.

3.2.1.7 Stakeholder mapping

The key stakeholders to be involved in this project would be as follows:

Stakeholder	Roles and responsibilities
Beach Authority	Responsible for the proper management and maintenance of public beaches around Mauritius
Ministry of Environment	Responsible for the management of the coastal zone
Ministry of Fisheries	Responsible for the management of coastal and marine resources
Ministry of Housing and Lands	Responsible for the management of the local land territory including beach areas
Local NGOs and Force Vive	Immediate actors and beneficiaries for proposed project

3.2.2 Project Idea for wetland protection

Coastal wetlands provide a number of important ecosystem services including water quality and climate regulation, they are valuable accumulation sites for sediment, contaminants, carbon and nutrients and they also provide vital breeding and nursery ground for a variety of birds, fish, shellfish and mammals.

3.2.2.1 Summary sheet for dune and vegetation restoration

COASTAL ZONE SAMPLE PROJECT SHEET: Wetland Protection	
Brief Project description Wetland protection and restoration for the region of Belle Mare and Palmar with the view to improve the biological and hydrological quality in the surrounding areas.	
Results Oriented Framework	
Overall Goal i. Improve water quality in surrounding areas ii. Improve the biodiversity of surrounding areas iii. Raising awareness of the need to conserve wetlands iv. Promulgation of a wetland protection bill	Development Objectives Wetland acquisition with the view to conserve and protect these environmentally sensitive areas along with raising awareness on the importance of wetlands in our environment and to have the necessary legal instrument to fully protect the wetlands.

Inputs i. Acquisition of private wetlands ii. Publication of leaflets and other media campaigning materials iii. Review and amend existing laws and regulations for the better protection of wetlands	Outputs i. Wetlands under official jurisdiction ii. Leaflets and other media advert material iii. Improved legislation	Impacts better water quality within the lagoons of Belle Mare and Palmar
Estimated costs MUR 30,000,000 – for acquisition of land with wetlands MUR 5,000,000 for wetland restoration MUR 1,000,000 for information and awareness campaign		
Proposed timeframe 5 years	Executive bodies National Parks and Conservation Services	
Cost-benefit analysis The acquisition of some 20 hectares of lands with wetlands and buffer areas from private property owners so as to improve water quality in around 400 Ha of lagoonal area	Risks No improvement in water quality of lagoons due to other influencing factors Reluctance from property owners to sell or exchange their land	
Expertise required		
Profile Local expertise in Hydrology Land surveying Environmental Educators Media professional Legal Consultant	Key tasks <ul style="list-style-type: none"> • Identify and prioritize areas for acquisition • Put forward mitigation measures • Prepare leaflets and other media material to reach the different targeted groups • Formulate appropriate Bill to better protect wetlands 	
Identification of key stakeholders National Parks and Conservation Services Ministry of Environment Minsitry of Housing and Lands Ministry of Fisheries Local NGOs and Force Vive		

3.2.2.2 Project overview

Project Scope

The proposed project has for main objective put existing wetlands and their buffer areas of 30 m in the region of Belle Mare and Palmar under official jurisdiction in view of protecting and restoring these ecologically important water bodies. These shall benefit the coastal areas and lagoon through an improved water quality along with a sound biologically diverse and hydrologically active area around those wetlands.

The main part of the project would be to acquire the lands from private property owners where wetlands exist. The area to be acquired should also have the buffer area of 30 m surrounding the wetlands. The acquisition could be done through compulsory acquisition by the government but realistically this option may be faced with several obstacles and thus exchange of lands may be a better option to consider along with offering a nice package for the plot of lands.

It would be important for the government to have control over the lands with wetland so as to be in a better position to protect those sensitive areas and to prevent eventual backfill. The ESA Study (2009) have identified most wetlands in Mauritius and have moreover identified all property owners of wetlands and buffer areas and

this should be used as starting point bearing in mind that there shall be the need to update the information as it is already 4 years old and properties may have changed ownership.

This wetland protection projects could involve many volunteers that require hands on training about the functions and importance of wetlands in our ecosystem. The local community should have a prominent role in this project and this will form an integral part of an education process that would raises awareness of likely effects on the coastal areas in absence of proper measures to protect wetland and these can include water degradation of water quality and flooding. At a larger scale, it is useful for governments to adopt proactive coastal management plans to protect, enhance, restore and create marine habitats.

In addition to the above, leaflets shall be designed and printed and eventually distributed to the general public mainly in areas where the project shall be located targeting with special attention the young school children. Other media campaign shall formulated and thereafter shall be broadcasted on the national television, national and private radios, and printed in local newspaper.

The review of the existing legislation shall be effected and previously proposed Bills such as Wetland Bill and the Environmentally Sensitive Area Bill (ESA Bill) and eventually recommend with or without amendments a Bill for enactment. Enforcement measures will also have to be devised in view of ensuring better protection of the wetlands especially in the case of backfill.

Timeline

The timeline for this project would be 5 years comprising of the following which would run concurrently

Negotiation with private property owners – 2 years

Expression of interest and tendering exercise – 6 Months

Wetland restoration – 2.5 years

Awareness campaign – 1 year

Enactment of a Wetland Protection Bill – 1 year

Budget

It is estimated that the cost for such a project would amount to around MUR 36 Million. The land acquisition or land exchange part can be finance domestically in as much as land from state land may be proposed for exchange.

The wetland restoration programme on the other hand can be financed through grants from international funding agencies

Components

The components of the project would be

- Acquisition of wetlands areas through direct purchase or exchange of land
- Wetlands restoration
- Information and awareness campaign
- Enactment of a Wetland Protection Bill

3.2.2.3 Project framework

Project Goal: Wetland Protection and Restoration through the acquisition of wetlands					
Development objectives: Acquire wetlands through direct purchase or exchange of land Wetland Restoration Information and awareness campaign Enactment of a wetland Protection Bill					
Project Component	Expected Outcomes	Expected Inputs	Expected Outputs	Objectively Verifiable Indicators	Expected Impacts
1. Acquisition of wetlands through direct purchase or exchange of land	Wetlands under official jurisdiction	Purchase of Land or land made available for exchange	Government owning wetlands	Wetlands as State lands	
2. Wetland restoration	Improved water quality in lagoons and improved hydrological and biological services from wetlands	Wetland native plants are restored	Ecologically sound wetland area	Improved water quality in lagoons	Improved coastal environment
3. Information and awareness campaign	Better informed public	Design and publication of appropriate media materials	Leaflets and other media materials including adverts	Better understanding of importance of wetlands by the public	Local population informed of importance of wetlands
4. Promulgation of a Wetland Protection Bill	Better legislation for the protection of wetlands	Review of existing legislation and previously proposed Bills	Enactment of a Wetland Protection Bill	Enactment of the Bill	Wetlands better protected under local legislation

3.2.3.4 Project Justification

This project is in line with the various policies of the government including which treat the subject of erosion and biodiversity conservation and to which this project become directly or indirectly relevant. These include:

- i. 2nd National Environmental Strategy and Action Plan (2000 – 2010)
- ii. National Environment Policy
- iii. Climate Change Action Plan
- iv. National Physical development Plan (NPDP) – Development Strategy and Policies
- v. National Development Strategy
- vi. National Biodiversity Strategy and Action Plan
- vii. Development of an Integrated Coastal Zone Management Framework (ICZM)

Moreover, wetland protection and restoration was proposed by the ESA Study (2009) along with an ESA Bill for the protection and conservation of environmentally sensitive areas which include wetlands.

3.2.2.5 Monitoring and Evaluation (M&E)

The results-oriented framework will be used for M&E of project implementation. More specifically, the progress made against the Objectively Verifiable indicators (OVIs) will be monitored and reported under the governance structure of the project.

3.2.2.6 Risks and their mitigation

The risks in the implementation of this present project would be as follows:

Risk	Level (Low, Medium, High)	Response
Reluctant property owner to sell or exchange land	High	Proposal of nice package for acquisition of land
Reluctance or opposition of general public	Low	Information and awareness campaign would have to ensure proper understanding of measures put forward
Reluctance and delay in enacting the Wetland Protection Bill	High	Proper briefing of officials and political actors on the importance of the Bill.
Difficulty in restoring the wetlands	Medium	Necessary research undertaken in view of ensuring that the most appropriate techniques are used.

3.2.2.7 Stakeholder mapping

The key stakeholders to be involved in this project would be as follows:

Stakeholder	Roles and responsibilities
National Parks and Conservation Services	Responsible for the proper management and maintenance of wetlands and RAMSAR site in Mauritius
Ministry of Environment	Responsible for the management of the coastal zone
Ministry of Fisheries	Responsible for the management of coastal and marine resources
Ministry of Housing and Lands	Responsible for the management of the local land territory including beach areas
Local NGOs and Force Vive	Immediate actors and beneficiaries for proposed project

3.2.3 Project Idea for rock revetment

Revetments are hard engineered structures with the primary function to prevent further erosion of the shoreline. They are built usually with stone, concrete or other durable materials and are shaped in a slope facing the sea and they aim at holding or preventing a scarp or embankment against erosion by wave action. Revetments are to be differentiated with seawalls which are vertical or near vertical shoreline protection works separating the land and water areas.

Revetments are frequently used in locations where further shore erosion will result in excessive damage, e.g. when roads and buildings are about to fall into the sea.

3.2.3.1 Summary sheet for Rock revetment

COASTAL ZONE SAMPLE PROJECT SHEET: Rock Revetment	
Brief Project description The implementation of coastal protection works with ancillary amenities at BambousVirieux.	
Results Oriented Framework	
Overall Goal i. Construction of 500 m of rock revetment at BambousVirieux ii. Construction of ancillary amenities including boat ramp, promenade and sea access, iii. Raising awareness of the need for rock revetment	Development Objectives The construction of these infrastructure and its amenities will provide protection to houses and public infrastructure like road, from the effect of waves especially during extreme events