Ministry of Fisheries, Marine Resources and Agriculture
Sustainable Fisheries Resources Development Project
Republic of Maldives

Detailed Design and ESIA Consultancy for Reclamation and Shore Protection of Maniyafushi under the Maldives Sustainable Fisheries Resources Development Project

TERMS OF REFERENCE

1 Background

The Government of the Republic of Maldives through the Ministry of Fisheries and Agriculture is implementing Maldives –Sustainable Fisheries Resources Development Project financed by the World Bank. The project will be managed by the Project Management Unit (PMU) set up within the Ministry of Fisheries and Agriculture. The project will be implemented in accordance with the Project Implementation Plan (PIP), Project's Procurement Manual, and the Project's Financial Management Manual all of which are consistent with the World Bank's guidelines and procedures on procurement and financial management.

The aim of the Project are as follows: (a) at the larger South-West Indian Ocean Region, to improve the management of selected priority fisheries at regional, national and community levels; and (b) at the national level, the overall development objective would be to enhance the government's capacity to manage and govern the fisheries sector, including formulating appropriate adaptive sector policies; to ensure sustainability of marine fisheries; and to development of mariculture as an important source of inclusive growth of economy, income and jobs, to be able to respond to changing needs of the Indian Ocean region.

MoFMRA has received funding from the World Bank, under the "Sustainable Fisheries Resources Development Project" (SFRDP) for the completion of required infrastructure to complete the facility. The construction required infrastructure to complete the facility has now completed. However, since Maniyafushi Island is a relatively small island with approximately 150 m and 120 m at its longest and widest lengths, respectively; achieving the production objective of

mariculture component with the current available land space is limited. In order to sustain the mariculture production rates in the facility and achieve the target production percentage the project requires expansion of the current facility and land.

Therefore, the project has proposed reclamation of 2.5ha of land of Maniyafushi and construction of Shore Protection around the island to avoid erosion of the island and reclaimed area.

2 Objectives for Assignment

One of the objectives of the ESIA is to propose a good reclamation plan and design of the reclamation of 2.5ha on and around the current island, including optimizing cost of the work, appropriate technology such that the reclaimed land is stable to the best of national and international standards or good practices.

Second objective is to identify the environmental conditions and impacts an activity has on the environment out of the project. Projects such as reclamation and construction of shore protection requires activities such as dredging and backfilling which causes damage to the surrounding marine environment. Therefore, identifying the baseline and construction phase conditions are extremely important to understand any potential impacts from the project on the environment.

The key findings from the Environment and Social Impact Assessment, including the monitoring requirements and mitigation measures, will be crucial in developing environmental management plans for similar projects, and will support the environmental management and monitoring mechanisms for similar development projects in Maldives in general. Furthermore, conducting the environmental social impact assessment is required to maintain the standards required by the gov, EPA, World Bank's due diligence procedures, and the requirements in the Environmental and Social Management Framework (ESMF).

3 Scope of Work

Task 1

The following surveys/investigations and analysis are required for the technical design of the reclamation plan:

1. Climate

a. Temperature, precipitation, evaporation and wind (include extreme situations);
b. Risks to hurricanes and storm surges;

2. Geology and geomorphology
    a. Shoreline and Vegetation line of the island
    b. Bathymetry (bottom morphology of all dredging and reclamation areas (use maps))
    c. Bathymetry mapping of the area to be dredged to bring material for reclamation
    d. (Seasonal) patterns of coastal erosion and accretion (shoreline (low tide line; high tide line) and vegetation line)
    e. Characteristics of current bed of the lagoon and seabed sediments;
3. Ecology
    a. Ecosystems and their characteristic flora and fauna (terrestrial, coastal zone and marine environment, including the benthic layers); such as coral reefs, sea grass fields, spawning sites for fish, nursery areas for crustaceans or specific sites for marine mammals, sharks, and turtles
    b. Ecological conditions required for cage deployment of mariculture production or research

    c. The following Environmental studies should be used to determine the optimum reclamation plans as specified below:

4. Has to include plans for future mooring bays for 3 vessels of 12 passengers each.
5. Optimum use of the current jetty including safe harboring of 1 vessel of 12 passengers.
6. Appropriate technology to be used for reclamation
7. Comparative technical and cost analysis of the reclamation plan, including shore protection.

a. Task 2

b. The ESIA should fulfill the requirements of the Environmental Protection Agency (EPA) of Maldives, World Bank guidelines, and Environment and Social Framework of the World Bank.

c. The consultant will carry out the following tasks, and additional tasks as required by EPA TOR, and prepare an ESIA report for the reclamation and shore protection project. The consultants are also required to draw the technical designs of the shore protection after conducting the preliminary studies of the surrounding environment and the island.

d. Natural Environment

e. The ESIA report must address the following aspects if not covered under Task 1

1. Climate
    a. Temperature, precipitation, evaporation and wind (include extreme situations);
    b. Risks to hurricanes and storm surges;
2. Geology and geomorphology
    a. Shoreline and Vegetation line of the island

f. Bathymetry (bottom morphology of all dredging and reclamation areas (use maps)
g. Bathymetry mapping of the area to be dredged to bring material for reclamation
h. (Seasonal) patterns of coastal erosion and accretion (shoreline (low tide line; high tide line) and vegetation line)
i. Characteristics of current bed of the lagoon and seabed sediments;
j. Beach profile near study area
k. Wave climate and wave induced currents at and around dredging and reclamation sites;
l. Wind induced (seasonal) currents;
m. Turbidity / sediment concentration;

8. Water Quality
    a. Quantity and quality (physical / chemical characteristics);
    b. The baseline water quality survey for the lagoon will establish parameters for the following environmental parameters and present validated reports of the same. The survey report should indicate the methodology in which the testing was conducted, including key details of equipment used.
        i. Salinity
        ii. Turbidity
        iii. PH
        iv. Total Suspended Solids (TSS)
        v. Nitrate
        vi. Nitrite
        vii. Phosphorous
        viii. Ammonium
        ix. Temperature from 1 meter below sea surface and seabed respectively
        x. Biological Oxygen Demand (BOD)
        xi. Dissolved Oxygen (DO)
9. Ecology

a. Protected areas, protected or endangered species;
b. Ecosystems and their characteristic flora and fauna (terrestrial, coastal zone and marine environment, including the benthic layers);
c. Identification of vulnerable ecosystems and environmentally valuable areas (eg. Coral reefs, sea grass fields, spawning sites for fish, nursery areas for crustaceans or specific sites for marine mammals, sharks, and turtles);

d. Socio-Economic Environment

10. Economic
    a. Economic activities;
    b. Seasonal changes in activities;
11. Social and living conditions
    a. Services quality and accessibility (water supply, waste / water disposal, energy supply);
    b. Living conditions
12. Conduct a mapping of the project site
    a. Scaled mapping of the project area using existing maps or physical survey, including drone photography and map overlays.
13. Establish the baseline environmental parameters of the site as per the international standards under which future operations will be monitored as follows.
    a. Baseline marine habitat survey
        i. The consultant will be required to conduct a qualitative and quantitative assessment of the marine habitat surrounding the island and lagoon and provide a description of the habitat including the identification of the fish species, and benthic flora and fauna observed and included as annexes.

14. Prepare an Environmental and Social Management and Monitoring Plan.
15. The consultant will prepare an Environmental and Social Management and Monitoring Plan (ESMMP) for the reclamation and shore protection of the site, which includes mitigation measures for potential impacts.
16. The plan will use international best practice guidance presented in the World Bank Group General Environmental Health and Safety Guidelines, the World Bank Group Sectoral Environmental Health and Safety Guidelines for aquaculture operations and all guidance presented in the Environmental and Social Assessment and Management Framework of the project.

17. The ESMMP will be developed to prevent, mitigate and monitor each real/potential impact identified in the ESIA report.
18. The ESMMP should be presented in Matrix form, as per the guidance provided below and will describe actions to be taken in sufficient detail to provide a basis for subsequent auditing of compliance with commitments made in the process including who is responsible, how and when it will be implemented, what will be done and what results will be achieved, why it is being done, and how to know whether it is effective in addressing the underlying concerns. The Environmental Management and Monitoring Plan shall have the following elements:

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Institutional Responsibilities (Implementation and Supervision)	Proposed Environmental Parameter/Activity Monitoring Requirements	Frequency of Monitoring required	Cost Estimates
Establishment and Construction Phase						
Operation and Maintenance Phase						

1. The consultant will present a time bound plan for conducting the ESIA.

Task 3

The below mentioned objectives must be determined upon the completion of Task 1 and Task 2.

a. Final cost estimate of the Reclamation Design
b. DIB document
c. BOQ and technical specifications
d. Work methodology
e. Schedule of implementation

- A Project Brief and a possible design concept is attached in **ANNEX 1**

4 Team Composition

The Consultant will be required to identify Key Personnel and provide sufficient qualified personnel to ensure achievement of all objectives of these tasks. The following minimum Key personnel will be required for the assignment:

	Key Professionals	Description of Services to be provided	Minimum Qualification & Experience	No. of persons
	ESIA Consultant / Team Leader	Overall responsibility of preparing the ESIA consistent to the TOR. Writing / reviewing	Marine Biologist / Bachelor's Degree in Environmental Engineering / Environmental Science / Environmental Management with minimum 05 years' experience in preparing ESIA or ESMP reports. Postgraduate qualifications will be an added advantage. Experience in conducting ESIAs ,EAs, EMPs, SEAs or sector based environmental assessments, social impact assessments for sector related and World Bank funded projects will be given preference. The consultant should hold an EIA license and his/her EIA license copy shall be submitted along with a dated letter stating his/her association with the bidding party.	1
	ESIA Consultant / Co-team Leader	Assist or compliment the team leader in preparing the ESIA and managing the team.	Bachelor's Degree in Environmental Engineering / Environmental Science / Environmental Management with minimum 05 years' experience in preparing ESIA or ESMP reports. Postgraduate qualifications will be an	1

		Assist or compliment the team leader in writing / reviewing	added advantage. Experience in conducting ESIAs, EAs, EMPs, SEAs or sector based environmental assessments, social impact assessments related to sector and World Bank funded projects will be given preference. EIA consultants should submit a copy of his/her EIA license.	
	Surveyors	Conduct environmental surveys to establish baseline data. Assist the ESIA consultant to develop the monitoring framework.	Diploma in Surveying or Mapping with minimum 03 years' experience in conducting land and/or marine surveys or related to the assignment. Those with Bachelor's Degree qualification or higher and experience in similar projects will hold an added advantage.	2
	Social Assessment Expert	Conduct stakeholder and / or community consultations.	Bachelor's Degree in the Social Sciences, Business Administration, Environmental Science or related field with minimum 05 years' experience in undertaking stakeholder and/or community consultations related to development projects. Postgraduate qualifications and experience in similar projects will be an added advantage.	2
	Technical Support including data management and analysis (preferably local staff)	Administrative arrangements, data entry and generating reports.	Highschool graduates or Diploma with Minimum 03 years' experience in organizing stakeholders' consultations, supervising field data collection, data entry and generating reports. Proficiency with MS Office Word/Excel/Power Point/Access) and field survey experience.	2

Consultant may wish to propose alternative staffing configurations to ensure achievement of all objectives. The availability of each proposed staff person must be identified as well as whether they are full-time staff persons of the Consultants firm or hired consultants specific for the assignment.

5 Reporting

The Consultant shall report to the Project Director (PD) of the SFRDP for the execution of the scope of services and deliver the outputs under the direct supervision of the Environmental and Social Specialist (ESS) of the Project. A briefing meeting and shall be required between the Consultant and the relevant staff and other GoM stakeholders.

All required reports will be submitted to the PD and other appropriate GoM authorities through the ESSO. The Consultant will coordinate closely with the PD and the ESS as well as with the relevant government agencies in executing all aspects of this work and in doing so, will engage in active knowledge transfer methods and procedures for the relevant activities' planning and design for key stakeholders to be agreed upon at the beginning of the contract. This function, while not necessarily involving formal training sessions, is considered an important element of the Consultant's work. In addition, the Consultant will engage in the following:

- Documentation. The Consultant will establish and maintain a comprehensive inventory of all relevant documents and data collected. Any confidential material provided to the consultants will be returned in an organized fashion to the Ministry at the end of the contract.
- Personnel. The Consultant must provide and maintain all key personnel proposed. Any changes are subject to approvals from the contracting authority.
- Logistics. The Consultant will be responsible for all their logistical need in-country including workspace, office support, communications and transportation. The proposed work involves significant interrelated activities and coordination with the Ministry.

All deliverables shall be submitted in electronic form and in hardcopy (3 copies each deliverable) in English. All hardcopy documents shall be two sided printed to conserve paper. All deliverables will be considered draft upon initial receipt. Draft documents will be reviewed and accepted, or comments will be provided within two weeks of receipt. The Consultant shall appropriately address concerns and provide final deliverables within two weeks of receiving comments unless a mutually-agreed upon arrangement stipulates otherwise. It is anticipated that the duration of this contract will be for 2 months.

All reports will be reviewed by the PD, ESSO of the SFRDP and subject to World Bank clearance.

6 Technical Proposal

To ensure that appropriate information addressing the scope of work is provided in the offer, the consultant is requested to follow the instructions below.

Past Performance, Capabilities and Experience: The Proposal must highlight (in around 12 pages) the firms experiences that relate to the work described by the terms of reference specifically to the tasks requested. Prior experience of carrying out similar assignments will be essential. This section should include the past performance of the proposed team members. The Consultant must include reference to specific for Reclamation and Shore Protection related projects. Specifically, the Consultant must demonstrate its overall and proven track record acting as environmental and social technical consultants including policy analysis and strategic environmental assessments in the country and national infrastructure and planning projects, including the names and descriptions of the specific project that the Consultant has worked on. When demonstrating capabilities and experience of team members, knowledge of World Bank Group Environmental and Social Safeguard Policies in addition to local conditions, social and cultural practices, and national laws and regulations will be essential. Prior experience conducting EIAs, ESIAs, EAs, EMPs, SEAs or sector based environmental assessments, social impact assessments and impact management tools is highly desirable.

An overview summary table of these experiences is required with sufficient details. Experience as a firm and experiences of the team members are to be described separately under two headings. This shall include but not limited to:

1. The CV's of the staff members containing the following information and supporting documents.
    a. Copies of accredited educational certificates.

b. A copy of the EIA consultant license.

c. Description of completed similar assignments and value of such assignments. The nature of the assignment (for example, reclamation and shore protection, infrastructure development etc.) and the role of the consultant and team members for each of the completed assignment should be specified (for example EIA consultant, social assessment expert, surveyor etc.). Work completion letters and / or decision statements issued by EPA for the completed assignments shall be furnished as supporting documents.

Note: Experience in providing consultancy services for world bank funded projects must be exclusively highlighted

d. Letter stating his/her association with the bidding party.

2. The company profile of the firm should reflect similar assignments completed as a firm. Nature and value of such assignments should be indicated. Work completion letters and / or decision statements issued by EPA for the completed assignments shall be furnished as supporting documents.

3. The proposed consultant must meet the criteria given in Environment Impact Assessment Regulation, 2012.

4- The proposal must present a detailed time schedule/ work plan, presenting a timeline of all activities to be undertaken for completion of the task.

7 Outputs and Deliverables

The assignment will be completed over a two (2) calendar months period.

Deliverables

	Deliverable	Time Line
	Submission of Reclamation Design	Within 1 Months from the date of contract
	Draft ESIA report	Within 1.5 Months from the date of contract
	Final ESIA report • EIA submission in fast-track mode. • This cost must be included in the Total price.	Within 2 Months from the date of contract
	ESIA decision note	Within 7 days from the date of final ESIA report submission

8 Evaluation Criteria

Criteria, sub-criteria, and point system for the evaluation of the Full Technical Proposals:

Points

i) Specific experience of the Consultant (as a firm) relevant to the Assignment: [20]

The experience of the firm in developing ESIAs for similar projects. Experience in developing ESIAs for the World Bank funded projects and in Waste Management field will be an added advantage.

(ii) Key Experts' qualifications and competence for the Assignment: [60]

[Notes to Consultant: each position number corresponds to the same for the Key Experts in Form TECH-6 to be prepared by the Consultant]

a) Position K-1: [Team Leader / ESMP Consultant]	*15*
b) Position K-2: [Co-team leader / ESMP Consultant]	*10*
c)Position K-3: [2 Surveyors]	*15 (7.5+7.5)*
d)Position K-4: [2 Social Assessment Experts]	*15 (7.5+7.5)*
e) Position K-5:[Support Staffs]	*5 (2.5+2.5)*

The number of points to be assigned to each of the above positions shall be determined considering the following three sub-criteria and relevant percentage weights:

1) General qualifications (general education, training, and experience): 20%

2) Adequacy for the Assignment (relevant education, training, experience in the sector/similar assignments) 70%

3) Relevant experience in the region (working level fluency in local language(s)/knowledge of local culture or administrative system, government organization, etc.): 10%

9 Fee and Payment Schedule

Consultancy fee will be negotiable. Fee is lump sum, and there will not be any reimbursable expenditure. Payments will be made as per the following payment schedule:

1. 20% upon submission of the Reclamation Design

- 30% upon submission of the draft ESIA report
- 10% upon submission of final ESIA report
- 40% upon receipt of ESIA decision note

ANNEX 1

Project Brief

Maniyafushi Reclamation and Shore Protection Project

1. Background

The Government of the Republic of Maldives through the Ministry of Fisheries, Marine Resources and Agriculture (MoFMRA) is implementing Maldives Sustainable Fisheries Resources Development Project (SFRDP) financed by the World Bank.

One of the key components of the SFRDP is the development of mariculture as an important source of inclusive growth of economy, income and jobs, to be able to respond to changing needs of the Indian Ocean region. To achieve these objectives, one of the key activities planned under the mariculture component of SFRDP is the grow-out culture of groupers, for diversifying the fisheries sector, and enhancing fisheries-related livelihood activities.

Grouper fingerlings for the grow-out pilot project and the follow up phase will be supplied by Mariculture Training and Demonstration Facility (MTDF) in Maniyafushi, operated by Maldives Marine Research Institute (MMRI) of MoFAMR; and the multi-species hatchery in Gaafu Alifu Atoll.

As the land area in Maniyafushi, is very limited, MoFAMR has proposed a project which includes reclamation of 2ha of lagoon area adjacent to Maniyafushi Island and construction of shore protection around the island to minimize erosion. The reclaimed area will be used to extend the training and demonstration facility to achieve the production objectives of the project.

2. Project site

The following project will be carried out in Maniyafushi, south Male' atoll (4°03'21"N; 73°24'40"E), located approximately 15 km to the south of Male' – capital of Maldives. Maniyafushi has a very limited land space, with approximately 150 m and 120 m at its longest and widest lengths, respectively situated on an isolated reef, occupying less than 10% of the reef area.

Maniyafushi has currently developed as a mariculture and demonstration facility, using existing and new infrastructure. The purpose of the reclamation and shore protection project is to extend this demonstration facility to achieve production objectives and strengthen mariculture activities in the island.

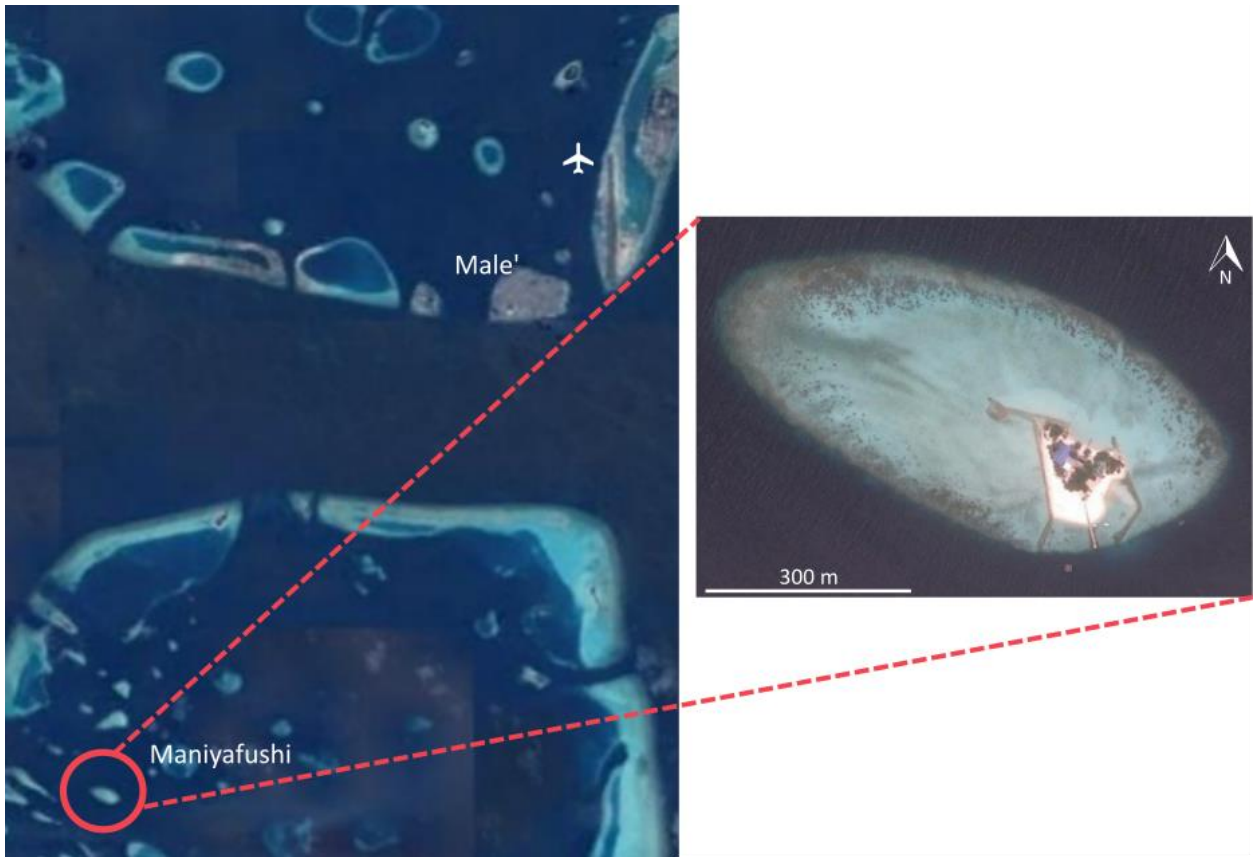


Figure . Project site, Maniyafushi, South Malé Atoll

3. Rationale

Mariculture development is an important component of SFRDP. However, mariculture is a new industry to Maldives. Grouper culture, the main activity of the mariculture component, has just started in the country. Although there has been some experimental culture of grouper in the country, it has not yet been cultured on a commercial scale. Therefore, SFRDP is conducting a pilot grouper grow-out project with the involvement of households of selected islands before going to large scale grouper grow-out in other islands.

MTDF research hatchery in Maniyafushi Island is going to supply grouper fingerlings for the pilot grouper grow-out project. However, nursery space on Maniyafushi is very limited. MTDF needs additional nursery space to produce an adequate supply of grouper fingerlings for the grouper culture pilot project. Currently, grouper fingerlings produced in MTDF hatchery is taken to the outside nurseries to nurse them further. However, with the extension of land it is estimated that the production capacity will increase in Maniyafushi nurseries and fingerlings can be harvested on the island. This project will benefit the mariculture sector of the country, as well as benefit private sector parties in mariculture fisheries.

As the island is observing beach erosion, especially on the side with critical infrastructure has been constructed, in order to protect the investments made and to preserve the island, the project seeks to carry out shore protection after reclamation of 2ha of the lagoon area of Maniyafushi.

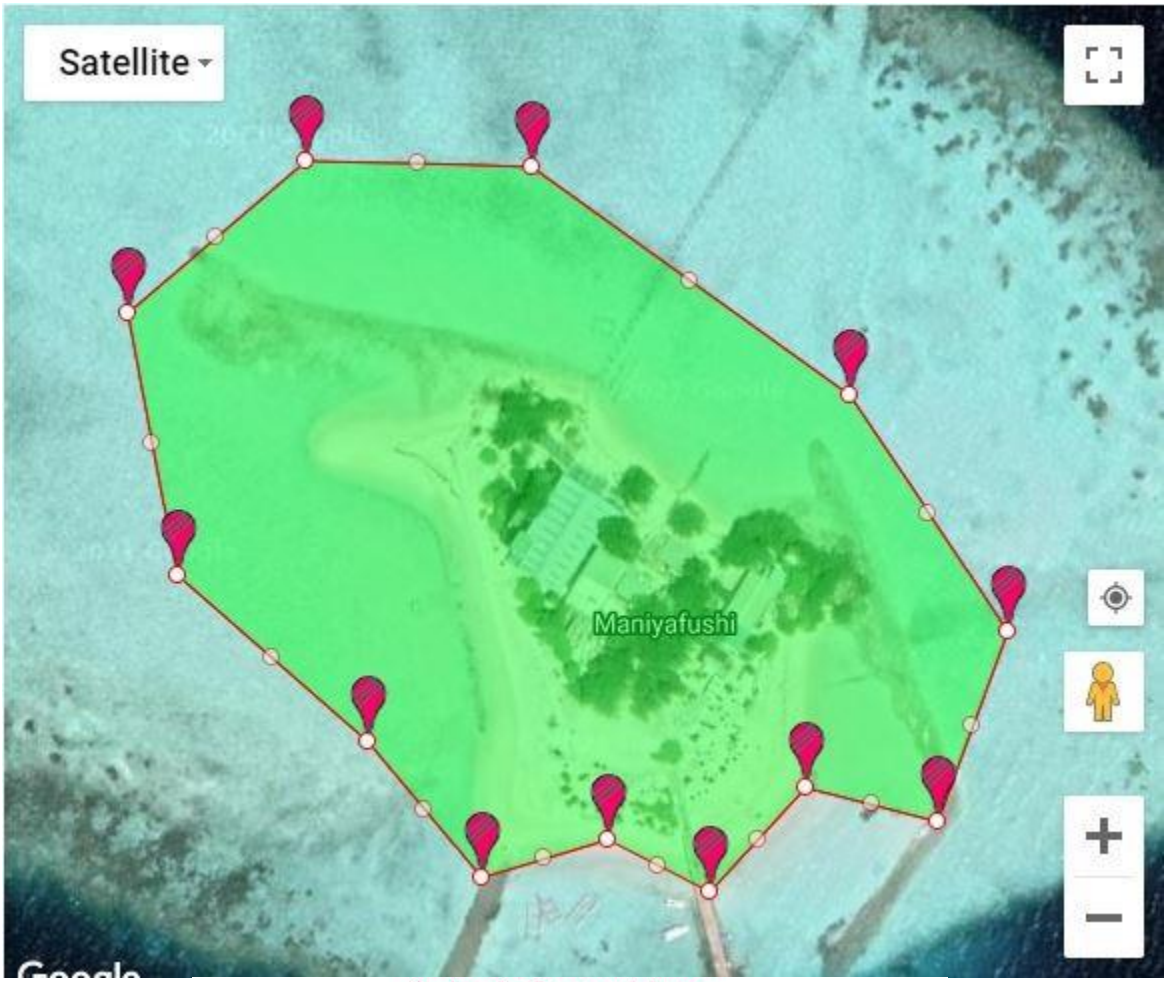
4. Project Description

The goal of SFRDP would be to enhance the government's capacity to manage and govern the fisheries sector, including the formulation of appropriate adaptive sector policies; and to ensure sustainability of marine fisheries and development of mariculture as an important source of inclusive growth of economy, income and jobs, especially for women and youth, to be able to respond to changing needs of the Indian ocean Region.

The development object of SFRDP is to improve management of fisheries at regional and national levels including supporting establishment of mariculture in targeted atolls in the Maldives.

The reclamation and shore protection project will provide the land space and shore protection to Maniyafushi. The project will identify the most suitable location for reclamation after preliminary studies, and technical designs of the suitable form and areas for the construction of shore protection of the island.

5. Possible Reclamation Concept



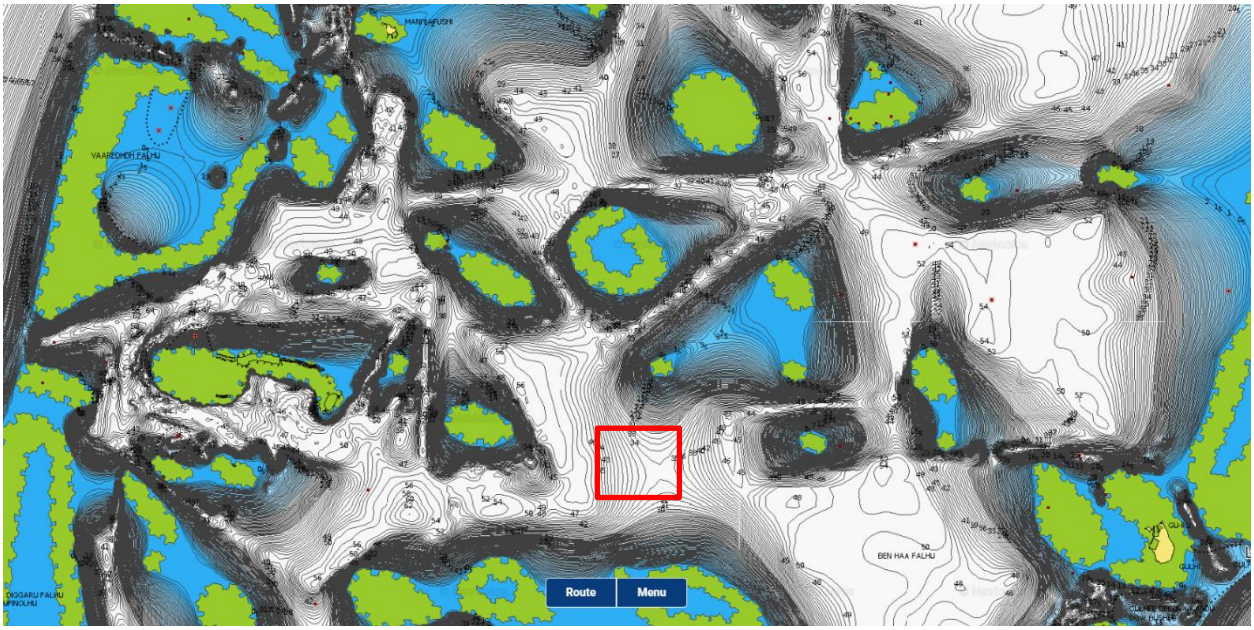
Output : Current Area

37451.09 m^2 | 0.04 km^2 | 9.25 acres | 3.75 hectares | 403120.21 $feet^2$ | 0.01 square miles | 0.01 square nautical miles

Current Perimeter

761.967m OR 2499.891feet

6. Possible Dredging Location



ANNEX 2

FORM TECH-6 CURRICULUM VITAE (CV) FOR PROPOSED INTERNATIONAL OR NATIONAL EXPERTS

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1. Proposed Position [*only one candidate shall be nominated for each position*]: __

2. Name of Firm [*Insert name of firm proposing the expert*]: _____

_____

3. Name of Expert [*Insert full name*]: __

4. Date of Birth: _____ **Citizenship**: __

5. Education [*Indicate college/university and other specialized education of expert, giving names of institutions, degrees obtained, and dates of obtainment*]: _____

_____

6. Membership in Professional Associations: __

_____

7.Other Trainings [*Indicate significant training since degrees under 5 - Education were obtained*]:

_____

8. **Countries of Work Experience**: [*List countries where expert has worked in the last ten years*]:

9. **Languages** [*For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing*]:

10. **Employment Record** [*Starting with present position, list in reverse order every employment held by expert since graduation, giving for each employment (see format here below): dates of employment, name of employing organization, positions held.*]:

From [*Year*]: To [*Year*]:

Employer:

Positions held:

11. Detailed Tasks Assigned	**12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned**
[*List all tasks to be performed under this assignment*]	[*Among the assignments in which the expert has been involved, indicate the following information for those assignments that best illustrate the expert's capability to handle the tasks listed in line 11.*] Name of assignment or project: Year:

	Location: _____ Client: _____ Main project features: _____ Positions held: _____ Activities performed: _____

13. Certification:

I, the undersigned, certify to the best of my knowledge and belief that

(i) this CV correctly describes my qualifications and my experience;
(ii) I am not employed by the Executing /Implementing Agency and I am not a close relative* of any employee of the Executing/Implementing Agency;
(iii) In the absence of medical incapacity, I will undertake this assignment for the duration and in terms of the inputs specified for me in the Personnel Schedule in Form TECH-7 provided team mobilization takes place within the validity of this proposal or any agreed extension thereof;
(iv) I am committed to undertake the assignment within the validity of Proposal;
(v) I am not part of the team who wrote the terms of reference for this consulting services assignment;

I understand that any willful misstatement described herein may lead to my disqualification or dismissal, if engaged.

_____ Date: _____

[Signature of expert or authorized representative of the firm][1] Day/Month/Year

Full name of authorized representative: _____

[1] This CV can be signed by a senior representative of the Consultant provided that if the Consultant's proposal is ranked first, a copy of the CV signed by the expert and/or specialist must be submitted to the Client prior to the commencement of contract negotiations.