

**ENVIRONMENT MANAGEMENT PLAN FOR
THE PROPOSED DEVELOPMENT OF
VIEWING PLATFORM IN MASHIKULHI,
KULHUDHUFUSHI CITY, HAA DHAALU
ATOLL.
MALDIVES**



August 2023

Proponent
ZigZag for Youth Linkages
Kulhudhufushi, Haa Dhaal Atoll

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(EIA-P(A)02/2022).
Consultant

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LEAD CONSULTANT'S DECLARATION

I certify that statements made in this Environmental Management Plan are true, complete, and correct to the best of my knowledge and available information.



Mariyam Rifga
(EIA-P(A)02/2022).

Contribution of Consultants

Name	Chapters
Mariyam Rifga	Introduction Project Description Policy and Legal Compliance Stakeholder Engagement Grievance Mechanism Monitoring and Evaluation Conclusion
Aishath Farhath Ali	Impact Identification Impact Management program EMP Implementation
Abdulla Fazeel	Biophysical Environment

Commitment letter attached in Appendix A

1. INTRODUCTION:

This Environmental Management Plan (EMP) has been prepared as a tool to assist Zigzag for youth Linkages to develop a platform at Mashikulhi in Kulhudhufushi city under their GEF small grant project in accordance with national laws and international best practices. The EMP will examine the likely social and environmental impacts associated with the installation and operation of the viewing platform at Mashikulhi, in Kulhudhufushi city Haa Dhaal Atoll and proposes a management framework to address those impacts.

The EMP contains location specific actions that the NGO can implement to ensure the mangrove viewing platform is established and managed in a sustainable manner. The EMP also provides direction for construction and operational procedures to address environmental and social impacts associated with activities around platform.

1.1. PROJECT TITLE:

The title of the report is the Environmental Management Plan for the development of viewing platform in Mashikulhi at Kulhudhufushi, Haa Dhaal Atoll.

1.2. PROPONENT:

The proponent of this project is ZigZag for Youth Linkages, a Non-governmental Organization registered at Ministry of Youth Community Empowerment.

The contact details:

Ahmed Abdulla
President
ZigZag for Youth Linkages
Lotus/ Kulhudhufushi City, Haa Dhaal Atoll
Contact: zigzag4youthlinkage@gmail.com

1.3. RATIONALE AND NEED FOR THE PROJECT:

The development of viewing platform at Mashikulhi at Kulhudhufushi city, is one component of a community project “Conservation and management of Mashikulhi” carried out by Zigzag for youth linkages under the funding from GEF Small Grants program 2022.

Prior to development of the domestic airport, Kulhudhuffushi wetlands consisted of the highest number of true mangrove species in the Maldives, including 7 species of true mangroves and 42 mangrove associate plants, which include 7 IUCN Red List species that are decreasing globally. Migratory birds visit the island making the island one of the most biologically diverse wetland and

mangrove ecosystem of Maldives. The mangroves were widely used by women of Kulhudhuffushi for coir rope making which is an important source of livelihood of more than 400 families. The mangroves are also culturally significant to the community, being an essential part of the annual Mashi Maali Parade and cultural activities associated with the island.

This most prominent natural feature of the island underwent severe modification with the development of the domestic airport with reclamation of 12.04 Ha of the wetland area in the year 2017, which impacted its ecological and socio-economic value significantly. In a collaborative effort to revive the remnant mangrove habitats to support livelihood and socio-economic well-being of the community, Zigzag for youth linkages with support from Kulhudhufushi city council aims to develop Mashikulhi area as an area for recreation for the community of Kulhudhifushi.

The overall aim of the project is to restore and revive the residual mangrove habitat of Mashikulhi, to support livelihood and recreation of the community of Kulhudhufushi city. Further the project also involves managing Mashikulhi, building community capacity, and restoring and rehabilitating the mangrove and its value. The proposed project is expected to foster for the locals, educators, local tours and community to enable easy access to the wetland, provide recreational activities within mangrove and work towards conserving, managing and rehabilitating the existing wetland.

1.4. SCOPE:

The scope of the EMP includes the development of a viewing platform at in Mashikulhi at Kulhudhufushi

1.5. LOCATION:

The project location is the mangrove fragment located in the South of the Kulhudhufishi domestic airport. The distance from the coastline is approximately 275 meters and distance from the nearest infrastructure of the Kulhudhufushi airport to project location is approximately 60 meters. The proposed project location is not a protected area under EPPA 4/93. Mashikulhi is an enclosed mangrove wetland located in H.Dh Kulhudhuffushi. The Mangrove was cut off from the sea as a result of the airport developmental project.



Figure 1: Project location (Mashikulhi area)

The boundary of the study area is limited to the proposed work area in the wetland as given in figure 2. The area is mostly thick vegetation, with coir processing farm plots (bonbi faa) and has a path to access the water body at location. The wetland is not exposed to the sea and are no significant developments in the area.

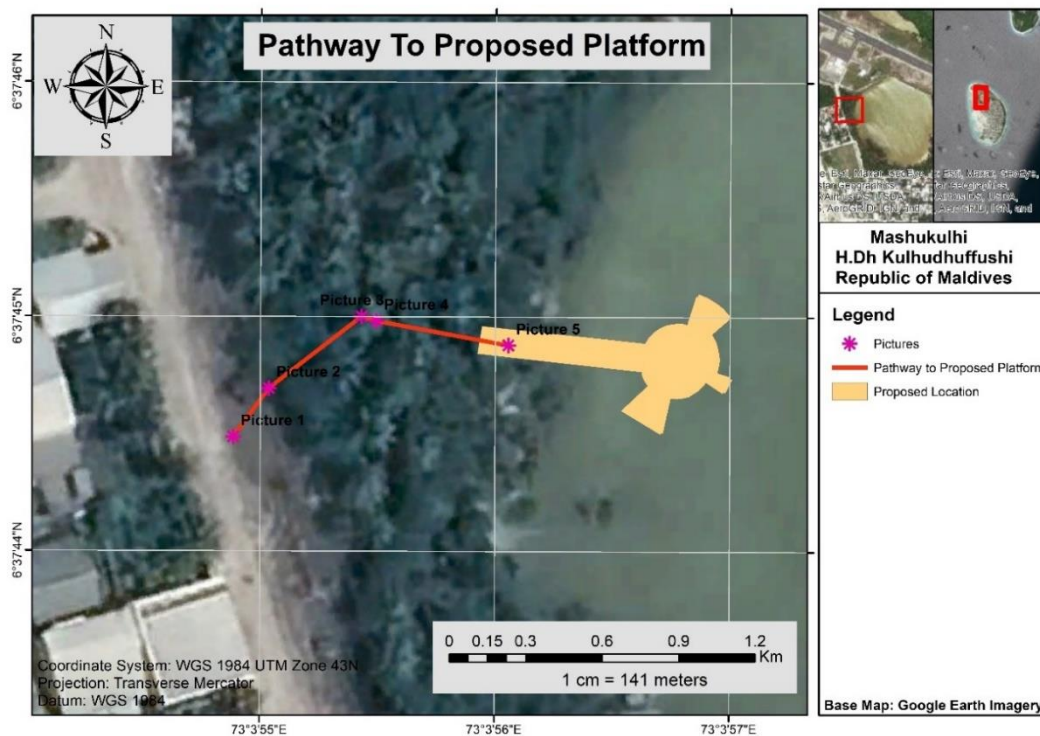


Figure 2: Proposed platform and pathway

1.6. CONSULTANT AND CONTRACTORS:

The platform designs and engineering specifications were developed by Design n Sign. For the construction of the viewing platform local contractors will be hired after the EMP has been approved. Further, members of NGO and EMP consultants will closely monitor the project during construction phase of the project.

1.7. PROJECT FINANCING:

The project is financed by in kind contribution by the NGO and funding granted to the NGO under The Small Grants Programme (SGP), which is a corporate programme of the Global Environment Facility (GEF) implemented by the United Nations Development Programme (UNDP) since 1992. The GEF SGP awarded amount is 30,000 USD and the remaining 39,000 USD is in kind contribution from the NGO.

The estimated budget for the construction of the viewing platform is approximately 685,000 MVR, which is equivalent to 44,423 USD.

1.8. IMPLEMENTATION OF PROJECT COMPONENTS:

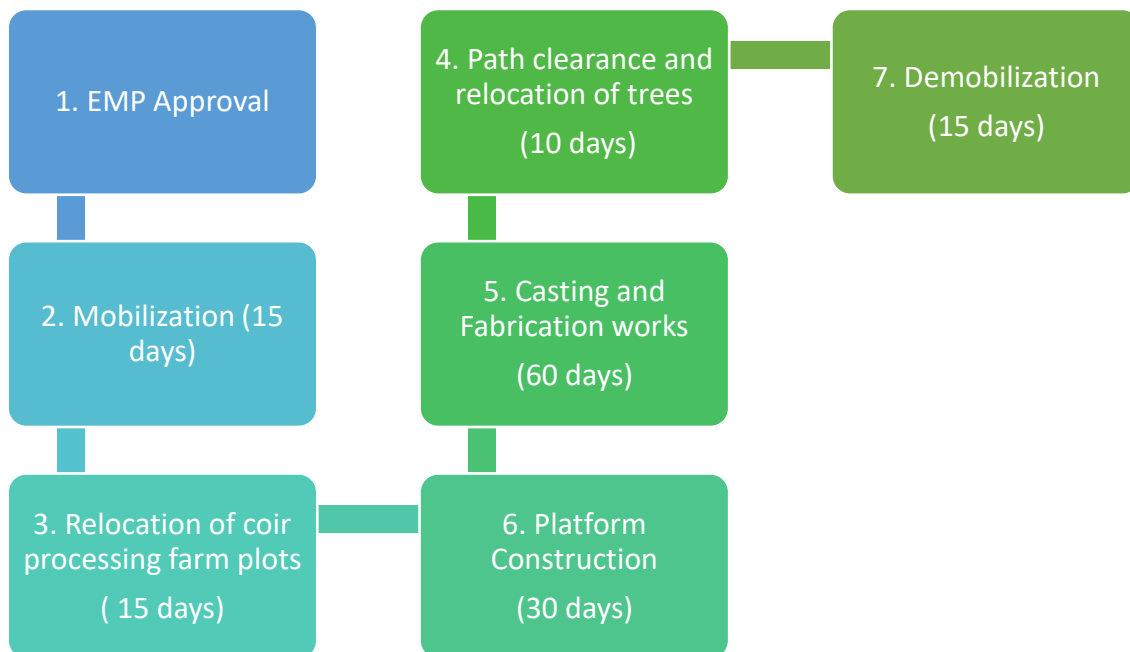


Figure 3: Project implementation pathway

1.9. STRUCTURE OF EMP

The EMP is structured in the following order.

- Chapter 1: Introduction
- Chapter 2: Project Description
- Chapter 3: Legislative and regulatory requirements
- Chapter 4: Biophysical Environment
- Chapter 5: Identification of risks and impacts
- Chapter 6: Impact management programme
- Chapter 7: EMP Implementation
- Chapter 8: Stakeholder engagement
- Chapter 9: External communication
- Chapter 10: Monitoring and Evaluation
- Chapter 11: Grievance mechanism

1.10. DOCUMENT CONTROL

A copy of the EPA Decision Note for development of viewing platform and this EMP will be always kept with proponent and the city council. The proponent will ensure that all their members and where relevant the contractors are familiar and informed about the relevant requirements described in this EMP.

1.11. REVIEW AND UPDATES

The proponent has the responsibility to review and update the EMP if the need be to ensure that it reflects the facilities and operations of the viewing platform and any changes regulatory requirements.

2. PROJECT DESCRIPTION:

2.1. PROJECT COMPONENTS:

The outcome of the proposed project is a viewing platform offer easy access to the location and aims to create opportunity for recreation, livelihood, education and knowledge sharing for the local community and visitors.

The objective of this chapter is to define the work proposed and describe the components of the project. The following components are included in the project.

- a) Mobilization
- b) Relocation of coir processing farm plots
- c) Path clearance and relocation of trees
- d) Fabrication works and construction of the platform
- e) Demobilizing

2.2. PROPOSED SITE PLAN:

The platform concept design and specifications were developed by Design n Sign and is included in Appendix E.

The platform dimensions are:

- a) The platform has a height of 2,467mm.
- b) The Platform is approximately 30,000mm long.
- c) Platform will be supported by a total of 56 hard wood columns of 200 x 200 mm in size.
- d) The structure is to have a 75X50mm wooden curb on both sides bolted to the curb. The side border is also proposed using pinecone 350x50mm.
- e) The proposed deck boards are 50 x 100mm Pine deck boards. For the deck 50x100mm BALAU deck boards.
- f) The foot padding proposed is 600mm X 600mm at the base footprint.

2.3. PROJECT OUTLINE:

2.3.1. Mobilization

Mobilization will begin once EMP is approved, and Decision Statement is issued by the EPA. The casting of foot paddings, concrete works and other woodworks are planned to be completed in a separate location. The foot paddings, support columns and rest of the materials will be transported to location via trucks.

2.3.2. Relocation of Coir Processing Farm Plots

The field assessment indicated that there are 8 coir processing farm plots (bonbi faa) within the footprint of the proposed project. The council has allocated new area for relocation of these plots, as indicated in figure (Figure 4). Prior to commencement of the project, the coir processing plots will be relocated under the guidance and supervision from the city council to the new location. The city council's commitment letter for relocation of coir farm plots is included in Appendix B.

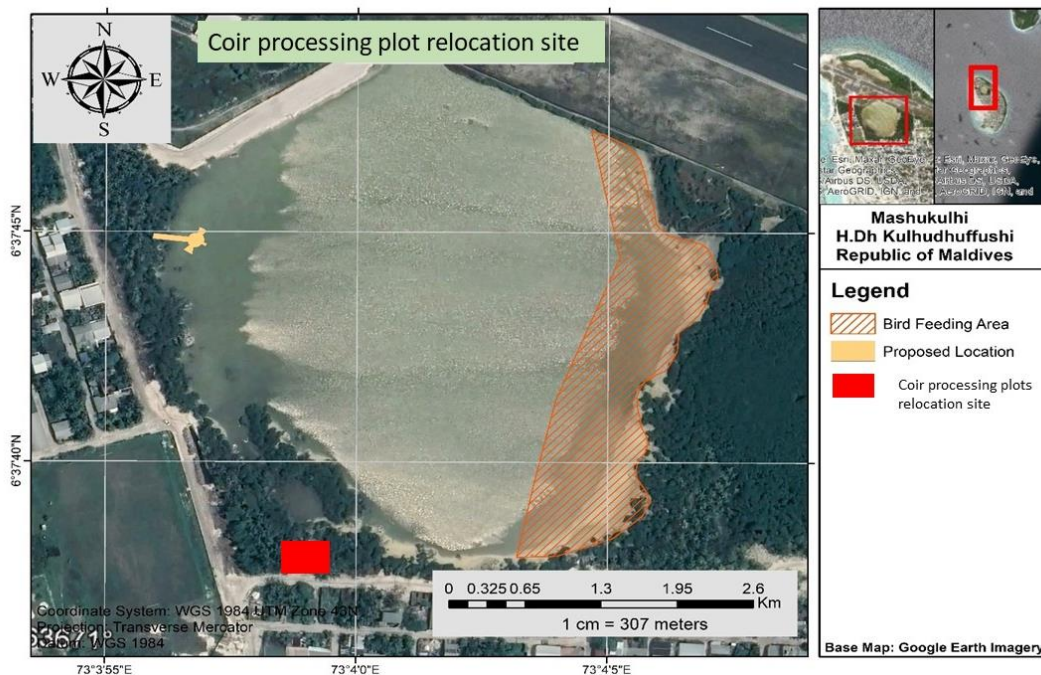


Figure 4: Coir processing plot relocation site

2.3.3. Path Clearance and Relocation of plants

A very few plants/trees are within the footprint of the project and is expected to be removed to make path to facilitate accessibility to the area and for the construction of the viewing platform. Most of the plants and trees within the footprint are mangrove and mangrove associate plants and strict measures will be taken to avoid removal of any mature mangrove plants. The plants/ trees within the footprint will be removed and replanted in the same location.

The field assessment indicated that there are 2 coconut palms (approximately 10 ft), 3 mature *Lumnitzera racemose* (Burevi) and 8 non-mature *Lumnitzera racemose* (Burevi) which falls within the footprint of the proposed pathway and platform. The removed mature and non-mature plants will be transplanted within the Mashikulhi area.

2.3.4. Casting/ Fabrication and Construction of Platform

Once the EMP is approved and materials are procured, fabrication work begins for the following components.

- a) Casting of foot paddings
- b) Concrete works for support columns
- c) Woodworks

The platforms footings would require a firm base to support columns. The foot padding casts will be prepared and to reinforce them concrete will be poured into them and compacted and placed to set and harden. The casting of foot paddings, concrete works and other woodworks are planned to be completed in a separate location. The foot paddings, support columns and rest of the materials will be transported to location via trucks. To place the columns, excavation is required therefore, manual plus machinery (excavator) will be required. The major tasks will be carried out by NGO members and volunteers, however on need basis contractors will be hired for specific tasks.

A. Platform Construction Methodology:

1. Casting of foot padding: After preparing casts, and reinforcing them, concrete will be poured into them and compacted and placed to set and harden. Once set, the cast will be removed and the foot padding ready for transport.
2. Identification of footprint: The footprint will be identified using either a total station, RTK, or any other alternative. Once identified, the location will be marked.
3. Footprint clearance: Plants falling within the path are planned to be removed. To remove the plant, the main trunk will be tied with a rope, the roots identified, added floating markers for marking on the main root system, and dug around for clearance. Once cleared the rope will be pulled tight to remove the plant from the location. Plants removed from the development will be planted in the general area of removal.
4. Excavation of footprint: The footprint for placement of the foot padding will be dug using manual plus machinery (excavator) where necessary.
5. Placement of foot padding: The casted foot padding will be manually moved using galvanized poles on shoulders and placed in location.

6. Wood works: Ports will be cut to size and placed in the foot padding. Beams will be placed upon the posts and screwed fit. Joists will be placed upon the beams and screwed tight. The rim frame post will be placed around the Joists. Decking will be hammered on the joists.

B. Materials and Equipment:

- Pegs
- Cord / rope / alternative
- Spades
- Sacks
- survey equipment
- casts
- cement
- PVC pipes
- GV pipes
- Rebars
- Wood
- Nails

C. Labor Requirements:

- a. 1 Engineer
- b. 1 site supervisor
- c. 2 carpenters
- d. 4 laborers

2.4. TEMPORARY SITE SETUP:

There will not be a temporary setup as the platforms will be prefabricated and transported to the proposed project location.

2.5. PROJECT SCHEDULE AND LIFE SPAN

The construction work is expected to be completed within 6 months from date of issue of DS. The schedule is given below (Table 2).

#	Activity	Timeline					
		M1	M2	M3	M4	M5	M6
1	Mobilization						
2	Relocation of coir farm plots						
3	Path Clearance/ Tree Relocation						
4	Casting & Fabrication works						
5	Platform Installation/Construction						
6	Demobilization						

Table 1: Project Schedule

The mobilization is expected to begin in August 2023.

Completion of platforms is expected to February 2024.

2.6. WASTE MANAGEMENT:

The waste generated during construction and operational phase of the proposed project will be incorporated into the general waste collection and management plan of the Kulhudhufushi city council. The expected waste generated from the proposed project is green waste from vegetation clearance, mud and silt from excavation activities, construction waste from the casting and fabrication works. It is expected that; the quantity of waste would be very minimal due to small scale of the project. In addition to the expected waste generated by the proposed project, the proponent will conduct cleaning prior to mobilization as significant amount of waste has already being disposed to the proposed location, due to encroachment and coir rope farm plots. The waste collected will be transferred to local waste management site for disposal. During operational phase, bins will be placed within the platform area and waste generated during operational phase will be collected and managed through local waste management process under the supervision of city council.

2.7. PROJECT INPUTS AND OUTPUTS

The project input and outputs are described in Table 2 and 3.

Input Resources	Source/Type	How to obtain
Construction workers	Local and Foreign Quantity: 8	Contractor's responsibility
Engineers and Site supervisors	Local and Foreign Quantity: 2	Contractor's responsibility & Proponent
Construction material	Pegs Cord / rope / alternative Spades Sacks casts cement PVC pipes GV pipes Rebars Wood Nails	Import and purchase where locally available at competitive prices – Main Contractor's responsibility.
Water supply (during construction)	Bottled water. Quantity: ~ 20 1.5 Litre bottles	Locally available sources, Purchased from local businesses;
Fire Fighting equipment 1 Fire Extinguisher Contractor's equipment	1 Fire Extinguisher	Contractor's equipment
Telecommunication	Personal Mobile phones	Contractor's responsibility
Machinery/ Equipment	Excavator Truck Mechanical saw	Contractor's responsibility

Table 2: Project inputs

Outputs	Anticipated Quantity	Method of Disposal
Construction waste	small quantities ~ 1kg daily	Managed under existing waste management system in the island
Food Waste	Small Quantities	Managed under existing waste management system in the island
Green waste	2 coconut palms 3 Burevi	Transplanted/ Managed under existing waste management system in the island

Table 3: Project outputs

3. LEGAL AND REGULATORY FRAMEWORK:

The constitution of the Maldives adopted in 2008 has several provisions to protect the rights of citizens to environment, health, and private property that are relevant to the development of community projects. The proposed activities of the project must comply with relevant laws and regulations. This includes but is not limited to the following:

3.1. ENVIRONMENT AND SOCIAL ASSESSMENT:

The proposed project is in compliance with the following laws and regulations related to environment and social assessment.

3.1.1. Environmental Protection and Preservation Act:

The Environmental Protection and Preservation Act (EPPA, Act No: 4/93) enacted on 19 March 1993 is the framework law related to environment protection in the Maldives. Articles 2, 4, 5, and 6 of the law are relevant to the viewing platform Project.

Article 2: concerned government authorities shall provide necessary guidelines and advise on environmental protection in accordance with prevailing conditions and needs of country.

Article 4: The Ministry of Environment, shall be responsible for identifying protected areas and natural reserves and for drawing up the necessary rules and regulations for their protection and preservation. Anyone wishing to establish any such area as mentioned in (a) of this clause, as a protected area or a reserve shall register as such at the ministry of Environment and abide by the rules and regulations laid by the Ministry.

Article 5 (a): An Environmental Impact Assessment study shall be submitted to the Ministry of Environment before implementing any development project that may have a potential impact on the environment. 5 (b): The Ministry of Environment shall formulate the guidelines for EIA and shall determine the projects that need such assessment as mentioned in paragraph (a) of this clause.

Article 6: the Ministry of Environment has the authority to terminate any project that has any undesirable impact on the environment. A project so terminated shall not receive any compensation. The authority responsible for the Environment Act is the Ministry of Environment, Climate Change and Technology.

3.1.2. EMP Regulations:

Environmental Impact Assessment regulations were issued by MoECT on 8 May 2012. The first phase in the environmental assessment process is to screen the project to determine whether it requires an EIA or not. Based on this decision, the Ministry determines the scope of the EIA, which is then discussed at a "scoping meeting" with the proponent and the EIA consultants. The consultants then conduct the EIA, beginning with baseline investigations, impact projection, and lastly reporting the findings with effect mitigation and monitoring plans. This report adheres to the EIA principles and processes established in the regulations.

The EIA report is reviewed by EPA, and an EIA Decision Note is sent to the proponent, who must follow the Decision Note. As a condition of approval, adequate environmental monitoring may be needed, and the proponent must report monitoring data to the Ministry at specified intervals. The project proponent has committed to implementing all effect mitigation measures outlined in this EMP. Furthermore, the proponent is committed to environmental monitoring and shall comply with any environmental monitoring requirements that may be stipulated in the decision note as a condition for project approval. The processes outlined in this EMP are based on EIA regulations.

3.1.3. Environmental Liability Regulation:

The regulation is aimed at maintaining equal standards for reprimanding and enforcing environmental liabilities, fines for those who violate the rules and regulations and give guidance to those who are involved in the implementation process of the regulations pursuant to EPPA (4/93). One of the key objectives of the environmental liability regulation is also to practice polluter-pay-principles in the Maldives. This law is pursuant to Article 22 of national constitution that states that protection, preservation and maintenance of the Maldivian natural environment, the richness of the living species, the natural resources and the beauty of the Maldives for the present generations as well as for the future generations is a basic obligation of the Maldivian government. The government shall enforce that the activities conducted in order to gain economic and social development should be of sustainable nature that protect the environment and such activities shall not deteriorate the environment, endanger any species, damage the environment, and shall not waste any natural resources.

This regulation is also pursuant to Environment Protection and Preservation Act of Maldives (4/93). The regulation is aimed at maintaining equal standards for reprimanding and enforcing

environmental liabilities, fines for those who violate the rules and regulations and give guidance to those who are involved in the implementation process of the regulations pursuant to Preservation Act of Maldives (4/93). One of the key objectives of the environmental liability regulation is also to practice polluter-pay-principles in the Maldives.

3.2. LAND ACQUISITION

The proposed project is in compliance with the following laws and regulations related to land acquisition. The proposed location is under jurisdiction of the council and endorsement letter from Kulhudhufushi city council is attached in Appendix 4.

3.2.1. Land Act:

The 2008 Constitution vests all land in the State and bans foreign ownership of land. It is understood that Government is reviewing land-related legislation to bring it into line with the constitution and current development policy. Meanwhile, matters relating to land are governed by the provisions of the Maldivian Land Act and Regulations of 2002, as subsequently amended. The Act Empowers Government to allocate land for five purposes:

- The construction of households and buildings for residential purposes.
- For commercial use.
- For social use.
- For environmental protection.
- For government use.

Under the Act, all Maldivian citizens who do not have a place of residence are entitled to a parcel of land for residential purposes, entitled a “state dwelling”. Such parcels are issued by the respective Atoll Office and must not exceed 4,000 ft² (372 m²). The parcel is forfeit if not developed (“settled”) within five years. State dwellings are heritable and divisible, down to no smaller than 600 ft² (56 m²). State dwellings can be privatized by purchase from the government. Conversion to non-residential purposes is possible subject to compliance with land use policy, and a permit. Sales of private land attract a 15% tax. Buildings, trees and other assets on land belong to the owner of the land or official user of the land, unless third party ownership can be proven under Shari’ah. Land for agriculture is allocated to residents by island administrations on an annual renewable basis. The land remains government property. No rent is paid, but the plots are generally small and the system provides little security or incentive to invest in and improve the land. It is understood that the Ministry of Fisheries Marine Resources and agriculture (MoFMRA) is preparing an Agricultural

Land Act to address these issues, with assistance from the UN Food & Agriculture Organization (FAO). When land is required for public projects, it is understood that the legal owner or registered user is compensated on a land-for-land basis, with fixed assets being paid for at fair market price. Maldives Land and Survey Authority established in 2011 is responsible to conduct surveys and collect and update information on the most beneficial use of lands, lagoons and reefs of the Maldives, and formulate and implement cadastral survey standards.

3.2.2. Decentralization Act:

The final version of the Decentralization Act was passed in April 2010 and was ratified in May 2010. The Decentralization Act provided for the Local Government Authority (LGA) which was established in late 2010. Under the Decentralization Act Island Councils are accountable to Atoll Councils and Atoll Councils are accountable to the LGA. The Constitution mandates Councils to provide democratic and accountable governance; foster the social and economic well-being and development of the community; and establish safe, healthy and ecologically diverse environment. The Constitution entitles Councils to a grant from central government and to raise own revenues. Chapter 4 of the Decentralization Act has direct relevance to the administration of this Project. The Act gives island councils specific powers and responsibility for, amongst other things:

- Administering and developing the island in accordance with the Constitution and statutes and providing municipal services as prescribed in this Act;
- Preparing island development plans in consultation with the community, and submitting the plan to the Atoll Council;
- Implementing development projects planned and assigned by the government in line with the island development plans formulated by islands and submitted to the Atoll Councils;
- Assisting Government Ministries and Atoll Councils in monitoring the progress of various development projects;
- Formulate island level policies necessary to discharge the powers and responsibilities conferred to the island council by this Act and formulate and implement required regulations for the purpose.

Services rendered by the Island Council to the people of the island under this Act include disposing of waste in a reasonably safe manner at the island level so as it does not create any inconvenience to the community. Under this Act the Island Councils have the power to charge a fee or rent in order to obtain funds for the services they provide including for safe disposal of wastes. Such fees to be charged shall be determined in consultation with the people of the area

and in accordance with the Laws of Maldives. Under Chapter 14 of the Act the Island Councils have the power to formulate regulations on matters which fall within their jurisdiction with advice of the Local Government Authority. In addition, with the advice of the Local Government Authority, the city councils, atoll councils, and the island councils have the power to make regulations about waste management and disposal on their islands. The act has gone a number of revisions the most recent revision occurred in 2019. The key aspects covered in this revision are highlighted below: - As per the article 69-1 of the act the island and city councils are overall responsible to provide the electricity service in the respective island or city. As per article 69-2 of the same act the council needs to have an agreement with utility service provider for implementation of the service. Under the same article it is stated that this agreement needs to be made as per conditions that are set by a regulation prepared and implemented by the central government. The referred agreements above need to be made within 01 year of enforcement of the act, hence before 15th December 2020. Moreover, the act provide opportunity for island and city councils to provide electricity service themselves.

- As per article 68 of the act for any development project undertaken in an island consultation needs to be undertaken with the council and other relevant authorities established in the island. The same article also states that any EIA reports developed for any project needs to be shared with the council and information on the impacts and mitigation measures should be shared with the council.
- As per article 107-1 of the act the council should hold meetings with the public regarding any important development activities undertaken in the island. The same article also specifies that the time and location of the public meeting should be announced 05 days prior to the meeting.
- As per article 56-6 of the act a Women's Development Committee should be established. The members of the committee should be elected based on an election held amongst the women of the community. As per article 56-7 of the act one of the functions of the committee is to give input to the council regarding various development activities undertaken within the island.

3.3. WASTE MANAGEMENT AND POLLUTION PREVENTION

The proposed project is in compliance with the following laws and regulations related to waste management and pollution prevention.

3.3.1. Environment Protection and Preservation Act 4/93:

According to Article 7: any type of waste, oil, poisonous gases or any substances that may have harmful effects on the environment shall not be disposed within the territory of the Maldives. In cases where the disposal of the substances becomes absolutely necessary, they shall be disposed only within the areas designated for the purpose by the government. If such waste is to be incinerated, appropriate precaution should be taken to avoid any harm to the health of the population.

Article 8 of the EPPA (4/93) states that Hazardous/ Toxic or Nuclear Wastes that is harmful to human health and the environment shall not be disposed anywhere within the territory of the country.

3.3.2. Waste Management Act

The Law on Waste Management (24/2022) published on December 18, 2022 sets out guidelines and requirements for waste minimization, sustainable waste management, and waste mitigation. . The goals of the Act include; encourage the minimization of environmental and public health and safety impacts from waste, encourage reduction, reuse, and recycling, permit the development of appropriate waste management centers on islands with residents and enable the provision of waste collection and management services to the community, facilitating the development of regional waste management centers.

The priority of waste management will be as per the following in order of hierarchy;

- Stop waste generation
- Reduce
- Reuse
- Repair
- Recycle
- Incinerate
- Dispose

The responsibility for managing waste at sites leased for tourist resort development will be by the Proponent or the management authority. The guideline for waste management at these sites will be stipulated in a regulation which will be published within 6 months of this Act.

According to this Act, waste transfer from one site to another site must be undertaken by obtaining a permit from the authority. It is not permitted to dispose any waste generated from construction activities in another inhabited island. It also not permitted to dispose waste to a location other than

a designated waste disposal site. It is required to maintain the records of waste generated and the means of disposal. The guidelines under which this needs to be done will be published by the Ministry within 6 months of publishing this Act.

3.3.3. Waste Management Regulation (2013/R-58)

The Waste Management Regulation of the Maldives was enacted based on Article 22 of the Constitution of the Republic of Maldives and under powers vested in the Ministry of Environment and Energy under the Article 3 of the Environmental Preservation Act 4/93 in relation to Article 7 and 8 of the same Act. The regulation is implemented by the Environmental Protection Agency. This regulation focus on following five areas:

- Waste management standards: Defines standards for waste collection, transfer, treatment, storage, waste site management, landfills and managing hazardous waste.
- Waste management Permits: Defines approval procedures for waste sites.
- Waste transfer: Standards and permits required for waste transport on land and sea, including transboundary movements.
- Reporting requirements: Defines reporting and monitoring requirements and procedures; and
- Enforcement: Defines procedures to implement WRM and penalties for non-compliance.

3.4. BIODIVERSITY CONSERVATION

The proposed project is in compliance with the following laws and regulations related to biodiversity conservation. The proposed area is designated as an ESA, however due to extensive modifications from domestic airport project the wetland significantly changed.

3.4.1. Environment Protection and Preservation Act

According to Article 4 Ministry of Environment shall be responsible for identifying protected areas and natural reserves and for drawing up the necessary rules and regulations for their protections and preservation.

3.4.2. Protected Area Regulation (2018/R-78)

The overall aim of the regulation to specify mechanisms to protect, conserve and manage areas designated as protected areas under article 04 of EPPA. Article 05 of the regulation stipulates that for each of the designated protected areas the following information needs to be announced:

- The name of the protected area
- The boundaries of the protected area with GPS coordinates
- Zonation plan of the area
- Activities that can and cannot be undertaken at a particular location
- The designated level of protection
- The reason for protection and the special significance

The regulation identifies 07 categories that could be designated to protected areas (article 06)

- Category 1: Areas of International Significance
- Category 2: Strict Nature Reserves
- Category 3: Wilderness Area
- Category 4: National Park
- Category 5: National Monument
- Category 6: Habitat Species Management Area
- Category 7: Protected Area with Sustainable Use

A list of all protected areas needs to be maintained by EPA and the list needs to be gazette as per article 7. As per article 09 management of protected areas can be handed over to any public or private party, with an agreement, management plan and financial plan in place. As per article 12 each protected area should have a management plan in place for the management of the area, which must be gazette as an annex to the PA regulation.

3.4.3. Protected Species Regulation (2021/ R-25)

The overall aim of the regulation to specify mechanisms to protect, conserve and sustainably manage living species, habitats/ecosystems and its services under article 04 of EPPA. Article 06 of the regulation stipulates that for each of the designated protected species the following information needs to be announced:

- Protected Species information including, Local name, Common name in English, Scientific Name (Including Genus, Species or Taxa)
- Reason/ Justification for protection and significance
- Prohibited actions

A list of all protected species is published in gazette as per article 6 of the regulation and implementing agency (EPA) should maintain a database of protected species as per article 8. As per article 09 management plans for protected species must be published in gazette. Research permit is to be obtained if research is conducted on a protected species as stipulated by the article 12.

3.4.4. Environmentally Sensitive Areas (ESAs)

Environmentally Sensitive Areas 2014 are islands with unique features, reef systems, mangroves, wetlands, sea grass beds or places that are vital to the long-term maintenance of biological diversity, beach sediments, soil, water and other natural resources and features especially as they relate to human health, safety, and welfare, both on an island and in an atoll context. These features are highly valued, both for their scenic beauty and for the habitats they provide for the flora and fauna. The compilation of the list was initiated in 2009 with the assistance of the local Island Offices and other stakeholders. The list has been produced to identify environmentally and economically significant areas to offer protection, safeguard and enhance the conservation of the biological diversity of the country.

Commencing from 1st January 2011, under the Environmental Protection and Preservation Act: 4/93, the sites listed had been identified as Environmentally Sensitive Areas (ESAs). This ESA list helps in safeguarding, minimizing and mitigating the environmental impacts from different development projects, by monitoring the development in the area with the involvement of all stakeholders. The areas identified in the ESA are not protected areas. A site/habitat being identified as an ESA does not indicate that sustainable development cannot take place. It encourages development to take place, taking into consideration the conservation of the sensitive area, there by mitigating the negative impacts.

3.5. HEALTH, SAFETY AND SECURITY

The proposed project is in compliance with the following laws and regulations related to health, safety and security.

3.5.1. Public Health Protection Act

The purpose of the public health protection act is to establish policies for protection of public health, identify persons responsible for protection of public health, define how public health protection policies will be implemented. The objectives of the Act also include establishing policies to respond to public health emergencies; classify situations which may be harmful to health and establish methods to act in such a situation; establish roles and responsibilities of island, atoll, and city councils in protection of public health. Chapter 5 of the Public Health Protection Act covers identifying health hazards, eliminating risk, reporting health hazards, and orders on things to be done or not done in relation to a building. Adequate health and safety equipment will be provided to the Project team and trainings will be conducted.

3.6. CULTURAL AND HISTORICAL PLACES

The proposed project is in compliance with the following laws and regulations related to history and culture.

3.2.3. Heritage Act (12/2019)

The main objective is to determine the procedure to assign cultural heritage, determine the responsibility of the government and the people regarding cultural heritage, to determine means of penalizing acts of damaging cultural heritage, to determine means of undertaking research on heritage. Article 04 of the act defines cultural heritage. In this regard the following can be considered as cultural heritage:

- Movable cultural heritage
- Heritage Monuments and buildings
- Heritage Areas
- Linguistic Heritage

4. BIOPHYSICAL ENVIRONMENT:

4.1. Introduction:

Mashikulhi is an enclosed mangrove wetland located in H.Dh Kulhudhuffushi. The Mangrove was cut off from the sea as a result of the airport developmental project. The wetland is inhabited by multitude of species. This section will provide a general description of the important flora and fauna which are generally observed in the area.

Visual Observations

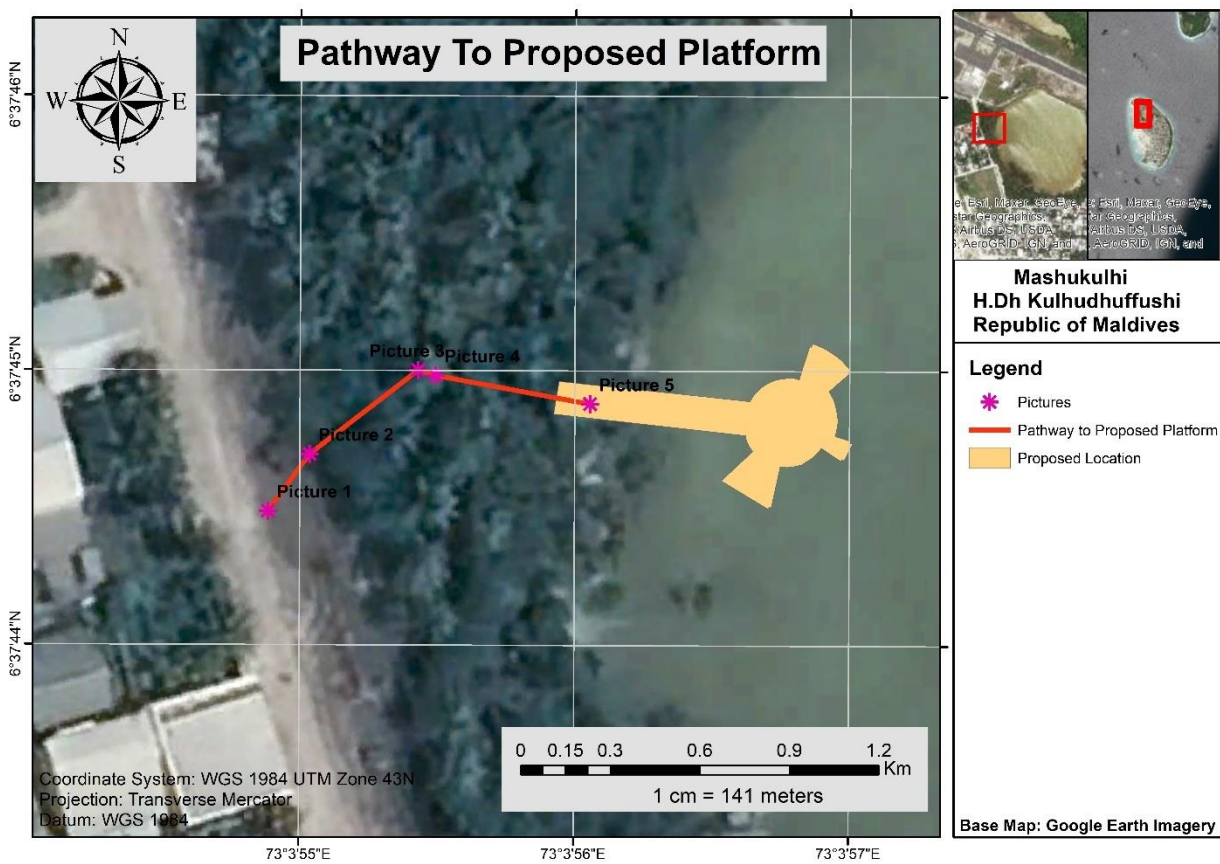


Figure 5: Access pathway to the proposed platform location and points along the path pictures were taken.



Picture 1



Picture 2



Picture 3



Picture 4



Picture 5

Figure 6: Pictures taken along the pathway to the platform location for visual observations at the site.

The pathway to the platform location is a footpath along the riparian zone. The pathway is narrow, but has potential to be widened with minimal vegetation clearance/Relocation. The majority of the trees can be pruned to make the path wider to move the equipment. The path is littered with non-biodegradable common waste such as plastic bags, PET Bottles, Soda Cans etc. The path is approximately 40 meters long. At the end of the pathway there are 8 “Bonbi faa” which need to be relocated to another area.

4.2. Ecology

Flora

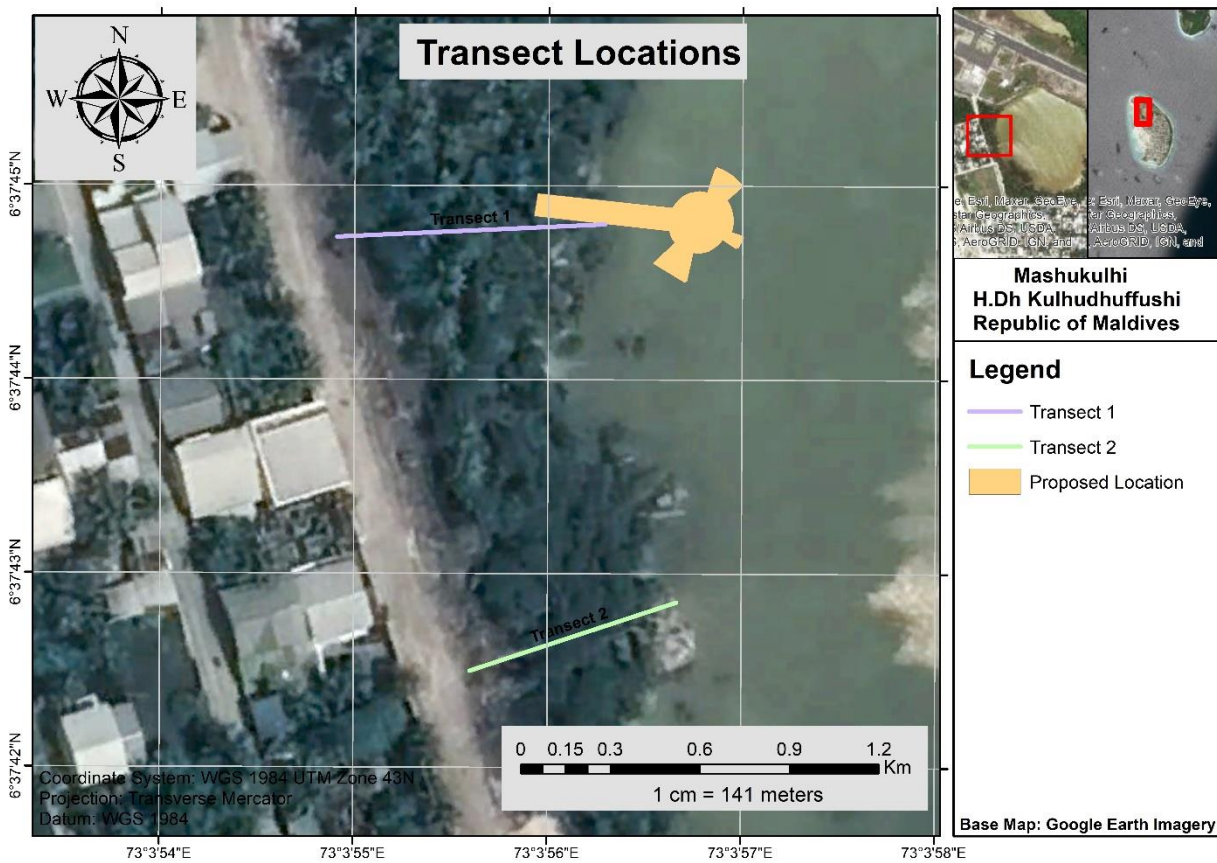


Figure 7: Locations where the transect line were place for the vegetation surveys.

Species	Abundance	
	T1	T2
<i>Bruguiera cylindrica</i> - Kandoo	0	0
<i>Lumnitzera racemosa</i> - Burevi (mature)	5	8
<i>Lumnitzera racemosa</i> - Burevi (immature)	20	35
<i>Bruguiera gymnorrhiza</i> - Bodavaki	0	0
<i>Cocos nucifera</i> - Ruh	5	0
<i>Pandanus Odoratissimus</i> - Maa Kashikeyo	6	0
<i>Sonneratia Caseolaris</i> - Kuhlhavah (mature)	0	0
<i>Sonneratia Caseolaris</i> - Kuhlhavah (immature)	0	11
<i>Thespesia populnea</i> - Hirundhu	1	5
<i>Hibiscus tiliaceus</i> - Dhigga	11	0

Table 4: The results of the terrestrial flora survey from transects T1 and T2. :

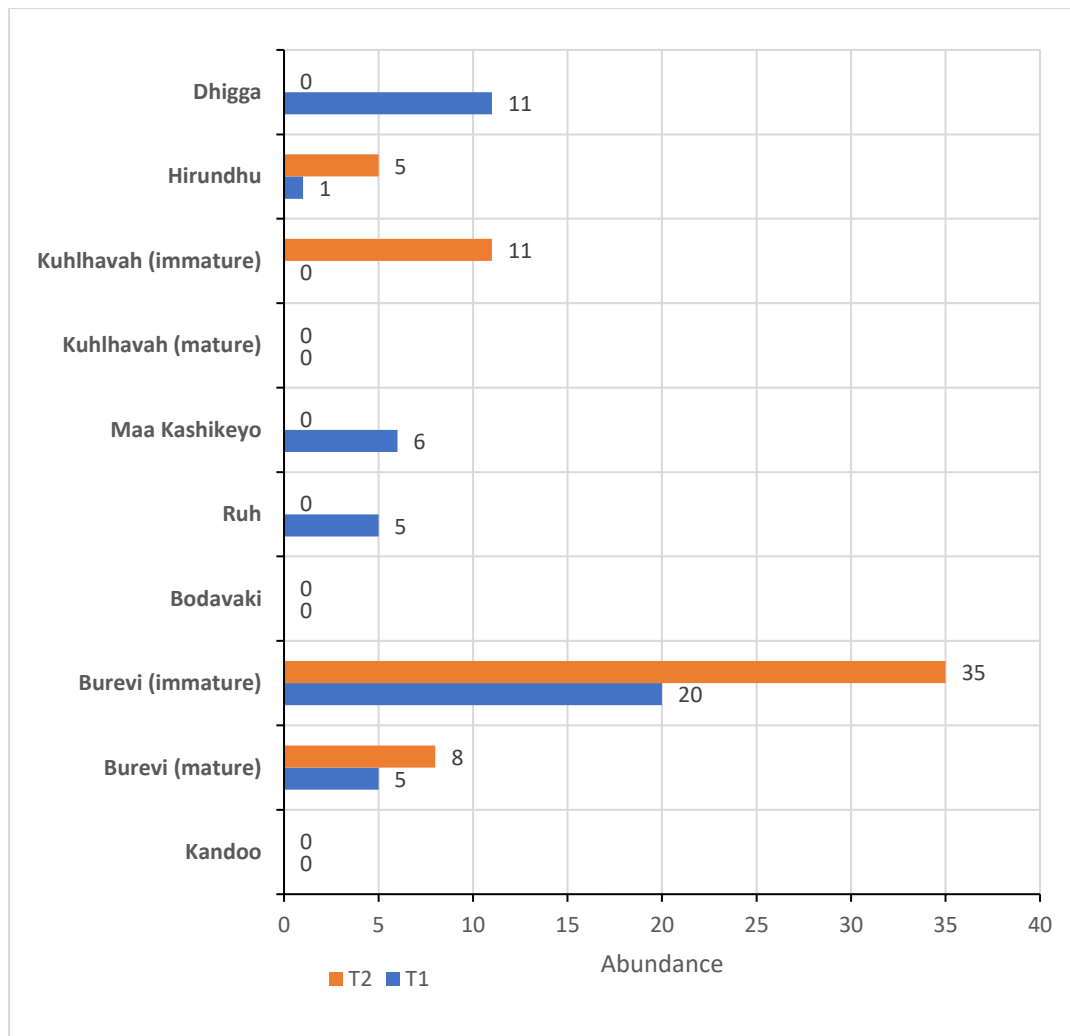


Figure 8: Graphical representation of the results of the terrestrial flora survey from transects T1 and T2.

Results

The Most abundant species of plants observed along the transects were *Lumnitzera racemose* (Burevi). A total of 25 plants were observed in T1 and 43 plants observed in T2. Other mangrove species observed at the transects were *Sonneratia Caseolaris* (Kuhlhavah). 11 immature plants were observed on transect 2. Although *Bruguiera gymnorrhiza* and *cylindrica* (Bodavaki and Kandoo) are common around the Mashikulhi area. The population of these plants are generally distributed towards the eastern side of the water body. Therefore these species were not observed the in transects.

Fauna

For the purpose of the EMP the primary focus was placed on the protected species of fauna found in the area. Protected and migratory birds were the main important species found in the area.

Birds Observed areas

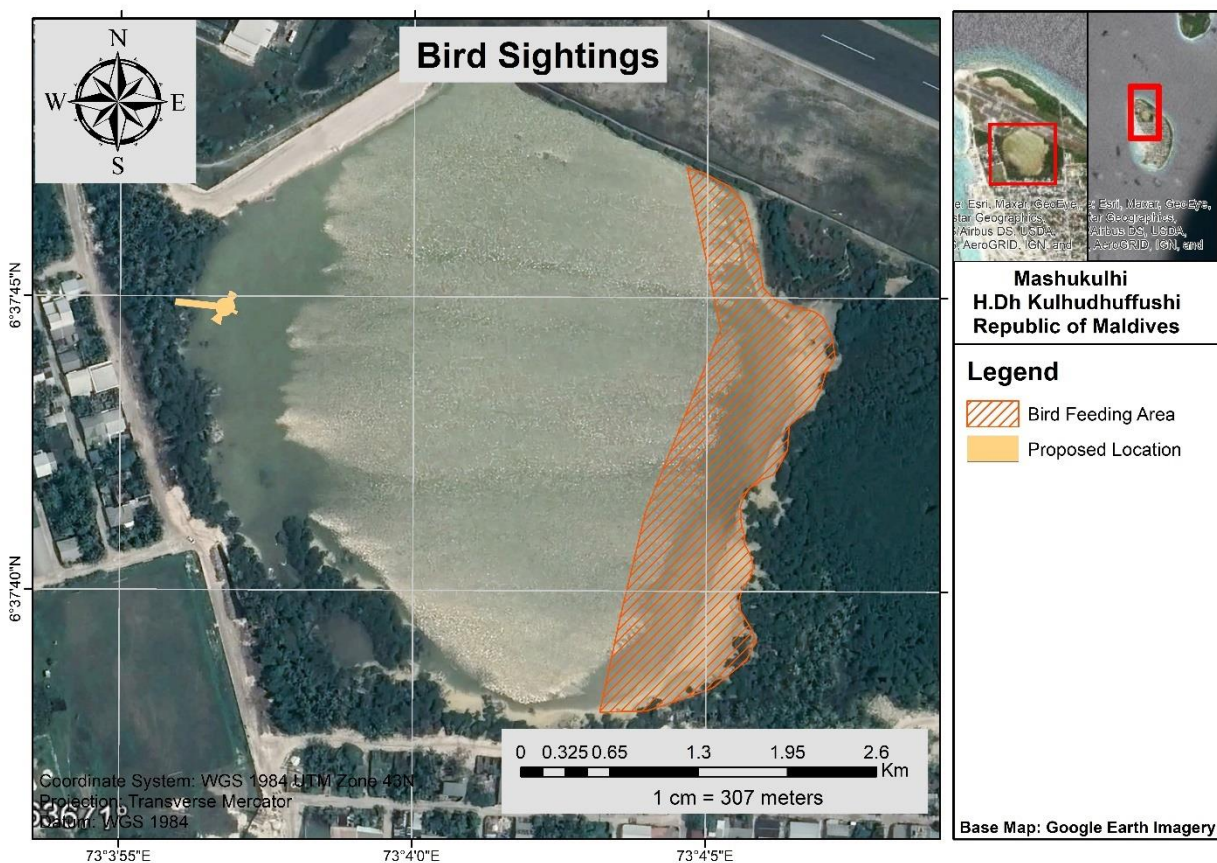


Figure 9: Areas where birds were sighted during the field study

Scientific Name	Common Name	Abundance
<i>Himantopus himantopus</i>	Black-Winged Stilt	2
<i>Tringa nebularia</i>	Common Greenshank	5
<i>Phoenicopteridae</i>	Flamingo	2

Table 5: Name and abundance of birds sighted during the field study

Birds were generally observed to feed/ reside in the eastern side of Mashikulhi. The three species of birds observed were *Himantopus 35imantopus* (Black-Winged Stilt) (Abundance = 2), *Tringa nebularia* (Common Greenshank) (Abundance 5) *Phoenicopteridae* (Flamingo) (Abundance 2).

4.3. Water Quality:

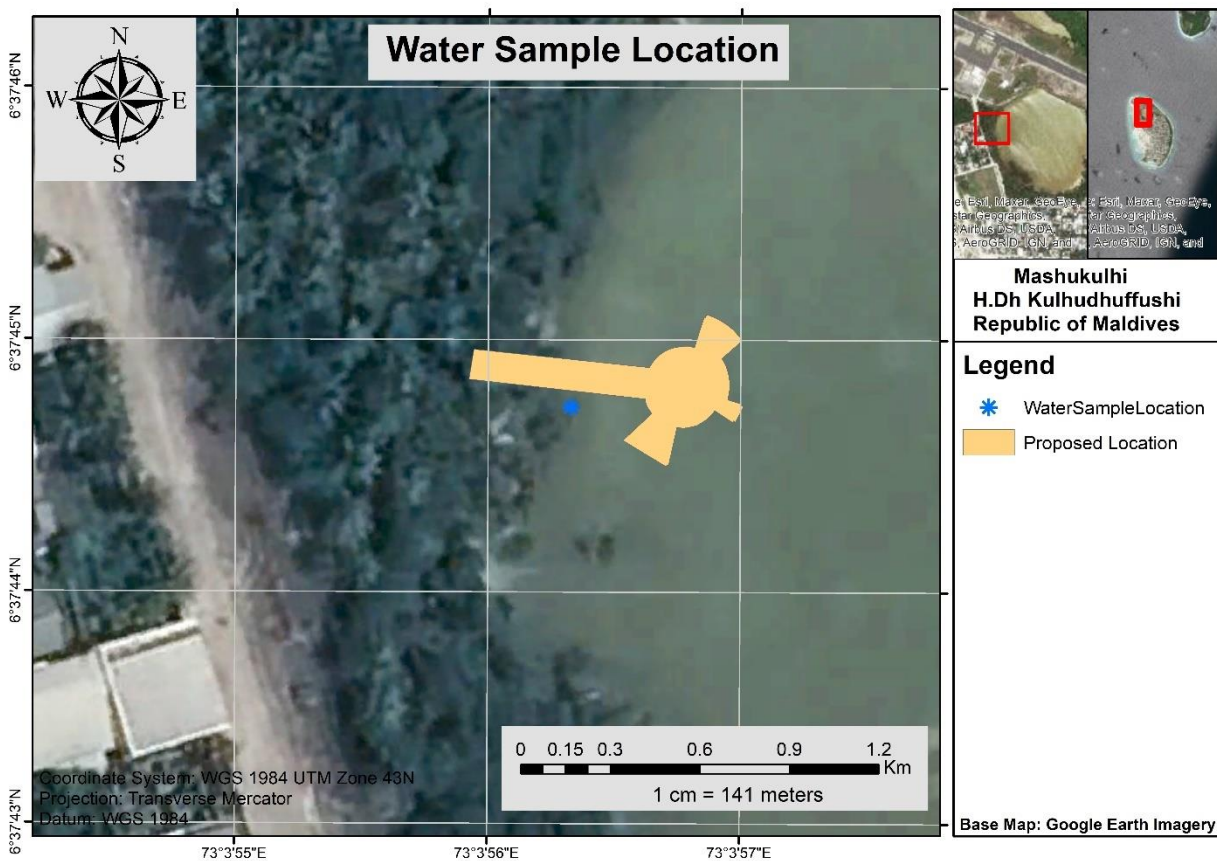


Figure 10: Water sample location.

Parameter	Description	Unit
Physical Appearance	Brown With Particles	
pH*	7.6	
Salinity	19.94	%
Total Dissolved Solids	16000	mg/L
Total Suspended Solids	416	mg/L
Turbidity	218	NTU
Apparent Color	334	mg/L PtCo

Figure 11: Water Quality results.

The water sample was brown with particles. The sample had a pH of 7.6, and a salinity of 19.94 ppt. The amount of total dissolved solids present in the sample were 16,000 mg/L. The amount of total suspended solids present was 416 mg/L. Turbidity of the sample was 218 NTU. Apparent Color was 334 mg/L PtCo.

4.4. Protected Areas and Sensitive Areas

There are two protected areas which are approximately equidistant 8 to 10 km from Mashikulhi. The Protected areas are Finey Thila and Keylakunu. Finey thila is marine protected area known for the abundance of soft corals and species such as Eagle Rays, Napoleon Wrasse and Grey Reef Sharks. Keylakunu is an island protected for the terrestrial environment. 60 to 70% of the island comprise of mangrove forest consisting of mainly Bruguiera Cylindrica (Kandoo). Additionally, a high abundance of Grey Mangrove Trees (Baru gass) can be found on the island.

Kulhudhifushi mangrove area was designated as a sensitive area by EPA prior to domestic airport development. However, with the development of airport and severe modification of the mangrove, the project area Mashikulhi is listed as a sensitive area. Mashikulhi was open mangrove which provided a nursery area for coastal fishes, however due to the airport development project at H.Dh. Kulhudhuffushi, the mangrove is closed off from the coast and is a habitat for residential and migratory birds. The majority of the fishes observed in Mashikulhi were nonnative species such as Tilapia.

4.5. Climate and Meteorology

Maldives is located in the tropical region therefore has a warm humid tropical climate. The Maldives has two seasons. The southwest monsoon (wet-season) normally starts from mid-May and ends in November. The northeast monsoon (dry-season) normally starts from January and ends in March. The month of December and April are considered as the monsoon transitional periods. However, the

duration of the seasons varies through north to south on the country with the south experiencing a longer southwest monsoon.

Temperature

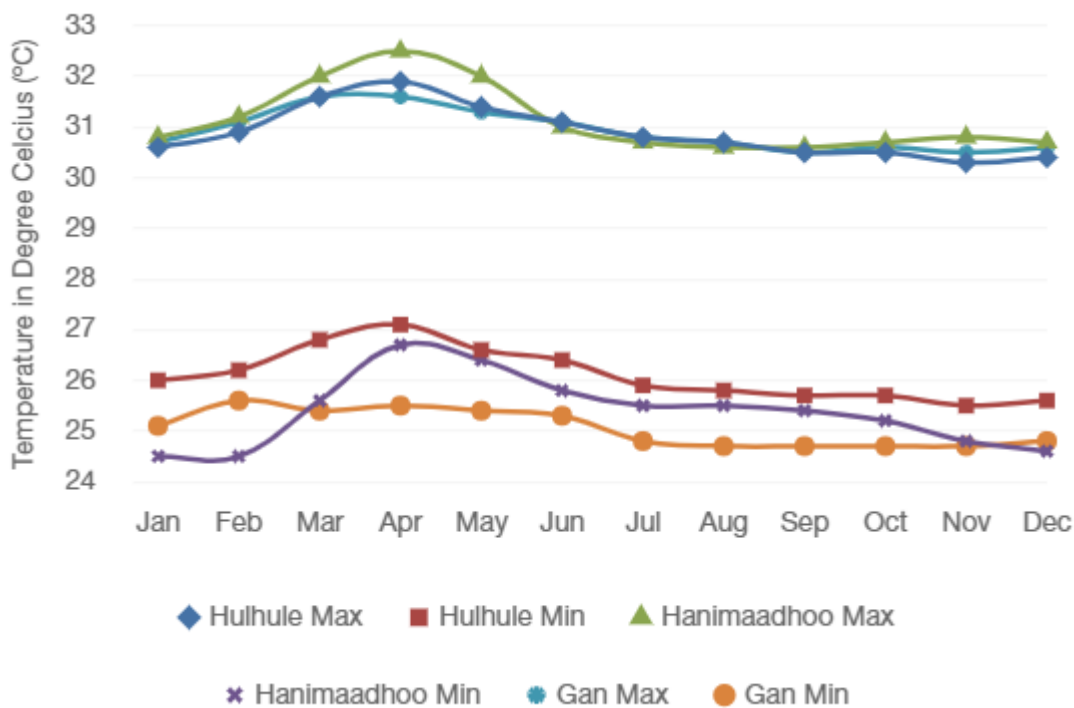


Figure 12: Average monthly temperature in Maldives (Source: Maldives meteorological services 2023)

Maldives experiences warm temperatures throughout the year. The average temperature fluctuates between 25°C to 32°C throughout the year. As the islands are surrounded by the sea the sea plays an important role in moderating the temperatures. During the monsoons, seasonal fluctuations in temperature are observed throughout the year. The warmest period are observed during the North – East Monsoon on the months of March, April and extends up to onset of southwest monsoon in mid-May. The highest temperature ever recorded in the Maldives was 36.0°C, recorded on 12 Sep 1991 at Kadhdhoo Meteorological Office. Likewise, the lowest temperature ever recorded in the Maldives was 18.2°C, recorded at the Hanimaadhoo Meteorological Office on 23 Dec 2002. (Source: Maldives meteorological services 2023)

Rainfall

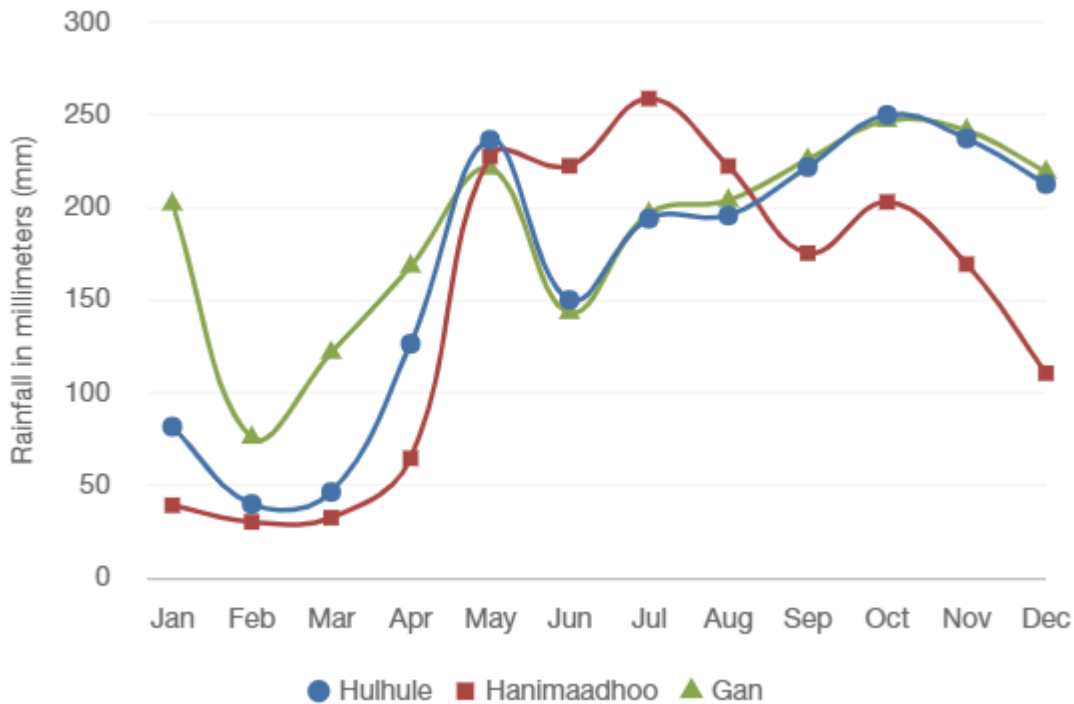


Figure 13: Average monthly rainfall in Maldives (Source: Maldives meteorological services 2023)

The rainfall over the Maldives varies during the two monsoon periods and varies from northern to southern atolls. The southern atolls receive about 2,218 mm of rainfall per year, while the annual rainfalls over central and northern atolls are 1,966 and 1,779 mm respectively. Heaviest rainfall in 24 hours was 228 mm recorded at the meteorological office Addu City on 24 November 2015. Normally rainfall is in showery form and do not last longer and there will be sunny periods in between. (Source: Maldives meteorological services 2023)

Sunshine

As the Maldives is located at the equator, Maldives receives plentiful of sunshine throughout the year. This graph shows average monthly sunshine duration for 3 regions on the country. The average sunshine hours are higher during northeast monsoon period as compared with southwest monsoon period. On average during January, February and March, Maldives experiences 10 – 11 hours of sunshine and for the other months 7 – 9 hours of sunlight. (Source: Maldives meteorological services 2023)

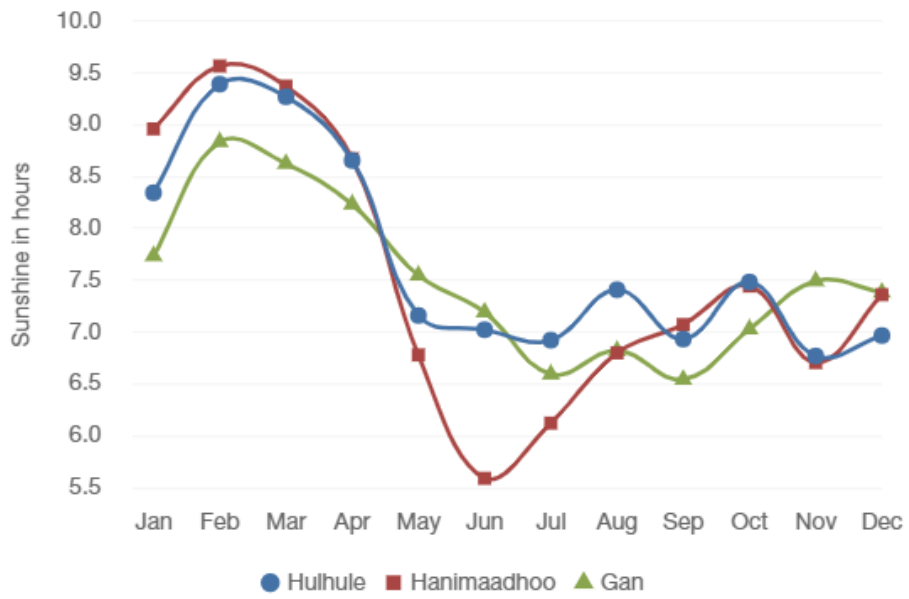


Figure 14: Average monthly sunshine in hours in Maldives (Source: Maldives meteorological services 2023)

5. ENVIRONMENTAL IMPACTS

This chapter describes the key impacts predicted for the project and the methodology used for impact prediction.

5.1. Introduction:

Infrastructure development projects can have both positive and negative effects. Various methods are available to determine the significance and severity of these effects. The impact on the environment resulting from different project activities is understood through methods such as expert consultation, checklist usage, analysis of similar projects, assessment of the current environmental conditions, and consideration of consultants' previous experiences with similar projects.

The magnitude and significance of these impacts can be assessed and categorized using approaches like checklists, matrices, expert opinions, and modeling. Environmental impacts arising from the construction phase and the post-construction phase of the project have been identified by conducting interviews with the project management team, conducting field surveys to collect data, and drawing insights from past experiences with similar development projects.

This section of the report presents an overview of the relevant impacts at various stages of the project. To understand the effects associated with the project activities, both positive and negative impacts are considered from environmental, social, cultural, and economic perspectives.

5.2 Impact Identification method

The Rapid Impact Assessment Matrix (RIAM) method was employed to assess the magnitude and significance of the impacts for this project. RIAM utilizes predefined criteria for impact assessments and assigns scales to these criteria (Jalava, Kuitunen, and Ijäs, 2010). This systematic approach enables the identification of both positive and negative impacts. The assessment criteria are grouped into two categories:

- (A) Criteria that evaluate the significance of the condition.
- (B) Criteria that assess the value of the situation.

Within Criteria A, there are two aspects that are further divided into as follows:

A1: Importance of the Condition: Defined by the spatial boundaries that it affects. The scales of this criteria include the following:

- 4= important to national/international Interests
- 3= important to regional/ national interests
- 2= important to areas immediately outside the local condition

1= important only to local condition

0= no importance

A2: Magnitude of Impact: Determines the positive and negative change of an aspect. The scales of this criteria include the following:

+3= major positive impact

+2= significant improvement from status quo

+1= improvement from status quo

0= no change from status quo

-1= negative change to status quo

-2= significant negative impact or change

-3= major negative impact or change

Criteria B can be subdivided into the following three aspects

B1: Permanence: This determines whether the condition is temporary or permanent.

1= No Change not applicable

2= Temporary

3= Permanent

B2: Reversibility: This determines the reversibility of the change

1= No change/ Not applicable

2= Reversible

3= Not Reversible

B3: Cumulative: Determines whether the impact is singular or whether there will be additional cumulative effects as a result of the change

1= No change/ Not applicable

2= Singular

3= Cumulative

The following components under the following environmental categories were investigated through RIAM both for construction and operational phase:

1. Physical/Chemical:

Groundwater/brackish water

Noise

Air

2. Biological/Ecological

Vegetation

Mangrove Fauna

Terrestrial Fauna

3. Socioeconomic

Health/Safety

Economic burden/benefit

A score for each component was determined based on the following formulae:

$$(A1) \times (A2) = (AT)$$

$$(B1) + (B2) + (B3) = (BT)$$

$$\text{Total Component Score} = (BT) \times (AT)$$

Based on the total scores impacts can be categorized as highlighted below:

RIAM Environmental Score (ES)	Range (Alphabetic)	Value	Range Value (Numeric)	Description (type of Impact or Change)
108 to 72	E	5		Major positive
71 to 36	D	4		Significant positive
35 to 19	C	3		Moderate positive
10 to 18	B	2		Positive
1 to 9	A	1		Slight Positive
0	N	0		No change
-1 to -9	-A	-1		Slight negative
-10 to -18	-B	-2		Negative
-19 to -35	-C	-3		Moderate negative
-36 to -71	-D	-4		Significant negative
-72 to -108	-E	-5		Major negative

5.3 Limitations and Uncertainties of impact prediction

Currently, there is no highly reliable and precise method for predicting impacts. The accuracy of these predictions improves with experience and by gathering information from monitoring data of similar projects after they have been completed. However, in the Maldives, post-project monitoring is not effectively implemented during the Environmental Impact Assessment (EIA) process. As a result, this valuable data is not accessible when making impact predictions through the EIA process.

Despite this limitation, the methodology used to predict impacts is quite reliable and can provide a reasonably accurate assessment of the impacts.

5.4 Identified impacts construction and operational phase:

The two tables below (Table 7 & 8) summarize the results of the rapid impact assessment.

Environmental Category	Total Score	Range (Alphabetic)	Value (Numeric)
Construction Phase			
1. Physical/Chemical			
Ground water/Brackish water	-6	-A	-1
Noise	-6	-A	-1
Air	-6	-A	-1
2. Biological/Ecological			
Vegetation	-16	-B	-2
Mangrove Fauna	-6	-A	-1
Terrestrial Fauna	-6	-A	-1
3. Socioeconomic			
Health/Safety	-5	-A	-1
Economy	+15	+B	+2

Table 6: Construction phase impact matrix

Environmental Category	Total Score	Range (Alphabetic)	Value (Numeric)
Operational phase			
1. Physical/Chemical			
Ground water/Brackish Water	0	N	No change
Noise	-6	-A	-1
Air	0	N	No change
2. Biological/Ecological			
Vegetation	-6	-A	-1
Mangrove Fauna	-6	-A	-1
Terrestrial Fauna	-6	-A	-1
3. Socioeconomic			
Health/Safety	10	+D	+2
Economy	54	+D	+4

Table 7: Operational phase impact matrix

5.5 Description of the Impacts:

This section aims to outline the significant effects observed during the construction and operational phases as identified by the RIAM. Table 7 provides an overview of the primary impacts associated with the construction phase, which predominantly involve mangrove platform developments and vegetation clearance. On the other hand, the operational phase is primarily characterized by negative impacts resulting from the recreational use of platform which involves noise generated from the visitors, as well as positive socio-economic changes from eco-tourism. This section will delve into a detailed description of these impacts.

5.5.1 Construction Phase

5.5.1.1. Groundwater/Brackish water Quality

This is one of the slight negative impacts that identified through the impact identification for construction (Table 7). As described previously, the viewing platform is proposed to be constructed in the mangrove area and part of the column and foot padding casting would be inside the brackish waterbody. The construction activities, particularly the minimal excavation required for platform footings, can result in turbidity impacts if not properly mitigated. Thus, in terms of impact on brackish water quality this can be identified as a slightly negative impact during the construction phase (Table 7). Nonetheless, the impact is still localized and is expected to occur in the immediate vicinity of the platform area. If appropriate mitigation measures are taken during the platform construction stage, the localized impacts can be confined very close to the source and well within the range of natural fluctuations of suspended solids in the area.

Spillage during transport of construction materials, concrete for footing and wooden material for platform construction and accidental spillage from the two days usage of a small excavator, can cause slight negative impacts on brackish water quality in the near vicinity. An oil spillage from the excavator will be the most negative impact, as it would diminish the dissolved oxygen content of brackish water supplemented by an increase in carbon dioxide concentration, leading to suffocation of marine organisms (Harrel, 1985; ITOPF, 2011; Nomack, 2010). However, it has not be noted that risk of any spillage is almost nill, as most of the platform construction is planned to be manual labour and a small excavator is proposed to be used for few days for vegetation clearance and column and foot padding casting. Furthermore, the risk of spillage can be significantly minimized by installing adequate precautionary measures and by ensuring that compliance is met with the waste transport conditions stipulated in the Waste Management Regulation (Regulation No: 2013/R-58).

The platform construction would have minor impact on the mangrove habitat and sediments and brackish water quality, since the construction does not involve major modifications and involvement of heavy vehicles, except a small excavator for two days.

5.5.1.2 Noise

Impacts of noise to the local community from the construction phase of the project is considered to be slight negative due to the uninhabited nature of the proposed platform construction area. However, as there are wetland birds such as herons and pond herons that reside in the water body, if proper measures are not installed, construction works may disturb the activity of the birds. Hence, special mitigation measures would be taken while constructing the platform. One of the purpose of the viewing platform is also to view the birdlife and hence, as this is a community based eco-tourism project, every mitigation and monitoring would be strictly conducted not to disturb the avifauna during the construction stage.

5.5.1.3 Air quality

Impacts on air quality can occur during construction phase through vehicular and construction machinery emissions. Pollutants such as hydrocarbon, oxides of nitrogen, sulphur dioxide, particulate matter, carbon monoxide and carbon dioxide can be released through emissions. Despite these potential impacts, considering the scale of the project and the vehicles and machinery used, air emission impacts during construction phase, as identified in table 7 is negligible and can be managed easily with appropriate mitigation measures.

5.5.1.4 Vegetation

As highlighted in table 7, vegetation clearance is the one of the activities during the construction phase that is likely to cause negative impacts. Vegetation clearance during construction phase can lead to coastal erosion, if vegetation close to shore are cleared. These salt resistant plants play a key role in stabilizing the muddy shores by consolidating the sand and by acting as a natural barrier between the mangrove area and the inland areas. Moreover, removal of vegetation can also impact the fauna in the island through loss of habitat.

However, the removal of vegetation is minimal as explained under chapter 4 and as pathway to the platform location is a footpath along the riparian zone, the majority of the vegetation clearance would be removal of undergrowth weed. The mature tree to be removed are:

- 1 mature *Cocos nucifera*, coconut palms

- 1 mature *Thespesia populnea* – Hirundhu
- 3 mature *Lumnitzera racemosa* - Burevi

These 5 mature trees would be removed as it is in the direct path of the viewing platform and for the purpose of carrying wooden logs and heavy materials, lorries and small excavators would be used along the existing footpath, hence these 6 six trees need to be removed for easy access for visitors during operation stages of the viewing platform as well. The main cause of impacts stated in 5.5.1.4 is due to the construction of walkway, the pipe columns would be placed on the wetland body and for placing the columns, sediments would be removed. The removed sediments would be taken to the waste management centre in Kulhudhufushi and would be used for backfilling if needed by island council, however, the removed volume of sediment is expected to be very low.

5.5.1.5 Mangrove Fauna

As highlighted in the section on noise, mangrove fauna most observed are herons, Common Greenshank, Black-winged Stilt and Flamingos. The mangrove waterbody is a resting area for many residents as well as migratory birds visiting Kulhudhufushi and Maldives.

A spillage can have major detrimental impediments on the mangrove biota, however, as machinery usage is very low, there are no significant impacts envisaged. As spillage, disturbances and noise from construction is expected to be minimal in this phase of the project, any potential for impacts to the mangrove fauna can be adequately mitigated by installing precautionary measures.

5.5.1.6 Terrestrial Fauna

Vegetation clearance to build support infrastructure for the proposed project can have negative impacts on terrestrial fauna as a consequence of habitat destruction. Trees and shrubs are common nesting grounds for birds (City of Portland Environmental Services, 2016). Hence, removal of such vegetation may force birds to migrate to other locations in search of suitable habitats. However, as only 5 mature trees are only expected to be removed and if the proposed mitigation measures are followed, impacts to terrestrial fauna can be effectively remedied. Therefore, terrestrial fauna is predicted to only be slightly negatively impacted by the construction phase of the project.

5.5.1.7 Health and Safety

If appropriate measures are not taken during construction phase health and safety of the employees can be impacted. This is a community-based project and no heavy machinery would be used in the wetland and mangrove area. Manual labour would be used in the sensitive environment. However,

extreme care and supervision would need to be carried out when transferring wooden logs for the platform and other construction materials. Furthermore, construction sites can be considered as high hazard zones, where physical injury can occur if appropriate safety gear is not used.

Moreover, it is essential that the workforce is not overworked and the workforce is properly fed, the chances of error and accidents are more if the workforce is tired and hungry.

5.5.1.8 Economy:

The construction phase of the project is expected to increase employment opportunities in the construction sector within the island, especially timber and wooden materials needed for platform construction. The timber or time or wood composite material is to be transported to the island from Male. It is also expected to become an income earning gateway for people involved in transporting goods to the island. However, this prospect is only temporary as the opportunity will cease after completion of construction.

The women in Kulhudhufushi ear their livelihood from coir making and the raw materials for coir making is processed in the 8 feet by 8 feet wetland farm plots inside the mangrove area. These are temporary plots that are used by the community and the city council has the sole ownership of the land use of these plots.

For the purpose of construction of the viewing platform, 8 coir processing farm plots (bonbi faa) are to be relocated to another designated area identified by the island council. This work is not under the mandate of the NGO, but is being carried out separately by the city Council. In the stakeholder consultation meeting, the city council has informed that by the time of the construction of the viewing platform, the farming plots would be relocated. Hence, there would be no impact to the livelihood of the 8 plot owners.

5.5.2 Operational Phase

5.5.2.1 Brackish Water Quality

There would be no impact to the brackish water quality during the operation stage of the viewing platform. The viewing platform would be operated by City Council in association with the NGOs in Kulhudhufushi, especially ZigZag and hence, there would be a routine monitoring carried out on a daily basis. But these would be voluntary spot checks by the NGOs for any misconduct by the visitors. As the viewing platform is constructed in a sensitive environment, sign boards would be placed with dos and donts for the visitors to adhere to in both Dhivehi and English. Any waste

dumping would be strictly prohibited to the waterbody. Hence, there is no expected impacts to the brackish water quality during the operational stage.

5.5.2.2 Noise

Major noise impacts are not anticipated from the operational phase. The only potential source of noise is the noise made by visitors who would use the viewing platform. As explained previously, sign boards would be placed with dos and don'ts for the visitors to adhere to in both Dhivehi and English.

5.5.2.3 Air Quality

During the operational phase, there is no electricity to be used the viewing platform. Hence, there would be no emissions from any source, hence significant emissions are not expected through this project.

5.5.2.4 Vegetation

During operational phase, the mangrove vegetation is not to be impacted. The visitors would be strictly prohibited from vegetation removal.

5.5.2.5 Mangrove Fauna

The viewing platform would be used to view the mangrove fauna and the scenery of the mangrove area. As explained previously, sign boards would be placed with dos and donts for the visitors to adhere to in both Dhivehi and English. This would specifically include wild life watching advise.

Hence, mangrove fauna is expected to only be slightly negatively impacted by visitors from the operational phase of the project.

5.5.2.6 Health and Safety

Health and safety of the visitors would be impacted if the visitors do not follow the rules. A list of dos and don'ts for the visitors to adhere to in both Dhivehi and English. If the visitors follow these rules, there would be no impact to the health and safety of visitors during operational phase of the viewing platform. It has to be noted that this is a community-based infrastructure to be commonly used and there is no purpose to have 24-hour security in the platform area. Basic etiquette and common sense would suffice for the health and safety of visitors

5.5.2.7 Economy

The operational phase of this project is expected to have a major positive impact on the economy of the city and the atoll. The project is expected to diversify the economic base of the local community, as it presents innumerable opportunities for the local community to be involved in eco-tourism and related service sectors such as tour guiding, transport, and local tourism. The scenic beauty of the mangrove viewing platform would attract locals and visitors alike.

6. ENVIRONMENTAL MITIGATION MEASURES

One of the most important functions of an Environmental Management Plan (EMP) or Impact Assessment (EIA) is to propose ways to manage the negative impacts that are likely to occur as a result of the project. For this purpose, it is essential to identify mitigation measures to minimize impacts and identify cost of mitigation measures and parties that are responsible for implementation of these measures. Given below is a table (Table 9) which provides details of the key mitigation measures for various environmental and socioeconomic aspects that are impacted as a result

6.1. Description of Mitigation Measures

Aspect	Mitigation Measures	Responsible Party	Cost
Construction phase			
1. Physical/Chemical			
Brackish water quality	<p>All construction work based in the mangrove area should be undertaken during dry season and during low tide.</p> <p>Work should be avoided during rain and rough weather conditions.</p> <p>Log records of the working hours and works done should be kept.</p> <p>Any waste from transport vessels used should meet EPA requirements and should be sealed from all sides to prevent any marine spillage impacts.</p> <p>The excavated materials for column and foot placement</p>	Contractor	N/A

	<p>should be taken to the waste management centre</p> <p>The contractor and community volunteers should properly brief about the sensitive nature of the mangrove habitat</p>		
Noise	<p>All construction work that produces significant noise should be undertaken during day time to minimize noise pollution.</p> <p>The contractor and community volunteers should properly brief about the sensitive nature of the mangrove habitat and not to disturb the mangrove fauna</p>	Contractor	N/A
Air quality	<p>All vehicles used in the project should have an up to date road worthiness certificate.</p> <p>All vehicles and machinery should be well tuned.</p> <p>Minimize the use of motorized vehicles</p>	Contractor	Depends on the vehicles used and the contractor
2. Biological/Ecological			
Vegetation	<p>Consideration should be given during detailed designing stage to build infrastructure around existing vegetation, thus minimizing any clearance.</p>	Contractor and NGO	Depends on the contractor

	<p>Any large trees and palms will be translocated to other areas of the island. (In this project it is 5 mature trees to be removed)</p> <p>When translocating in order to ensure survival the following mitigation measures should be followed:</p> <p>In order to ensure survival of any palms relocated, the following measures should be undertaken:</p> <ul style="list-style-type: none"> • Palms and trees should be dug two to three feet from the trunk. • In order to ensure that the rootball is intact the area surrounding the palm or the tree should be wetted prior to being dug. • The rootball should be kept wet until replanted at new site. <p>All vegetation clearance activities should be confined to areas where infrastructure is proposed.</p>		
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	<p>If the event, that the relocation of 5 mature trees is not feasible, a tree planting event would be organized in coordination with the City Council, and maximum amount of trees would be planted to compensate for the removal of 5 mature trees for the purpose of this project</p>		
Mangrove Fauna	<p>Column and foot padding work should be carried out during calmer and dry conditions.</p> <p>Construction work should be carried out during day light hours but should avoid dawn and dusk, so birds and nocturnal animals would not be disturbed</p> <p>Ensure that transport vessels are properly sealed to minimise the potential for spillage.</p>	Contractor	N/A
Terrestrial Fauna	<p>Identify trees and shrubs that are common nesting grounds for birds and avoid clearance of such vegetation. As it is only 5 trees are to be removed.</p> <p>Schedule construction outside of the breeding and migratory season.</p>	Contractor	N/A

3. Socioeconomic impacts

<p>Health and Safety</p>	<p>All workers should be provided with safety gear and should ensure that safety gear is utilized at all times. This includes: safety hats, boots, glasses, masks and gloves.</p> <p>Chemical-Liquid protective gloves should be used when handling any chemicals, waste oil or other liquid waste.</p> <p>During construction period, any visitors could enter the project with the approval of the construction supervisor. Unauthorized visitors should not be permitted to the site.</p> <p>No open electrical wiring or cables should be kept on site.</p> <p>Health and Safety briefing should be given to all construction workers.</p> <p>The maximum working hours of all construction workers should be 48 hours per week as per the Employment Act of Maldives.</p>	<p>Contractor</p>	<p>Depends on the contractor existing availability of safety equipment's and additional material that needs to be attained.</p>
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	<p>Meals should be provided to construction staff 03 times a day.</p> <p>Safe drinking water should be supplied to construction workers.</p>		
Economy	<p>Ensure that preference is given to hire construction staff from the island or atoll.</p> <p>Where available and economically feasible preference shall be given to utilize local vessels for transport.</p>	Contractor	N/A
Operational phase impacts			
1. Physical/Chemical			
Brackish water quality	<p>Water pollution can be effectively minimised by</p> <ul style="list-style-type: none"> • Ensuring visitor sign boards are placed with Dos and Donts for visitors to follow; • Managing visitor waste and there should be no littering • Carrying out awareness programs for the visitors on mangrove ecosystem and its services 	Proponent	Proponent budget (NGO)

Noise	<p>Visitors should follow the rules, as noise may be disturb wildlife</p> <p>Carrying out awareness programs for the visitors on mangrove ecosystem and its services</p>	Proponent	depends on the available budget of NGO
Air quality	No motorized vehicles or electricity is to be used on the viewing platform	Proponent	N/A
2. Biological/Ecological			
Vegetation	<p>No ornamental plants or alien trees that are not naturally found in the mangrove area should be introduced</p> <p>Visitors should be made to aware not to remove any vegetation while using the platform</p>	Proponent	NA
Mangrove Fauna	<p>Minimising the probability of disturbance to mangrove fauna by:</p> <ul style="list-style-type: none"> • Reducing noise level while on the platform; • Following Dos and Donts for visitors; • Ensuring no littering; 	Visitors and Proponent	NA

	<ul style="list-style-type: none"> Ensuring no feeding the wildlife 		
3. Socioeconomic			
Health and safety	<p>A list of dos and donts for the visitors to adhere to in both Dhivehi and English.</p> <p>If the visitors follow these rules, there would be no impact to the health and safety of visitors during operational phase of the viewing platform.</p>	Proponent	30,000 rufiyaa for the sign boards
Economy	<p>Preference should be given to hire local staff (if there are to be any maintenance staff for the viewing platform).</p> <p>The 8 coir processing plots (bonbi faa plots) to be relocated to an area designated by City Council</p>	City Council and Plot Owners	The relocation cost is to be handled by the plot owners (not by the Proponent)

Table 8: Description of Mitigation measures

7. ENVIRONMENTAL MANAGEMENT PLAN

When carrying out project activities, it is essential to establish an environmental management plan. This plan plays a crucial role in managing potential impacts by outlining strategies for addressing them, assigning responsibilities for specific tasks, and determining appropriate remedial actions to enhance service quality. Furthermore, the plan serves as evidence of the project proponent's compliance with legislative requirements, guidelines, and policies.

7.1 Management Plan

The proposed management plan for the project consists of a framework comprising five key components. Figure 14 illustrates a schematic of the management plan.

- i. Environmental commitment to policy
 - Demonstrating commitment to comply with environmental laws, regulations, policies, and guidelines.
- ii. Formulation of management plan
 - Identifying and addressing environmental aspects.
 - Ensuring compliance with relevant standards.
 - Establishing objectives and targets.
 - Developing environmental management programs.
- iii. Implementation and operation
 - Assigning roles and responsibilities.
 - Providing training and effective communication.
 - Implementing an Environmental Management System (EMS).
 - Preparing for and responding to emergencies.
- iv. Management plan monitoring
 - Conducting measurements and monitoring environmental performance.
 - Addressing non-conformances and implementing corrective actions within the EMS.
 - Maintaining records.
 - Conducting EMS audits.
- v. Reviewing
 - Conducting management reviews to evaluate the effectiveness of the management plan and make necessary improvements.

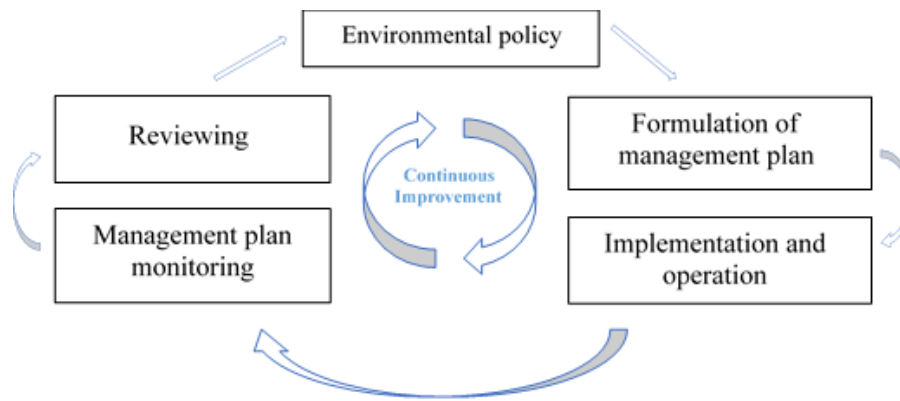


Figure 15: a schematic of the management plan

7.2 Roles and Responsibilities

The successful implementation of the management plan relies on the involvement of key parties who assume specific roles and responsibilities. Following key parties would be involved in the implementation of the management plan as described in the respective roles and responsibilities.

Proponent

The responsibility for overseeing and executing all project activities during the construction and implementation phases lies with the proponent. It is crucial for the proponent to have a comprehensive understanding of the rules and regulations pertaining to the project. Furthermore, the proponent will be responsible for implementing the activities outlined in the management plans and conducting monitoring efforts. If necessary, the proponent will seek the required expertise to prepare monitoring reports. The proponent of this particular project is ZigZag for Youth Linkages.

Contractor

Project Contractor for this project is the proponent, community volunteers and for the column and foot padding works, a local contractor would be hired, to progress the work in a fast manner, as the construction site is a sensitive environment.

Environmental Consultant

The environmental consultant will be responsible for conducting essential field surveys and analyses. Additionally, the consultant will compare the findings of monitoring with the baseline conditions and provide advice to the proponent regarding any necessary changes. Furthermore, the consultant will conduct environmental audits to improve the management and monitoring plan.

Kulhudhufushi City Council

City Council would be liaising closely with the Proponent. City Council is also one of the co-sponsors of this project. Once the platform construction is completed, the platform would be opened to the public by the City Council.

Environmental Protection Agency

The Environmental Protection Agency will regulate the additional and regulatory monitoring of the project works as per the EIA regulation and evaluate the EMP and monitoring reports.

7.3 Environmental Management Plan:

The following is the environmental management plan proposed for both construction and operational phase of the project.

Activity	Management Measures	Responsible party	Timing
Training of staffs and contractors	All construction workers and general staffs will be provided information and trained on general environmental compliance with environmental permits and EMP All staff involved in monitoring process will be trained on environmental monitoring All volunteers, staff and contract workers would be briefed on mangrove ecosystems and its fauna	Project Proponent & Environmental Consultant	Before the commencement of construction activities

<p>Documentation, non-conformances, and corrective actions</p>	<p>All non-conformances to environmental permit observed during monitoring should be documented</p> <p>Necessary corrective will be identified</p> <p>Corrective actions will be implemented with systematic follow ups to ensure the effectiveness of the measure</p>	<p>Contractor, Environmental Consultant & Proponent</p>	<p>During the construction phase</p>
<p>Vegetation clearances</p>	<p>Vegetation in the project sites should be marked and the contractor should only remove the vegetation unless necessary</p> <p>The vegetations removed should be logged and maintained.</p> <p>Trees should be dug at least 3 ft wide of the trunks and roots should be kept wet for replantation</p> <p>Any coconut palm removed should be replanted on a site allocated by the island council</p>	<p>Contractor, Environmental Consultant, Proponent</p>	<p>During the construction phase</p>

Managing brackish water contamination	<p>All lubricants, chemicals should be stored in a secure storage</p> <p>A thorough inspection of any spillage of lubricants should be carried out</p> <p>Spill- clean up materials must be readily available on site</p> <p>All the excavated materials would be taken to waste management centre, during column placement</p>	Contractor, Environmental Consultant, Proponent	During construction phase
Managing habitat impacts and brackish water quality	Making sure any construction debris are not accumulated and dropped in to the mangrove waterbody as the mangrove area is in adjacent to the coastal area	Contractor, Environmental Consultant	During construction phase
Waste Management	The city waste management system will be incorporated to manage any waste generated from the construction and during the period project	Contractor	Continuous during construction phase
Supervision of the project	Assign a highly experienced and well-educated supervisor to ensure all the project related activities are carried out in adherence to environmental	Project Proponent	Before commencement of the Project

	<p>regulations and policies ensuring minimal damage to environment</p> <p>All complaints from public to be lodge by the supervisor of the project as part of public grievances and these complaints should be addressed within a minimum of three day's period</p>		
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Table 9: Management plan for both construction and operational phase

8. MONITORING AND EVALUATION

To verify that legal and regulatory criteria are followed, monitoring must be conducted as specified in the decision note by EPA. Environmental monitoring is crucial because, even though the overall environmental impact might be greatly reduced with the mitigation measures, an unanticipated impact may occur. Therefore, in order to avoid or reduce the chances of such events environmental monitoring is vital. Furthermore, some of the impacts predicted may turn out to be far greater than predicted, making mitigation measures ineffective. All monitoring costs for this project are born by the proponent. Areas that are the most crucial and that are expected to be most impacted by the project are included in the monitoring framework given in table (Table 11).

8.1. Objectives:

The main objectives of the monitoring plan are:

- To ensure proposed mitigation measures are effective and predicted impacts are precise
- To identify and address any unforeseen impacts with appropriate mitigation measures
- To identify and address any matters related to social unrest.
- To reduce environmental costs

8.2. Monitoring Plan:

Monitoring Attribute	Main Objective	Indicator	Methodology	Location and Samples	Frequency	Est. Total cost
Mangrove Water Quality	To identify the changes in water quality from baseline in the EMP	Physical Appearance pH* Salinity Total Dissolved Solids Total Suspended Solids Turbidity Apparent Color	Analysis at MWSC laboratory	Project location (Initial sample location)	Once Prior to commencement of project Once after completion of construction works	MVR 1000
Terrestrial Flora and Fauna	To identify the changes flora and faun from baseline in the EMP	Number and type of trees Number of species, type of species and their	Observation and photographic evidence	Project location (Initial sample location)	Once Prior to commencement of project	MVR 4000

		abundance			Once after completion of construction works	
Livelihood activities	To determine any livelihood activities had been impacted by the project	List of livelihood activities Locations of livelihood activities	Stakeholder consultations and interviews	Mashikulhi Area	Once Prior to commencement of project Once after completion of project	MVR 3000
Waste Management	To ensure waste generated during construction phase is stored and disposed appropriately	Waste type and quantity Location of storage Method of disposal	Observation, logs and photographic evidence	Project location	Once during construction activities	Included in contractor fee
Grievance mechanism	To ensure accountability and	Number of grievances reported,	Records of grievances Feedback forms	Kulhudhufuhsi City	Once during construction stage	Included in project

	grievances are addressed effectively	response timings and response satisfaction				
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Table 10: Monitoring Framework

9. STAKEHOLDER CONSULTATION AND STAKEHOLDER ENGAGEMENT:

A. STAKEHOLDER ENAGAGEMENT:

The overall purpose of the Stakeholder Engagement Plan (SEP) is to ensure that a consistent, comprehensive, and coordinated approach is taken to safeguard decisions, impact/risks, expectations and project progress information is delivered to the right person at the right time through the most efficient and effective level of information during the implementation of the proposed project. The objectives of engaging stakeholders during the implementation of the project include:

Ensuring Understanding: To ensure a transparent decision-making process with greater input from stakeholders and their support of decisions. Information will be disclosed as early and as comprehensively as possible.

Involving Stakeholders in the Assessment: To reduce project risks/issues and identify potential risks. Stakeholders will be included in the scoping of issues, baseline assessments, the assessment of impacts, and management/mitigation measures.

Building Relationships: To build trust and better relationships with stakeholders and communities and to facilitate the collaboration with stakeholder groups, which in turn would contribute to effective implementation of the project.

Managing Expectations: It is important to ensure that the proposed Project does not create, or allow, unrealistic expectations to develop amongst stakeholders about potential Project benefits. The engagement process will serve as a mechanism for understanding and managing stakeholder and community expectations, by disseminating accurate information in an easily understandable manner.

Ensuring Compliance: The process is designed to ensure compliance with both local regulatory requirements and international best practice.

9.1. Stakeholder Identification:

Stakeholder identification and analysis is an essential component of effective and meaningful stakeholder engagement activities. The objective of this step was to provide a general overview of all stakeholders.

9.2. Stakeholder Mapping

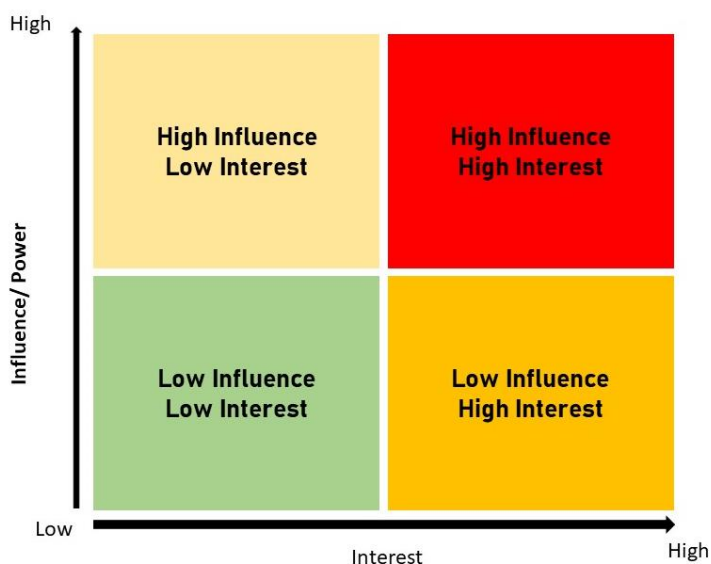
Stakeholder identification was done using a stakeholder mapping exercise. Stakeholder mapping is the process used during project management to identify the stakeholders and the level of engagement of different stakeholders during the course of the project lifecycle.

Key stakeholders’ groups that were preliminary identified, include the following parties:

Stakeholder Categories	Stakeholder Level	Group/ Stakeholders
Government	National	<ul style="list-style-type: none"> Environmental Protection Agency (EPA)
	Local government	<ul style="list-style-type: none"> Kulhudhufhsi City Council Haa Dhaal Atoll Council Women’s Development Committee (WDC)
Main Project Parties	Project Implementing partners	<ul style="list-style-type: none"> ZigZag for Youth Linkages Global Environment Facility (GEF) SGP Maldives
Directly Affected Stakeholders and project affected people	Community members, including men, women, youth, and local businesses	<ul style="list-style-type: none"> Affected individuals & Communities Coir rope plot owners Civil society, Students, and local communities (Kulhudhufushi) Social groups and youth sports and Environmental NGO’s (Kulhudhufushi) Potential Suppliers

Table 11: Identified stakeholders

The stakeholders are mapped based on the level of influence or power and level of interest. In this regard the process of stakeholder mapping was carried out following schematic representation which is widely used when mapping stakeholders for the purpose of project management.



Stakeholder	Influence	Interest
Environmental Protection Agency (EPA)	High	Low
Kulhudhufushi City Council	High	High
Global Environment Facility (GEF) SGP Maldives	High	High
Affected individuals & Communities	High	High
Coir rope plot owners	High	High
Civil society, Students and local communities (Kulhudhufushi)	High	High
Social groups and youth sports and Environmental NGO's (Kulhudhufushi)	High	High

Table 12: Stakeholder influence and interest

9.3. Stakeholder Engagement Plan:

In order to ensure equal participation and engagement of the identified stakeholders, a stakeholder engagement matrix (SEM) is developed under the SEP (Table 14). It is important to note that a significant proportion of stakeholders within the communities identified within the project Area have been previously engaged either directly by the NGO and City council during the formulation of the project. Considering previous engagement sessions and meetings, a three-step process for stakeholder engagement has been suggested that includes the following:

- Engagement to inform general stakeholders and authorities and disclose important project details to them with respect to decision-making, progress and potential impacts.
- Engagement to inform directly project affected people and disclose important project details to them regarding opportunities and area of influence (the socio-economic area of influence is defined in Social Impact Assessment).
- Engagement to build capacity of stakeholder and enhance awareness of the community as included as part of project outcomes.

Stakeholder	Relevance	Engagement Method	Information to Disclose
Environmental Protection Agency (EPA)	EPPA implementation and Regulatory Authority	Meeting, email and letter	Environmental Clearance/ permit (EMP) Project Monitoring Report
Kulhudhufushi City Council	Local Administrative Authority, Mashikilhi is under jurisdiction of city council	Meeting, email, and letter	Permits and Endorsement Project details and progress
Global Environment Facility (GEF) SGP Maldives	Project funding agency	Meeting, email, and letter	Progress reports Financial Reports Contracts

Affected individuals & Communities	Resource users and adjacent homeowners	Meeting	Project work update
Coir rope plot owners	Resource users	Meeting	Relocation information Project update
Civil society, Students and local communities, Environmental NGO's (Kulhudhufushi)	Resource users	Meeting	Project update

Table 13: Stakeholder engagement matrix

B. STAKEHOLDER CONSULTATIONS

The stakeholder consultations were conducted on 27th April 2023 in Kulhudhufushi city. The main stakeholders consulted were the Kulhudhufushi City council and Zigzag for youth linkages. Community consultations were not conducted as the mangrove area is under the jurisdiction of the city council and included as a conservation zone in the existing LUP.

Kulhudhufushi City Council:

Date: 27th April 2023

Time: 11:30 am

Venue: Kulhudhufushi City Council

Summary:

- i. The introduction about the project and aim was given by the representatives from zigzag for youth NGO.
- ii. The consultants informed the city council regarding the components of the project that will be included in the EMP. Each components of the project were discussed in detail.
- iii. The consultant inquired about the resource use of Mashikilhi from the city council, and if there are any long-term plans of council to manage the Mashikulhi area.
- iv. The city council informed their long-term plans are in development and proposed project from Zigzag will be incorporated into their plans.
- v. City council informed the allocated zone for the proposed project consists of few coir processing plots and they have already started the process of relocation of the plots.
- vi. The city council noted that they will lead the management after the implementation of the proposed project is complete.

Purpose/Organisation name: Meeting with Kuthi EIA Team					
Venue: Main Meeting Room					
Date: 27/04/2023			Time: 11:30 - 12:10		
Meeting Attendant Sheet					
#	Name	Contact Number	Signature	Designation	Email
1	Abdulla Fazeel	9668483	<i>[Signature]</i>	EIA consultant	abdulla.fazee@gmail.com
2	Maryam Rifqa	7799374	<i>[Signature]</i>	"	maryam.rifqa@outlook.com
3	Aishath Farhath Ali	9998750	<i>[Signature]</i>	EIA consultant	farah.a.ali@gmail.com
4	Ali Ahmed	7522433	<i>[Signature]</i>	ZigZag for Youth Linkage	aly.ahmed@gmail.com
5	Saadulla Naeem	9968272	<i>[Signature]</i>	"	Saad.naeem@gmail.com
6	Mohamed Moosa	7956999	<i>[Signature]</i>	"	06por006@gmail.com
7	Inochum Asit	9906111	<i>[Signature]</i>	"	nooviluosit@gmail.com
8	Aminath Majeeda	7911628	<i>[Signature]</i>	council member	aminath-majeeda@kuthuhuffshicity.gov.mv
9	Mohd Attaf	7795052	<i>[Signature]</i>	Mayor	attaf@kuthuhuffshicity.gov.mv
10	Ahmed Abdulla	7938817	<i>[Signature]</i>	Council member	ahmed.abdulla@kuthuhuffshicity.gov.mv
11					
12					
13					
14					
15					

Table 14: Attendance Sheet (City Council meeting)

Zigzag for Youth Linkages:

Date: 27th April 2023

Time: 21:00 PM

Venue: ZigZag for Youth Linkages

Summary:

- i. The introduction about the project and their future plans were given by the representatives from zigzag for youth NGO.
- ii. The consultants informed the NGO regarding the EMP process for the proposed project.
- iii. The consultant inquired about the detail plans for the project and the methodology of work and sustainability plans.
- iv. The NGO informed their long-term plans under the project to develop a management plan and training planned for the volunteers who will be guiding the visitors

Name	Designation	Contact
Ahmed Abdulla	Chairman	7938817
Anwar Adam	Vice Chairman	9133366
Ali Ahmed	Treasurer	7522433
Mohamed Ali	Administrative Officer	9968818
Ahmed Shareef	Assistant Treasurer	7793773
Mohamed Moosa	Advisory Member	7956999

Table 15: NGO meeting attendance

10. GRIEVANCE MECHANISM

This Grievance Mechanism (GM) is designed to record, monitor, and resolve grievances/complaints and accommodate where possible any request and suggestions proposed by the project affected parties. The scope of this GM is to redress any grievances/complaints regarding the project activities particularly regarding civil works and transportation works under the project. Any grievance/complaints which may arise in the project area however not due to a direct or indirect intervention of project activities will not be addressed under the GRM.

The GRM consist of two Tiers. The following are the information regarding Nodal Person for Contact, Composition of GRM committee, Contacts, Communication and Other Facilitation by Project and Timeframe to address grievance.

The GM contains 2 Tiers and includes the main key partners in implementation of the project. The proponent is the first point of contact. The proponent maintains the registry for formal and informal complaints and facilitate the process of addressing the issue with the city council.

The Tier 2 is led by the city council, for the issues that are beyond the scope of project and that may require interventions from the local authority.

Tiers of Grievance Mechanism	Nodal Person for Contact	Composition of GRM committee	Contacts, Communication and Other Facilitation by Project	Timeframe to address grievance
<p>First Tier: ZigZag for Youth Linkages</p> <p>(Grievance/complaints regarding the project activities by the proponent/NGO)</p>	<p>NGO will be the first point of contact.</p> <p>Designated contact persons will be established from the NGO with a designated contact number.</p> <p>The designated person from NGO will in turn lodge the complaint to registry maintained by NGO.</p>	<ul style="list-style-type: none"> • NGO focal point • NGO President • A Representative of Affected Persons (AP) • A Representative of the project management unit 	<ul style="list-style-type: none"> • Details of GM should be publicly displayed in official website and/or social media pages of NGO, including contact details of the nodal person in each tier. • Grievances can be reported informally by contacting the NGO through email / telephone / in person. • If the grievance cannot be resolved informally, an aggrieved party should submit a complaint on the Tier I Complaint Form. A copy of the form (with the NGO seal) will be provided to the aggrieved party as evidence of receipt. • NGO maintain separate online registries for informal and formal complaints and maintain records of all complaints received and councils can update the registry. • If the complaint is resolved within 7 working days, the NGO should communicate the decision to the aggrieved party in writing. • The aggrieved party should acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 5 working days to Councils. 	<p>7 Days</p>

			<ul style="list-style-type: none"> If no acknowledgement is submitted by the aggrieved party within this period, then the decision will be considered as accepted. 	
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Second Tier: Kulhudhufushi City Council	Assigned Focal point from the council	<ul style="list-style-type: none"> Assigned Focal Point from Council (Chairperson) A Civil servant of Council A Representative of affected party Representative from Zigzag for Youth (NGO) 	<ul style="list-style-type: none"> If the grievance cannot be resolved through Tier 1 GRC to the satisfaction of the aggrieved party or if the issue is outside the jurisdiction of the NGO, an aggrieved party may submit a complaint on the Tier 2 Complaint Form. Or else, Tier 1 GRC may forward the unresolved grievances directly to Tier 2 GRC with the consent of the aggrieved party. A copy of the form (council seal) will be provided to the aggrieved party as evidence of receipt. Electronic version of the complaint form will be available from the websites and/or social media pages of council and the council. A copy of the Tier 1 Complaint Form should be submitted with the Tier 2 Complaint Form. Council screens the grievance and determine if it's related to PROJECT. If it is unrelated, the aggrieved party will be notified in writing and the way forward 	7 working days
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			<p>shall be outlined to them including the necessary government institutions to follow up.</p> <ul style="list-style-type: none"> • The council will be responsible to ensure that there is no cost imposed on the aggrieved person, due to the grievance mechanism at the second tier. • If the complaint is resolved within 7 working days, the council should communicate the decision to the aggrieved party in writing. • The aggrieved party should acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 7 working days. • If no acknowledgement is submitted by the aggrieved party, then the decision will be considered as accepted. 	
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Table 16: GR Matrix

11. CONCLUSION

The overall aim of the project is to restore and revive the residual mangrove habitat of Mashikulhi, to support livelihood and recreation of the community of Kulhudhufushi city. Furthermore, the project also involves managing Mashikulhi, building community capacity, and restoring and rehabilitating the mangrove and its value. The proposed project is expected to foster for the locals, educators, local tours and community to enable easy access to the wetland, provide recreational activities within mangrove and work towards conserving, managing and rehabilitating the existing wetland.

This Environmental Management Plan (EMP) has been prepared as a tool to assist Zigzag for youth Linkages to develop a viewing platform at Mashikulhi in Kulhudhufushi city under their GEF small grant project in accordance with national laws and international best practices. The EMP examined the likely social and environmental impacts associated with the installation and operation of the viewing platform at Mashikulhi, in Kulhudhufushi city Haa Dhaal Atoll and proposes a management framework to address those impacts.

The main impacts of the project are impacts of vegetation clearance to build support infrastructure for the proposed project, which can have negative impacts on terrestrial fauna as a consequence of habitat destruction. However, this impact is expected to be minimal as, there are only 5 mature trees in the footprint of the project. Further, impact on brackish water quality this can be identified as a slightly negative impact during the construction phase. Nonetheless, the impact is still localized and is expected to occur in the immediate vicinity of the platform area. The operational phase is primarily characterized by negative impacts resulting from the recreational use of platform which involves noise generated from the visitors, as well as positive socio-economic changes from eco-tourism. An oil spillage from the excavator will be the most negative impact, as it would diminish the dissolved oxygen content of brackish water supplemented by an increase in carbon dioxide concentration, leading to suffocation of marine organisms. However, it has not be noted that risk of any spillage is almost nill, as most of the platform construction is planned to be manual labour and a small excavator is proposed to be used for few days for vegetation clearance and column and foot padding casting.

To prevent the negative impact on brackish water quality all construction work based in the mangrove area will be undertaken during dry season and during low tide and work will be avoided during rain and rough weather conditions. Consideration will be given during detailed designing stage to build

infrastructure around existing vegetation, thus minimizing any clearance. There are only 5 mature trees in the footprint of the project, which will be relocated, and non-mature plants will be transplanted around the mangrove area.

The key stakeholders for this project for the project are the city council and NGO. A stakeholder Engagement plan has been proposed in this EMP as a means to engage with relevant stakeholders and ensure accountability during construction phase of the project.

A Management plan and a Monitoring plan is designed under this EMP to ensure effectiveness of the proposed mitigation measures for the anticipated impacts. Further the management plan will address and safeguard the social implication that may arise during the implementation of the proposed project. The project conforms to the relevant laws and regulations, and is conducted with support and endorsement from the city council.

Overall, the project will have positive impacts to the community in terms on conservation and management of the Mashikulhi Mangrove and supporting livelihood and social well-being of the community of Kulhudhufushi. Therefore, it is recommended to go-ahead with proposed development of viewing platform in Mashikulhi with proposed mitigation measures and monitoring program as per the EMP.

12. REFERENCES

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13. APPENDICES

A. Commitment letter (Proponent)



11 July 2023
Mr. Ibrahim Naeem
Director General,
Environmental Protection Agency,
Male', Republic of Maldives.

Ref No.: ZZ2010/2023/026

Dear Sir,

**Sub: EMP for the Proposed Development of viewing platform at Mashikulhi,
Kulhudhufishi City, Haa Dhaal Atoll**

As the proponent of the above-mentioned project, we guarantee that we have read the report and to the best of our knowledge all non-technical information provided here is accurate and complete.

We also hereby confirm our commitment to carry out and bear costs of environmental mitigation measures and monitoring outlined in the EMP report.

Sincerely,
Anwar Adam

Vice Chairman
ZIGZAG for Youth Linkage



B. City Council Letter of Endorsement



كواللمه قېم سېچ ئاھالىسىلارنىڭ ھوقۇقى
ئادىتىدىكى، ھوقۇقتىكى

تارقىتىش نومۇرى: 266-ED/PRIV/2022/131

بۇ ئىشنىڭ قىسقىچە مەزمىنىنى ئۈستىدىكى مەزمۇنلەردە كۆرسىتىشكە بولىدۇ.

قۇرغۇچىسى: كۈلھۇدھۇفۇش شەھەر شەرتنامىسى.

مەزمۇن: 2022/033 ZZ2010/2022 (29 ئايدىكى 2022) سېچنىڭ تەكشۈرۈلۈشى.

مەزمۇن: كۈلھۇدھۇفۇش شەھەر شەرتنامىسى ئۈستىدىكى ئاھالىلەرنىڭ ئىقتىسادىنى تۈزۈش ئۈچۈن

بۇ شەرتنامىنىڭ مەزمۇنىنى ئۆز ئىچىگە ئالغان، ئاھالىلەرنىڭ ئىقتىسادىنى تۈزۈش ئۈچۈن مەزمۇنلەرنىڭ

ئىقتىسادىنى تۈزۈش ئۈچۈن، ئاھالىلەرنىڭ ئىقتىسادىنى تۈزۈش ئۈچۈن مەزمۇنلەرنىڭ

ئىقتىسادىنى تۈزۈش ئۈچۈن، ئاھالىلەرنىڭ ئىقتىسادىنى تۈزۈش ئۈچۈن مەزمۇنلەرنىڭ

ئىقتىسادىنى تۈزۈش ئۈچۈن، ئاھالىلەرنىڭ ئىقتىسادىنى تۈزۈش ئۈچۈن مەزمۇنلەرنىڭ

ئىقتىسادىنى تۈزۈش ئۈچۈن، ئاھالىلەرنىڭ ئىقتىسادىنى تۈزۈش ئۈچۈن مەزمۇنلەرنىڭ

بۇ شەرتنامىنىڭ مەزمۇنىنى ئۆز ئىچىگە ئالغان.

بۇ شەرتنامىنىڭ مەزمۇنىنى ئۆز ئىچىگە ئالغان.

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بۇ شەرتنامىنىڭ مەزمۇنىنى ئۆز ئىچىگە ئالغان.



1 2 2

info@kulhudhuffushicity.gov.mv www.kulhudhuffushicity.gov.mv @kfcitycouncil

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2 2 2

 @KfCityCouncil  info@kulhudhuffushicity.gov.mv
 www.kulhudhuffushicity.gov.mv  @KulhudhuffushiCityCouncil  652 8831

Secretariat of Kulhudhuffushi City Council
Kulhudhuffushi, Rep- of Maldives



25 July 2023
Mr. Ibrahim Naeem
Director General,
Environmental Protection Agency,
Male', Republic of Maldives.

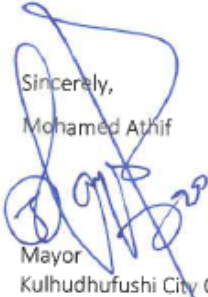
Ref No.: 266-PD/203/2023/7

Dear Sir,

Sub: Project Endorsement and Relocation of the coir processing farm plots (bonbi faa) within footprint of the viewing platform at Mashikulhi, Kulhudhufishi City, Haa Dhaal Atoll

As the leading administrative governing body in Kulhudhufushi city and beneficiary of the project, the proposed project is endorsed by the city council, and we guarantee that we have received and read the report to the best of our knowledge.

We also hereby confirm our commitment to relocate the 8 coir processing farm plots (bonbi faa) within the footprint of the project to outlined in the EMP report.

Sincerely,
Mohamed Athif

Mayor
Kulhudhufushi City Council



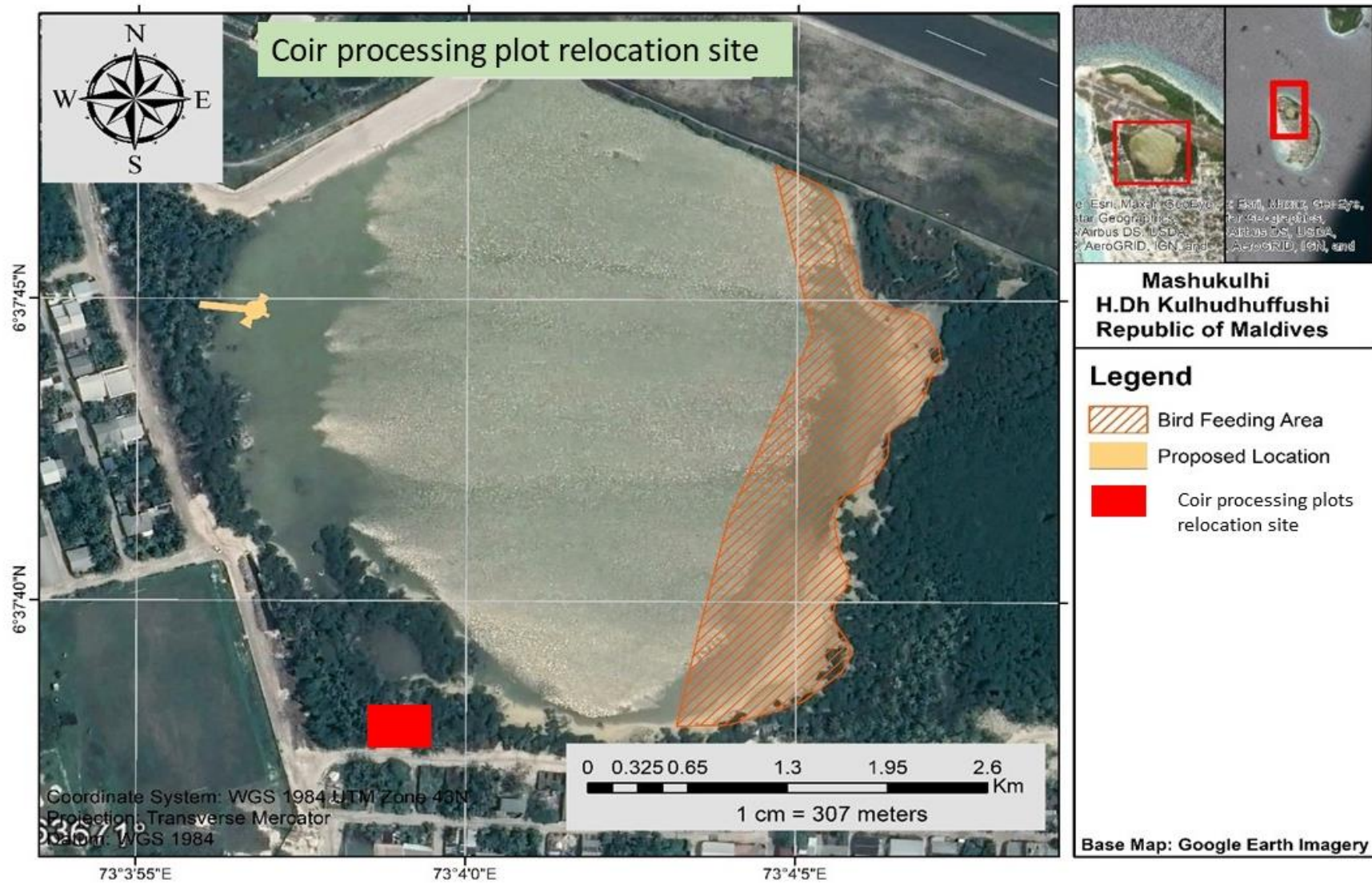
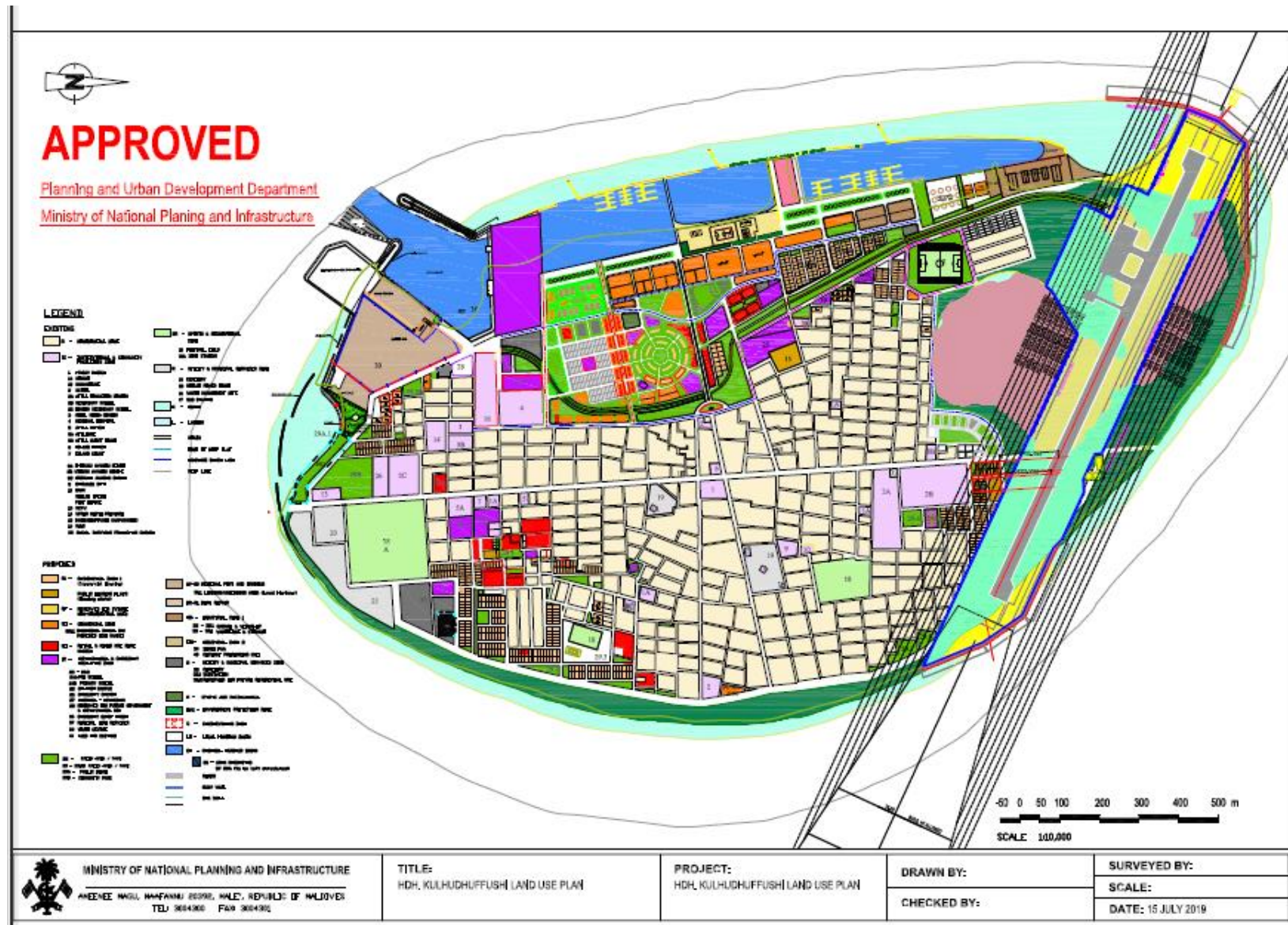


Figure 16: Coir processing plots relocation site

C. Project Location



D. Land Use Plan

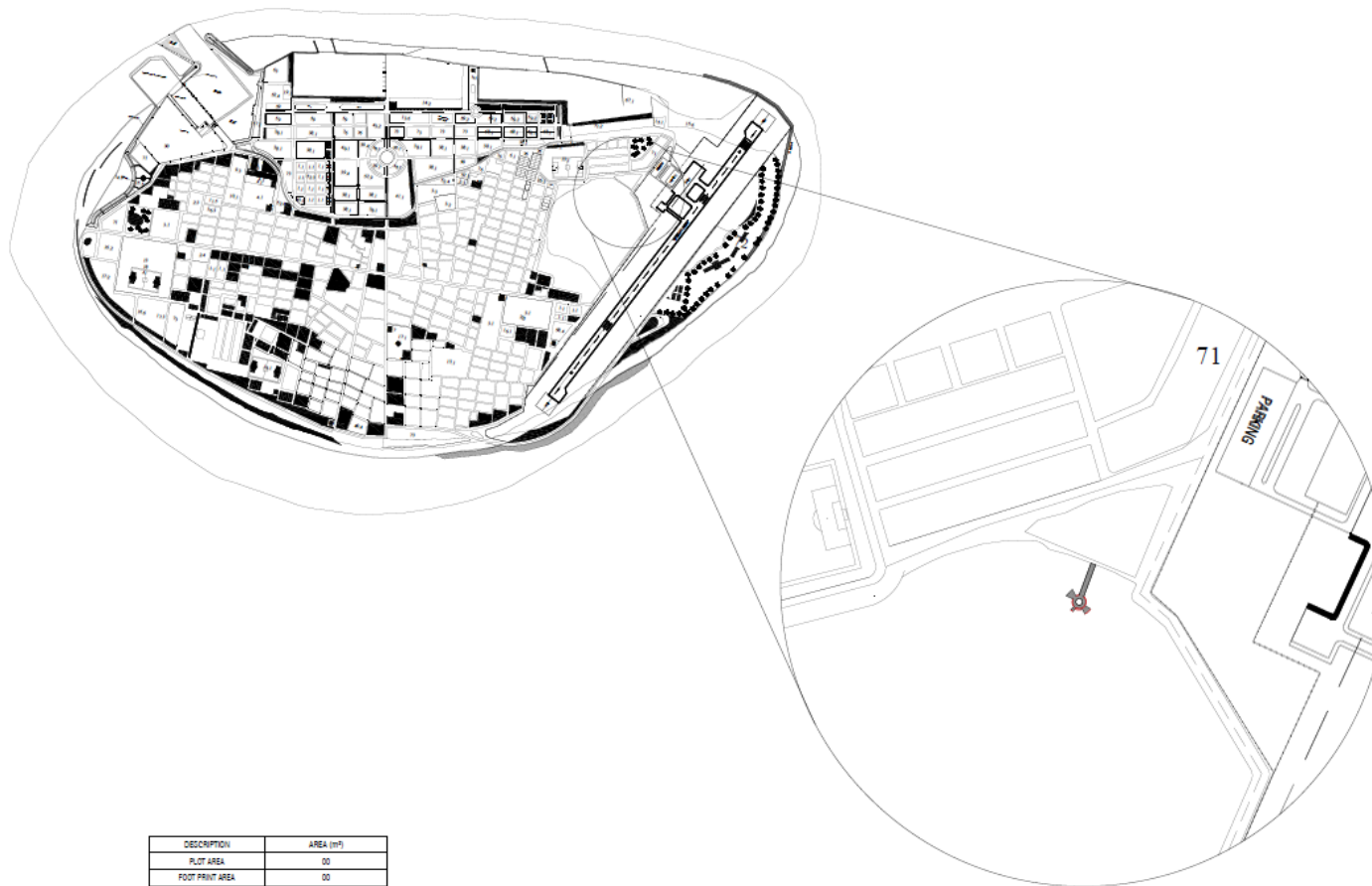


E. Viewing Platform Design



WETLAND PLATFORM
KULHUFFUSHI CITY

CLIENT : ZIGZAG FOR YOUTH LINKAGE
MAY 2023



DESCRIPTION	AREA (m ²)
PLOT AREA	00
FOOT PRINT AREA	00
TOTAL FOOT PRINT AREA	0
OPEN AREA	0
DESIGNED CARBAGE AREA	00
DESIGNED PARKING AREA	0

AD1
NOT TO SCALE

KEY PLAN, LOCATION PLAN



TEL: (960) 3322034, (960) 7911179
EMAIL: info@design-n-sign.com

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- On site drawings: use written dimensions only.
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Phase:

- Concept Design:
- Architectural Drawings:
- Structural Drawings:
- Service Drawings:
- As Built Drawings:

WETLAND PLATFORM
AT HJH KULUHULUPUSHI

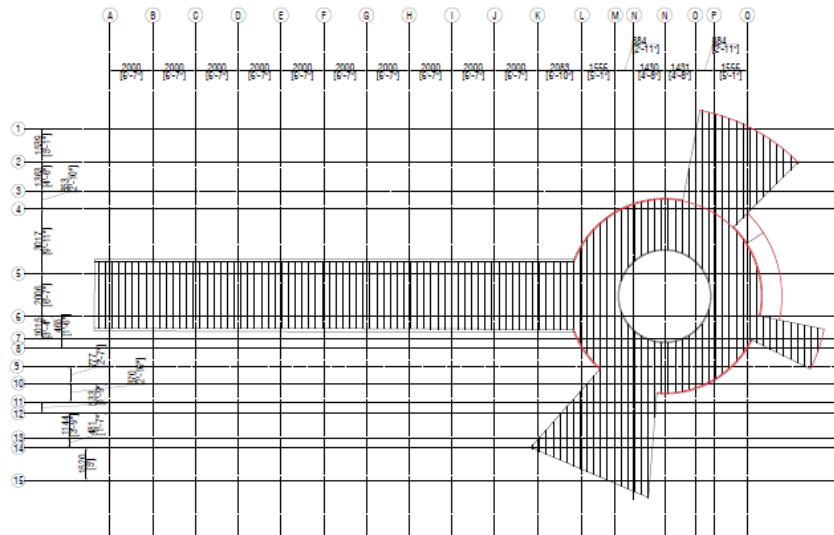
Client: DCDMG FOR YOUTH UNWADE

Designed by: MOHAMED RAH-HEED
Drafting: ACHUMA WAHEEDH
Architect: MOHAMED RAZZAN
Engineer: ABDULLA NADITH
Structural Checker: HASESAN NIHAZH
Architectural Checker: MOSSA ALEEM

Drawing Title: AS SHOWN
Date: MAY 2023
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01



A02 DECK PLAN
1:200



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WETLAND PLATFORM
AT HIZH KULHURUPPUSHI

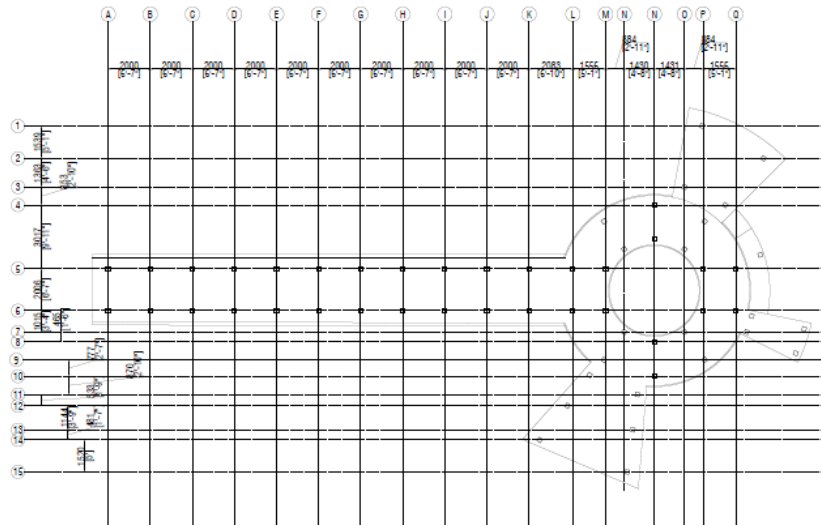
Client: DGDAG FOR YOUTH LINKAGE

Designed by: MOHAMED RADHEED
Drafting: ADHUMA WAHEED
Architect: MOHAMED RAZZAN
Engineer: ABDULLA NADH
Structural Checker: HASSAN MURAD
Architectural Checker: MOOSA ALEEM

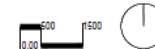
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ADS 1:200 COLUMN SETTING LAYOUT PLAN



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Phase:

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- Architectural Drawings:
- Structural Drawings:
- Service Drawings:
- As Built Drawings:

WETLAND PLATFORM
AT H.DH KULHUCHUPPUSHI

Client: DDCAG FOR YOUTH IMAGE

Designed by: MOHAMED RASHEED

Drafting: ADHUNA WAHEEDH

Architect: MOHAMED RAZZAN

Engineer: ABDULLA NACIYH

Structural Checker: HASSEAN NUNADH

Architectural Checker: MOODSA ALEEM

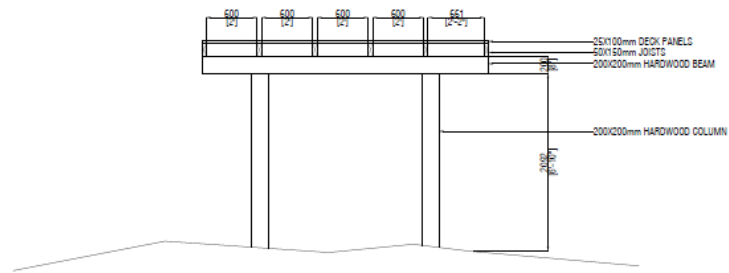
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Date: MAY 2023

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Page #: 01



NOTE: ACTUAL DEPTH, MEAN WATER LEVEL AND SOIL CONDITION CAN BE DETERMINED FROM A SURVEY

SECTION-X
1:50



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Phase:

- Concept Design:
- Architectural Drawings:
- Structural Drawings:
- Service Drawings:
- As Built Drawings:

WETLAND PLATFORM

AT MASH KULUHUFURUSHI

Client: DSDAD FOR YOUTH LINGAGE

Designed by: MOHAMED RASHEED
 Drafting: ADHUMA WAHBEEDH
 Architect: MOHAMED RAZZAN
 Engineer: ABDULLA NACIYH
 Structural Checker: HASSAN NIWAHD
 Architectural Checker: MOOSA ALEEM

Drawing Title: AS SHOWN
 Date: MAY 2023
 Scale: AS SHOWN
 Page Format: A3

Page #:

01

F. Water Quality Report

Male' Water & Sewerage Company Pvt Ltd
Water Quality Assurance Laboratory
 Quality Assurance Building, 1st Floor, Male' Hingun, Vilimala', Male' City, Maldives
 Tel: +9603323209, Fax: +9603324306, Email: wqa@mwsc.com.mv



LB-TEST-090

WATER QUALITY TEST REPORT
 Report No: 900195990

Customer Information:
 Mariyam Ridga (A113067)
 Saimaage

Report date: 08/05/2023
 Test Requisition Form No: 900197465
 Sample(s) Received Date: 02/05/2023
 Date of Analysis: 02/05/2023 - 07/05/2023

Thulusdhoo K

Sample Description ~	HDh.kulihudhuffushi Mashi Kulhi	TEST METHOD	UNIT
Sample Type ~	Sea Water		
Sample No	83238548		
Sampled Date ~	28/04/2023 12:00		
PARAMETER	ANALYSIS RESULT		
Physical Appearance	Brown with particles		
pH *	7.6	Method 4500-H+ B. (adapted from Standard methods for the examination of water and waste water, 23rd edition)	-
Salinity	19.94	Method 2520 B. (adapted from Standard methods for the examination of water and waste water, 23rd edition)	‰
Temperature	25.0	Electrometry	°C
Total Dissolved Solids	16000	Electrometry	mg/L
Total Suspended Solids	416	HACH Method 8006	mg/L
Turbidity *	218	HACH Nephelometric Method (adapted from HACH 2100N Turbidimeter User Manual)	NTU
Apparent Colour	334	HACH Method 8025	mg/L PtCo

Keys: ‰ : Parts Per Thousand, °C : Degree Celcius, mg/L : Milligram Per Liter, NTU : Nephelometric Turbidity Unit, mg/L PtCo : Milligram Per Liter Platinum Cobalt

Checked by

Nashath Ali
 Laboratory Executive

Approved by

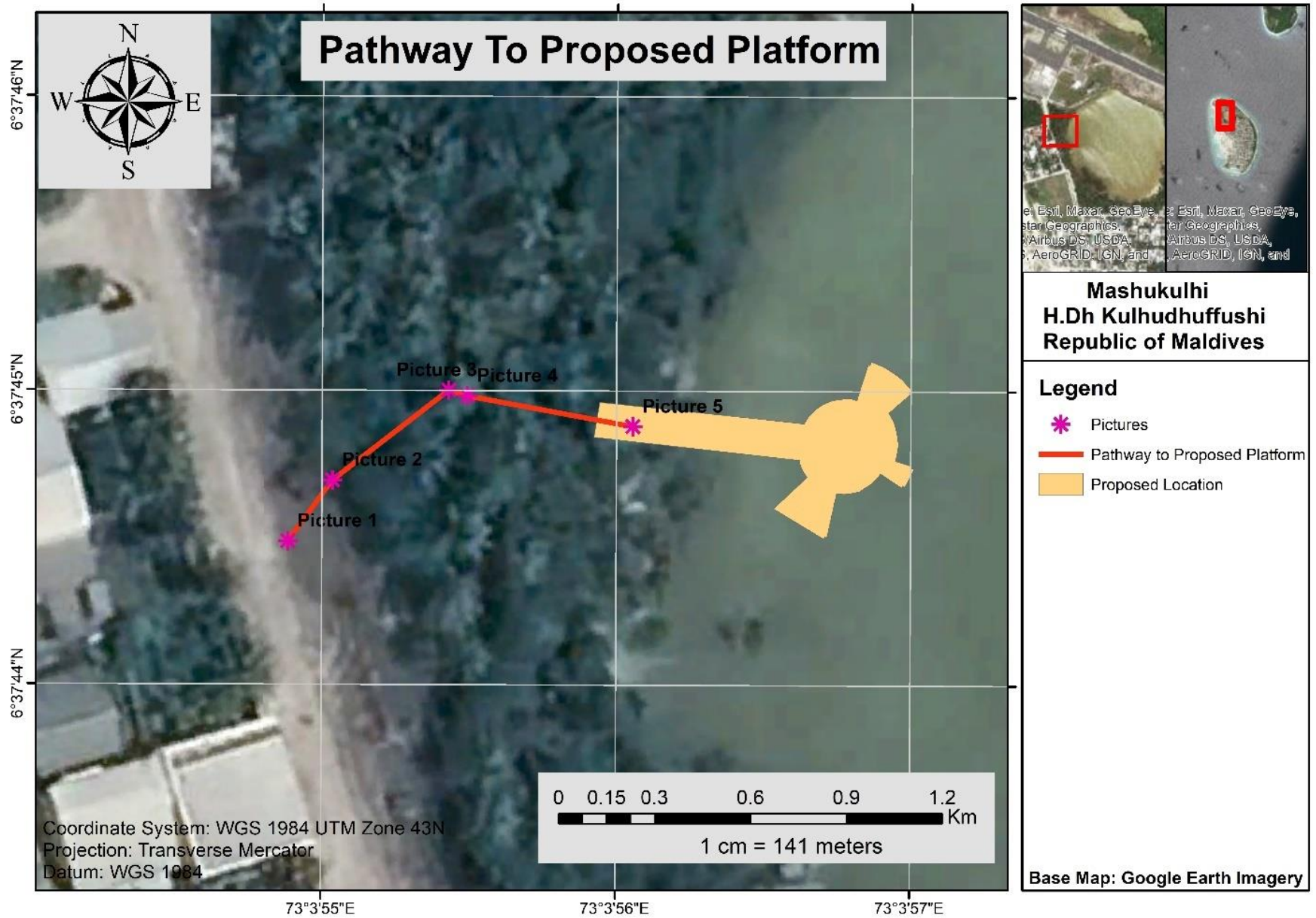
Nihaz A. Zahir
 Assistant Quality Manager

Notes:

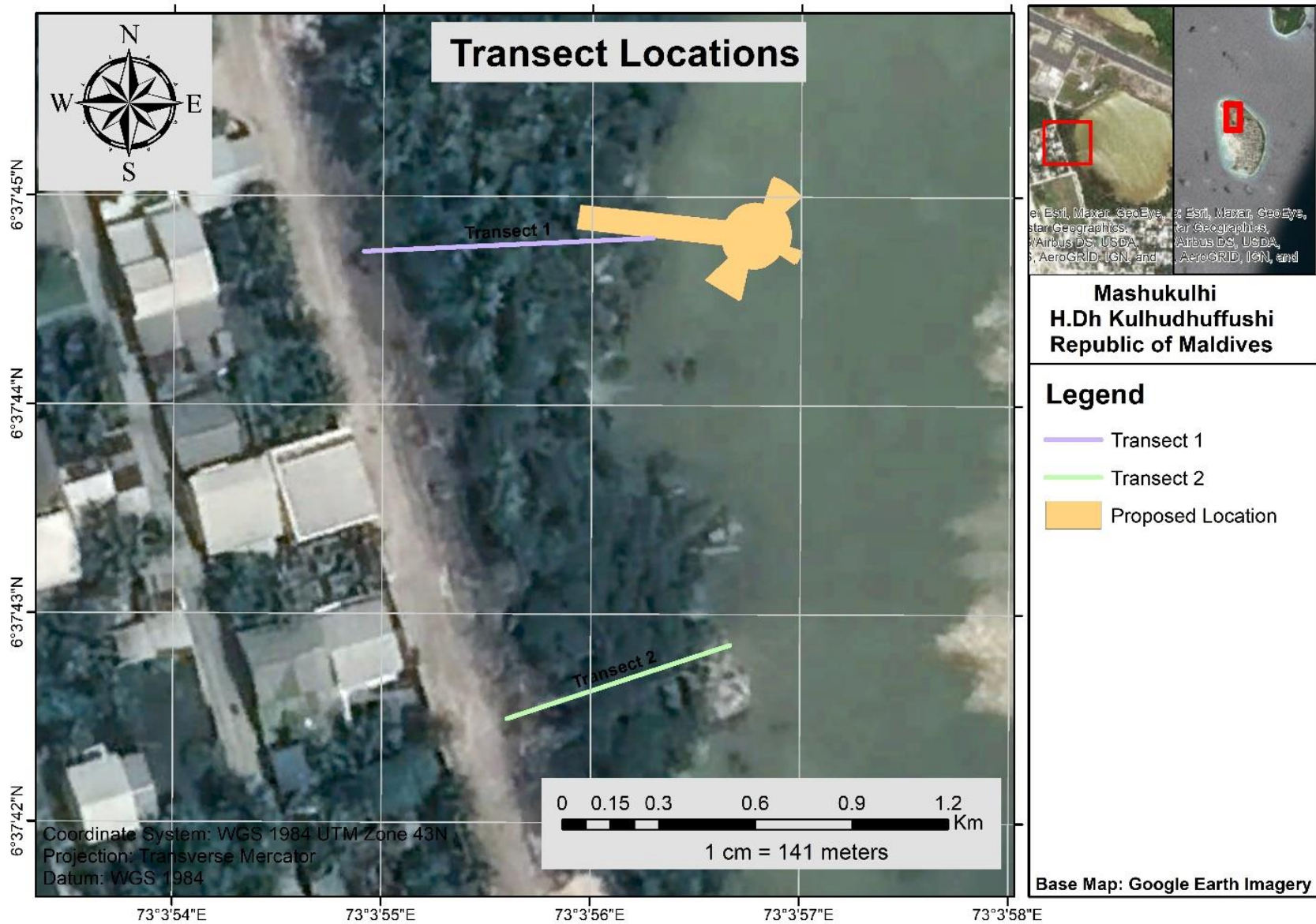
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***** END OF REPORT *****

G. Pathway to Platform



H. Transect Locations



EMP for the Proposed Development of viewing platform in Mashikulhi, Kulhudhufushi, Haa Dhaal Atoll

1 1

MR

Maryam Rifqa
To: info@kulhudhufushicity.gov.mv

← ↶ ↷ ...
Tue 8/8/2023 11:16 AM



Dear Mayor,

Please find attached the EMP for the Proposed Development of viewing platform in Mashikulhi, Kulhudhufushi, Haa Dhaal Atoll for your kind consideration.

Best
Rifga

I

Information (Kulhudhufushi City) <info@kulhudhufushicity.gov.mv>

To: You

← ↶ ↷ ...
Tue 8/8/2023 11:18 AM

We have received your mail.

Thank You.

- Thank you for your confirmation.
- Great, thanks for letting me know!
- Thank you for confirming.

← Reply ↷ Forward

I. CONSULTANT’S CURRICULUM VITAE

Mariyam Rifga

2nd Floor, Lot 11155
 Hulhumale’, Maldives. Mobile:
 +960 7799374
 Email: mariyam.rifga@outlook.com
 Office email: mariyam.rifga@environment.gov.mv LinkedIn:
<https://www.linkedin.com/in/mariyamrifga/>
 Permanent Address: Saimaage/ K. Thulusdhoo, Maldives

Employment Details

Current Designation: Community Co-Management Consultant (ENDhERI Project)
Duration: September 2021- Present
Organization: Ministry of Environment Climate Change & Technology

Total Duration in Environment Sector: 2004 – Present (18 Years)

Other Designations

- Co-founder & Vice President, Maldives Wetlands Foundation
- EPA Licensed EIA Consultant (2022)
- EPA Registered EIA Reviewer (2012- Present) Australia Award Scholar
- Alumni of James Cook University Member of Golden Key Honor Society
- Commission Member, World Commission on Protected Areas (IUCN)

Qualification	Year	University/Board	Field
Master of Science	2018	James Cook University/ Australia	Protected Area Management
Post graduate Certificate Course on Integrated Coastal Management	2015	Asian Institute of Technology	Integrated Coastal Management
Bachelor of Science	2009	University of Mysore	Environmental Science
Higher Secondary	2003	Center for Higher Secondary School	Biology, Physics, Chemistry
Secondary education	1998	Aminiya School	Biology, Physics, Chemistry

Work Experience

Vice President and Co-Founder (February 2022- Present)

Maldives Wetlands Foundation (MWF)

Responsibilities: Implement the program of work on wetlands and mangrove conservation as per the mandate of Maldives Wetlands Foundation; Create social and community awareness on wetlands and mangrove ecosystem in the Maldives; Creating avenue for environmental conservation, research and sustain socio-economic development among the wetland communities; Advocate for healthy wetlands ecosystem nationwide through wise use and management of such ecosystems; Implement awareness programs so that communities living among wetlands and mangroves have equal rights and opportunities to conserve their wetlands through wise land use planning and build resilience of the community.

Vital Contributions:

- ✚ Conduct Nature Based Tour guide and Ranger Training Program at Kendhikulhudhoo, Noonu Atoll.
- ✚ Develop and publish Waste Audit at, Dhaandhoo, Gaaf Alif Atoll
- ✚ Conduct Awareness programs in Collaboration with Comments NGO at Kendhikulhudhoo.

Community Co-Management Consultant (September 2021- Present) Enhancing National Development through Environmentally Resilient Islands (ENDhERI) project Ministry of Environment Climate Change & Technology (MECCT)

Responsibilities: Ensure social and environmental safeguard measures are adequately implemented in all components administered by the ENDhERI PMU and ensure GEF safeguard policies are complied. Ensure that consultations continue throughout project implementation and are carried out in a comprehensive and appropriate manner, including periodic updating of the consultations plan. Design and implement ESMF for ENDhERI Project to ensure that all safeguard measures are incorporated into project implementation. Ensure the delivery of ESMF orientation, training, and capacity building activities for all project stakeholders. Establish, maintain, and raise awareness of grievance redress system and assist island councils and their communities in the redress of their grievances in a timely manner.

Vital Contributions:

- ✚ Team Member of “Mangrove Die- off research field assessments” conducted by EPA in collaboration with Cochin University of Science and Technology, 2021
- ✚ Focal Point of South Asia Wildlife Enforcement Network (2021)
- ✚ Organize and Conduct Consultation Sessions with Newly elected Atoll Councils regarding identification of significant areas, conservation new areas and Protected Area Management (2021)
- ✚ Steering Committee Member (Secondary) Enhancing National Development through Environmentally Resilient Islands “ENDhERI” (2020-2021)
- ✚ EPA Focal Point to Enhancing National Development through Environmentally Resilient Islands “ENDhERI” (2020-2021)
- ✚ Co-ordination Committee Member of USAID Regenerate Project Implemented by IUCN (2018-2021)
- ✚ Facilitator and Guest Presenter (Decentralization of Protected Area Management) in Sustainable Tourism in Protected Areas organized by EPA and IUCN regenerate project (2021)
- ✚ Contribute to draft Turtle Management Plan and Conduct Stakeholder Consultations on Turtle Management Plan.
- ✚ Leading and Organizing Protected Area Declaration works (from EPA) under Presidential Pledge and SAP 2019-2023
- ✚ Organized and Lead Stakeholder workshop on Management of 15 Protected Areas in Boduthiladhumaathi Region (2020)
- ✚ Develop Management Plans for Thanburudhoo Region and Kendhikulhudhoo Mangrove (2020).
- ✚ Provided Technical Advice and Opinion from EPA in formulation of Protected Area Regulation, Protected Species Regulation, Uprooting Tree Regulation, Fisheries Act, and Regulations Under Environment Law and other relevant laws and regulations.

- ✚ Provided Technical Advice from EPA in amendment of management plans for Addu Nature Park, Fuvamulah Nature Park, Hanifaru MPA, Olhugiri PA and Mendhoo PA.
- ✚ Provided Technical Advice and Opinion from EPA to Enhancing National Development through Environmentally Resilient Islands “ENDhERI” and CATENATE Project. (2020-2021)
- ✚ Establish and Management of a Platform (WhatsApp Group) with Maldives Police Services to address Environment Compliance and Enforcement work (2020- Present)
- ✚ Conduct Stakeholder Consultations for Addu Manta Point (MPA) (2019)
- ✚ Participated in Radio and TV programs as technical person to give information on Environment Conservation, Baa Atoll UNESCO Biosphere Reserve and Protected Areas and Species (2018- 2021)

Assistant Director (2015- 2016) Waste and Pollution Prevention Unit Environmental Protection Agency (EPA)

Responsibilities: Organize and lead the work of Waste & Pollution Prevention Section including but not limited to implementation of annual work plan of Waste & Pollution Prevention Section, preparation of technical papers/standards and strategies in Waste & Pollution Prevention in Maldives, leading and organizing the work of waste management, monitoring air, water and land pollution, evaluation of Waste and Pollution data and Publish the data/reports and documents.

Vital Contributions:

- ✚ Procure Air Quality Monitoring Equipment’s with assistance from WHO (2015)
- ✚ Provided Technical Advice and Opinion from EPA to Waste Management Policy, Waste Management Bill and Waste Management Regulation
- ✚ Develop Incinerator guideline and Provided Technical Advice and Opinion Concrete Batch Plant Guideline.
- ✚ Contribute to Waste Management Policy 2013-2018
- ✚ Conduct Awareness sessions on waste management to schools and local community.

Environment Analyst (2009- 2015) Biodiversity and Conservation Unit Environmental Protection Agency (EPA)

Responsibilities: To provide technical support in implementation of workplan of biodiversity conservation unit, including but not limited to conducting stakeholder consultations and socio- economic surveys for proposed protected areas, participation in various stakeholder consultative meetings with government agencies on biodiversity related issues, Prepare management plans/ regulations for existing protected areas, Preparation of documents (technical paper/Cabinet paper) to propose new protected areas. Co-ordinate the implementation of Baa Atoll UNESCO Biosphere Reserve work plan and Programs (conservation, livelihood and outreach) and prepare Management plan and Regulations for Core Areas of Baa Atoll UNESCO Biosphere Reserve.

Vital Contributions:

- ✚ Development and implementation of Management Plan, for Baa Atoll Hanifaru Marine Protected Area (2009-2015)
- ✚ EPA Lead Coordinator to Implement Baa Atoll Biosphere Reserve activities (2009- 2015)
- ✚ Provide Outreach Support regarding management of Hanifaru Marine Protected Area (2009-2015)
- ✚ Member of Biodiversity Technical Team in NBSAP review 2013
- ✚ Member of Civil Service Excellence Program Team 2013
- ✚ Coordinated the activities to Mark International Year of Biodiversity (2010)
- ✚ Coordinated the activities of democracy fare 2009
- ✚ Coordinated the activities of youth fare 2009
- ✚ Participated in Radio and TV programs as technical person (2009-2015)
- ✚ Conduct Awareness sessions on biodiversity conservation to schools and local community.

Environment Officer (2004- 2006) Biodiversity and Conservation Unit Environmental Protection Agency (EPA)

Responsibilities: To provide support in communication and outreach on mandated responsibilities of the ministry, including but not limited to, preparation of news, information and articles regarding Environment, development of awareness materials and programs with media, conducting conduct awareness programs to students, Island communities and foreign students and provide support in implementation of workplan of the ministry.

Vital Contributions:

- ✚ Prepare and develop documentary for Eydhigalikilhi Protected Area and assist the editing the documentary (2005).
- ✚ Prepared Hand book on Environmental Problems (2006).
- ✚ Assisted in preparation of regulation for uprooting of trees (2005-2006) Contributed in Initial Phase of Return on Flower project (2006).
- ✚ Contributed to State of Environment report 2004 Coordinated the activities of SAARC Ministerial Meeting 2004
- ✚ Developed content for one-year Radio Program “Wanted! Seas and Oceans. Dead or Alive” (2004).
- ✚ Conducted Awareness sessions for school students

Experience in International projects

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- ✚ ~~Environmental and Social Safeguard consultant in ENDhERI Project funded by GEF (2021- Present)~~
 - ✚ Focal Point of South Asia Wildlife Enforcement Network (2021)
 - ✚ EPA Focal Point to Enhancing National Development through Environmentally Resilient Islands “ENDhERI” (2021)
 - ✚ Steering Committee Member (Secondary) Enhancing National Development through Environmentally Resilient Islands “ENDhERI” (2021)
 - ✚ Co-ordination Committee Member of USAID Regenerate Project Implemented by IUCN (2018-2021)
 - ✚ Technical Focal Point from EPA for GEF Funded Atoll Ecosystem Conservation project, 2009-2012.
 - ✚ EPA coordinator of Baa Atoll UNESCO Biosphere Reserve, 2010 to 2015.
 - ✚ Coordinating activities with USAid on Workshops held regarding Protected Areas and Marine Managed Areas, 2012
 - ✚ Coordinating activities with IUCN on Workshops held regarding Marine Managed Areas, 2013.
 - ✚ Coordinated activities of Terrestrial Ecosystem Monitoring (TEM) component of the World Bank funded Maldives Environmental Management Project (MEMP) at EPA (2009- 2011)
 - ✚ Coordinated the activities of SAARC Environment Ministerial meetings held in Maldives. (2005)

Professional Affiliations

Commission Member, 2022- Present

IUCN World Commission on Protected Areas

Vice President and Co-Founder, 2022-Present

Maldives Wetlands Foundation (NGO)

EIA Consultant 2022- Present

Independent

Alumni, 2018- Present

Australia Awards Scholarship

Alumni, 2018- Present

James Cook University, Australia

Member, 2018- Present

Golden Key International Honor Society

EIA Reviewer, 2012 – Present

Environmental Protection Agency

Publications

Waste Audit Report 2022, Gaaf Alif Dhaandhoo, Maldives Wetlands Foundation
Report on Preliminary Assessment and Mapping of Maavah Mangrove 2022
<http://www.environment.gov.mv/v2/en/download/15939>
Report on Multi-stakeholder workshop on Ecosystem Conservation and Management,
Laamu Atoll 2022 <http://www.environment.gov.mv/v2/en/download/15936>
Baseline Assessment Report on Waste Management in Laamu Atoll 2022
<http://www.environment.gov.mv/v2/en/download/15927>
Report on Mangrove-Wetland and Nature Park Experience Sharing Tour Report
<http://www.environment.gov.mv/v2/en/download/16435>
Environment and Social Management Framework, ENDhERI Project
<http://www.environment.gov.mv/v2/en/download/16432>

References

Dr. Ibrahim Mohamed
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Environmental Protection Agency
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Mr. Ibrahim Naeem
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[v](#)

Aishath Farhath Ali

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MajeedheeMagu
Male', Maldives.
Mobile: +960 9998750
Email: faraa.ali@gmail.com

Permanent Address: Moonimaage
S.Feydhoo, Addu City
Maldives

Summary

I am a driven Environmental Conservation specialist working in environmental planning and implementing conservation programmes in the Maldives. Presently working as Director at Ministry of Environment, Climate Change and Technology – in Energy Department. Total 20years' experience in the field of environmental conservation, protected area management, ecological evaluation and assessment of biodiversity. Experience in conducting research in habitat conservation and conducting public awareness programs for the sustainable use of biodiversity. Developing community based management plans for protected wetland areas in Maldives

Technical skill

1. Environmental Conservation and Management
2. Biodiversity Conservation – Terrestrial and marine
3. Ecological Survey Techniques
4. Environmental Impact Assessment
5. Botanical Surveying
6. Sustainable Agriculture
7. Biodiversity Monitoring
8. Report Writing & Proposal making and project presentation

Practical skill

- Extensive experience in engaging local communities into habitat assessment, wetland management and restoration, botanical surveying, biodiversity monitoring and assessment methodologies.
- Particular skills in baseline ecological surveys and monitoring, vegetation community mapping (including GIS) and ecological offset identification. Many of these roles have involved training and liaison with local communities and other community groups.
- Develop, design and conduct surveys in bird population estimates and habit preferences
- Conducted research on seabirds in Maldives. (White Tern (*Gygis Alba*) population, breeding success and habitat preferences in Addu Atoll, Feydhoo for MSc dissertation).

Interests and Hobbies

- Research in biodiversity conservation, bird ecology and population estimation.
- Wetland and Mangrove rehabilitation and restoration
- Working with communities and Local Island Councils in developing community based management plans for critical ecosystems in islands
- Writing and blogging
- Reading

✓ Ministry of Environment, Climate Change and Technology

Director (*February 2022 – Present*)

Responsibilities:

- Oversee day to day work of the Energy and attend to work assigned by DG

✓ World Bank /Ministry of Environment and Energy

Wetlands Coordinator, Maldives Climate Change Trust Fund / Ministry of Housing and Environment (*September 2011 –September 2018*)

Responsibilities:

- Developed detailed wetland management plans for Addu and Fuvahmulah Nature Park
- Developed alternative livelihood training program for locals in Addu and Fuvahmulah whose livelihood depend on natural resource extraction from Pas in Addu and Fuvahmulah.
- Oversee and take responsibility for ensuring implementation of Wetland Conservation component of CCTF project which to implement ecotourism and community based wetland management in Addu City and Fuvahmulah.
- Developed all the institutional work, technical work and conservation work related to the establishment of Addu and Fuvahmulah Nature Park
- Develop and implement organic farming trainings for farmers who does farming inside the Pas in Addu and Fuvahmulah and convert farmers from chemical farming to organic farming

✓ Environmental Protection Agency (EPA)

Assistant Director (*September 2009 –February 2022*)

Responsibilities:

- Head of the section of Environmental Research and Conservation and Coordinate the activities of environmental research and conservation section.
- Conduct detailed studies and research on areas suitable for conservation.
- Prepare management plans for existing protected areas.
- Enforce and implement the regulations on Protected Areas and protected species in Maldives.
- Oversee the works of Addu and Fuvahmulah Nature Park
- Oversee and monitor and evaluate the effectiveness of protected area management plans in Addu City, Fuvahmulah City and Baa Atoll.
- Work island communities and councils in identifying areas for conservation and mainstream them into island level developmental planning

Vital Projects Undertaken:

- Coordinator of the Terrestrial Ecosystem Monitoring (TEM) component of the World Bank funded Maldives Environmental Management Project (MEMP) (Project duration: 2009-present).
- Prepared vegetation mapping and conducted a flora survey of the protected island of GaafuAlifuHithadhoo, working in conjunction with local school children to map vegetation communities and big trees in the island.
- Floral/faunal surveys, community consultation workshops in Fuvahmulah for the preparatory work for the declaration of Fuvahmulah wetlands as protected areas.
- Concept development for the Community Based Wetland Protection and Management for Climate Change Adaptation in Hithadhoo, Addu City and Fuvahmulah project under the Climate Change Trust Fund (CCTF)

✓ *Environment Research Centre (ERC)*

Project Officer (August 2005 – June 2008)

Responsibilities:

- Coordinate the activities of biodiversity and conservation related activities at ERC and develop research ideas and research proposals.
- Has gained a wide range of knowledge in various disciplines while working as the head of the biodiversity and conservation unit, including independent design and surveying of coastal vegetation and mangroves, population estimation and habitat assessment of bird species in Maldives, designing and carrying out public perception surveys on the environment.
- Manage Programme of Work on Protected Areas (PoWPA) of the Convention on Biological Diversity (CBD) in Maldives.
- Collate and collect information on flora and fauna of Maldives and maintain a detailed information data base of these species.

Vital Projects Undertaken:

- Initial concept development of the Terrestrial Ecosystem Monitoring (TEM) component of the WorldBank funded Maldives Environmental Management Project (MEMP) (2007).
- Coordinator of the UNEP funded project on the restoration of protected mangrove area of Huraa Island after the 2004 tsunami (Project duration: 2006-2008).
- Design, data entry, analysis and report writing of the nation-wide survey on **Public Perception on the Environment: A Maldivian Perspective** (2008)
- Design, data entry, analysis and report writing of the **Fish Kill incident in Dhaalu Atoll, Maldives** (2008)
- Assistant Editor of the monthly newsletter *Pemphis*, by ERC
- Design, data entry, analysis and report writing of the **Fish Kill incident in Dhaalu Atoll, Maldives** (2008) - Assistant Editor of the monthly newsletter *Pemphis*, by ERC
- Design, data entry, analysis and report writing of the **Bird and Plane Safety Measures at Gan International Airport, Addu Atoll** (2008), by ERC
- Coordinator of the 4th and 5th Environment Camp at K.Huraa in liaison with Guild Guide Association of Maldives.

Experience in International donor projects

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- Coordinated activities of Terrestrial Ecosystem Monitoring (TEM) component of the World Bank funded Maldives Environmental Management Project (MEMP) at EPA (2009- 2011)
 - Coordinated mangrove rehabilitation and replanting and establishment of mangrove nursery in KaafuHuraa funded by Wetlands Internationals and UNEP (2007-2008)
 - Coordinated the IUCN component of the UNEP “Post-tsunami restoration of coastal ecosystems in the Maldives” project (2006-2008).
 - Coordinated the activities of GEF funded project on establishing a Biosafety Clearing House (BCH) in Maldives under Cartagena Protocol on Biosafety (2006-2008)
 - Prepared the first National Biosafety Report and was involved in the development of Biosafety Framework

Education

- ✓ **Sept 2008- September 2009:**
MSc in Environmental Science
University of East Anglia, UK

Key Subjects:
 - Biodiversity and Conservation
 - Ecological Survey Techniques
 - Environmental Impact Assessment
 - Natural Resources and Environmental Economics
 - Practical use of GIS
 - Research Skills

- ✓ **2002-2005:**
BSc in Biological Sciences
Nizam College, Osmania University, India

Key Subjects:
 - Botany, Zoology and Chemistry

- ✓ **1999-2001:**
Higher Secondary Education (GCE Advanced Level)
Centre of Higher Secondary Education, Maldives

- ✓ **1996-1998:**
Secondary Education (GCE Ordinary Level)
Southern Secondary School, Maldives

Scholarly/Academic Publications and Writings

- Design, data entry, analysis and report writing of the nation-wide survey on **Public Perception on the Environment: A Maldivian Perspective**(ERC, 2008)
- Design, data entry, analysis and report writing of the **Fish Kill incident in Dhaalu Atoll, Maldives** (ERC, 2008)
- Design, data entry, analysis and report writing of **population estimate, breeding success and habitat preferences of White Tern (Gygis Alba) in Addu Atoll, Feydhoo** for Msc Dissertation (2010)

Awards/Fellowships/Grants

- ✓ **September 2021-Present:**
Indian Council for Cultural Relations (ICCR) Scholarship PhD in Wetland Conservation in Small Island States in Cochin University of Science and Technology (CUSAT)

- ✓ **October 2016:**
Australian Awards Fellowship: International Coral Reef Management and Leadership Programme, Townsville, Australia

- ✓ **October 2008-October 2009:**
Ministry of Environment and Energy Staff Development Scholarship for Masters of Environmental Science at University of East Anglia (UK)

- ✓ **June 2002-June 2005:**
Indian Council for Cultural Relations (ICCR) Scholarship in Bachelors of Science in Biological Sciences at Osmania University (India)

- ✓ **August 2005-September 2005:**
Colombo Plan funded Integrated Coastal Zone Management Planning Course, Walailaku University, Thailand

Experiences in Projects, Consultancies and Trainings (Since 2010)

- 5Feb 2022 – Panelist: Panel Discussion on “Wetland Conservation” initiated by American Centre Maldives.
- June 2021-Dec 2021: Baa Atoll UNESCO Biosphere Reserve 10 Year Review Assessment Process- Participated as the representative from EPA to assess the impacts of 10 years as Biosphere Reserve for Baa Atoll;
- October 2021- Date: Sub-Consultant – Assessing and Evaluating Socials Protection Programs in Maldives;
- June 2017- August 2017- Environmental Consultant- Developing Environmental Impact Assessment for the Development of Agricultural Island at R.Ungulu;
- Jan – Mar 2012: Project Manager and Lead a group of professionals to provide technical training & demonstration on aquaponics; organise an organic farming study tour to Baa Atoll with introduction to basic agricultural concepts & environment friendly best practices under ADB Private Sector Development Program, MED.

Meetings/ Workshops attended

- Participated as the government representative in the second meeting of the Ad Hoc Open-Ended Working Group on Protected Areas, from 11 to 15 February 2008, FAO Headquarters, Rome, Italy
- Participated as the government representative in the thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice from 18 to 22 February 2008, FAO Headquarters, Rome, Italy
- Participated as the government representative in the third meeting of the ad hoc Open-ended Working Group on Liability and Redress in the Context of the Cartagena Protocol on Biosafety during 19 to 23 February 2007, in Montreal, Canada

Affiliation/Professional Membership

- Co-founder of Maldives Wetlands Foundation

References

Mr Ahmed Saleem Member of Parliament Email: salle_mv@yahoo.com	Mr Ibrahim Naeem Director General Environmental Protection Agency Email: ibrahim.naeem@epa.gov.mv
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Curriculum Vitae

1. **Name of Consultant:** Abdulla Fazeel
2. **Education :** Bachelor of Marine Science, James Cook University, Australia
3. **Membership of professional associations - NA**
4. **Other Training:** GIS Training
5. **Countries of work experience :** Maldives
6. **Languages :** Dhivehi (Good) English (Good)
7. **Experience/ employment record**
 - From [05/2021] – Onwards**
Employer er: Secretariat of Kelaa Council
Positions held: Assistant Council Officer
Job description: Administrative Job with a diverse set of responsibilities from environment related works, GIS, to Administrative works, Manual Stake Out of roads building etc.

 - From [06/2019] – To [05/2021]**
Employer: Environmental Protection Agency
Positions held: Surveyor
Job description: Survey, GIS and Administrative works associated with protected areas protected species etc.

 - From [01/2018] – To [06/2019]**
Employer: Water Solutions Pvt.Ltd
Positions held: Junior Environmental Consultant
Job description: EIA and Survey related works, with GIS and Administrative works associated with EIA's.
8. **Summary of projects/assignments undertaken/ role**
 - Name of project/ assignment:** Lhaviyani Atoll PA maps
Experience classification: GIS
Assignment: Generating the final maps for gazette on GIS based on the surveys carried out
From [2021]
Positions held: Surveyor, EPA

 - Name of project/ assignment:** Thanburudhoo region PA map
Experience classification: GIS and Social Suveys
Assignment: Generating the final maps for gazette on GIS based on the surveys carried out and taking part in stake holder consultations
From [2021]
Positions held: Surveyor , EPA