

Section 3: Terms of Reference (TOR) for Consultancy services for the review and update of ESA data, maps, policy and management recommendations and its mainstreaming into ICZM planning in the Republic of Mauritius

1. Project Background

Mauritius forms part of the Western Indian Ocean Islands, one of the 25 internationally recognized biodiversity 'hotspots'. The tropical climate, topography and history of isolation, has resulted in the evolution of a diverse biota with a high degree of endemism. Terrestrial biodiversity is forest-dependent. However, much of the extant forest has been lost: land clearance and forest degradation has already impacted more than 90% of Mauritius Island's land surface. Marine biodiversity is in a better condition, but is also threatened. Extensive reef systems surround all the islands of the archipelago. Rodrigues harbours a large reef expanse, three times the size of the island.

Most of the useable land on the island of Mauritius has been put to production use. Despite the extensive degradation and transformation that has occurred in many areas, coastal ecosystems and adjacent landscapes still maintain their basic ecological functions. The coastal strip provides prime land for habitation, recreation and tourism, while seascapes provide the basis of food provision through fisheries and the country's main touristic attraction—beaches, nautical sports and related activities. Lagoon habitats are especially important in this regard. They contribute to the overall productivity of coastal waters by supporting a variety of habitats, including salt marshes, seagrasses, and mangroves.

The objective of the project is to mainstream the conservation and sustainable use of biodiversity and ecosystem services into coastal zone management and into the operations and policies of the tourism and physical development sectors in the Republic of Mauritius through a 'land- and seascape wide' integrated management approach based on the Environmental Sensitive Areas' (ESAs) inventory and assessment. More specifically, the project will achieve this through a three-pronged approach: (1) support the incorporation of ESA recommendations into policies and enforceable regulations pertaining to integrated coastal zone management (ICZM), thereby mitigating threats to biodiversity and ecosystem functions and resilience with a special focus on tourism and physical development in the coastal zone; (2) support the effective management of marine protected areas (MPAs) across the RM, given that they contain an important proportion of critically sensitive ESAs; and (3) demonstrate mechanisms to arrest land degradation in sensitive locations, focusing on reducing coastal erosion and sedimentation and helping to restore ecosystem functions in key wetland areas.

The TOR comprises of four lots as follows:

- 1) Lot 1 - Review and update of ESA data, maps, policy and management recommendations more

- specifically in relation to coastal and marine biodiversity in the Republic of Mauritius
- 2) Lot 2 - Analytical Review of coastal zone management plans in the Republic of Mauritius
- 3) Lot 3 - Development of ICZM plans for Rodrigues and Black River District on Mauritius, taking the “ridge-to-reef approach”
- 4) Lot 4- Review and update the upland wetlands’ data and maps of Mauritius

2. LOT 1 - Consultancy services to review and update of ESA data, maps, policy and management recommendations more specifically in relation to coastal and marine biodiversity in the Republic of Mauritius

The main beneficiaries of Lot 1 of this project are the Ministry of Social Security, National Solidarity and Environment and Sustainable Development and the co-beneficiaries will be the Rodrigues Regional Assembly and the Ministry of Agro Industry and Food Security.

2.1 Objective of Lot 1

The objective of this consultancy is to review and update the ESA study including policies, strategies and action plans and recommendations for ESA management and to have updated ESA maps which are transcribed into the appropriate instruments so that ESAs are taken into consideration when planning for new developments and are conserved.

The objectives for Lot 1 are:

- i) Based on the existing ESA maps available, to determine the types of ESAs that have been mostly encroached by development;
- ii) Ground truth and update the ESA maps with their respective buffer zones;
- iii) Update the ESAs GIS datasets or generate new ones;
- iv) Training of officers/stakeholders to delineate ESAs boundaries on field using high accuracy GPS devices (preferably Real-Time Kinematic Fixed GPS which has a high accuracy ranging from 1-5 cm) and data processing on GIS software like ArcGIS or Quantum GIS;
- v) Training on remote sensing in case same is used to identify ESAs;
- vi) Assess the biodiversity richness and ecological integrity of ESAs; and
- vii) Develop a comprehensive policies and action plans with cost estimates for the protection, conservation and sustainable development of ESAs.

2.2 Scope of works

The project area shall comprise mainland Mauritius and Rodrigues. The project will address the six main coastal and marine ESA types that are the focus of the project: coastal wetlands, sand beaches and dunes,

coral reefs, sea grass and algal beds, mangroves and intertidal mud flats. However, native forests (ESA Type) should be included for Rodrigues island. They include sites that are high in biodiversity values and important for the generation of ecosystem services (e.g. shoreline maintenance, storm protection, fishery production, tourism and leisure, soil formation and retention, water provision and flood control).

This consultancy consists of a review and analysis of the ESA maps and related documentation to determine the updates that are required, especially the ESAs GIS datasets, the work that is already underway and the extent to which the policies and management recommendations can be implemented. Mechanisms for undertaking the updating needs to be identified and can be as follows:

Acquisition of satellite imagery with a resolution of at least 0.5 m and in case remote sensing method will be used to identify ESAs, the satellite imagery need to have the Red, Green, Blue and Near infrared bands /ground truthing to validate the maps and update the ESAs GIS datasets; Wet and dry areas can be determined using the NDWI index. The images should be appropriately georeferenced with ground control points and ortho-rectified with a sufficiently precise DEM (<10m). Images should be acquired for rainy and dry seasons and for at least two years. In addition, the use of drones may also be envisaged to update the ESA's dataset.

Emphasis should be placed on the most cost-effective method/s and preference should be given to using existing materials and information.

The more detailed guidance on marine and coastal biodiversity protection and management, and finalization and approval of policies on ESAs will allow planners and decision makers to understand where development should be avoided, where it may be permitted subject to management controls, and what the threat mitigation requirements should be.

After taking cognisance of all related documents and ongoing or completed projects in relation to this assignment, the consultants are required to analyse and recommend the most cost-effective method for updating the ESA datasets. In case, drones is used for updating of ESAs, the consultant should provide specifications for procurement purposes or alternatively could provide a complete service including their own drones) and must secure appropriate permits for their use from the relevant authority. The consultants then subsequently will undertake the following tasks with respect to the ESAs:

1. Update the delineation of the ESAs and the GIS maps including the ESAs GIS datasets through ground truthing. In this process, the consultants should ensure that:
 - (i) They assess the extent of encroachment on the ESAs and the need to redefine their boundaries (especially for wetlands);
 - (ii) To ensure that a list of criteria for identification and survey of wetlands is established, as

- difficulties are encountered to identify them especially in dry seasons
- (iii) The coordinate system used by the ESA consultants in the 2009 study is properly transcribed in the new coordinate system used by the Ministry of Housing and Lands;
 - (iv) The maps produced are compatible with planning instruments;
 - (v) The maps produced can be used at the Local Authority level and by other users for development control and conservation of these ESAs;
2. Draw an updated list of public and privately-owned wetlands which together with the details on the ownership of the latter.
 3. To categorise the wetlands as per their importance and functions and make policy recommendations as to their management to help planners and decision makers in development control.
 4. Assess the biodiversity status of the ESAs and determine the current level of threats and pressures as well as their impacts on the integrity of the ESAs.
 5. Develop comprehensive policies providing the strategies and action plans with cost estimates for the protection, conservation and sustainable development of ESAs
 6. Make recommendations for the consolidation of the legal and institutional framework for effective management of ESAs.

2.3 Workshops

For the purposes of lot 1 of the assignment, the following workshops shall be conducted by the Consultant:

- One-day Inception Workshop.
- One-day workshop for validation of deliverables

2.4 Responsibility of experts

2.4.1. Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including Wetlands (Team Leader)

He/She will Lead the consultation process at national and sectoral level to review and analyse the ESA study carried out in 2009. He/She will update the delineation of the coastal and marine ESAs and the GIS maps including the ESAs GIS datasets through ground truthing. He/She will draw an updated list of public and privately-owned wetlands which together with the details on the ownership of the latter. He/She will have to categorise the wetlands as per their importance and functions and make policy recommendations as to their management to help planners and decision makers in development control. He/She will have to assess the biodiversity status of the ESAs and determine the current level of threats and pressures as well as their impacts on the integrity of the ESAs. He/She will have to develop comprehensive policies providing the strategies and action plans with cost estimates for the protection, conservation and sustainable development of ESAs. He/She will have to make recommendations for the consolidation of the legal and institutional framework for effective management of ESAs.

He/She will be the team leader and will therefore be responsible for organization, coordination of all expert's work, compilation and timely submission of deliverables. The team leader will also be the liaison person between the client and the firm.

2.4.2. ICZM Expert

He/She will assist the Team Leader to review and analyse the ESA study and to provide an update of the ESA study with emphasis on policies, regulations and guidelines aimed to protect and conserve the coastal and marine ESA's.

2.4.3. Local Expert 1- Coastal Zone Management Expert

He/she will assist the team leader and international experts on the specificities of Mauritius and Rodrigues to review and analyse the ESA study.

2.4.4. Local Expert 2- Legal and Institutional Expert (with focus on environmental Law)

He/She will assist the team leader to review of draft policies, strategies, plans and regulations, consistency in references to the ESA study of 2009 and to adapt them to the needs of the Republic of Mauritius.

2.4.5. Local Expert 3- Sworn Land Surveyor

He/She will be responsible for ground truthing the coastal Wetlands so that they can be mapped and included in the review of the ESA study.

2.4.6. Local Expert 4- One Remote Sensing and GIS Specialist

He/She will utilize existing and appropriate data to ground-truth all coastal and Marine ESA's and using GIS and Remote Sensing to develop maps that will identify the coastal and marine ESA's of the Republic of Mauritius.

2.5. Duration of the assignment / Time Frame

The consultancy services shall be completed within 250 person-days in accordance with the schedule for the submission of the deliverables including a minimum of three missions both in Mauritius and Rodrigues.

The expected duration of main tasks is expected depicted in table 6.:

TABLE 6. EXPECTED DURATION OF LOT 1

	Experts	Required Person-days in total
1	Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)	80
2	ICZM Expert	15
3	Local Expert 1- Coastal Zone Management Expert	15
4	Local Expert 2- Legal and Institutional Expert (with focus on environmental Law)	15
5	Local Expert 3- Sworn Land Surveyor	100
6	Local Expert 4- One Remote Sensing and GIS Specialist	25
Total		250

The assignment should be completed within 18 months from the starting date of the assignment.

2.6. Reporting, Presentations, and Language

A Technical Committee has been set up under the aegis of the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development to oversee all assignment related to mainland Mauritius. Similarly, the Technical Committee set up by RRA will oversee all tasks related to Rodrigues. Members of the TC's are senior technicians of different Ministries/organisations.

These TC's will be responsible:

1. to provide support on proposed works;
2. to provide inputs/views on technical reports; and
3. to facilitate consultative meetings.

The Technical Committee will review all outputs/deliverables. Their comments shall be communicated to the consultants within 21 days of submission of the output/deliverable. The consultants will then have to

consider and incorporate the comments within a period of 2 weeks from the date of receipt of comments. The consultants will have to provide for justifications when comments are not incorporated in the output/deliverable.

Reporting line and collaboration with stakeholders will be as follows:

- The consultants will be required to report to the Technical Committees and Steering Committee and work in collaboration with the National Project Director, Chief Technical Adviser and Project Management Unit.
- The consultants will have to work closely with the Department of Environment and RRA and their officers will accompany consultants on field surveys as and when required.
- The consultants will have to work with the concerned Ministries/Departments for the different ESAs.
- Throughout the duration of the contract, the Consultants shall maintain a constant liaison with the Client to discuss alternatives, options and any other matters pertaining to the progress of works. They shall submit regular interim progress reports as required by the client.
- The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development and RRA will be responsible for technical issues pertaining to the assignment.
- The UNDP will be responsible for contractual and payment issues for this assignment.

All reports and maps shall be submitted in hard copies (20 copies) in a scale to be agreed with the Ministry of Housing and Lands and in soft copy. The soft copy should not be secured with password(s) to allow printing or copy and paste of extract from the reports.

The language of the assignment shall be in English. All the outputs and deliverables shall be written in English language and should be presented in a format acceptable by the Technical Committee under the aegis of the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development as well as the Rodrigues Regional Assembly. All documents/maps shall become the property of the Government of Mauritius.

The reports and documentation should be submitted in electronic format, in both editable Microsoft Office Word version and in pdf version. All the final versions of the reports and documentation should also be dispatched to the Project Manager in 3 original CDs. There shall be no security restrictions on printing/editing in the deliverables.

The Consultant will have to submit all reports and documentation in draft form (in soft format - MS Word) in the first instance, and should thereafter incorporate any comments the Client may submit, prior to their finalization. Draft reports and documentation would have to be submitted at least 2 weeks before the final reports/documentation are due so that the Client will have ample time to circulate the drafts for any feedback from the Steering Committee. Payment will be made only on the final deliverables, and these final deliverables ***should be to the satisfaction of*** the National Project Director, the Project Manager, the Steering Committee, the Technical Committees and the UNDP Country Office.

2.7. Logistical arrangements

The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development shall provide for office space with fax, telephone and internet facilities. The Ministry can provide office space for up to 6 consultants at any one time during the assignment.

The Project Manager will provide logistical support for the organization of workshops and other events/meetings (as required), and for the mobilization of stakeholders for such events/meetings.

The venues for the workshops and events/meetings will be arranged by the Project Manager and the costs thereof shall be met under the project funds.

The consultants may be required to act as resource person for at least one national workshop with all major stakeholders (Government agencies and NGOs) to discuss findings and proposals.

2.8. Delivery and Payment Schedules

- Deliverables will be the basis for the payment schedule. All reports will be submitted in draft (for comments) and then final.
- The Deliverables shall be submitted in electronic format (MS Word, and Pdf versions) and by courier to the Project Manager, Mr P. Ragen. The address for delivery is:

Mr. Parmananda Ragen, Project Manager

Mainstreaming Biodiversity into the Management of the Coastal Zone in the republic of Mauritius

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Ground Floor, LIC Building,

President John Kennedy Street,

Port Louis.

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- Payment of fees will be subject to the schedule in Table 7.

TABLE 7 : SCHEDULE FOR PAYMENT OF FEES– LOT 1

Item	Project Activity/deliverable	Time Schedule	Payment Schedule
1.	Submission of agreed workplan	Jul - 18	10%
2.	Inception Report	Jul – 18	10%
3.	Draft report on the Updated ESA study including strategy and action plans (with clear responsibilities for each ESA)	Aug - 18	10%
4.	Final report on the Updated ESA study including strategy and action plans (with clear responsibilities for each ESA)	Sep -18	5%
5.	Draft report on the recommendation for the consolidation of the legal and institutional framework for ESA's	Oct – 18	10%
6.	Final report on the recommendation for the consolidation of the legal and institutional framework for ESA's	Nov – 18	5%
7.	Submission of the updated ESA's GIS datasets in shapefiles format to be used by other stakeholders based on the coordinate system, projection type and datum advised by MHL as well as the metadata	Mar – 19	20%
8.	Submission of the updated marine and coastal ESA maps of the Republic of Mauritius in JPEG or PDF format preferably, or any other format as required by the Ministry of Housing and Lands (MHL)	Jun – 19	20%
9.	Final validation workshop report and Final Report	Sep – 19	10%
	Total		100%

2.9. Qualification of the Consultancy Team

The core personnel shall have the expertise in the fields required for the implementation of the project. Details like academic qualifications, field of competency and technical/practical experience of the previous assignments of similar nature and/or related consultancy services should be submitted with signed CVs.

The selection of the Consultant for the Project shall be based on a Quality and Cost method and eventually appointed on a **lump sum fee basis**.

The consultant shall undertake at least three missions both to Mauritius and Rodrigues during the assignment.

The core personnel should consist of the following:

1. Expert in Natural Resources Management with specialization in coastal and marine biodiversity including wetlands
2. ICZM expert
3. Coastal Zone Management Expert
4. Legal and Institutional Expert (with focus on environmental Law)
5. Sworn Land Surveyor
6. Remote Sensing and GIS Specialist

2.9.1. Key Expert 1 – Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)

The expert should hold a postgraduate degree in one of the following fields: Natural Resource

Management, Ecology, Environmental Planning and Management or equivalent acceptable field of study. Experience in leading teams of interdisciplinary experts will be an added advantage.

The Expert should also have at least a postgraduate degree or working knowledge in Marine, Coastal and Wetlands biodiversity or equivalent acceptable field of study.

He/She should have a minimum of 10 years' experience in his/her field of expertise and having worked on at least 2 similar projects. Experience in tropical small island countries including Mauritius is preferable. He/She will also be responsible for the technical coordination of the project and shall **provide 80 person-days services**.

2.9.2 Key Expert 2 – ICZM Expert

The ICZM expert should hold a post graduate degree with specific expertise in the area of ICZM or management of marine and coastal biodiversity and should have at least 15 years of professional experience in conservation, sustainable use and management of marine and coastal biodiversity. He/She should have at least 5 years specific experience at international level in Integrated Coastal Zones Management planning. Experience in Marine Protected Area management and planning will be an advantage. He/She must have demonstrable experience in implementing equivalent GEF or other

multilateral donor-funded projects and has working experience with private sector and project national stakeholder institutions and agencies is desired. **He/She shall provide 15 person-days services.**

2.9.3. Local Expert 1- Coastal Zone Management Expert

The local Coastal Zone Management Expert should have at least a postgraduate degree in the relevant field. He/She should have at least 5 years of experience of which at least 2 years should be in coastal zone management and planning. The Coastal Zone Management Expert should have extensive experience on GIS. Experience in remote sensing will be also an advantage. **He/She shall provide 15 person -days services.**

2.9.4. Local Expert 2- Legal and Institutional Expert (with focus on environmental Law)

The Legal and Institutional Expert should possess a master degree in Environment law, or equivalent and has a minimum 5 years of experience in legal environmental and land management, related matters. He/She must demonstrate proven ability to work with a range of stakeholders including Government agencies and the private sector and to work in a team. He/She should have the ability for managing timely and effective delivery of both quantity and quality before the deadlines. **He/She shall provide 15 person -days services.**

2.9.5. Local Expert 3- Sworn Land Surveyor

The Sworn Land Surveyor shall have at least a Degree in Land Surveying and be registered to a recognised professional body. He/She should have working knowledge in Remote Sensing and Geographic Information Systems (GIS). He/She should have a minimum of 5 years' experience in his/her field of expertise. **He/She shall provide 100 person-days services.**

2.9.6. Local Expert 4- One Remote Sensing and GIS Specialist

The GIS specialist shall be a degree holder and shall possess a postgraduate degree in GIS or equivalent field of study. He/She should have at least 5 years' experience working with GIS and Remote Sensing. The GIS specialist will be responsible for the development of the GIS maps and **shall provide 25 person-days services.**

Letter of availability for Experts

All key experts shall provide an original signed letter of availability and association for the duration of the assignment. In the event of their unavailability, the Consultant shall be under the obligation to provide a replacement of equal or better caliber at no extra cost to the Client.

Support bodies/staff

The Consultant may include the services of any other support staff for the purposes of the assignment. The costs thereof shall be deemed to be included in the bid price.

Important Note:

- In case of an international consultancy team, it is mandatory for the consulting team to associate with one or more local experts so as to have a better appreciation of the local context.
- A local consultant may associate with one or more international teams to participate in this tender exercise.
- However, the total expected input for the assignment shall not exceed 250 person-days.

3. LOT 2 - Analytical Review of Coastal zone management plans in the Republic of Mauritius

3.1 Objectives of Lot 2

The main beneficiary of Lot 2 of this project is the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development and the co-beneficiaries will be the Department of Continental Shelf, Maritime Zones Administration and Exploration and the Rodrigues Regional Assembly.

The main objectives are as follows:

- To support the development of a holistic approach to ICZM planning that fully addresses biodiversity, reflects principles and international best practices being developed for ICZM planning and the “ridge-to-reef” approach;
- promotes a participatory multi-sector approach in order to achieve full stakeholder buy-in and;
- to ensure that there is full harmonization of planning concepts.

3.2 Scope of works

A diverse range of coastal and marine projects and policies has resulted in ICZM plans for many parts of the coast and lagoon oriented to different purposes (e.g. Outline Planning Scheme's, ICZM Action and Area plans for pressure zones, JICA-funded coastal erosion plans, World Heritage Cultural Site plans, MPA

management plans, Tourism Master Plan). These plans that address ESAs to different degrees, have resulted in recommendations and management actions that are being implemented to different degrees, and have been developed with variable degrees of stakeholder participation and buy-in. There is however no synthesis of this work to demonstrate the progress made and the challenges in implementation, and to identify where further initiatives are required.

The scope of services of the Consultant shall be as follows:

- Review all existing coastal/lagoon plans for each coastal district of Mauritius and the whole Rodrigues;
- Review all the planning/policy processes in each coastal district of Mauritius including Rodrigues Island;
- Identify and compile all the progress made so far;
- Identify and compile all gaps that need to be filled. The gap analysis shall be carried out to guide collection of additional data and field surveys required for proper implementation and monitoring;
- Develop a coastal Atlas taking into consideration ridge to reef approach. This Atlas shall include all the ESAs and should provide adequate information which can guide future development. All data should be in GIS format and the maps should be in the format to be agreed with the Ministry of Land and Housing; and
- Make recommendations on further activities/best practices that need to be undertaken and mechanisms for implementation of same.

3.3. Workshops

For the purposes of the assignment, the following workshops shall be conducted by the Consultant:

- One-day Inception Workshop.
- One-day validation workshop for the coastal atlas produced.

3.4. Responsibility of expert

3.4.1. Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)

He/She will lead the consultation process at national and sectoral level to review all coastal/Lagoon plans, planning/policies processes of the coastal district of Mauritius and Rodrigues He/She will identify and compile all the progress and all gaps that need to be filled. He/She shall be responsible for producing coastal maps for Mauritius and Rodrigues and to make recommendations on further activities/best

practices that need to be undertaken and mechanisms for implementation of same

He/She will be the team leader and will therefore be responsible for organization, coordination of all expert's work, compilation and timely submission of deliverables. The team leader will also be the liaison person between the client and the firm.

3.4.2. ICZM Expert

He/She will assist the Team Leader to review the coastal/lagoon plans and its planning/policies process and to provide information to the update of the coastal atlas of Mauritius and Rodrigues.

3.4.3. Local Expert 1- Coastal Zone Management Expert

He/She will assist the team leader and international experts on the specificities of Mauritius and Rodrigues to review and update the coastal atlas, ICZM plans and policies of Mauritius and Rodrigues.

3.4.4. Local Expert 2- MPA Planning and Management Consultant

He/She will assist the team leader to review the coastal plan and policies of Mauritius and Rodrigues with particular emphasis on the management of Marine Protected Areas in the coastal districts of Mauritius and Rodrigues

3.4.5. Local Expert 3- Legal and Institutional Expert (with focus on environmental Law)

He/She will assist the team leader to review of draft policies, strategies, plans and regulations with reference to the review and update of coastal/lagoon plans of the Republic of Mauritius.

3.4.6. Local Expert 4- One Remote Sensing and GIS Specialist

He/She will utilize existing and appropriate data to produce the maps of the coastal districts of Mauritius and Rodrigues using GIS and Remote sensing...

3.5. Duration of the assignment / Time Frame

The consultancy services shall be completed within 135 person-days in accordance with the schedule for the submission of the deliverables including a minimum of two missions both in Mauritius and Rodrigues.

The expected duration of main tasks is expected depicted in table 8:

TABLE 8. EXPECTED DURATION OF LOT 2

	Experts	Estimated Person-days in total
1	Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)	40
2	ICZM Expert	20
3	Coastal Zone Management Expert	20
4	MPA Planning and Management Consultant	20
5	Legal and Institutional Expert (with focus on environmental Law)	20
6	Remote Sensing and GIS Specialist	15
Total		135

The assignment should be completed within 12 months from the starting date of the assignment.

3.6. Reporting, Presentations, and Language

For the purposes of lot 2 of the assignment, a Technical Committee has been set up under the aegis of the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development to oversee all assignment related to mainland Mauritius. Similarly, the Technical Committee set up by RRA will oversee all tasks related to Rodrigues. Members of the TC's are senior technicians of different Ministries/organisations.

These TC's will be responsible for:

- to provide support on proposed works;
- to provide inputs/views on technical reports; and
- to facilitate consultative meetings.

The Technical Committee's will review all outputs/deliverables. Their comments shall be communicated

to the consultants within 21 days of submission of the output/deliverable. The consultants will then have to consider and incorporate the comments within a period of 2 weeks from the date of receipt of comments. The consultants will have to provide for justifications when comments are not incorporated in the output/deliverable.

Reporting line and collaboration with stakeholders will be as follows:

- The consultants will be required to report to the Technical Committee's and Steering Committee and work in collaboration with the National Project Director, Chief Technical Adviser and the Project Management Unit.
- The consultants will have to work closely with the Department of Environment and RRA and their officers will accompany consultants on field surveys as and when required.
- The consultants will have to work with the concerned Ministries/Departments for the different ESAs.
- Throughout the duration of the contract, the Consultants shall maintain a constant liaison with the Client to discuss alternatives, options and any other matters pertaining to the progress of works. They shall submit regular interim progress reports as required by the client.
- The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development and RRA will be responsible for technical issues pertaining to the assignment.
- The UNDP will be responsible for contractual and payment issues for this assignment.
- All reports and maps shall be submitted in hard copies (20 copies) in a scale to be agreed with the Ministry of Housing and Lands and in soft copy. The soft copy should not be secured with password(s) to allow printing or copy and paste of extract from the reports.

The language of the assignment shall be in English. All the outputs and deliverables shall be written in English language and should be presented in a format acceptable by the Technical Committee under the aegis of the Ministry of Social Security, National Solidarity, Environment and Sustainable Development as well as the Rodrigues Regional Assembly. All documents/maps shall become the property of the Government of Mauritius.

The Consultant will report to the Technical Committees separately and, when so required, report to the National Steering Committee at the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping.

The reports and documentation should be submitted in electronic format, in both editable Microsoft Office Word version and in pdf version. All the final versions of the reports and documentation should also be dispatched to the Project Manager in 3 original CDs. There shall be no security restrictions on printing/editing in the deliverables.

The Consultant will have to submit all reports and documentation in draft form (in soft format - MS Word) in the first instance, and should thereafter incorporate any comments the Client may submit, prior to their finalization. Draft reports and documentation would have to be submitted at least 2 weeks before the final reports/documentation are due so that the Client will have ample time to circulate the drafts for any feedback from the Steering Committee. Payment will be made only on the final deliverables, and these final deliverables ***should be to the satisfaction of*** the National Project Director, the Project Manager, the Steering Committee, the Technical Committees and the UNDP Country Office.

3.7. Logistical arrangements

The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development shall provide for office space with fax, telephone and internet facilities. The Ministry will not host more than 6 consultants at any one time during the assignment.

The Project Manager will provide logistical support for the organization of workshops and other events/meetings (as required), and for the mobilization of stakeholders for such events/meetings.

The venues for the workshops and events/meetings will be arranged by the Project Manager and the costs thereof shall be met under the project funds.

The consultants may be required to act as resource person for at least one national workshop with all major stakeholders (Government agencies and NGOs) to discuss findings and proposals.

3.8. Delivery and Payment Schedules

- Deliverables will be the basis for the payment schedule. All reports will be submitted in draft (for comments) and then final.
- The Deliverables shall be submitted in electronic format (MS Word, and Pdf versions) and by courier to the Project Manager, Mr P. Ragen. The address for delivery is:

Mr. Parmananda Ragen, Project Manager

Mainstreaming Biodiversity into the management of the Coastal Zone in the Republic of Mauritius project

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- Payment of fees will be subject to the following schedule in table 9.

TABLE 9: SCHEDULE FOR PAYMENT OF FEES – LOT 2

Item	Project Activity/deliverable	Time Schedule	Payment Schedule
1.	Submission of agreed workplan	Jul – 18	15%
2.	Inception Report	Aug – 18	15%
3.	Draft report on the review of all existing coastal zone management plans for each coastal districts of Mauritius and the whole Rodrigues	Sep – 18	15%
4.	Final report on the review of all existing coastal zone management plans for each coastal districts of Mauritius and the whole Rodrigues	Oct -18	5%
5.	Draft report on the review of all the planning / policy processes in each coastal district of Mauritius including Rodrigues Island.	Nov – 18	15%
6.	Final report on the review of all the planning / policy processes in each coastal district of Mauritius including Rodrigues Island.	Dec – 18	5%
7.	Submission of the coastal Atlas taking into consideration ridge to reef approach. This Atlas shall include all the ESAs and should provide adequate information which can guide future development. All data should be in GIS format and the maps should be in the format as recommended by the Ministry of Land and Housing	Jun – 19	20%
8.	Submit final Project Completion Report and workshop validation report	Jun -19	10%
TOTAL			100%

3.9. Qualification of the Consultancy Team

The core personnel shall have the expertise in the fields required for the implementation of the project. Details like academic qualifications, field of competency and technical/practical experience of the previous assignments of similar nature and/or related consultancy services should be submitted with signed CVs.

The selection of the Consultant for the Project shall be based on a Quality and Cost method and eventually appointed on a **lump sum fee basis**.

The consultant shall undertake at least three missions both to Mauritius and Rodrigues during the assignment.

The core personnel should consist of the following:

1. Expert in Natural Resources Management with specialization in coastal and marine biodiversity including wetlands
2. ICZM expert
3. Coastal Zone Management Expert
4. MPA Planning and Management Consultant
5. Legal and Institutional Expert (with focus on environmental Law)
6. Remote Sensing and GIS Specialist

3.9.1. Key Expert 1 – Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including Wetlands (Team Leader)

The expert should hold a postgraduate degree in one of the following fields: Natural Resource Management, Ecology, Environmental Planning and Management or equivalent acceptable field of study. Experience in leading teams of interdisciplinary experts will be an added advantage.

The Expert should also have at least a postgraduate degree or working knowledge in Marine , Coastal and Wetlands biodiversity or equivalent acceptable field of study.

He/She should have a minimum of 10 years' experience in his/her field of expertise and having worked on at least 2 similar projects. Experience in tropical small island countries including Mauritius is preferable. He/She will also be responsible for the technical coordination of the project. **He/She shall provide 40 person-days services.**

3.9.2. Key Expert 2 – ICZM Expert

The ICZM expert should hold a post graduate degree with specific expertise in the area of ICZM or management of marine and coastal biodiversity and should have at least 15 years of professional experience in conservation, sustainable use and management of marine and coastal biodiversity. He/She should have at least 5 years specific experience at international level in Integrated Coastal Zones Management planning. Experience in Marine Protected Area management and planning will be an advantage. He/She must have demonstrable experience in implementing equivalent GEF or other multilateral donor-funded projects and has working experience with private sector and project national stakeholder institutions and agencies is desired.

He/She shall provide 20 person-days services.

3.9.3. Local Expert 1 – Coastal Zone Management Expert

The local Coastal Zone Management Expert should have at least a postgraduate degree in the relevant field. He/She should have at least 5 years of experience of which at least 2 years should be in coastal zone management and planning. The Coastal Zone Management Expert should have extensive experience on GIS and remote sensing. He/She **shall provide 20 person-days services**.

3.9.4. Local Expert 2 – MPA Planning and Management Consultant

The local Marine Protected Area Planning and Management Consultant should have at least a postgraduate degree in the relevant field. He/She should have at least 10 years of experience in the relevant field. He/she should have extensive experience on management of marine protected areas. He/She will work in close collaboration with the international MPA Planning and Management Specialist and **shall provide 20 person days services**.

3.9.5. Local Expert 3 – Legal and Institutional Expert (with focus on environmental Law)

The Legal and Institutional Expert should possess a master degree in Environment law, or equivalent and has a minimum 5 years of experience in legal environmental and land management, related matters. He/She must demonstrate proven ability to work with a range of stakeholders including Government agencies and the private sector and to work in a team. He/She should have the ability for managing timely and effective delivery of both quantity and quality before the deadlines. He/She **shall provide 20 person days services**.

3.9.6. Local Expert 4 – Remote Sensing and GIS Specialist

The GIS specialist shall be a degree holder and shall possess a postgraduate in GIS or equivalent field of study. He/She should have at least 5 years' experience working with GIS and Remote Sensing. The GIS specialist will be responsible for the development of the GIS maps and **shall provide 15 person-days services**.

Letter of availability for Experts

All key experts shall provide an original signed letter of availability and association for the duration of the assignment. In the event of their unavailability, the Consultant shall be under the obligation to provide a replacement of equal or better caliber at no extra cost to the Client.

Support bodies/staff

The Consultant may include the services of any other support staff for the purposes of the assignment. The costs thereof shall be deemed to be included in the bid price.

Important Note:

- In case of an international consultancy team, it is mandatory for the consulting team to associate with one or more local experts so as to have a better appreciation of the local context.
- A local consultant may associate with one or more international teams to participate in this tender exercise.
- However, the total expected input for the assignment shall not exceed 120 person-days.

4. LOT 3 - Development of ICZM plans for Rodrigues and Black River District in Mauritius, taking the “ridge-to-reef” approach

4.1. Objectives of Lot 3

The main beneficiaries of Lot 3 of this project is the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development, the District Council of Black River and the Rodrigues Regional Assembly.

The main objective is to develop ICZM plans using a participatory and consultative approach which will ensure that marine and coastal ESAs (including steep slopes where feasible) are fully integrated into the legal and administrative planning framework

4.2. Scope of works

This activity will build on existing initiatives in each area given that much baseline work has been undertaken. The two plans will be developed (or revised) so as to ensure that marine and coastal ESAs (including steep slopes where feasible) are fully integrated into the legal and administrative planning framework. The work will be undertaken using a participatory and consultative approach.

For Rodrigues, the area to be considered includes the entire island and lagoon. The project will support the development and implementation, as required, of the ICZM plan being initiated by the Rodrigues Regional Assembly under the COI-FFEM project, and provision of complementary input where required. This plan would address links between the draft Rodrigues SLM Plan and Local Development Plan.

For Black River District, the inland boundary would be determined through discussion with stakeholders and the results of the analysis undertaken in lot 2. The plan will collate existing plans for the coastal areas (e.g. plans for pressure zones under the ICZM project and the JICA-funded coastal erosion project), as well as linkages between the marine area and the watershed, the role of Black River Gorge National Park

(BRGNP) in maintaining coastal ecosystem services, and will identify actions for implementation that will resolve key issues. This area has been selected because of the urgency of need given the threats to coastal and marine biodiversity from rapidly escalating coastal development (tourism/residential); existence of good data; and previous experience of participatory planning approaches that could be strengthened and replicated. Information from the Urban Profile for Black River District will be used. This activity will involve close collaboration with the Protected Area Network project, which is undertaking activities in the BRGNP and adjacent private forests and developing policy approaches for the Pas Geometriques, and the Le Morne Trust Fund which has undertaken a range of planning activities for the Le Morne Cultural WHS Core Zone and Buffer Zone, and it will also address the islets such as Ile aux Benitiers on which there is growing pressure from tourism and visitors.

Each plan will include maps of the marine and coastal ESAs, as well as steep slopes, the management categories and the policies for these ESAs, and an operational strategy and plan. Policies and recommendations will be incorporated into operational permitting and licensing systems governing land use on the coast, fishing, recreational and tourism activities in the lagoon. Critically sensitive Category 1 ESAs that are not already protected through legal designation will be assessed and suitable forms of protection identified and implemented.

The plans would be developed using a multi-stakeholder approach involving residents' committees, women's, youth, senior citizens associations, local government officers, the tourism industry, public utilities, resource users and relevant sectoral authorities and would build on the recommendations resulting from lot 2 above. Collaborative multi-stakeholder platforms will be responsible for implementation and will be based on the stakeholder work undertaken during the development of each plan. The ICZM Committee, on Mauritius, and the Rodrigues ICZM Committee (established through the ReCoMap project) will provide oversight and the necessary co-ordination mechanisms. The process to develop the plans will be fully documented with the intention of replication in other Districts on Mauritius as appropriate.

The scope of services of the Consultant shall be as follows:

- To carry out the relevant surveys to complete the baseline information required on coastal and marine resources of the area (Black River District and Rodrigues from ridge to reef).
- To identify and assess pressures on coastal resources. The consultants will identify and assess the anthropogenic pressures as a result of socio economic and other human activities from ridge to reef. The features and structures that are impacting on the coastal environment will also be surveyed and assessed. Conflicts in the coastal zone between activities of different interest groups and the environment will be identified, evaluated and addressed.
- To assess the environmental sensitivities of the areas for future development. The Consultants will identify and assess all ESA's found in the area and come up with appropriate recommendations for their protection and sustainable management taking into consideration ecological linkages and flow.
- Identify measures and interventions for the management and protection of the area including options for potential development.
- After stock-taking of the problems and challenges related to the area, the consultants will formulate Integrated Management Area plans for the protection and sustainable management of natural resources. Zoning plans will be prepared in GIS format to guide development within the area. The plan will include recommendations on the measures and actions which shall be taken to protect the natural resources based on their vulnerabilities. Achievable targets shall be formulated in the plan and the proposed

measures will be phased into short, medium and long-term. Implementation mechanisms with clear responsibilities of the different stakeholders will be proposed.

- Develop appropriate management and planning tools to enable sound management of areas. The priority environmental problems in the area that directly affect human health, economic productivity, social well-being and environmental quality will have to be portrayed in GIS format. An updated database in GIS format will be produced. It will be a tool for the assessment and reporting on the state of the areas.
- Development of an Environment Monitoring Plan. The consultants will update the set of indicators (from the ICZM Framework, EIS, JICA Coastal project, PAN project on Black River Gorges National Park, Le Morne Heritage PPG among others) in the area. A monitoring plan with appropriate indicators /parameters to monitor and report on the status of the areas will be prepared.
- Development of Action Plan for both areas. The consultants will prepare an Action Plan for activities and measures that will be needed for integrated management of the areas, including implementation schedules, log-frames and financial strategies and options to fund proposed activities. The activities should be geared towards actions and measures and sustain facilities resulting from the implementation of the Integrated Management Plan. A cost-benefit analysis will be carried out for the proposed measures. They will also prepare detailed terms of reference and technical specifications for any proposed works to be implemented with clear directives on how to implement the measures and actions required.
- Any other inputs relevant for the development of the Integrated Coastal zone Management (ICZM) Area and Action Plans.

4.3. Workshops

For the purposes of the assignment, the following workshops shall be conducted by the Consultant:

- One-day Inception Workshop.
- One-day validation workshop.

4.4. Responsibility of expert

4.4.1. Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)

- Lead the consultation process at national and sectoral level to develop ICZM plans for the district of Black River and Rodrigues. He/She will formulate options, develop guidelines with respect to ICZM planning and Management.
- To carry out the relevant surveys to complete the baseline information required
- on coastal and marine resources of the area (Black River District and Rodrigues from ridge to reef).
- To identify and assess pressures on coastal resources.
- To assess the environmental sensitivities of the areas for future development.

- To formulate Integrated Management Area plans for the protection and sustainable management of natural resources for Black River and Rodrigues.
- Develop appropriate management and planning tools to enable sound management of areas.
- Develop Environment Monitoring Plans for both areas.
- Develop Action Plan for both areas.
- He/She will be the team leader and will therefore be responsible for organization, coordination of all expert's work, compilation and timely submission of deliverables. The team leader will also be the liaison person between the client and the firm.

4.4.2. ICZM Expert

- Assist the Team Leader to produce all the coastal plans and policies for Black River District and Rodrigues

4.4.3. MPA Planning and Management Specialist

- Assist the team leader to produce the ICZM plans and to recommend accordingly for all MPA's found in the District of Black River and Rodrigues

4.4.4. Environment Planner

- To assist the team leader to design plan for the protection and conservation of ESA's found in the two sites.

4.4.5. Coastal/Civil Engineer

- To assist the team leader to design plan for any infrastructure that may be constructed in the two sites so that these do not impact on the ESA's found in the two sites.

4.4.6. Local Expert 1- Coastal Zone Management Expert

- Assist the team leader and international experts on the specificities of Mauritius and Rodrigues to develop ICZM plans for the two sites.

4.4.7. Local Expert 2- MPA Planning and Management Consultant

- Assist the team leader to develop ICZM plans of Black River and Rodrigues with particular emphasis on the management of Marine Protected Areas in the coastal districts of Mauritius and Rodrigues

4.4.8. Local Expert 3- Legal and Institutional Expert (with focus on environmental Law)

- To assist the team leader to draft policies, strategies, plans and regulations, consistency in references to the development of ICZM plans.

4.4.9. Remote Sensing and GIS specialist

- To assist the team leader to produce maps using GIS and remote sensing.

4.4.10. Local Expert 4- Watershed/ Water Resources Specialist

- To assist the team leader in developing ICZM plans with emphasis on protecting and conserving the water sheds and resources found in the sites.

4.5. Duration of the assignment / Time Frame

The consultancy services shall be completed within 180 person-days in accordance with the schedule for the submission of the deliverables including a minimum of two missions both in Mauritius and Rodrigues.

The expected duration of main tasks is expected depicted in table 10:

TABLE 10. EXPECTED DURATION OF LOT 3

	Experts	Required Person-days in total
1	Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)	60

2	ICZM Expert	15
3	MPA Planning and Management Specialist	15
4	Environment Planner	15
5	Coastal/Civil Engineer	15
6	Coastal Zone Management Expert	15
7	MPA Planning and Management Consultant	15
8	Legal and Institutional Expert (with focus on environmental Law)	10
9	Remote Sensing and GIS specialist	15
10	Watershed/ Water Resources Specialist	5
Total		180

The assignment should be completed within 12 months from the starting date of the assignment.

4.6. Reporting, Presentations, and Language

For the purposes of lot 3 of the assignment, a Technical Committee has been set up under the aegis of the Ministry of Social Security, National Solidarity, Environment and Sustainable Development to oversee all assignment related to mainland Mauritius. Similarly, the Technical Committee set up by RRA will oversee all tasks related to Rodrigues. Members of the TC's are senior technicians of different Ministries/organisations.

These TC's will be responsible for:

- i. to provide support on proposed works;
- ii. to provide inputs/views on technical reports; and
- iii. to facilitate consultative meetings.

The Technical Committee's will review all outputs/deliverables. Their comments shall be communicated to the consultants within 21 days of submission of the output/deliverable. The consultants will then have to consider and incorporate the comments within a period of 2 weeks from the date of receipt of comments. The consultants will have to provide for justifications when comments are not incorporated in the output/deliverable.

Reporting line and collaboration with stakeholders will be as follows:

- The consultants will be required to report to the Technical Committee's and Steering Committee and work in collaboration with the National Project Director, Chief Technical Adviser and the Project Management

Unit.

- The consultants will have to work closely with the Department of Environment and RRA and their officers will accompany consultants on field surveys as and when required.
- The consultants will have to work with the concerned Ministries/Departments for the different ESAs.
- Throughout the duration of the contract, the Consultants shall maintain a constant liaison with the Client to discuss alternatives, options and any other matters pertaining to the progress of works. They shall submit regular interim progress reports as required by the client.
- The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development and RRA will be responsible for technical issues pertaining to the assignment.
- The UNDP will be responsible for contractual and payment issues for this assignment.

All reports and maps shall be submitted in hard copies (20 copies) in a scale to be agreed with the Ministry of Housing and Lands and in soft copy. The soft copy should not be secured with password(s) to allow printing or copy and paste of extract from the reports.

The language of the assignment shall be in English. All the outputs and deliverables shall be written in English language and should be presented in a format acceptable by the Technical Committee under the aegis of the Ministry of Social Security, National Solidarity, Environment and Sustainable Development as well as the Rodrigues Regional Assembly. All documents/maps shall become the property of the Government of Mauritius.

The Consultant will report to the Technical Committees separately and, when so required, report to the National Steering Committee at the Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping.

The reports and documentation should be submitted in electronic format, in both editable Microsoft Office Word version and in pdf version. All the final versions of the reports and documentation should also be dispatched to the Project Manager in 3 original CDs. There shall be no security restrictions on printing/editing in the deliverables.

The Consultant will have to submit all reports and documentation in draft form (in soft format - MS Word) in the first instance, and should thereafter incorporate any comments the Client may submit, prior to their finalization. Draft reports and documentation would have to be submitted at least 2 weeks before the final reports/documentation are due so that the Client will have ample time to circulate the drafts for any feedback from the Steering Committee. Payment will be made only on the final deliverables, and these final deliverables ***should be to the satisfaction of*** the National Project Director, the Project Manager, the Steering Committee, the Technical Committees and the UNDP Country Office.

4.8. Logistical arrangements

The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development shall provide for office space with fax, telephone and internet facilities. The Ministry can provide office space for up to 6 consultants at any one time during the assignment.

The Project Manager will provide logistical support for the organization of workshops and other events/meetings (as required), and for the mobilization of stakeholders for such events/meetings.

The venues for the workshops and events/meetings will be arranged by the Project Manager and the costs thereof shall be met under the project funds.

The consultants may be required to act as resource person for at least one national workshop with all major stakeholders (Government agencies and NGOs) to discuss findings and proposals.

The reports and documentation should be submitted in electronic format, in both editable Microsoft Office Word version and in pdf version. All the final versions of the reports and documentation should also be dispatched to the Project Manager in 3 original CDs. There shall be no security restrictions on printing/editing in the deliverables.

The Consultant will have to submit all reports and documentation in draft form (in soft format - MS Word) in the first instance, and should thereafter incorporate any comments the Client may submit, prior to their finalization. Draft reports and documentation would have to be submitted at least 2 weeks before the final reports/documentation are due so that the Client will have ample time to circulate the drafts for any feedback from the Steering Committee. Payment will be made only on the final deliverables, and these final deliverables ***should be to the satisfaction of*** the National Project Director, the Project Manager, the Steering Committee, the Technical Committees and the UNDP Country Office.

4.9. Delivery and Payment Schedules

- Deliverables will be the basis for the payment schedule. All reports will be submitted in draft (for comments) and then final.
- The Deliverables shall be submitted in electronic format (MS Word, and Pdf versions) and by courier to the Project Manager, Mr P. Ragen. The address for delivery is:

Mr. Parmananda Ragen, Project Manager

Mainstreaming Biodiversity into the management of the Coastal Zone in the Republic of Mauritius project

Address: Project Management Unit,

Ministry of Ocean Economy, Marine Resources and Shipping,

Ground Floor, LIC Building,
 President John Kennedy Street,
 Port Louis.
 Email : parmananda.ragen@undp.org
 Tel: +230 214 2508
 Fax: +230 214 1235

- Payment of fees will be subject to the following schedule as per table 11.

TABLE 11: SCHEDULE FOR PAYMENT OF FEES – LOT 3

ITEM	Project	Activity/deliverable	Time Schedule	Payment Schedule
1	Submission of agreed workplan		Aug – 18	10%
2	Inception Report		Aug – 18	10%
3	Draft report on the baseline information required on coastal and marine resources of the area (Black River District and Rodrigues from ridge to reef).		Sep – 18	10%
4	Final report on the baseline information required on coastal and marine resources of the area (Black River District and Rodrigues from ridge to reef).		Oct – 18	5%
5	Draft report on the assessment of the environmental sensitivities of the areas for future development.		Nov – 18	5%
6	Final report on the assessment of the environmental sensitivities of the areas for future development.		Dec – 18	5%
7	Draft report on the Identification of measures and interventions for the management and protection of the area including options for potential development.		Jan – 19	5%
8	Final report on the Identification of measures and interventions for the management and protection of the area including options for potential development.		Feb – 19	5%

9	Submission of the Integrated Management Area plans for the protection and sustainable management of natural resources for Black River and Rodrigues.	Mar – 19	10%
10	Submission of the management and planning tools to enable sound management of Black River and Rodrigues.	May – 19	10%
11	Submission of the Environment Monitoring Plans for Black River and Rodrigues.	Jul – 19	10%
12	Development of the costed Action Plans for Black River and Rodrigues.	Aug – 19	5%
13	Submission of final report and validation workshop report	Aug – 19	10%
TOTAL			100%

4.10. Qualification of the Consultancy Team

The core personnel shall have the expertise in the fields required for the implementation of the project. Details like academic qualifications, field of competency and technical/practical experience of the previous assignments of similar nature and/or related consultancy services should be submitted with signed CVs.

The selection of the Consultant for the Project shall be based on a Quality and Cost method and eventually appointed on a **lumpsum fee basis**. The consultant shall undertake at least three missions both to Mauritius and Rodrigues during the assignment.

The core personnel should consist of the following:

1. Expert in Natural Resources Management with specialization in coastal and marine biodiversity including wetlands
2. ICZM expert
3. MPA Planning and Management Specialist
4. Environment Planner
5. Coastal/Civil Engineer
6. Coastal Zone Management Expert
7. MPA Planning and Management Consultant
8. Legal and Institutional Expert (with focus on environmental Law)
9. Remote Sensing and GIS Specialist
10. Watershed management / water resources specialist

4.10.1. Key Expert 1 – Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including Wetlands (Team Leader)

The expert should hold a postgraduate degree in one of the following fields: Natural Resource Management, Ecology, Environmental Planning and Management or equivalent acceptable field of study. Experience in leading teams of interdisciplinary experts will be an added advantage.

The Expert should also have at least a postgraduate degree or working knowledge in Marine, Coastal and Wetlands biodiversity or equivalent acceptable field of study.

He/She should have a minimum of 10 years' experience in his/her field of expertise and having worked on at least 2 similar projects. Experience in tropical small island countries including Mauritius is preferable. He/She will also be responsible for the technical coordination of the project. **He/She should provide 60 person-days.**

4.10.2. Key Expert 2 – ICZM Expert

The ICZM expert should hold a post graduate degree with specific expertise in the area of ICZM or management of marine and coastal biodiversity and should have at least 15 years of professional experience in conservation, sustainable use and management of marine and coastal biodiversity. He/She should have at least 5 years specific experience at international level in Integrated Coastal Zones Management planning. Experience in Marine Protected Area management and planning will be an advantage. He/She must have demonstrable experience in implementing equivalent GEF or other multilateral donor-funded projects and has working experience with private sector and project national stakeholder institutions and agencies is desired. **He/She should provide 15 person-days.**

4.10.3. Key Expert 3 – MPA Planning and Management Specialist

The international Marine Protected Area Planning and Management Specialist should have at least a postgraduate degree in the relevant field. He/She should have at least 15 years of experience of which at least 5 years should be in management of marine protected area. The International Marine Protected Area Planning and Management Specialist should have a strong background in economics and should have extensive experience on the implementation of marine park management systems and on the development of new plans. He/She must have demonstrable experience in implementing equivalent GEF or other multilateral donor-funded projects and has working experience with private sector and project national stakeholder institutions and agencies is desired. **He/She should provide 15 person-days.**

4.10.4. Key Expert 4– Environmental Planner

The Environmental Planner should have at least a postgraduate degree in the relevant field. He/She should have at least 10 years of experience of which at least 5 years should be in coastal zone management and planning. In addition, he/she should have been involved in at least 2 projects of similar nature. The Environmental Planner should preferably be well versed in policy making and review. Experience with socio economic aspects will be also an advantage. **He/She should provide 15 person-days.**

4.10.5. Key Expert 5 – One Coastal/Civil Engineer

The Engineer should at least have a degree in civil engineering and a post graduate in or coastal engineering with at least 7 years' experience of which 5 years should be in coastal zone management. He/She should have demonstrated experience in the assessment and evaluation of the status the coastal zone, identifying the main causes of impacts and proposing remedial measures. He should also demonstrate experience in wastewater management and designs of wastewater treatment facilities. **He/She should provide 15 person-days.**

4.10.6. Local Expert 1 – Coastal Zone Management Expert

The local Coastal Zone Management Expert should have at least a postgraduate degree in the relevant field. He/She should have at least 5 years of experience of which at least 2 years should be in coastal zone management and planning. The Coastal Zone Management Expert should have extensive experience on GIS and remote sensing. **He/She should provide 15 person-days.**

4.10.7. Local Expert 2 – MPA Planning and Management Consultant

The local Marine Protected Area Planning and Management Consultant should have at least a postgraduate degree in the relevant field. He/She should have at least 10 years of experience in the relevant field. He/she should have extensive experience on management of marine protected areas. He/She will work in close collaboration with the international MPA Planning and Management Specialist. **He/She should provide 15 person-days.**

4.10.8. Local Expert 3 – Legal and Institutional Expert (with focus on environmental Law)

The Legal and Institutional Expert should possess a master degree in Environment law, or equivalent and has a minimum 5 years of experience in legal environmental and land management, related matters. He/She must demonstrate proven ability to work with a range of stakeholders including Government agencies and the private sector and to work in a team. He/She should have the ability for managing timely and effective delivery of both quantity and quality before the deadlines. **He/She shall provide 10 person days services.**

4.10.9. Local Expert 4 – Remote Sensing and GIS Specialist

The GIS specialist shall be a degree holder and shall possess a postgraduate in GIS or equivalent field of study. He/She should have at least 5 years' experience working with GIS and Remote Sensing. The GIS specialist will be responsible for the development of the GIS maps. **He/She should provide 15 person-days.**

4.10.10. Local Expert 5 – Watershed management / water resources specialist

He/she should have a degree in water resources management/hydrology with a minimum of 5 years' experience in the relevant field. **He/She should provide 5 person-days.**

Letter of availability for Experts

All key experts shall provide an original signed letter of availability and association for the duration of the assignment. In the event of their unavailability, the Consultant shall be under the obligation to provide a replacement of equal or better caliber at no extra cost to the Client.

Support bodies/staff

The Consultant may include the services of any other support staff for the purposes of the assignment. The costs thereof shall be deemed to be included in the bid price.

Important Note:

- In case of an international consultancy team, it is mandatory for the consulting team to associate with one or more local experts so as to have a better appreciation of the local context.
- A local consultant may associate with one or more international teams to participate in this tender exercise.
- However, the total expected input for the assignment shall not exceed 180 person-days.

5. LOT 4 - Consultancy services to review and update of ESA data, maps more specifically in relation to upland wetlands in the Republic of Mauritius

The main beneficiary of Lot 1 of this project is the Ministry of Agro Industry and Food Security and the co-beneficiary will be the Ministry of Social Security, National Solidarity and Environment and Sustainable Development.

5.1. Objective of Lot 4

The objective of this consultancy is to have updated ESA maps of all upland wetlands which are transcribed into the appropriate instruments so that the upland wetlands are taken into consideration when planning for new developments and are conserved.

The objectives for Lot 4 are:

- Based on the existing ESA maps available, to determine the types of upland wetlands that have been mostly encroached by development;
- Ground truth and update the upland wetlands maps with their respective buffer zones;
- Update the upland wetlands GIS datasets or generate new ones;
- Create a database of all upland wetlands with their maps in GIS, JPG and PDF format;
- To input all the data and maps on the online server of the Ministry of Agro Industry which is based in the National Parks and Conservation Service. These information should be easily accessible by the officers of this ministry.

5.2. Scope of works

This consultancy will address the upland wetlands which have been identified and mapped during the 2009 study of ESA's. They include sites that are high in biodiversity values and important for the generation of ecosystem services (e.g. retention, water provision and flood control). During the 2009 study, 603 upland wetlands have been mapped and they are all located in state lands such as the Black River Gorges National Park, The Bras D'Eau National Park, State Land Forest etc.

This consultancy consists of a review and analysis of the upland wetlands maps and related documentation to determine the updates that are required, especially the ESAs GIS datasets. Mechanisms for undertaking the updating needs to be identified and can be as follows:

Acquisition of satellite imagery with a resolution of at least 0.5 m and in case remote sensing method will be used to identify upland wetlands, the satellite imagery need to have the Red, Green, Blue and Near infrared bands /ground truthing to validate the maps and update the upland wetlands GIS datasets; Wet and dry areas can be determined using the NDWI index. The images should be appropriately georeferenced with ground control points and ortho-rectified with a sufficiently precise DEM (<10m). Images should be acquired for rainy and dry seasons and for at least two years. In addition, the use of drones may also be envisaged to update the ESA's dataset.

Emphasis should be placed on the most cost-effective method/s and preference should be given to using existing materials and information.

After taking cognisance of all related documents and ongoing or completed projects in relation to this assignment, the consultants are required to analyse and recommend the most cost-effective method for updating the upland wetlands datasets. In case, drones is used for updating of upland wetlands, the

consultant should provide specifications for procurement purposes or alternatively could provide a complete service including their own drones) and must secure appropriate permits for their use from the relevant authority. The consultants then subsequently will undertake the following tasks with respect to the upland wetlands:

- 1) Update the delineation of the upland wetlands and the GIS maps including the uplands wetlands GIS datasets through ground truthing. In this process, the consultants should ensure that:
 - a. They assess the extent of encroachment on the upland wetlands and the need to redefine their boundaries;
 - b. To ensure that a list of criteria for identification and survey of upland wetlands is established, as difficulties are encountered to identify them especially in dry seasons
 - c. The coordinate system used by the ESA consultants in the 2009 study is properly transcribed in the new coordinate system used by the Ministry of Housing and Lands;
 - d. The maps produced are compatible with planning instruments;
 - e. The maps produced can be used at the Local Authority level and by other users for development control and conservation of these ESAs;
 - f. The maps and data produced should be hosted on the online server of the Ministry of Agro Industry and Food Security so that they can easily access all information pertaining to upland wetlands.

5.3. Workshops

For the purposes of lot 4 of the assignment, the following workshops shall be conducted by the Consultant:

- One-day Inception Workshop.
- One-day workshop for validation of deliverables

5.4. Responsibility of experts

5.4.1. Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including Wetlands (Team Leader)

He/She will Lead the consultation process at national and sectoral level to review and analyse the ESA study carried out in 2009 with particular reference to upland wetlands. He/She will update the delineation of the upland wetlands and the GIS maps including the upland wetland GIS datasets through ground truthing. He/She will draw an updated list of upland wetlands. He/She will devise suitable method to input all the information from this consultancy into the online server of the Ministry of Agro Industry and to ensure that these information and maps are easily accessible to the officers of this ministry

He/She will be the team leader and will therefore be responsible for organization, coordination of all expert's work, compilation and timely submission of deliverables. The team leader will also be the liaison person between the client and the firm.

5.4.2. Local Expert 1- Sworn Land Surveyor

He/She will be responsible for ground truthing the upland Wetlands so that they can be mapped and included in the review of the ESA study.

5.4.3. Local Expert 2- One Remote Sensing and GIS Specialist

He/She will utilize existing and appropriate data to ground-truth all upland wetlands and using GIS and Remote Sensing to develop maps that will identify the upland wetlands of the Republic of Mauritius.

5.5 Duration of the assignment / Time Frame

The consultancy services shall be completed within 120 person-days in accordance with the schedule for the submission of the deliverables including a minimum of three missions both in Mauritius and Rodrigues.

The expected duration of main tasks is expected depicted in table 12.:

TABLE 12. EXPECTED DURATION OF LOT 4

	Experts	Required Person-days in total
1	Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)	30
2	Local Expert 1- Sworn Land Surveyor	70
3	Local Expert 2- One Remote Sensing and GIS Specialist	20
Total		120

The assignment should be completed within 12 months from the starting date of the assignment.

5.6. Reporting, Presentations, and Language

A Technical Committee has been set up under the aegis of the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development to oversee all assignment related to mainland Mauritius.

This TC will be responsible:

1. to provide support on proposed works;
2. to provide inputs/views on technical reports; and
3. to facilitate consultative meetings.

The Technical Committee will review all outputs/deliverables. Their comments shall be communicated to the consultants within 21 days of submission of the output/deliverable. The consultants will then have to consider and incorporate the comments within a period of 2 weeks from the date of receipt of comments. The consultants will have to provide for justifications when comments are not incorporated in the output/deliverable.

Reporting line and collaboration with stakeholders will be as follows:

- The consultants will be required to report to the Technical Committees and Steering Committee and work in collaboration with the National Project Director, Chief Technical Adviser and Project Management Unit.
- The consultants will have to work closely with the Department of Environment and RRA and their officers will accompany consultants on field surveys as and when required.
- The consultants will have to work with the concerned Ministries/Departments for the different ESAs.
- Throughout the duration of the contract, the Consultants shall maintain a constant liaison with the Client to discuss alternatives, options and any other matters pertaining to the progress of works. They shall submit regular interim progress reports as required by the client.
- The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development and RRA will be responsible for technical issues pertaining to the assignment.
- The UNDP will be responsible for contractual and payment issues for this assignment.

All reports and maps shall be submitted in hard copies (20 copies) in a scale to be agreed with the Ministry of Housing and Lands and in soft copy. The soft copy should not be secured with password(s) to allow printing or copy and paste of extract from the reports.

The language of the assignment shall be in English. All the outputs and deliverables shall be written in English language and should be presented in a format acceptable by the Technical Committee under the

aegis of the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development as well as the Rodrigues Regional Assembly. All documents/maps shall become the property of the Government of Mauritius.

The reports and documentation should be submitted in electronic format, in both editable Microsoft Office Word version and in pdf version. All the final versions of the reports and documentation should also be dispatched to the Project Manager in 3 original CDs. There shall be no security restrictions on printing/editing in the deliverables.

The Consultant will have to submit all reports and documentation in draft form (in soft format - MS Word) in the first instance, and should thereafter incorporate any comments the Client may submit, prior to their finalization. Draft reports and documentation would have to be submitted at least 2 weeks before the final reports/documentation are due so that the Client will have ample time to circulate the drafts for any feedback from the Steering Committee. Payment will be made only on the final deliverables, and these final deliverables ***should be to the satisfaction of*** the National Project Director, the Project Manager, the Steering Committee, the Technical Committees and the UNDP Country Office.

5.7. Logistical arrangements

The Ministry of Social Security, National Solidarity, and Environment and Sustainable Development shall provide for office space with fax, telephone and internet facilities. The Ministry can provide office space for up to 6 consultants at any one time during the assignment.

The Project Manager will provide logistical support for the organization of workshops and other events/meetings (as required), and for the mobilization of stakeholders for such events/meetings.

The venues for the workshops and events/meetings will be arranged by the Project Manager and the costs thereof shall be met under the project funds.

The consultants may be required to act as resource person for at least one national workshop with all major stakeholders (Government agencies and NGOs) to discuss findings and proposals.

5.8. Delivery and Payment Schedules

- Deliverables will be the basis for the payment schedule. All reports will be submitted in draft (for comments) and then final.
- The Deliverables shall be submitted in electronic format (MS Word, and Pdf versions) and by courier to the Project Manager, Mr P. Ragen. The address for delivery is:

Mr. Parmananda Ragen, Project Manager

Mainstreaming Biodiversity into the Management of the Coastal Zone in the republic of Mauritius

Address: Ministry of Ocean Economy, Marine Resources, Fisheries and Shipping,
Ground Floor, LIC Building,
President John Kennedy Street,
Port Louis.

Email : parmananda.ragen@undp.org

Tel: +230 214 2508

Fax: +230 214 3512

- Payment of fees will be subject to the schedule in Table 13.

TABLE 13: SCHEDULE FOR PAYMENT OF FEES– LOT 4

Item	Project	Activity/deliverable	Time Schedule	Payment Schedule
1	Submission of agreed workplan		Jul – 18	10%
2	Inception Report		Aug – 18	10%
3	Submission of the updated upland wetlands GIS datasets in shapefiles format to be used by other stakeholders based on the coordinate system, projection type and datum advised by MHL as well as the metadata		Nov - 18	25%
4	Submission of the updated upland wetlands maps of the Republic of Mauritius in JPEG or PDF format preferably, or any other format as required by the Ministry of Housing and Lands (MHL)		Dec -19	25%
5	Input of all information gathered during this consultancy including maps of upland wetlands into the online server of the Ministry of Agro Industry		Feb – 2020	20%
6	Final validation workshop report and Final Report		Mar-2020	10%
	Total			100%

5.9. Qualification of the Consultancy Team

The core personnel shall have the expertise in the fields required for the implementation of the project. Details like academic qualifications, field of competency and technical/practical experience of the previous assignments of similar nature and/or related consultancy services should be submitted with signed CVs.

The selection of the Consultant for the Project shall be based on a Quality and Cost method and eventually appointed on a **lump sum fee basis**.

The consultant shall undertake at least three missions both to Mauritius and Rodrigues during the assignment.

The core personnel should consist of the following:

1. Expert in Natural Resources Management with specialization in coastal and marine biodiversity including wetlands
2. Sworn Land Surveyor
3. Remote Sensing and GIS Specialist

5.9.1. Key Expert 1 – Expert in Natural Resources Management with specialisation in coastal and marine biodiversity including wetlands (Team Leader)

The expert should hold a postgraduate degree in one of the following fields: Natural Resource

Management, Ecology, Wetlands Conservation, Environmental Planning and Management or equivalent acceptable field of study. Experience in leading teams of interdisciplinary experts will be an added advantage.

The Expert should also have at least a postgraduate degree or working knowledge in Wetlands biodiversity or equivalent acceptable field of study.

He/She should have a minimum of 10 years' experience in his/her field of expertise and having worked on at least 2 similar projects. Experience in tropical small island countries including Mauritius is preferable. He/She will also be responsible for the technical coordination of the project and shall **provide 30 person-days services**.

5.9.1. Local Expert 1 - Sworn Land Surveyor

The Sworn Land Surveyor shall have at least a Degree in Land Surveying and be registered to a recognised professional body. He/She should have working knowledge in Remote Sensing and Geographic Information Systems (GIS). He/She should have a minimum of 5 years' experience in his/her field of expertise. **He/She shall provide 70 person-days services.**

5.9.2. Local Expert 2 - One Remote Sensing and GIS Specialist

The GIS specialist shall be a degree holder and shall possess a postgraduate degree in GIS or equivalent field of study. He/She should have at least 5 years' experience working with GIS and Remote Sensing. The GIS specialist will be responsible for the development of the GIS maps and **shall provide 20 person-days services.**

Letter of availability for Experts

All key experts shall provide an original signed letter of availability and association for the duration of the assignment. In the event of their unavailability, the Consultant shall be under the obligation to provide a replacement of equal or better caliber at no extra cost to the Client.

Support bodies/staff

The Consultant may include the services of any other support staff for the purposes of the assignment. The costs thereof shall be deemed to be included in the bid price.

Important Note:

- In case of an international consultancy team, it is mandatory for the consulting team to associate with one or more local experts so as to have a better appreciation of the local context.
- A local consultant may associate with one or more international teams to participate in this tender exercise.
- However, the total expected input for the assignment shall not exceed 120 person-days.

