ENVIRONMENT MANAGEMENT PLAN

FOR THE PROPOSED

INSTALLATION OF INTER-ISLAND SUBMARINE COMMUNICATION CABLE AT RAHFALHU HURAA, NORTH MALÉ ATOLL

September 2020

Project Proponent

Mesa RF Private Limited

Environmental Consultant

CDE Consulting, Maldives



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List of Abbreviations

BAU	Business As Usual
BMH	Beach Manhole
CAM	Communication Authority of Maldives
CBD	Convention on Biological Diversity
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EMP	Environmental Management Plan
EPPA	Environmental Protection and Preservation Act
ESA	Environmentally Sensitive Area
HDPE	High Density Polyethylene
HPA	Health Protection Agency
ILO	International Labour Organization
IPPC	International Plant Protection Convention
LWP	Light Weight Protected
MIRA	Maldives Inland Revenue Authority
MPA	Marine Protected Area
MSL	Mean Sea Level
NBSAP	National Biodiversity Strategy and Action Plan
NEAP	National Environmental Action Plan
NOTS	Nominal Operating Tensile Strength
NPTS	Nominal Permanent Tensile Strength
NTTS	Nominal Temporary Tensile Strength
O.D.	Outer Diameter
PPE	Personal Protective Equipment
SAP	Strategic Action Plan
SOFC	Submarine Optical Fiber Cable
ToR	Terms of Reference
UTS	Ultimate Tensile Strength
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United National Framework Convention on Climate Change
WHO	World Health Organization
WMR	Waste Management Regulation



Acknowledgement

The lead author of this Environmental Management Plan is Mohamed Faizan. The report was reviewed by Dr. Ahmed Shaig .

The curriculum vitae's of the Environmental consultants are attached in Appendix C of this report.



EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

Lead Consultant's Declaration

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

Jozzan



Proponent's Declaration & Commitment

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(Appendix B)



1 INTRODUCTION

1.1 Project Title

The project is titled "Installation of submarine communication cable in Rahfalhu Huraa"

1.2 Project Proponent

The proponent of this project is Mesa RF Private Limited. The company was formed specifically to undertake the resort development at Rahfalhu Huraa. Proponent address and contact details are as follows:

Mesa RF Private Limited, M. Faaroshige, Level 2, Orchid Magu, Malé, Maldives. Contact number: +960-9895423

1.3 Purpose and Background of the Project

Rahfalhu Huraa Reef located in North Malé was leased to Mesa RF Private Limited by the Ministry of Tourism in 2015 for tourist resort development and operation. The proponent is currently developing a four island tourist resort property on this reef. This property comprises of two islands developed as high-end lifestyle resorts, one island developed as a high-end luxury resort and one island exclusively developed as a service island.

The aim of this Project is to establish a telecommunication network at the property via submarine communication cable connecting all the islands to one central telecommunication server that transmit different telecommunication signals (e.g. internet, television, voice calls etc.). Reliable telecommunication connectivity is vital for the operations of the property and important for the clientele of the resort.

1.3.1 Project Financing

The project is financed by the contractor Dhivehi Raajjeyge Gulhun PLC (Dhiraagu)



1.4 Project Location

The proposed project site is Rahfalhu Huraa Reef (officially called Maifalhu Reef) located in North Malé Atoll. Site location and satellite image is presented in Figure 1.1 and Figure 1.3 respectively. Figure 1.2 shows the nearby islands, Marine Protected Areas (MPAs) and declared Environmentally Sensitive Areas (ESAs) to Rahfalhu Huraa.

The nearest island to Rahfalhu Huraa are Helengeli (tourist resort island) to the north and Thunbafushi (industrial island) to the south. There are no Marine Protected Area (MPAs) or Environmentally Sensitive Areas (ESAs) within a 10 km radius of Rahfalhu Huraa.

1.4.1 Existing Site Conditions

The proposed project is a heavily modified large shallow reef flat with depths in the range of -0.5 m to -1.5 m MSL and a deep lagoon reaching over -10 m MSL. The reef system is oriented in a northwest southeast direction. There is a natural rubble mound island (Rahfalhu Huraa Island) on the northeastern end of the reef and is about 1.24 Ha within low tide area.

Under the Rahfalhu Huraa resort development project, four islands have been reclaimed on the shallow reef flat, and a reef entrance channel dredge on the southwestern rim of the reef (Figure 1.3).

The shallow reef flat proposed of the installation of the submarine cable is exclusively made up of sandy bottom interspersed with coral rubble. The landing points at each island is protected by a rock revetment, except at Island-2 where the cable enters via beach.

1.5 Purpose and Objectives of this Environmental Management Plan

This Environmental Management Plan (EMP) has been prepared to fulfill the requirement of the Screening Decision issued by the Environmental Protection Agency (EPA) on 9th July 2020 (Number: 203-ECA/PRIV/2020/334 – see Appendix A).

This EMP screens potential environmental and social impacts associated with the proposed submarine cable installation works, and provides a management framework to address these impacts. In addition this EMP is a tool for the proponent to ensure that the project works are inline with the existing national law, regulations and international best practices.



EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

Figure 1.1: Location of Rahfalhu Huraa Reef



EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

Figure 1.2: Locality map showing nearby islands and protected areas and declared environmentally sensitive areas to the project site



Figure 1.3: Satellite image of Rahfalhu Huraa (Google Maps, June 2020)



1.6 Structure this EMP

- Chapter 1 provides an introduction of the Project and EMP
- Chapter 2 provides a detailed description of the project
- Chapter 3 provides legal and regulatory considerations and principles
- Chapter 4 presents the environmental condition at the project site
- Chapter 5 identifies potential environmental and social impacts of the project, and describes the significant impacts of the project and proposed mitigation measures
- Chapter 6 presents stakeholder views and concerns
- Chapter 7 identifies critical issues that require monitoring
- Chapter 8 assesses the alternatives for the proposed project activities
- Chapter 9 conclusion

1.7 Study Team

The team that participated in preparation of this EMP consisted of the following members.

- Mohamed Faizan (Lead author)
- Dr. Ahmed Shaig (EMP reviewer)

The curriculum vitae of the consultants are provided in Appendix C.

1.8 Document Control

A copy of the EPA Environmental Decision Statement for the project and this EMP will be kept at the proponents as well at the contractor at all times.

The proponent will ensure that all staffs, contractor and where relevant the sub-contractors are informed and familiar with the relevant requirements described in this EMP and the Decision Statement issued by EPA.

1.9 Review and Updates

The proponent has the responsibility to review and update the EMP if the need arise to ensure that it reflects the proposed work methods and any changes to the legislative/regulatory requirements.



EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

2 PROJECT DESCRIPTION

This chapter provides a detailed description of the activities and methods proposed for the project.

2.1 Outline of Project Components

The following are the key project activities:

- 1. Mobilisation of workforce, materials and site setup
- 2. Construction of the beach manholes
- 3. Cable laying between the islands
- 4. Connecting the cable landing sites on to beach manholes on respective islands
- 5. Transfer of land cable from beach manhole to the telecommunication sites on the respective islands

The total length of the submarine cable is 5550 m, this cable is divided into four segments as follows;

- 1. C1: between Island 3 and 4 (length: 450 m)
- 2. C2: between Island 1 and 3 (length: 1700 m)
- 3. C3: between Island 1 and 2 (length: 500 m)
- 4. C4: between Island 2 and 4 (length: 2900 m)

The cable routes are shown in Figure 2.2 to 2.5.

2.2 Overview of submarine cable

The system will use 12 core light weight protected (LWP) Submarine Optical Fiber Cable (SOFC) Q10 Unrepeater system (Figure 2.1). This type of cable is protected with abrasion resistant covering. Details of cable structure and characteristics are provided in Table 2.1 and Table 2.2.



Figure 2.1: Cross-section of the proposd submarine cable

Description of cable structures	Measurements
Stainless steel tube (with fibers) Nom. O.D	3.8 mm
Inner sheath (HDPE) Nom. O.D	10.5 mm
Steel wire armour	20no. / 1.9 mm
Outer sheath (HDPE) Nom. O.D	20.5 mm

Table 2.1: Details of cable structure

Table 2.2: Details of cable characteristics

Description of cable characteristics	Measurements
Weight in air	0.7 kg/m
Weight in sea water	0.4 kg/m
Ultimate tensile strength (UTS)	60 kN
Nominal temporary tensile strength (NTTS)	50 kN
Nominal operating tensile strength (NOTS)	30 kN
Nominal permanent tensile strength (NPTS)	20 kN
Crush resistance (IEC-794-1-E3)	15 kN
Impact resistance (IEC-794-1-E4)	150 Nm
Working temperature	-20 ~ +50 °C





Figure 2.2: Cable segment 1 (C1) between Island 3 and Island 4



Figure 2.3: Cable segment 2 (C2) between Island 1 and Island 3



Figure 2.4: Cable segment 3 (C3) between Island 1 and Island 2





Figure 2.5: Cable segment 4 (C4) between Island 2 and Island 4

2.3 Detailed Description of Project Activities

2.3.1 Mobilisation and site setup

During this activity the workforce, tools, construction material and submarine cable will be mobilised to the site. The main tools that will be mobilised to site are water trenching tool (operates using water jets), buoys for floating the submarine cable, and general construction tools

As part of the site setup safety measures will be installed (e.g. safety signs, fencing or tape marking the work sites on the cable landing points, and buoys on the sea).

No vegetation clearance is required as part of the site as these islands are newly reclaimed and have not developed natural coastal vegetation.

2.3.2 Construction of beach manholes and cable protection at landing points

Beach manholes (BMH) will be built adjacent to the culverts inbuilt to the rock revetments. The proposed beach manholes are 1 in length, 1 m in width and 1 m in depth. The pit will be excavated manually and properly shored to prevent earth from falling back. As these are newly reclaimed islands and shallow depth of excavation, there is no requirement for dewatering. If dewatering is required, water will be pumped into the lagoon adjacent to the respective BMHs.

A screed concreted slab will be laid on the bottom of the levelled pit and the beach manhole will be constructed out of concrete walls with a steel cover and fixed HDPE pipe holes on the sides to connect to the culvert on one side to receive incoming cable or the outgoing cable and exit or entry for the cable going or coming from the cable landing station on the respective island. Once the BMH is constructed the beach will be restored to its original level.



Figure 2.6: Cross sectional view of the cable entry point to land and the beach manhole

2.3.3 Cable Lay Method

At each cable segment a team of scuba divers will float the cable along the planned cable route with the help of buoys, once the cable is in position it will be laid on the seabed.

Cable will then be transferred through the culverts to the beach manholes. Articulated pipes will be installed at the end of the culvert that meets the sea to protect the cable from abrasion and other impacts. This pipe will be clamped securely to the rock revetment to prevent movement of the cable (Figure 2.6).

To minimise potential damage to the section of the submarine cable along the seabed, it will be buried about 0.4 below the seabed (Figure 2.7). Scuba divers will use a water jetting machine (Figure 2.8) to create a trench (width 12 inches, depth 0.4 m) and place the cable along this trench. Once completed the trench will be allowed to backfill naturally.



Figure 2.7: Cross section of the cable burial



Figure 2.8: Underwater trenching tool

2.4 Project Schedule

Mobilisation for the project will commence when the environmental permits are issued by the EPA. Cable installation is estimated to take about 40 days.

EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

2.5 Labour requirements and Services

2.5.1 Workforce

It is estimated that about 20 workers will be involved in this project.

2.5.2 Accommodation

The workers will be mainly be accommodated on site in existing accommodation facilities in Rahfalhu Huraa and/or on contractors vessel.

2.5.3 Services

The contractor will be responsible for providing meals and services for the workers and it will be provided on the site. The details of this component is unclear at this stage.

2.6 Utilities

Electricity

Electricity to the site will be sourced from existing generator sets on the islands.

Water

Water will be supplied from the desalination plants on the islands. Potable water is will be supplied to the workforce via existing water dispensers on the islands.

2.7 Waste Management, Logistics and Safety Measures

2.7.1 Wastewater Disposal

Wastewater from these accommodations of workforce in Rahfalhu Huraa is connected to the temporary septic tanks.

2.7.2 Construction Waste Management and Disposal

Construction waste would be general domestic waste arising from material consumption by construction workforce. These will be managed according to Waste Management Plan and it would be the Contractor's responsibility to dispose of all construction-related waste during demobilisation along with any other waste. The Contractor will be required to clear all areas of work.

The designated regional waste site for this project is Thilafushi Waste Management Centre.

2.7.3 Pollution Control Measures

The following measures will be taken to ensure minimal pollution during construction stage.

- Machinery will be properly tuned and maintained to reduce emissions and minimize risk of spills/leaks.
- All paints, lubricants, and other chemicals used on site will be stored in secure and bunded location to minimize risk of spill

2.7.4 Health and Safety Measures

The following health and safety measures will be implemented during the construction stage.

- Contractor would ensure that Health and Safety procedures are complied.
- Construction activities would be carried out under the supervision of a suitably experienced person.
- All reasonable precautions will be taken for the safety of employees, and equipment will be operated by competent persons.
- Health checks will be administered before work commences
- Warning signs, barricades or warning devices will be provided and used.
- Necessary safety gear will be worn at all times at the required areas.
- Fire extinguishing equipment would be readily available and employees will be trained in its use.
- First aid kits will be made available on site
- The construction site will be closed to unauthorised personnel

2.7.5 Fire Prevention

Fire extinguishing equipment would be readily available and employees will be trained in its use. In general, water-based fire extinguishers would be used.

LPG bottles will be stored properly. All welding and cutting will be done in accordance to high safety regulations by experienced personnel.



2.8 Summary of Project Inputs and Outputs

The types of materials that will go into the development and from where and how this will be obtained are given in Table 2.3 and the type of outputs (products and waste streams) and what is expected to happen to the outputs are given in Table 2.4.

Table 2.3: Major Project Inputs

Input resource(s)	Source/Type	How to obtain resources
Construction workers	Local and foreign workers	Contractor's staff.
Construction material	Concrete, cement, sand and rebar iron	Import – Main Contractor's responsibility.
Water supply (during construction)	Desalinated Water	Sourced from existing desalination plant at the property
Electricity/Energy (during construction)	Diesel Generator Set	Sourced from existing generator set at the property
Transport (air and sea)	Sea transport	-
Food and Beverage	Mainly imported sources except a few locally available products.	Import and purchase locally
Firefighting equipment	Carbon Dioxide and Foam Fire Extinguishers, etc.	Local suppliers
Fuel	Diesel, Petrol, Lubricants, Marine Gas Oil	Local suppliers

Table 2.4: Major Project Outputs

Output Source/Type	Quantity	How it will be dealt with
General waste, sewage, hazardous waste	20 - 30L rubbish bags	Collected and disposed of according to Waste Management Regulation.
Construction waste (general)	Small quantities	Collected and sent to designated landfill (Thilafushi)



3 POLICY AND LEGAL FRAMEWORK

The following are the pertinent laws and regulations, relevant environmental social policies and standards that are applicable for the Installation of Submarine Communication Cable in Rahfalhu Huraa.

The project proponents, contractor and all sub-subcontractors will be informed of these requirements.

3.1 Environment and Biodiversity

3.1.1 Constitution of the Republic of Maldives (2008)

The 22nd article of the Constitution states that The State has a fundamental duty to protect and preserve the natural environment, biodiversity, resources and beauty of the country for the benefit of present and future generations. The State shall undertake and promote desirable economic and social goals through ecologically balanced sustainable development and shall take measures necessary to foster conservation, prevent pollution, the extinction of any species and ecological degradation from any such goals.

The project proponents, contractor and sub-contractors should adhere to these fundamentals when executing the proposed project.

3.1.2 Environment Protection and Preservation Act (Act no. 4/93)

The Environmental Protection and Preservation Act (4/93) enacted on 19th March 1993 is the framework law related to environment protection in the Maldives. It aims at improving the legal and administrative co-ordination of the initiatives in the field of environment with the objective of integrating environmental considerations into the country's overall economic and social development. The authority responsible for the Environment Act is the Ministry of Environment.

Articles 2, 4, 5, 6, 7, and 8 of the law are relevant to this Project.

Article 2 states that the concerned government authorities shall provide the necessary guidelines and advise on environmental protection in accordance with the prevailing conditions and needs of the country. All concerned parties shall take due considerations of the guidelines provided by the government authorities. EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

The project proponents, contractor and subcontractors shall abide by any guidelines or advice given by the concerned Government authorities for the project.

Article 4 states that 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 protections and preservation.

The project proponents, contractor and subcontractors shall take all practical measures to ensure that there is no irreversible and significant adverse impact on protected areas, environmentally sensitive areas and protected species when executing the proposed project activities.

According to Article 5 (a) of the Act, 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.

According to Article 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.

This report is prepared to fulfil this clause.

According to 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 project proponent, contractor and subcontractors shall be aware of this provision and shall take all practical measures to ensure there is no irreversible and significant negative impact from the project on the environment.

Article 7 of the EPPA (4/93) states that 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.

Project contractor and subcontractors shall comply with the Environmental Management Plan presented in this report, which specifies how the wastes, oil and gases generated by the project will be disposed.

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.

Any hazardous wastes that may be generated from this project shall be transferred to the designated waste site in Thilafushi for disposal according to Government regulations and standards. It should not be disposed in Rahfalhu Huraa, as it does not have the necessary facility to manage hazardous waste.

3.1.3 Environmental Impact Assessment Regulation

The EIA process is regulated by the Environmental Impact Assessment Regulation 2012 (2012/R-27) issued on 8th May 2012 and the subsequent 5 amendments to the regulation listed below.

- First Amendment issued on 9th April 2013 (number: 2013/R-18)
- Second Amendment issued on 30th August 2015 (number: 2015/R-174)
- Third Amendment issued on 11th August 2015 (number: 2016/R-66)
- Fourth Amendment issued on 19th January 2017 (number: 2017/R-7)
- Fifth Amendment issued on 27th December 2018 (number: 2018/R-131)

These amendments included revision of EIA review period and associated costs, qualification required for monitoring the Environmental Management Plan, revision to the list of projects that requires EIAs, projects that can be undertaken by simply applying mitigation measures defined by EPA such as for maintenance dredging of harbours, clearance of vegetation within allocated plots for households and for roads, transferring EIA decision making to Minister of Tourism for tourism related activities and subsequent reversal of decision making to EPA; categorization of EIA consultants, point system for consultants to assess performance and license suspension, a code of conduct for consultants, and increment to the fine for non-compliance of regulation and violations.

The first step in the environmental impact assessment process involves screening of the project/activity to be classified as one that requires and Environmental Impact Assessment (EIA). A total of thirty-two activities/projects are listed in "Jadhuval-Raa" of the EIA regulation which

requires EIA and an Environmental Decision by the Ministry of Environment prior to commencement of works. Installation of pipes in sea is included "Jadhuval Raa".

The next step involves EPA in consultation with the Ministry of Environment and other key stakeholders deciding the scope of the EIA which is discussed with the proponent and EIA consultant in a "scoping meeting". The EPA issues its scoping conditions for EIA as determined by the EIA consultant and approved by EPA in a Terms of Reference (ToR) for EIA.

The consultants then undertake the environmental and social assessment starting with baseline studies, impact prediction and finally reporting the findings with impact mitigation and monitoring programme. The project proponent must submit three hard copy paper environmental impact assessment reports along with an electronic copy, in accordance with the ToR conditions. If the contents of the EIA report do not satisfy the ToR conditions, EPA may ask the proponent to provide corrected or additional information. In this case, the proponent is granted a maximum of 30 days during which to correct and/or supplement, then submit the revised report.

Having received the EIA report, EPA appoints experts to review the received EIA. Once the EIA report is reviewed by EPA, an EIA Decision Note is given to the proponent who should implement the Decision Note accordingly. As a condition of approval, appropriate environmental monitoring may be required, and the proponent shall have to report monitoring data at required intervals to the EPA.

This EMP complies with the EIA regulations.

3.1.4 The Environmental Liability Regulation

This regulation 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-payprinciples in the Maldives.

The project proponents, contractor and subcontractors shall be aware of this provision and shall take all practical measures to ensure that all relevant laws and regulations, and this EMP.

3.1.5 Biodiversity Conservation

According to the Convention on Biodiversity, the components of biodiversity include ecosystems and habitats, species and communities, and genes and genomes, all of which have social, economic, cultural and scientific importance. Maldives is a party to the following international conventions:

- Convention on Biological Diversity (1992) (CBD)
- Cartagena Protocol on Biosafety (2002)
- Convention on International Trade in Endangered Species (2013)
- International Plant Protection Convention (IPPC)

The national laws, regulations, and policies relevant to conservation of biological diversity are summarized below.

3.1.6 National Biodiversity Strategy and Action Plan 2016 – 2025 (NBSAP)

The Government has formulated a second National Biodiversity Strategy Action Plan (NBSAP) to address biodiversity issues and developed an implementation plan with achievable targets. The vision for biodiversity conservation is: "a nation of people that co-exist with nature and has taken the right steps to fully appreciate, conserve, sustainably use, and equitably access and share benefits of biodiversity and ecosystem services."



3.1.7 National Environmental Action Plan III (NEAP III)

NEAP III sets out the agenda for environmental protection and management in the Maldives for the five-year period 2009 –2013.

The six strategic results of NEAP III were: resilient islands, rich ecosystems, healthy communities, safe water, environmental stewardship and a carbon neutral nation.

NEAP has not been renewed since 2013.

3.1.8 Protected Areas

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. There are 61 declared protected areas in the Maldives.

The regulation on Protected Areas was published on 5th August 2018 (Regulation number: 2018/R-78). The main objective of this regulation is to set requirements for declaration and management of protected area.

3.1.9 Environmentally Sensitive Areas (ESA) List

Environmentally Sensitive Areas (ESA) 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. There are 274 ESAs.

There are no declared Environmentally Sensitive Areas within a 2 km radius of the proposed cable installation site.

3.1.10 Protected Species

A total of 103 bird species have been declared protected under the Environmental Protection and Preservation Act (EPPA 4/93). Furthermore, all migratory birds are protected under the regulation number 2014/R-169 (Regulation on Capture of Migratory birds in Maldives).

The following table provides a list of marine species protected in the Maldives.

Table 4.1: List of protected	species in the Maldives
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Species	Relevant Legislation	Date
Black Coral	FA-A1/29/95/01	1 January 1995
Napoleon Wrasse	FA-A1/29/95/39	24 June 1995
Turtles	FA-A1/29/95/39	24 June 1995
Whale Shark	FA-A1/29/95/39	24 June 1995
Conch (triton) Shell	FA-A1/29/93/14	15 May 1993
Whales	FA-A1/29/93/14	15 May 1993
Giant Clams	FA-A1/29/93/14	15 May 1993
Dolphins	FA-A1/29/93/14	15 May 1993
Lobster	FA-A1/29/93/14	15 May 1993
Rays and Skates	(IUL)438-ECAS/438/2014/81	9 June 2014
Green Turtle	(IUL)438-ECAS/438/2016/72	4 April 2016
Hawksbill Turtle	(IUL)438-ECAS/438/2016/72	4 April 2016
Olive Ridley Turtle	(IUL)438-ECAS/438/2016/72	4 April 2016
Loggerhead Turtle	(IUL)438-ECAS/438/2016/72	4 April 2016
Leatherback Turtle	(IUL)438-ECAS/438/2016/72	4 April 2016
All Sharks species	30-D2/29/2010	11 March 2010
All Parrotfish species	2020/R-75	30 August 2020

3.1.11 Regulation on Migratory Birds (Regulation No. 2014/R-169)

This regulation is drafted under the Act number 4/93 (Maldives Environment Protection and Preservation Act) and issued on 21st August 2014. Birds which migrate to the Maldives during different monsoon periods are considered as an integral part of the Environment of Maldives and the main purpose of this regulation is to protect migratory bird species by deterring any activities that may harm their population levels.
Under this regulation, all birds found in the Maldives with the exception of the following are considered as Migratory birds;

- Dhivehi Kambili
- Huvadhoo Raa'Bondhi
- Dhivehi Raa'Bondhi
- Medhu-Raajetherey Raa'Bondhi
- Dhivehi Koveli
- Kaalhu

And, for such migratory birds, it is illegal to carry out any activity that involves;

- Rearing in captivity,
- Trade of birds or their eggs,
- Poaching birds or their eggs,
- Eating bird meat or their eggs, and
- Harming birds or their nests.

This regulation is to be enforced by the Environmental Protection Agency (EPA) of the Maldives, and if any such activity is to be carried out for any research purposes in any of the islands in Maldives, it shall be done by gaining a written approval from the enforcing agency or an agency assigned by the enforcing body.

A fine not exceeding Rf 50,000/- may be charged for violation with an incremental Rf 1,000/- for repeat offenses.

All project proponent and contractor(s) shall be aware of this provision and contractor(s) shall take all practical measures to adhere to this regulation.

3.1.12 Regulation on Cutting Down, Uprooting, Digging Out and Export of Trees and Palms from One Island to Another

Pursuant to the Environment Protection and Preservation Act of Maldives 1993, the Environment Ministry made a by-law with the purpose of educating developers about the importance of trees including best management practices for maintaining trees and provide standards for preservation of trees in the Maldives and set down rules and regulations to be adhered to prior to commencing felling, uprooting, digging out and exporting of trees and palms from one island to another in Maldives.

The by law states that the cutting down, uprooting, digging out and export of trees and palms from one island to another can only be done if it is absolutely necessary and there is no other alternative. It further states that for every tree or palm removed in the Maldives two more should be planted and grown in the island.

- The by law prohibits the removal of the following tree types;
- The coastal vegetation growing around the islands extending to about 15 meters into the island
- All the trees and palms growing in mangrove and wetlands spreading to 15 meters of land area;
- All the trees that are in a Government protected areas;
- Trees that are being protected by the Government in order to protect species of animal/organisms that live in such trees; and
- Trees/palms that is abnormal in structure.

The project does not require removal/clearance of any vegetation.

3.2 Physical Cultural Resources

Cultural heritage encompasses properties and sites of archaeological, historical, cultural, artistic, and religious significance. It also refers to unique environmental features and cultural knowledge, as well as intangible forms of culture embodying traditional lifestyles that should be preserved for current and future generations.

3.2.1 Maldives Heritage Act (12/2019)

The Heritage Act (ratified on 12th September 2019) ensures the documentation, preservation and protection of cultural heritage. The aims of this act have been defined as the preservation of Maldives cultural heritage and passing it to future generations. The Act defines the roles of various state and non-state actor's role in preservation of Maldives cultural heritage and establishes the regulations on the Heritage Trust Fund. This Act makes it an offence to damage or purposefully alter any objects, buildings or sites that can be classified as heritage as stipulated in the Act.

Cultural and Historical Places and Objects

The Act defines cultural heritage as the sum of moveable cultural artifacts, cultural buildings, cultural sites and intangible culture.

A movable cultural artefact is defined in the act as an object excavated within Maldives, or an object belonging to the past inhabitants of Maldives or a militarily, culturally or socially remarkable or artefacts attributable to significant persons of the country, objects of artistic value, writings, furniture and musical instruments and digitally stored files.

Cultural building is defined as buildings related to culture, history and traditions of Maldives as well as buildings holdings a special status, or buildings that have intellectual or artistic significant.

A cultural site is defined in the acts as areas of historical and traditional significance or areas that have attained significance due to human activity or natural phenomenon.

Intangible heritage is defined as history and traditions passed down generations via oral tradition, skills, and knowledge that have historical significance.

The official list of artifacts, objects and buildings that come under the purview of Heritage Act has not been gazette yet.

The proposed project site was reclaimed fairly recently and does not have historically or culturally significant site.

3.3 Telecommunication

3.3.1 Maldives Telecommunication Act (No. 43/2015)

The Maldives Telecommunication Act (43/2015) enacted on 10th December 2015 is the framework law related to telecommunication service providers, and licensing. The authority responsible for the Maldives Telecommunication Act is the Communication Authority of Maldives.

3.4 Labour and Working Conditions

The Maldives is party to major conventions on fundamental labour rights. Maldives is a member state of the International Labour Organisation (ILO) and the Government of the Maldives has ratified 8 core conventions on the ILO's fundamental labour rights. On 4th January 2013, the Government of the Maldives ratified the 8 core conventions on the ILO's fundamental labour

rights: the Forced Labour Convention, 1930 (No. 29), the Abolition of Forced Labour Convention, 1957 (No. 105), the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87), the Right to Organise and Collective Bargaining Convention, 1949 (No. 98), the Equal Remuneration Convention, 1951 (No. 100), the Discrimination (Employment and Occupation) Convention, 1958 (No. 111), the Minimum Age Convention, 1973 (No. 138), and the Worst Forms of Child Labour Convention, 1999 (No. 182).

The national laws and policy instruments relevant to labour and working Conditions include:

- Employment Act
- Immigration Act
- Anti-Human Trafficking Act
- Pensions Act
- Human Rights Act
- Regulation on Employment of foreign workers in the Maldives
- Work Visa Regulation

3.4.1 Employment Act

The legal framework to govern the rights and responsibilities of workers in the Maldives is included in the Employment Act (2/2008) that was ratified and signed into law in May 2008. To date, four amendments have been brought to the Employment Act (2/2008). The amendments were made through the following Acts: 14/2008; 12/2010; 3/2014; 14/2015. Of these amendments, the third and fourth Amendments are directly relevant to foreign migrant workers in the Maldives.

The Amendment 3/2014 passed by Parliament on 03 December 2013 requires an Employment approval for foreign migrant worker to be issued prior to arrival in the Maldives. The Amendment also made a deposit mandatory for all foreign migrant workers to be paid by the Employer. A deposit (to the sum of return airfare) to be made to Department of Immigration and Emigration (DoIE) at the time of work visa.

The Amendment 14/2015 on Ramazan allowance for Muslim workers makes it optional for Employers of Muslim foreign migrant workers to pay them a Ramazan allowance.

The Amendment 22/2016 concerns wages for foreign migrant workers. The Amendment specifies that the wages and other sums to which the worker is entitled shall be paid through a bank registered in the Maldives to an account in the name of the foreign migrant worker (art. 53 a).

3.4.2 Immigration Act (1/2007)

The Maldives Immigration Act (1/2007) lays down the rules for entry, departure and deportation of foreign nationals. Article 15 of the Act provides for work visa: the permit to remain in the Maldives for the duration of a work permit granted to a foreign national visiting the Maldives for the purpose of working, where a work permit has been obtained by that foreign national consistent with the regulations of the concerned Government authority.

Some of the workforce involved in this project are foreigners. Hence special emphasis will need to be given to ensure that all foreign workers have the relevant work visas and proper documentation while working in the Maldives.

3.4.3 Anti-Human Trafficking Act (12/2013)

The Anti-Human Trafficking Act passed by the parliament on 03 December 2013 and ratified on 08 December 2013 makes trafficking in persons a criminal offence in the Maldives. The purposes of the Act are to: prevent trafficking of persons through and across the Maldives; establish the crimes of trafficking in persons and prescribe punishments; provide for prosecution of perpetrators of trafficking in persons; provide protection and assistance to victims of human trafficking; promote and protect the human rights of trafficked victims; and engage with local and international NGOs working against human trafficking.

The Act defines the crimes of trafficking, exploitation, and debt bondage. According to this Act, forced labour and fraudulent recruitment are considered human trafficking. The Act specifies the penalties for perpetrators of trafficking. The penalty for trafficking offence is a jail imprisonment up to 10 years that can be extended to 15 years if children are involved.

As stated earlier, some of the workforce for this project are foreigners. Hence, it is important to ensure that contractor(s) abide by stringent measures to ensure there is no exploitation of foreign migrant workers. Special attention shall be given to ensure wages are paid in full and on time; the travel documents of workers are not held by proponents or contractor(s) against the will of the workers, foreign migrant workers are not required to pay recruitment fees, there is no forced labour and all workers are treated with dignity and respect.



3.4.4 Pensions Act

Article 12 of the Maldives Pensions Act (8/2009) introduced the Maldives Retirement Pension Scheme. It is mandatory for the private and public sectors as well as the self-employed to participate in the contributory Maldives Retirement Pension Scheme. The annual contribution each employee and employer have to make to the employees retirement savings account is set at seven per cent of pensionable wage for a total of 14 per cent.

3.4.5 Human Rights Act

In 2005, the Human Rights Commission Act was passed. The Act (6/2006) was subsequently amended in 2006 to ensure compliance with the Paris Principles on the status and functioning of national institutions for protection and promotion of human rights. The amended Human Rights Commission Act provides the Human Rights Commission of the Maldives (HRCM) independence and autonomy as a statutory body.

3.4.6 Regulation on Employment of Foreign Workers in the Maldives

Employment of foreign migrant workers is regulated by the Regulation on Employment of foreign workers in the Maldives (2011/R-22) that was published on official gazette on 26 May 2011. This regulation is issued under Article 63 of Employment Act (2/2008) and Articles 32, 33 and 35 of the Maldives Immigration Act (1/2007).

The Regulation on Employment of foreign workers in the Maldives (2011/R-22) requires Employers to apply for a foreign worker quota; pay a security deposit for the foreign migrant worker; ensure that work permits are issued before a foreign migrant worker can commence work; apply for a work permit card within 15 days of arrival of the foreign migrant worker to the Maldives; apply for a work visa within 30 days of arrival of the foreign migrant worker to the Maldives; pay a work visa fee of Maldivian Rufiyaa (MVR) 250 per month; receive the foreign migrant worker at the registry maintained by the applicable island council or city council.

Employers must apply for a Work Permit Card for the foreign migrant workers within 15 days of their arrival to the Maldives. Application for Work Permit Card should be attached with a medical certificate, original of the passport, a photograph and employment contract. Foreign workers in the Maldives shall carry their Work Permit Cards at all times.

Employers must apply for Work Visa for Foreign Workers who have a Work Permit to work in the Maldives. Employers should pay a fee of MVR 250 per month for every foreign worker employed to the relevant government authority.

Employers or Recruitment Agencies acting on behalf of the employers must receive all unskilled foreign workers entering the Maldives with a Work Permit at their arrival port.

3.4.7 Work Visa Regulation

The Maldives Immigration (MI) has issued a Work Visa Regulation (2010/R-7) under the Maldives Immigration Act (1/2007). The Work Visa Regulation (2010/R-7) gazetted on 12 October 2010 requires foreign migrant workers who enter the Maldives for the purpose of work to have a valid work visa. The conditions for entry of work visa holders as specified in the regulation includes the following: a passport with minimum six months validity; security deposit paid to MI 48 hours before arrival; truthful answers to questions posed by Immigration Officers; not prohibited from entry to the Maldives under article 4 of the regulation; specification of the purpose of entry; an Employment approval from the concerned authority with a copy transmitted to MI; and being over 18 years of age.

Documents and payments necessary for a work visa include: completed visa application form (IM25); passport standard photograph; original of the Employment contract or contract copy attested by a court or law firm; original of the Employment approval; passport with 6 months validity; MVR 250 for monthly visa fee; original of the medical report; MVR 50 for annual visa card fee; Employer's National Identity Card or Registration Certificate of Company; and medical insurance documentation.

The regulation discusses the procedures to be followed for obtaining a work visa, keeping a deposit with MI for foreign migrant workers, penalties related to work visa.

First Amendment refers to Maldives Inland Revenue Authority (MIRA) as the Government authority for collection of all penalties.

3.4.8 Expatriate Accommodation Guideline

The Expatriate accommodation Guideline was published by the Ministry of Economic Development on 14th April 2020. This requirement of this guideline is applicable after 6 months

– after 13th October 2020. There will be a fine on the proponent/contractor if labour accommodation does not meet the standards after the aforementioned date.

This guideline requires the recruiter to:

Apply to register in 'Accommodation Aspect System' with the following documents

- 1. Property Registry and Letter from property-owner (if facilities are owned by the employer)
- 2. Rental accommodation Agreement (if rented property)
- 3. Copy of Floor Plan
- 4. Information on number of rooms, beds and facilities
- A. The accommodation facility must be
 - 1. sheltered from weather conditions
 - 2. built using appropriate construction material
 - 3. surrounded by a clean hygienic area
 - 4. more than 1.5 metre from work-sites.
 - 5. Display information on the gate/door in English and Dhivehi (employer information and contact, permit reference number, supervisor name and contact, information on living capacity and number of people living in the facility).
 - 6. Walkway, stairs and common areas should be constructed according to the construction act (4/2017)
 - 7. Sleeping quarters should get adequate sunlight and ventilation
 - 8. The minimum measurements for a quarter where 1 individual is living must be an area of 3.78 sqm, 2.8 metres in floor height, and a minimum 1.5 metre in any given position.
 - If more than 2 people sleep in a bunk bed facility, the floor area must be me at least 5.13 sqm and have a floor height of at least 3 metre in any given point.
 - 10. If a maximum of 2 people are sleeping in a facility with 2 single beds, the floor areas must be at least 6.84 sqm, the floor height must be at least 2.8 metre in any given point, and the width must be 1.8 metre in any given point.
 - 11. If a maximum of 4 people are sleeping in a facility with 2 bunk beds, the floor area must be at least 8.55 sqm, the floor height must be at least 2.8 metre in any given point, and the width must be 1.9 metre in any given point.
 - 12. For two single beds (and for each additional person after two persons), the floor area must be at least 3.24 sqm, the floor height must be at least 2.8 metre at any point, and the width must be 1.8 metre at any point.

- 13. For construction works, any living quarters must have a floor height of 2.8 metres. In the sleeping quarters, furniture including bed and cupboard should be included. If bunk beds are used, there should be a space of 1 metre distance between two beds, and a distance of 900 millimetre between the lower bunk and the upper bunk. If bunks are added, the floor height must increase accordingly.
- 14. Living quarters must be separated for male and female unless a married couple is residing in a quarter.
- 15. If toilet and laundry are separate from the living facility, it should have separate units for males and females.
- 16. At least 1 toilet should be allocated for 10 people.
- 17. Toilet facilities should be at least 5 metres away from eating facilities and a maximum of 60 metres away from sleeping facilities
- 18. Plumbing in the toilets must meet building code.
- Water quality for domestic uses and drinking must meet World Health Organization (WHO) water quality standards
- 20. A dustbin and waste management mechanism should be established
- 21. Food preparation and cooking facilities must be appropriate spaces.
- 22. Cooking facilities should be away from construction areas
- 23. The accommodation facility must be appropriate for emergency evacuation
- 24. Emergency protocols and plans must be displayed for all the residents.
- 25. A fire exercise drill must be run every 2 years
- 26. It should be organized for resident workers to store valuables
- 27. If employees exceed 1000, the quarters should have a resident doctor, and a health worker/nurse/health professional must conduct a hygiene check on a routine.
- 28. If a resident contract a contagious disease, Ministry of Health must be informed.
- 29. Pest control must be carried out in the accommodation units.

3.5 Occupational Health and Safety

3.5.1 Regulation on the Safety Standards for Construction Work

The Regulation on the Safety Standards for Construction Work is a recent regulation that is important for this project. The regulation specifies that if contractor's work is more than MVR 1,500,000 a health and safety plan should be prepared for safety of the employees and public. Employees shall be trained, and measures listed in the handbook shall be enforced by the contractor.



EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa This project is over the MVR 1.5 million limit, as such a Health and Safety Plan will be required for implementation of this project.

3.6 Resource Efficiency

The following are the laws and regulations that promote use of renewable natural resources in a sustainable manner.

3.6.1 Coral and Sand mining regulation

Coral mining from house reef and atoll rim has been banned through a directive from President's Office dated 26 September 1990.

Regulation on sand mining covers sand mining from uninhabited islands that have been leased; sand mining from the coastal zone of other uninhabited islands; and aggregate mining from uninhabited islands that have been leased and from the coastal zone of other uninhabited islands.

Sand should not be mined from any part of the existing island, beach. Sand should also not be mined from within 100 ft. of the shoreline.

No sand mining is proposed as part of this project.

3.6.2 Dewatering Regulation (Regulation No. 2013/R-1697)

This regulation is drafted under the Act number 4/93 (Maldives Environment Protection and Preservation Act) and issued on 31st December 2013. The main purpose of the regulation is to minimize the impact of dewatering activities on ground water table and also to decrease the impacts on the receiving environment of the disposed water. The regulation encourages prevention of contamination and damage to ground water table, protect the living organisms as well as the environment from the negative impacts due to dewatering activities.

This regulation is to be enforced by EPA of the Maldives.

If dewatering is to be carried out for any development purposes in any of the islands in Maldives, it shall be done by gaining a written approval from the enforcing agency or an agency assigned by the enforcing body. However, dewatering done at individual level i.e., from a borewell or for the purpose of installing a bore well and water drawn for agricultural purposes are considered exceptions from the regulation.

Dewatering can only be carried out after gaining approval by submitting "the dewatering approval form" in the annex 1 to the enforcing body for approval with all the required documents expressed and with an administrative fee of Rf500. Water quality tests results also have to be submitted as one of the required components.

The regulation also guides on where and how the extracted water shall be disposed of, and how it has to be handled. According to the regulation, permission can be granted for dewatering at a stretch for a maximum of 28 days, for which a sum of Rf500 should be paid per day. This amount is liable to be increased with the number of days increased.

A fine not exceeding Rf100 million may be charged for violation.

The project is unlikely to require dewatering. But in case dewatering is required the proponent will get approval from EPA before dewatering works.

3.6.3 Maldives Energy Policy and Strategy

Maldives Energy Policy and Strategy (2016) consists of 5 key policy statements:

- Strengthen the institutional and regulatory framework for the energy sector
- Promote energy conservation and efficiency
- Increase the share of renewable energy in the national energy mix
- Improve the reliability and sustainability of electricity service and maintain universal access to electricity
- Increase national energy security

3.7 Waste Management

Maldives is a party to the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (1989).

The main instruments relevant to waste management in the Maldives are:

- Environment Protection and Preservation Act
- Waste Management Policy
- Waste Management Regulation.

3.7.1 Waste Management Policy

The aim of the waste management policy is to formulate and implement guidelines and means for solid waste management in order to maintain a healthy environment. The key elements of the policy include:

- Ensure safe disposal of solid waste and encourage recycling and reduction of waste generated;
- Develop guidelines on waste management and disposal and advocate to enforce such guidelines through inter-sectoral collaboration;
- Ensure safe disposal of chemical, hazardous and industrial waste.

3.7.2 Waste Management Regulation

Waste Management Regulation (WMR) was published on August 2013 and is effective from February 2014. It has been implemented by Environmental Protection Agency (EPA). The aim of WMR is to implement the national waste policy which contains specific provisions to: (a) Implement measures to minimize impacts on human health, (b) Formulate and implement waste management standards, (c) Implement an integrated framework for sustainable waste management, (d) Encourage waste minimization, reuse and recycling (e) Implement Polluter-Pays Principle (f) Introduce extended Producer Responsibility.

WMR contains four main sections: (i) Waste management standards: Defines standards for waste collection, transfer, treatment, storage, waste site management, landfills and managing hazardous waste. (ii) Waste management Permits: Defines approval procedures for waste sites, (iii) Waste transfer: Standards and permits required for waste transport on land and sea, including transboundary movements, (iv) Reporting requirements: Defines reporting and monitoring requirements and procedures, (v) Enforcement: Defines procedures to implement WMR and penalties for non-compliance.

If any hazardous waste including electronic waste is to be disposed in the Maldives, it should be handled by waste sites specifically approved to manage hazardous and Special Category waste. Transportation and handling shall also conform to the standards specified in WMR. If the waste is to be exported for reuse or disposal in another country, an application needs to be submitted to WMR clauses and international conventions. Thus, this project will need to comply with the WMR in disposing construction and demobilization related wastes as applicable.

3.8 Pollution Control

Maldives is a party to the following international conventions and agreements.

- Vienna Convention for the Protection of the Ozone Layer (1985)
- Montreal Protocol on Substances that Deplete the Ozone Layer (1987)
- United Nations Convention to Combat Desertification (2002)
- Washington Declaration on Protection of the Marine Environment from Land-Based Activities
- United Nations Convention on the Law of the Sea (UNCLOS) 1982
- International Convention for the Prevention of the Pollution of the Sea by Oil (1982)
- Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia (1998)
- International Convention for the Prevention of Pollution from Ships (MARPOL)
- International Convention for the Control and Management of Ships Ballast Water and Sediment (BWM)

3.9 Climate Change

Maldives is a party to the:

- Paris Agreement on Climate Change (2016)
- United Nations Framework Convention on Climate Change (1992)
- Kyoto Protocol to United Nations Framework Convention on Climate Change (1997)

The legislative and policy instruments that are relevant for climate change in the Maldives include:

- Maldives Climate Change Policy Framework
- Maldives Intended Nationally Determined Contribution
- Second National Communication of Maldives to UNFCCC

3.9.1 Maldives Intended Nationally Determined Contribution

Maldives aims to achieve low emission development future and ensure energy security. In the Maldives Intended Nationally Determined Contribution (INDC), the government has committed for the following Unconditional Reduction:

In accordance with Decisions 1/CP.19 and 1/CP.20, Maldives communicates that it intends to reduce unconditionally 10% of its Greenhouse Gases (below BAU) for the year 2030.

The Government has also communicated the following Conditional Reduction: "The 10% reduction expressed above could be increased up to 24% in a conditional manner, in the context of sustainable development, supported and enabled by availability of financial resources, technology transfer and capacity building."

3.10 Community Health and Safety

The legislative and policy instruments of the Maldives relevant to community health and safety in the context of this project include:

3.10.1 Public Health Protection Act (07/12)

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.

3.11 Stakeholder Engagement and Information Disclosure

The Right to Information Act (1/2004) defines the rights to access and obtain information in any State Institute. The objectives of the Act states that the right to information shall not be granted in circumstances only specified in the Act and where the adverse impact to public interest by non-disclosure is greater than that of disclosure, the principles by which the said information will be disclosed, in order to uphold the public interest must be determined. The Act also specifies the applicable procedures to obtain information.



3.12 Environmental Permits Required for the Project

3.12.1 Environmental Decision Note from EPA

The most important environmental permit to initiate project work would be a decision regarding this EMP. The Environmental Decision Note, as it is referred to, shall govern the manner in which the project activities must be undertaken. This EMP assists decision makers in understanding the existing environment and potential impacts of the project. Therefore, the Decision Note may only be given to the Proponent after a review of this document following which the EPA may request for further information or provide a decision if further information is not required. In some cases, where there are no major environmental impacts associated with the project, the EPA may provide the Decision Note while at the same time requesting for further information.

3.12.2 Dewatering Permit

A dewatering permit may be required for the project during excavation works. A separate application will have to be made to the EPA to get the permit. Permission can be granted for dewatering at a stretch for a maximum of 28 days, for which a sum of Rf500 should be paid per day. This amount is liable to be increased with the number of days increased.

3.13 Responsible Institutions

3.13.1 Communication Authority of Maldives

Communication Authority of Maldives (CAM) is responsible for the implementation of the Maldives Telecommunication Act (43/2015). Hence is responsible for licensing telecommunication providers.

3.13.2 Ministry of Environment

The Ministry of Environment (formed in 2012), formerly the Ministry of Environment and Energy is mandated for the effective implementation of the Environmental Protection Act of the country and has the statutory power over issues related to the environment. It has the central control over the environment protection, management, conservation and environmental emergencies. The Ministry operates mainly at a policy level and the more regulatory and technical assessment activities are mandated to the Environmental Protection Agency (EPA). In this respect EPA has

now been mandated to manage all issues relating to Environmental Impact Assessment of individual projects.

3.13.3 Kaafu Atoll Council

Under the Decentralization Act, Kaafu Atoll has elected Kaafu Atoll Council representatives from the islands of Kaafu Atoll.

Kaafu Atoll Council is the main focal point of Government Ministries on all issues relating to Kaafu Atoll.

A copy of this EMP will have to be submitted to Kaafu Atoll Council (Appendix D).

3.14 Guiding Policies and Documents

3.14.1 Strategic Action Plan

The Strategic Action Plan (SAP) is the central policy framework and planning document of the Government of Maldives which guides the overall development of the Maldives for the next five years (2019 - 2023). The SAP was rolled out to the line ministries from 1st October 2019. SAP presents five sectors, blue economy; caring state, dignified families, Jazeera Dhiriulhun and good governance.

The SAP policies and plans for the two sectors; Blue Economy and Jazeera Dhirulhun should be followed in the implementation of this project.

Strategy 4.5 of the SAP is to ensure affordable and quality internet services nationwide.

This project supports this strategy.

3.15 Legal and Policy Compliance

The following is a summary of the implications of national laws, regulations and policies that are deemed applicable to the project.

Law/Regulatio	on/Policy		Implication
Environment	Protection	and	This EMP is submitted to fulfil the requirement of Article 5 of the
Preservation Act			EPPA on EIA.

Law/Regulation/Policy	Implication
Environment Impact Assessment Regulation	This EIA is submitted to EPA in compliance with the Screening Decision issued by EPA.
Dewatering Regulation	A dewatering permit may be required for the project during excavation works. A separate application will have to be made to the EPA to get the permit. Permission can be granted for dewatering at a stretch for a maximum of 28 days, for which a sum of Rf500 should be paid per day. This amount is liable to be increased with the number of days increased.
Decentralization Act	Kaafu Atoll Council is the local authority responsible for Islands in Kaafu Atoll
	Hence a copy of this EMP will need to be submitted to Kaafu Atoll Council (Appendix D)
Environmental Liability Regulation	The proponent will ensure that environmental and social monitoring is undertaken during construction stages of the project.
Protected Areas	There are no protected areas within the vicinity of the proposed project area
ESAs	There are no declared environmentally sensitive areas in the vicinity of proposed project area.
Protected Species	Protected species are mobile it is likely that these may appear at the site during the project works, hence special attention must be given to avoid any damage to these species.
Heritage Act	There are no sites, monuments or objects of heritage significance in the proposed project area.
Employment Act	The employment conditions and work hours for employees will be in accordance with the provisions of the Employment Act
Immigration Act	All foreign migrant workers employed by the project will have the required passports and visas
Anti-Human Trafficking Act	Periodic monitoring will be undertaken to ensure there is no human trafficking associated with the project

Law/Regulation/Policy	Implication				
Pensions Act	All Maldivian workers who are employed for the project on a full- time basis must be enrolled into the Pension scheme, and any expatriate worker that wants to enrol in the scheme may do so with the approval of the employer.				
Regulation on Employment of foreign workers in the Maldives Work Visa Regulation	Quota, work permit, deposit, work permit card, medical insurance, and work visa will be organized for all migrant workers according to the provisions of these regulations.				
Waste Management Regulation	Waste will be disposed from the construction stage in the designated landfill in Thilafushi				
Right to Information Act	The project information and the EMP is subject to public information and disclosure				
Expatriate Accommodation Guideline	Any labour accommodation facilities shall meet the requirements of the guidelines after 13 th October 2020. The proponent shall apply for to register for the accommodation aspect system.				

4 EXISTING ENVIRONMENT

4.1 Physical Environment

Cable Segment 1

The landing point at Island 3 and 4 are protected using a rock revetment. The cable route along reef flat is exclusively made up of a sand and coral rubble. The conditions (water depth, sandy bottom) does not





Cable Segment 2

The cable initiates from the overwater villa under construction at Island 3. The reef flat is predominantly made up of sand, closer to the Island 1 cable route along the seabed is made up of rocks interspersed with sand. The cable landing point at Island 1 is made up of a rock revetment.





Figure 4.2: Aerial image of cable Segment 2

Segment 3

The project starts from rock revetment at Island 1 and terminates at the rock revetment on Island 2. The reef flat between these two islands is exclusively made up of sand.



Figure 4.3: Aerial image of cable Segment 3



Segment 4

The landing points at both Island 2 and 3 are made up of rock revetment. The reef flat between both islands are made up of sand and coral rubble bottom.



Figure 4.4: Aerial image of cable Segment 4



5 IDENTIFICATION OF LIKELY IMPACTS AND MITIGATION MEASURES

5.1 Introduction

Potential adverse and beneficial impacts of the proposed submarine cable installation works at Rahfalhu Huraa are identified and evaluated in this section. This assessment is based on findings from other similar projects in Maldives. No attempt has been made to undertake a detailed impact assessment as this project has been deemed not to have significant impact on the environment.

The impacts are identified and evaluated in two stages. The first stage identified the environmental components that may be impacted from key project activities. The second stage determine the key impacts and measures to mitigate these impacts. The following sections provide details of the evaluation of impacts.

5.2 Nature of potential impacts on key components

Nature of potential impacts is defined here as no impact, adverse impact or beneficial impact. Table 5.1 and 5.2 below provides the nature of potential impacts from the proposed project on environmental and socio-economic components by the project. Where impacts are not applicable to different components, this is indicated as 'na'. Some components may be affected both adversely and beneficially from the project.

5.3 Identification of significant impacts

Environmental and socio-economic components that may be affected by the project as identified in Table 5.1 are further evaluated to identify key impacts. This preliminary assessment is based on four criteria: magnitude, reversibility, duration and distribution as described below. Evaluation of key impacts is provided in Table 5.3.

- 1. Magnitude: Refers to the quantum of change that will be experienced as a consequence of the impact
- 2. Reversibility: Refers to the degree of reversibility of an impact (i.e. ease of reversing the conditions)
- 3. Duration: Refers to the temporal scale (i.e. duration, frequency) of the impact. It does not take into account the duration of the impacts effects.
- 4. Distribution: Refers to the spatial scale of area impacted (e.g. a small portion of a reef or an entire lagoon)

	Environmental components													
Project Activity	Ambient noise level	Ambient air quality	GHG emission	Hydrodynamics	Coastal processes	Marine Water	Marine Fauna and Flora	Soil Condition	Groundwater	Terrestrial Fauna	Terrestrial Flora	Landscape integrity/ scenery	Protected Areas and Unique Habitats	Natural hazard risks
Mobilisation and site setup	Х	Х	-	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Construction of beach manholes	-	-	-	Χ	Χ	-	-	-	-	Χ	Χ	Χ	Χ	Х
Cable laying and installation		-	-	Х	X	-	-	Х	X	Х	X	Х	Х	Х
Demobilisation	X	Χ	-	Χ	X	X	X	Χ	X	Χ	X	Χ	Χ	X
Site management (waste, wastewater)	Х	Х	Х	Х	Х	-	-	Х	Х	Х	Х	Х	Х	Х
Maintenance	-	-	-	Х	Х	-	-	Х	Х	Х	Х	Х	Х	Х

X (no impact), - (negative impact), + (positive impact)

Table 5.2: Impact identification matrix – (socio-economic components)

		Socio-economic Components										
Project Activity	Occupational Health and Safety	Public Health and Safety	Demand for Resources/Services	Marine Traffic	Employment	Tourism	Fisheries	Recreational Activities	Resource use conflicts	Social cohesions	Land Use	
Mobilisation and site setup	Х	Х	Х	Х	Х	X	Х	Х	Х	Х	Х	
Construction of beach manholes	-	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	
Cable laying and installation		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	
Demobilisation		X	Х	X	Χ	Х	Х	Χ	X	Х	Χ	
Site management (waste, wastewater)	Χ	X	Χ	Χ	Χ	Χ	Χ	Χ	X	Х	Χ	
Maintenance	-	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	

X (no impact), - (negative impact), + (positive impact)

Table 5.3: Evaluation of key impacts on natural and socio-economic environment

Impact Area	Direct Impacts	Indirect/Cumulative Impacts and Impact Interactions	Magnitude	Reversibility	Duration	Distribution	Significance
Ambient Noise Level	The proposed project activities are not expected to generate significant noise as works does not involve use to mechanized equipment.	-	Negligible.	Reversible.	Short term.	Vicinity of sites.	Insignificant.
Ambient Air Quality	Those exposed to the dust and gas emissions from operation of vehicles used for the project may develop minor respiratory irritations.	-	Negligible.	Reversible.	Short term	Vicinity of construction activity	Insignificant.
GHG emissions	GHG emissions from operation of fossil fuel powered vehicles and vessels for the project will increase GHG in the atmosphere contribute to global warming.	Cumulative increase atmospheric GHG.	Negligible.	Not applicable.	Long term.	Regional.	Insignificant.
Marine water	Elevation of turbidity of the lagoon during cable laying works on the seabed, use of water jetting tool for	Elevation of turbidity and suspended solids in the water column will negatively	Minor negative.	Reversible.	Short term. Turbidity is expected	Vicinity of construction activities	Minor significance.

EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

Impact Area	Direct Impacts	Indirect/Cumulative Impacts and Impact Interactions	Magnitude	Reversibility	Duration	Distribution	Significance
	trenching and discharge of dewatering wastewater (if any).	impact marine life in the area.			to subside shortly.		
Marine fauna and flora	 Direct loss of marine life within the footprint of the cable laying route. Disturbances to marine life in the cable laying route. Stress induced on marine life due to elevated turbidity levels. 	Not applicable.	Minor negative.	Reversible over time.	Short term	Vicinity of the construction activities.	Moderate significance.
Soil Condition	The project is not expected to have any significant impact on the soil condition of the islands.	Not applicable.	Minor negative.	Reversible.	Short term.	Project site.	Insignificant.
Groundwater	The project is not expected to have any significant impact the groundwater of the islands.	-	Negligible.	Reversible.	Short term.	Project site.	Insignificant.
Occupational Health and Safety	Cable deployment underwater poses risks to the workers. (e.g. drowning, accidents)	Not applicable.	Major negative.	Potentially irreversible	Long term.	Project site.	Significant.

5.4 Potential Mitigation Measures for Key Impacts

Table 5.4: Mitigation measures for key impacts/risks

Risks/Impacts	Mitigation measures	Est. Cost (MVR)
Temporary degradation of seawater due to elevation of turbidity and suspended solids in seawater.	 Carryout cable laying works during low tide hours in calm sea conditions Plan and complete all works in the shortest time period possible. 	No additional costs are foreseen to implement these measures.
Disturbances and/or loss of marine life.	 Clearly mark the cable route and ensure no works are conducted outside this boundary. Instruct all construction workers to strictly restrict all construction activities within the marked boundaries. Try and avoid any small coral colonies within path of the cable with slight deviations to the cable path. If deviation is not practical, relocate any small coral colonies to about 50 m from cable path, if any encountered. 	No additional costs are foreseen to implement these measures.
Occupational health and safety risks	 Written Health and Safety plan to be prepared and shared with all project staff. Conduct Health and Safety training to all project staff prior to commencement of the construction works. Construction sites will be closed off to unauthorized personnel's. Health and safety signs will be placed at all necessary locations. Necessary Personal Protective Equipment (PPE) will be provided and worn at all times. Given that the project will be undertaken during the global pandemic of COVID-19 the following measures will be taken: a. All applicable restrictions by Health Protection Agency (HPA) will be followed. b. For any infections that may appear with the project team, instructions from HPA will be followed. c. Contractor will manage any outbreaks based on HPAs guidelines. 	The cost of implementation of these are included in the contractor price as part of general site management and practices.

6 STAKEHOLDER CONSULTATION

The project is an ongoing resort construction project. No additional stakeholders were consulted as part of preparation of this EMP.



7 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan formulated to determine the accuracy of impact prediction, the adequacy of mitigation measures, and level of compliance with commitments regarding implementation of mitigation measures and monitoring of relevant environmental aspects.

The main objectives of the environmental management plan are to:

- Produce a framework for managing anticipated impacts, including practicable and achievable performance requirements and systems for monitoring, reporting and implementing corrective actions.
- Provide evidence of compliance to legislation, policies, guidelines and requirements of relevant authorities.

7.1 Environmental Management System

The environmental management framework for the proposed project is based on applicable standards and policies set out by the Ministry of Environment of the Maldives.

- **Environmental Management Planning:** The EMP specifies environmental management measures.
- **Monitoring and corrective action**: The implementation of EMP measures will be monitored. Any inconsistencies between the EMP and its on-site implementation will be identified and addressed through corrective actions.
- **Auditing, reviews and improvement**: The EMP will be reviewed. Improvements to the EMP will be made as necessary to achieve desired environmental outcomes.

The environmental management strategy is demonstrated in the Figure 7.1.





Figure 7.1: Environmental Management Strategy Flow Diagram

7.2 Management Structure and Responsibilities

The following parties are involved in the EMP of this project:

- Project proponent: Mesa RF Private Limited
- Project Contractor: *Dhiraagu*
- Environmental consultant: CDE Consulting
- Government Regulator: Ministry of Tourism
- Environmental Regulator: Environment Protection Agency

The roles and responsibilities of the parties involved are as follows.

7.2.1 **Project proponent**

- Execution of all project activities.
- Preparation of EMP.
- Approval of project designs.
- Monitoring and recording of project activities, incidences, environmental mishaps and health safety incidences.



- Submission of annual environmental monitoring report as required by the government and environmental regulator.
- Report to the EPA and Ministry of Tourism (MoT) any incidents beyond regular monitoring.

7.2.2 Contractor

- Executing of the EMP
- Recording and reporting of project progress
- Recording and reporting breaches in Environmental Permit conditions

7.2.3 Environmental Consultant

- Preparation of EMP
- Monitoring of performance of project activities according to the EMP
- Auditing the EMP to ensure desired outcomes are achieved
- Making amendments to the EMP according to the results of the audits
- Preparation of environmental monitoring report as required by EPA (detailed in Chapter 11 of this report)

7.2.4 Environmental Protection Agency

- Review of environmental monitoring reports
- Intervention in the event of a breach in environmental permit conditions





Figure 7.2: Environmental Management Plan for construction phase



Table 7.1: Environmen	al Management Plan	for the Project
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Activity	Management measure	Mitigation measures	Responsible party	Timing
Health and safety training	All construction workers and project staff will be trained on health and safety issues and measures on the site	 Written Health and Safety plan to be prepared and shared with all project staff. Conduct Health and Safety training to all project staff prior to commencement of the construction works. 	Contractor	Prior to the commencement of project construction activities.
Environmental awareness session	Contractor will be informed on environmental issues, and measures recommended to prevent environmental damage	-	Proponent	Prior to commencement of project construction activities.
Maintenance of equipment and vehicles	Record of maintenance activities	-	Contractor	During construction phase
Minimize damage to corals and marine life in the project vicinity	Construction boundaries will be set, special care taken to minimise damage to marine life in the vicinity	 Clearly mark the cable route and ensure no works are conducted outside this boundary. Instruct all construction workers to strictly restrict all construction activities within the marked boundaries. Try and avoid any small coral colonies within path of the cable with slight deviations to the cable path. If deviation is not practical, relocate any small coral colonies to about 50 m from cable path, if any encountered. 	Contractor	During construction phase – especially when deploying submarine cable on the seabed
Minimize degradation of seawater quality.	Plan construction works to complete it within the	- Carryout cable laying works during low tide hours in calm sea conditions	Contractor	Prior to commencement of Project activities and



Activity	Management measure	Mitigation measures	Responsible	Timing
			party	
	shortest time period	- Plan and complete all works in the		during construction
	possible.	shortest time period possible.		phase
Documenting non-	All non-conformances to	-	Project	During construction
conformances and	the environmental permit		Proponent	phase
corrective actions	conditions observed during		Contractor	
	monitoring will be		Environmental	
	documented.		Consultant	
	Necessary corrective			
	actions and preventative			
	actions will be identified.			
	Correction actions will be			
	implemented with			
	systematic follow ups to			
	ensure effectiveness of			
	these measures.			
Health and Safety	Assign suitably experienced	- Construction sites will be closed off to	Project	During construction
	and qualified personnel to	unauthorized personnel's.	proponent	phase
	supervise and ensure that	- Health and safety signs will be placed at		
	project staff and workers	all necessary locations.		
	comply with health and	- Necessary Personal Protective		
	safety requirements.	Equipment (PPE) will be provided and		
		worn at all times.		
		- Given that the project will be undertaken		
		during the global pandemic of COVID-19		
		the following measures will be taken:		
		a. All applicable restrictions by Health		
		Protection Agency (HPA) will be		
		followed.		

EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa



Activity	Management measure	Mitigation measures	Responsible	Timing
			party	
		b. For any infections that may appear with		
		the project team, instructions from HPA		
		will be followed.		
		c. Contractor will manage any outbreaks		
		based on HPAs guidelines.		
Supervision of project	Assign suitably experienced	-	Project	Prior to
activities	and qualified personnel to		proponent	commencement of
	supervise the entire project			project
	and ensure that all activities			
	are carried out with			
	minimal adverse impact on			
	the environment and			
	personnel involved in the			
	project			

EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa



7.3 Reporting

Reporting shall be undertaken to provide evidence of the ongoing implementation of the EMP and will cover any training activities, site conditions and operations, monitoring data, details of nonconformances, incidents, complaints and follow up action, results of audits and reviews. Reporting shall be undertaken by the project proponent and the Environmental Consultant.

The environmental reporting process is summarized in the Figure 7.2. All non-compliances and complaints during the execution of the project are to be reported to EPA.


8 ENVIRONMENTAL MONITORING PLAN

8.1 Introduction

This chapter will outline the monitoring plan for the proposed project. Environmental monitoring is essential because, although the overall environmental damage can be significantly minimized with proper mitigation measures, an unforeseen impact may still occur. Furthermore, some of the impacts predicted may turn out to be far greater than predicted, making mitigation measures ineffective. Therefore, in order to avoid or reduce the chances of such events, regular and frequent environmental monitoring is vital.

8.2 Objectives of the Monitoring Plan

The main objectives of the monitoring plan are:

- 1) To identify whether the predicted impacts are accurate and mitigation measures taken are effective.
- 2) To identify any unforeseen impacts so that appropriate mitigation measures can be taken at the earliest.
- 3) To identify and resolve any issues of social unrest at the earliest.
- 4) To eliminate or reduce environmental costs.

8.3 Monitoring during Construction Phase

Table 8.1 shows the details of the different monitoring attributes and parameters must be monitored construction phase.

Additionally, the following aspects will be monitored during this phase to ensure that environmental impacts are minimized.

- 1) Daily monitoring to ensure that the construction processes are not creating any significant dust nuisance for the local environment.
- 2) Daily monitoring of vehicle refuelling and repair should be undertaken to ensure that these exercises are carried out on hardstands and to ensure that they are done properly. This is to reduce the potential of soil contamination from spills. Spot checks will be conducted by the site supervisor.
- 3) Daily inspection of site clearance activities to ensure that the proposed construction plans are followed.
- 4) Monitor and ensure that approved suppliers and sources of local materials are used.



Table 8.1: Environmental Monitoring Plan

Monitoring						Reference	Est. Total
Attributo	Objective	Indicator(s)	Methodology	Locations & samples	Frequency	Guideline /	Costs (USD)
Attribute						Standard	
Marine Water Quality	To monitor marine water quality at the project site	Temperature, pH, Turbidity and Total Suspended Solids	Onsite/Lab testing	1 sample in Cable Segment 1 1 sample in Cable Segment 2 1 sample in Cable Segment 3 1 sample in Cable Segment 4	Once during construction period.	Great Barrier Reef Marine Park, 2009 UNESCO/ WHO/UNEP, 1996	100.00
Ground and Marine water contamination	To identify any oil/chemical spillages	Oil/chemical leakages/spillages	Visual observation	All areas where oil and chemicals are handled	Daily during construction period	-	NA
Health and Safety	To record the number of accidents and injuries	Number of accidents and injuries	Logs	Project site	Daily during construction period	-	NA

* Costs are calculated excluding consultant fees



8.4 Monitoring Report

A detailed environmental monitoring report is required to be compiled and submitted to the EPA based on the data collected for monitoring the parameters included in the monitoring plan given in the EMP.

This report may be submitted to the relevant Government agencies in order to demonstrate compliance. The report will include details of the site, strategy of data collection and analysis, quality control measures, sampling frequency and monitoring analysis and details of methodologies and protocols followed. In addition to this more frequent reporting of environmental monitoring will be communicated among the environmental consultant, project proponent, the contractors and supervisors to ensure possible negative impacts are mitigated appropriately during and after the project.

8.5 Cost of Monitoring

The cost of monitoring is estimated to be approximately USD 1500.00 - 2000.00 for monitoring period.

Where necessary professional consultants will be hired to undertake the monitoring and the necessary equipment for monitoring will be procured.

Monitoring cost is calculated excluding contingency costs.



9 CONCLUSION

The key conclusions of this EMP are summarised below.

- The key impact areas from the proposed project are on the marine environment during cable deployment on the seabed and dewatering (if required). In addition, health and safety risks are also a key concern in undertaking the project as it involves work underwater. Measures are proposed to mitigate these risks and impacts in this EMP.
- In addition an environmental monitoring plan has been designed with a focus on key areas such as marine water quality and potential areas that may be affected by the project. Cost of monitoring is estimated at USD 1500 2000 during the construction period.
- A management framework has been proposed and it is essential that this framework be used in the management of the project.



EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

APPENDIX A – Screening Decision



Environmental Protection Agency





سرَ شرة ECA/PRIV/2020/334 سرَ شرة 203-ECA/PRIV/2020/334

Screening Decision

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This is an official document issued to **Dhivehi Raajjeyge Gulhun Plc** for communicating the decision made after screening of the project: **Installation of a Submarine cable system at Rahfalhu Huraa, Kaafu Atoll**

دِ وَسَمْ تَرْدِدُ سَمَهُمْ مِوَقُوْهُ عَنْ سَرُوْقٌ هَذَ مَسَمَرُهُ مَرْرَسُ مَوَرٌ وَسُرَمُوْ. وِدٌ، مِرَدُوْهُ عَنْ مَسَمَر وَسُرَوَنْر عَمَّرْسُرْمَتْ مِرْجُعْهُ مُسَمَرُهُ مَنْ مُرْمَعُ فَذَ مُسَمَرُهُ مَنْ مُرْسُ مَوَرُ وَسُرَمُوْ. وِدٌ، مِرْد This project is likely to cause significant negative environmental impacts. Hence, please submit an EIA report.	
ד דייי מאיג דייי דייי אינגע אינגע געצי דיייי אינגע איייי גע איייי גע	
Submit an Initial Environmental Examination for this project	
ר 6 75 1 - 1 - 10 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
Calculture Environmental Management Dien fan this mediant	v
Submit an Environmental Management Plan for this project	
י 1000 יו 1000 יו 1000 אונט אונט אונט איט איט איט איט איט איט איט איט איט אי	
ס כם גם ג כו ג כר כי כי כוגו בית בקרית רות כי מית בצי אר בית יות פר פי	
This project is unlikely to have a significant negative impact on the environment. Hence, you may	
proceed with the project	
proceed with the project.	
י 5000 אין 1000 אין 1 ד ד די אין אין גער אין גער	
כ 2 * 2 / 1 / 0 / 0 / 0 / 1 / 2 ע מפר בעינ מביע בר פי	
The measures stipulated by this agency shall be used to mitigate the negative environmental impacts of th	e project
The measures superated by this agency shan be used to mitigate the negative environmental impacts of th	e project.

This is an environmental screening. Hence, obtain all necessary approvals/permits from other relevant government authorities before commencement of the project activities. The date of expiry stated in this Environmental Screening Decision Statement is the duration given to implement the decision made by this agency.



Screening Institution: Environmental Protection Agency of Maldives

Date of issue: **09th July 2020** Date of Expiry: **09th July 2021**

Name: Mr. Ibrahim Naeem Designation: Director General

Signature:

موم برش نوبر در تدرید: **در در در در در می در در مان می در در مان مر در در مان** مرور بردم م مرور بردم م تَرْسَم مَرْسَرُ: 09 **نُوَج 2020** دُرْمَرُم رَحَرً مَرْسِرِ²: 09 **نُوج 2021**

یترد:

سرس : مرور سنور مرد مررد سرمد مرکز : مرد مرسور مرد مرد سرمد حرکی عرف مربو مربور

Mongeny



APPENDIX B – Proponents Declaration and Commitment Letter



MESA RF Private Limited

Mr. Ibrahim Naeem, Director General Environmental Protection Agency Male', Maldives.

Our Ref No: 13092020-RFH-MESA- EIA -126

13th September 2020

Dear Sir,

Sub: EMP for the Proposed Installation of Inter-Island Submarine Communication Cable at Rah Falhu Huraa, North Malé Atoll

As the proponent of the above-mentioned project, I guarantee that I have read the Environmental Management Plan (EMP) and to the best of our knowledge all non-technical information provided here are 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.

Thank you

Yours Sincerely

hop. Murzzo

Ahmed Muizzu Director



Registered Address: M. Faaroshige, Level 2, Orchid Magu, Male', Republic of Maldives Correspondence Address: c/o One Temasek Avenue, #41-00 Millenia Tower, Singapore 039192 Tel (65) 6332-8888 Fax (65) 6338-9292 Co Registration No C-0399/2015 EMP for the Installation of Inter-Island Submarine Communication Cable in Rahfalhu Huraa

APPENDIX C – CV of Consultants



Mohamed Faizan

CONTACT DETAILS

Address:	H. Pent Land,
	Lansimoo Goalhi,
	20041, Malé, Maldives
Email:	Mohamed.Faizan@gmail.com
Tel:	+960-7501205

EDUCATION

University of Malaya (Malaysia)

Master of Tech	nnology (Environmental Management)	August 2012 – October 2014
Dissertation:	Study on the impact of anthropogenic pressure on coral reefs around Cape Rachado, Malacca and recommendations to improve its management	
Supervisors:	- Dr. A. Sasekumar, Senior Research Fellow (Ret	tired)
	Email: Sasekumarster@gmail.com	
	- Dr. Santha A/P Chenaya @ Ramu, Senior Lectu	urer
	Email: Santha@um.edu.my	

International Islamic University Malaysia (Malaysia)

Bachelor of Biotechnology (Honors)

Honors Spatio-temporal study on coastline changes Thesis: along Tanjung Tuan – Cherok Paloh Coast Supervisor: Assoc. Prof. Dr. Shahbudin Bin Saad, Director Email: Ocean@iium.edu.my

July 2006 – June 2010

EMPLOYMENT RECORD

CDE Consulting (Maldives)

Senior Consultant, Marine Environment

July 2014 – Present

Key Roles &	Plan, organize and undertake
Responsibilities:	environmental baseline assessments,
	environmental impact assessments
	and environmental monitoring
	programs
Supervisors:	Dr. Ahmed Shaig, Director, Environmental Services
	Email: Shaig@cde.com.mv

CDE Consulting (Maldives)

Environmental Consultant

June 2010– July 2012

Key Roles &	Assist in preparation of
Responsibilities:	Environmental Impact Assessment
	reports; undertake environmental
	baseline surveys and monitoring.
Supervisors:	Dr. Ahmed Shaig, Director, Environmental Services
	Email: Shaig@cde.com.mv

Integrated Climate Change Strategy (Project funded by UNDP/GEF, and implemented by the Ministry of Environment, Energy and Water, Maldives)

Project Assistant

February 2005– April 2006

Key Roles & Responsibilities:	Assist project manager in organizing workshops and field visits related to the projects. Assist in financial management and reporting for the project. Prepare monthly newsletter
	to update all stakeholders on project activities. Helped in development of climate change awareness materials.
Supervisors:	 Dr. Mizna Mohamed, Former ICCS Project Manager Email: Mizna.Mohamed@gmail.com Ms. Lubna Moosa, Former ICCS Project Manager Email: Lubna.Moosa@gmail.com

CONSULTANCY EXPERIENCE

Client: Boskalis W	estminster Contracting Limited	
Title: EIA for the F project	Phase I of Gulhifalhu Port development	Dec 2019 – May 2020
Contributions:	 Plan, organize, and co-ordinate environmental baseline surveys. 	
	- Stakeholder consultations.	
	- Environmental Impact Assessment report compilation.	
Client: Lhaviuani ł	Holding Private Limited	
Title: EIA for the p Kaashidhoo Island	proposed sea cucumber hatchery at d, Kaafu Atoll	December 2019
Contributions:	- Lead EIA consultant for the project.	
	 Plan, organize, and co-ordinate environmental baseline surveys. 	
	- Environmental Impact Assessment report compilation.	
Client: Ministry of	f Tourism	
Title: Island Scopi Resort developme	ng Study of Islands Considered for Tourist ent in 2019	September 2019
Contributions:	- Preparation of Scoping Study Report.	
Client: Javadhulla	Zahir	
Title: EIA for the p Meedhoo, Addu c	proposed sea cucumber farm pilot project at tity	July 2019
Contributions:	 Plan, organize, and co-ordinate environmental baseline surveys. 	
	- Stakeholder consultations	
	 Environmental Impact Assessment report compilation. 	

Client: Shangri-La's Title: Annual Coral I	Villingili Resort and Spa Reef Monitoring	2013 - 2018
Contributions:	 Plan, organize, and co-ordinate annual coral reef monitoring surveys. 	
	 Preparation of Annual Coral Reef Monitoring Report, and Recommendations to protect and conserve reef. 	
Client: Ministry of H	lousing and Infrastructure	
Title: EIA for the pro Maakurathu Island,	oposed harbour development project at Raa Atoll	December 2017
Contributions:	 Plan, organize, and co-ordinate environmental assessment surveys. 	
	- Environmental Impact Assessment.	
	- Environmental Impact Assessment report compilation.	
Client: Ministry of E	nvironment and Energy	
Title: EIA for the pro Island	oposed sewerage facility at Gemanafushi	December 2017
Contributions:	 Plan, organize, and co-ordinate environmental assessment surveys. 	
	- Environmental Impact Assessment.	
	- Environmental Impact Assessment report compilation.	
Client: Ministry of E	invironment and Energy	
Title: EIA for the pro Madaveli, Gaafu Dh	oposed shore protection project at aalu Atoll	July 2017
Contributions:	- Marine Assessment for the EIA.	
	- Impact Assessment	

Client: China Harbour Ei	ngineering Company Limited	
Title: EIA for the propos Lagoon, Kaafu Atoll	ed geotechnical studies at Thilafushi	August 2017
Contributions: -	Marine Assessment for the EIA.	
Client: Vita Heights Com	npany Limited	
Title: Environmental Mo development project at	onitoring for the dredging and resort Bolidhuffaru Reef, Kaafu Atoll	May 2017 – Dec 2018
Contributions: -	Plan, organize, and co-ordinate environmental monitoring surveys	
-	Seawater quality, sedimentation, and coral reef assessments	
-	Prepare environmental monitoring reports	
Client: Vita Heights Com	npany Limited	
Title: EIA for the propos development project at	ed dredging component of the resort Bolidhuffaru Reef, Kaafu Atoll	April 2017
Contributions:	Plan, organize, and co-ordinate baseline survey	
-	Baseline environment, and impact assessment	
Client: Fushifaru Investr	nents Private Limited	
Title: First Addendum to resort development in F	o the EIA prepared for the proposed Fushifaru Island, Lhaviyani Atoll	March 2017
Contributions: -	Marine baseline environment assessment, and impact assessment	
Client: Ministry of Envir	onment and Energy	
Title: EIA for the propos Alif Alif Atoll	ed Water Supply System in Rasdhoo	March 2017
Contributions: -	Marine baseline environment assessment	

Client: Nakachaa Hu	Iraa Development Private Limited	
Title: EIA for the pro development projec	March 2017	
Contributions:	 Plan, organize, and co-ordinate baseline survey 	
	- Baseline environment, and impact assessment	
Client: Ithaafushi Inv	vestments Private Limited	
Title: Second Adden land reclamation an South Malé Atoll	dum to the EIA prepared for the proposed d resort development in Ithaafushi Reef,	February 2017
Contributions:	- Assessment of the marine environment and environmental impacts of the project.	
Client: KASA Holding	gs Pvt Ltd	
Title: Meeru Island I	Resort and Spa, Coral Gardening Project	January 2017
Contributions:	- Design coral gardening project.	
	- Preparation of Environmental Management Plan for the project	
	- Monitoring and reporting	
Client: Dredging Inte	ernational Services (Cyprus) Ltd	
Title: Construction p Emboodoofinolhu F	phase environmental monitoring for the alhu Resort Development Project	January 2017
Contributions:	 Plan, organize and co-ordinate Environmental monitoring schedule, and activities. 	
	- Seawater quality, sedimentation, and coral reef assessments	
	- Prepare environmental monitoring reports	

Client: Mesa RF Private Limited

Title: First Adde Rahfalhuhuraa F Kaafu Atoll	January 2017	
Contributions:	 Plan, organize, and co-ordinate baseline survey 	
	- Baseline environment, and impact assessment and compile EIA report	
Client: Vita Heig	hts Company Ltd	
Title: EIA for the development pr	proposed land reclamation and resort oject at Bolidhuffaru Reef, Kaafu Atoll	October 2016
Contributions:	- Plan, organize and co-ordinate environmental baseline surveys.	
	- Undertake coral reef assessment	
	- Impacts assessment for of EIA report.	
Title: Constructi China-Maldives	on phase environmental monitoring for the Friendship Bridge	May 2016 - 2017
Contributions:	- Plan, organize and co-ordinate Environmental monitoring schedule, and activities.	
	- Undertake coral reef monitoring	
	- Prepare environmental monitoring reports	
Client: Ooredoo	Maldives	
Title: EIA for the Ooredoo Maldiv	e proposed Nationwide Submarine Cable by res	May 2016
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report and impacts section of EIA report.	
Client: MESA RF	Private Limited	
Title: EIA for the Development Pr	e proposed Rahfalhuhuraa Resort oject, at Maifalhu, Kaafu Atoll	April 2016
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Undertook marine impact assessments.	

Client: Big Stone	Investment	
Title: EIA for the development pr	proposed land reclamation and resort oject in Maagaa North Ari Atoll	April 2016
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Undertook marine impact assessments.	
Client: Ocean Isl	ands Pvt Ltd	
Title: EIA for the development pr	proposed land reclamation and resort oject in Maagaa North Ari Atoll	April 2016
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Undertook marine impact assessments.	
Client: Champal	ars Holdings Pvt Ltd	
Title: EIA for the Kudadhoo Island	proposed tourist resort development at I, Lhaviyani Atoll	December 2015
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Prepared the overall EIA Report.	
Client: Maldives	Inflight Catering Private Limited	
Title: EIA for the Madifushi Islanc	proposed tourist resort development at I, Meemu Atoll	December 2015
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Prepared the overall EIA Report.	
Client: Ministry	of Housing and Infrastructure	
Title: EIA for the	proposed Malé – Hulhulé Bridge	July 2015
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Prepared the overall EIA Report.	
Client: Nasandh	ura Palace Hotel Investments Private Limited	
Title: EIA for the Palace Hotel	proposed redevelopment of Nasandhura	June 2015
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report. Prepared the overall EIA Report.	

Client: Shuaz Inv	vestment Private Limited	
Title: EIA for the Kaafu Atoll	proposed resort development in Madivaru,	May 2015
Contributions:	Undertook marine baseline assessments, and prepared marine assessment report.	
Client: Velaa Priv	vate Island	
Title: EIA for the Private Island	proposed coral rejuvenation project at Velaa	March 2015
Contributions:	Undertook marine baseline assessment surveys, including stakeholder consultations. Prepared and complied the EIA report.	
Client: Shangri-L	a's Villingili Resort and Spa	
Title: Coral gard Spa	ening project Shangri-la's Villingili Resort and	February 2015
Contributions:	Undertook baseline coral reef assessment of Shangri-La's reef. Designed the coral gardening programme.	
	Undertook the EIA for the coral gardening programme.	
Client: Malé Wa	ter and Sewerage Company Pvt Ltd	
Title: EIA for the Kanditheem, Sha	proposed sewerage system project at aviyani Atoll	April 2014
Contributions:	Marine environment assessment and section for EIA report	
Client: Holiday II	nn Resort Kandooma Maldives	
Title: EIA for the proposed beach replenishment project in Holiday Inn Resort Kandooma, South Malé Atoll		April 2014
Contributions:	Marine environment assessment and section for EIA report	
Client: Mr. Ibrah	im Shazyl, Venture Maldives Pvt Ltd	
Title: EIA for the proposed sewerage system Maduvvari, Raa Atoll		February 2012
Contributions:	Undertook the baseline assessment surveys, including stakeholder consultations. Prepared and complied the EIA report	

Client: Mr. Isma	ail Shafeeu, Static Company Pvt Ltd	
Title: EIA for th desalination pla	e proposed installation and operation of ant at Hithaadhoo, Baa Atoll	January 2012
Contributions:	Preparation and compilation of EIA report	
Client: Bi-Wate	r	
Title: EIA for W	ater and Sewerage Network at Addu	May 2011
Contributions:	 Plan, and co-ordinate coral reef assessments at Hithadhoo, Maradhoo, Maradhoo-Feydhoo, Feydhoo, Hulhu-Meedhoo, and Gan Preparation of Coral Reef Assessment Report for the EIA reports 	
Client: Tatva Gl	obal Renewable Energy (Maldives) Pvt Ltd	
Title: EIA for th Thilafushi	e proposed Solid Waste Management facility at	December 2011
Contributions:	Undertook marine baseline surveys and prepared the marine assessment section for the EIA report. Complied the overall EIA report	
Client: Bonnav	vista (Maldives) Private Limited Singapore	
Title: EIA for th Koodoo, GA Ato	e development of a domestic airport on oll	October 2011
Contributions:	Undertook environmental baseline surveys for the EIA and prepared the Existing Environment chapter for the EIA report.	
Client: Ministry	of Housing and Environment	
Title: EIA for th project in Bodu	e proposed harbor entrance channel dredging folhudhoo Island, North Ari Atoll	August 2011
Contributions:	Undertook environmental baseline surveys for the EIA, and prepared the Existing Environment chapter for the EIA report and complied the overall EIA report	

Client: Mr. Huss	sain Afeef	
Title: EIA for the proposed redevelopment Phase I of Gasfinolhu Island Resort, Kaafu Atoll		July 2011
Contributions:	Undertook environmental baseline surveys for the EIA, and prepared the marine environment section for the EIA report	
Client: Ministry	of Housing and Environment	
Title: EIA for the Foakaidhoo Har	e proposed reconstruction of Shaviyani bour	March 2011
Contributions:	Undertook environmental baseline surveys for the EIA, and prepared the marine environment section for the EIA report	
Client: Departm	ent of National Planning	
Title: Household Foreigners	d Income and Expenditure Survey for	March 2011
Contributions:	Lead and organized the survey for 82 households in Malé	
Client: Works C	orporation Limited	
Title: EIA for the Miladhoo	e sewerage system development in N.	September 2010
Contributions:	Undertook baseline surveys, and prepared the marine environment section	
KEY WORKSHO	PS, AND TRAININGS ATTENDED	
Coral Databa Maldives	se Training, organized by Lim Geomatics, Malé,	November 2013
Workshop or Monitoring Ic Resilience, Hik	n Training and Capacity Building in Coral Reef Jentifying Indicators for Regional Adaptation and kaduwa, Sri Lanka	May 2012

PADI Open Water Dive Certification, Malé, Maldives	July 2009
South Asia MCPA Managers Training Course	June 2008
Regional Workshop on Climate Change Negotiations in South and South Asia, Bangladesh, Dhaka	October 2005

REFERENCES

Dr. Simad Saeed Managing Director CDE Consulting Email: Simad@cde.com.mv Dr. A. Sasekumar Senior Research Fellow (Retired) University of Malaya Email: Sasekumarster@gmail.com

Dr. Ahmed Shaig Director, Environmental Services CDE Consulting Email: Shaig@cde.com.mv

CURRICULUM VITAE (CV) FOR ENVIRONMENTAL EXPERT

1. Proposed Position: Environmental Expert

- 2. Name of Firm: Commerce, Development and Environment Pvt Ltd (CDE Consulting), Maldives
- 3. Name of Staff: Dr. Ahmed Shaig
- **4.** Date of Birth: February 19, 1976 Citizenship: Maldivian
- **5.** Complete Personal Details: CDE Consulting, 4th Floor, Orchidmaage, Ameer Ahmed Magu, 20095, Male', Maldives; email: <u>shaig@cde.com.mv</u>; Phone: +9607788758.

6. Education:

- Doctor of Philosophy: Environmental Science (PhD Thesis Title: Settlement Planning for Natural Hazard Resilience in Small Island States: The Population and Development Consolidation Approach), James Cook University, Townsville, Australia - August 2004 to May 2009.
- Bachelor of Science: Land and Spatial Information Studies/Information Science, University of Otago, Dunedin, New Zealand - September 1999 to July2001

7. Membership of Professional Committees and Associations:

- Registered EIA consultant in the Maldives
- Member of the President of Maldives Advisory Council on Climate Change in Maldives, 2011-2013
- Member of Maldives Housing and Urban Development Board Technical Committee, 2003.
- Member of Harbour and Land Reclamation Technical Committee, 2002.
- Member of the National Coordination Committee for the Development National Bio-Safety Standards 2005.
- Member of Building Code Committee 2001
- Member of Commission on Sustainable development 2001
- Member of Advisory committee for Atoll Ecosystem management and coral reef conservation in the Maldives 2001.
- Member of the Technical Committee for Developing Spatial Plans for conducting tourism related activities in AriAtoll 2002.
- Member of the Maldives Protected Areas Project Co-ordinating Committee 2001

8. Other Training:

 Diploma in project planning, implementation, monitoring and evaluation, ILO training Centre, Turin, Italy, 1995

9. Countries of Work Experience: Maldives, Australia and New Zealand

10. Languages:		Speak	Read	Write
	English	Excellent	Excellent	Excellent
	Dhivehi	Excellent	Excellent	Excellent

10. Employment Record:

From: 2006To: Till dateEmployer:Commerce, Development and Environment Pvt LtdPositions held:Director, Environmental Services

 From: 2002
 To: 2004

 Employer:
 Ministry of Planning and National Development, Government of the Republic of Maldives

 Positions held: Assistant Under-secretary, Spatial Planning

 From: 1994
 To: 1999

 Employer:
 Ministry of Planning and National Development, Government of the Republic of Maldives

 Positions held: Assistant Planning Officer/Planning Officer

From: 1999To: 2015Employer:CDE Pvt Ltd (CDE Consulting), MaldivesPositions held:Environmental Consultant

From: 2015To: PresentEmployer:CDE Pvt Ltd (CDE Consulting), MaldivesPositions held:Chief Executive Officer

12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned

Name of assignment or project: EIA for the proposed dredging, land reclamation, and revetment work at Gulhifalhu *Year:* 2019 to 2020

Location: Gulhifalhu Lagoon, Maldives

Client: Ministry of National Planning and Infrastructure

Main project features: Preparing EIA for the dredging, reclamation and revetnment works for the Gulhifalhu port project

Positions held: Lead Envrionmental Expert

Activities performed: Lead Envrionmental Expert.

Name of assignment or project: Second Addendum to the EIA for the proposed International Airport Development Project at Mafaaru, Noonu Atoll

Year: 2019

Location: Maafaru Island, Maldives

Client: Ministry of National Planning and Infrastructure

Main project features: Prearing EIA for the converting Maafaru Island domestic airport to an international aiport by extending runway, new land reclamation and new infrastructure construction. *Positions held:* Lead Envrionmental Expert *Activities performed:* Lead Envrionmental Expert.

Name of assignment or project: EIA for the proposed Harbour Expansion Project at Meerufenfushi Island Resort
Year: 2019
Location: Meeru Island Resort, Maldives
Client: KASA Holdings Pvt Ltd
Main project features: Prearing EIA for constructing a detached harbour on Meeru Island Resort.
Positions held: Lead Envrionmental Expert
Activities performed: Lead Envrionmental Expert

Name of assignment or project: Preparation of EMP for Waste Management Centers of Baa Dhonfanu and Baa Hithaadhoo Year: 2019 Location: Dhonfanu Island, Baa Atoll *Client: Ministry of Enviornment and Energy* Main project features: Preparing the Environment Mnagament Plan (EMP) for the proposed new waste management centres in Baa Atoll Positions held: Pysical Envrionmental Expert Activities performed: Part of the team that compiled the EMP. Specific input on impact identification, mitigation determination and management actions compilation. Name of assignment or project: Environmental and Social Impact Assessment (ESIA) of Zone 6 and 7 Regional Waste Management Facility Year: 2018 Location: Dhonfanu Island, Baa Atoll *Client: Ministry of Enviornment and Energy* Main project features: Preparing the ESMP for the proposed new waste management facilities proposed for Zones 6 and 7 of Maldives Positions held: Lead Envrionmental Expert Activities performed: Lead Envrionmental Expert Name of assignment or project: Environmental Management Plan (EMP) for Hoadehdhoo Waste Management Centre Year: 2018 Location: Hoadedhdhoo Island, Gaafu Dhaalu Atoll **Client:** Ministry of Enviornment and Energy Main project features: Preparing the Environment Mnagament Plan (EMP) for the proposed new waste management centres in Hoadedhdhoo Island **Positions held:** Pysical Envrionmental Expert Activities performed: Part of the team that compiled the EMP. Specific input on impact identification, mitigation determination and management actions compilation. Name of assignment or project: Eroison mitigation Project on Desroches Island, Seychelles *Year:* 2018 to Present *Location*: Desroches, Seychelles **Client:** HPL Resorts Main project features: Erosion assessment and mitigation designs around the Desroches Resort. **Positions held:** Lead Envrionmental Expert Activities performed: Underake coastal processes assessment and lead a team of engineers to prepare erosion mitigation designs. Name of assignment or project: Eroison mitigation Project on Desroches Island, Seychelles Year: 2018 to Present *Location*: Desroches, Seychelles Client: HPL Resorts Main project features: Erosion assessment and mitigation designs around the Desroches Resort. Positions held: Lead Envrionmental Expert Activities performed: Underake coastal processes assessment and lead a team of engineers to prepare erosion mitigation designs. Name of assignment or project: Eroison mitigation Project on Platte Island, Seychelles Year: 2018 to Present *Location*: Platte Island, Seychelles Client: HPL Resorts Main project features: Erosion assessment and mitigation designs around the Desroches Resort.

Positions held: Lead Envrionmental Expert

Activities performed: Underake coastal processes assessment and lead a team of engineers to prepare erosion mitigation designs.

Name of assignment or project: Environmental Management Plan Prepation and Environmental Monitoring Programme management for Rahffalhu Huraa Resort Development Project.

Year: 2017 to Present

Location: Male', Maldives

Client: Pontiac Land Group, Singapore

*Main project features:*Resort development project featuring land reclamation and four separate properties in a lagoon.

Positions held: Lead Envrionmental Expert

Activities performed: Lead a team of experts to implemente the Environmental Monitoring Programme of the 5 year project.

Name of assignment or project: Envrionmental Management Plan Prepation and Environmental Monitoring Programme management for Bolidhuffaru Island Resort Development Project *Year:* 2017-2018

Location: Male', Maldives

Client: Damac Protperties, Dubai

Main project features: Resort development project featuring marine works for a 34 Ha property spread accross three islands.

Positions held: Lead Envrionmental Expert

Activities performed: Lead a team of experts to implement the Environmental Monitoring Programme.

Name of assignment or project: Envrionmental Management Plan Prepation and Environmental Monitoring Programme management for Ithaafushi Island Resort Development Project *Year:* 2016-2018

Location: Male', Maldives

Client: Urbacon Trading and Contracting, Qatar

Main project features: Resort development project featuring marine works for a 20 Ha property spread accross three islands.

Positions held: Lead Envrionmental Expert

Activities performed: Lead a team of experts to implement the Environmental Monitoring Programme.

Name of assignment or project: Environmental Monitoring Programme management for Hulhule-Male' Bridge Project

Year: 2016-2018

Location: Male', Maldives

Client: Ministry of Housing and Infrastructure

Main project features: Construction of the Hulhule-Male Bridge covering project site across Male'and Thilafushi.

Positions held: Lead Envrionmental Expert

Activities performed: Lead a team of experts to implement the Enviornmental Monitoring Programme.

Name of assignment or project: Preparation of Environmental Management Plan (EMP) for Kanduhulhudhoo and Fulidhoo Waste Management Centre *Year:* 2017

Location: Kanduhulhudhoo Island, Haa dhaalu Atoll, and Fulidhoo Vaavu Atoll.

Client: Ministry of Enviornment and Energy

Main project features: Preparing the Environment Mnagament Plan (EMP) for the proposed new waste management centres in Kanduhulhudhoo and Fulidhoo

Positions held: Pysical Envrionmental Expert

Activities performed: Part of the team that compiled the EMP. Specific input on impact identification, mitigation determination and management actions compilation.

Name of assignment or project: Preparation of Environmental Management Plan (EMP) for selected islands in Laamu Atoll

Year: 2017

Location: Hithadhoo, Kunahandhoo, Maabaidhoo, Dhanbidhoo, Maamendhoo, Kalaidhoo, Mundoo, Isdhoo and Maavah

Client: LECReD UNDP

Main project features: Preparing the Environment Mnagament Plan (EMP) for the proposed new waste management centres in Hoadedhdhoo Island

Positions held: Lead Envrionmental Expert

Activities performed: Part of the team that compiled the EMP. Specific input on impact identification, mitigation determination and management actions compilation.

Name of assignment or project: EIA for the proposed Hulhule-Male' Bridge Project *Year*: 2015

Location: Male', Maldives

Client: Ministry of Housing and Infrastructure

Main project features: EIA for the hulhule-male project in partnership with China Shipping Environment Technology, China

Positions held: Lead Envrionmental Expert

Activities performed: Lead Envrionmental Expert.

Name of assignment or project: EIA for the Proposed Harbour Redevelopment Project at Mahibadhoo island, Alif Dhaalu Atoll

Year: 2014

Location: Adh. Mahibadhoo, Maldives

Client: Ministry of Housing and Infrastructure

Main project features: EIA for the proposed harbour redevelopment project.

Positions held: Lead Envrionmental Expert

Activities performed: Lead the impact assessment and report writing stage of the EIA development.

Name of assignment or project: Environmental and Social Management Framework (ESMF) for Solar Photovoltaic and Waste to Energy Projects under ASPIRE component of SREP *Year:* 2014

Location: Male', Maldives

Client: Ministry of Environment and Energy

*Main project features:*ESMF for the the ASPIRE project implemented under CCTF grant.

Positions held: Lead Envrionmental Expert

Activities performed: Undertook consultations and prepared the ESMF.

Name of assignment or project: Preparation of the Maldives 4th Tourism Master Plan *Year:* 2013

Location: Male', Maldives

Client: Ministry of Tourism

Main project features: Preparation of the 4th Tourism Master Plan with the help of team of international and local consultants.

Positions held: Envrionmental Expert

Activities performed: Prepared the environmental aspects of the Master Plan based on consultations and current status of environmental isses in the tourism faicilities.

Name of assignment or project: Environmental and Social Impact Assessment (ESIA) for Community Based Wetland Management Plan, Ecotourism and Drainage Management Works

Year: 2013
Location: Addu City, Maldives
Client: Ministry of Envrionment
Main project features: ESIA for the wetland management project in Addu City
Positions held: Lead Envrionmental Expert
Activities performed: Undertook baseline surveys and prepared the EIA report.

Name of assignment or project: EI Diagnosing Critical Constraints to Growth and Structural Transformation in Selected Developing Members Countries - Republic of Maldives; Population and Development Consolidation in the Maldives

Year: 2012

Location: Male', Maldives

Client: Asian Development Bank (ADB)

Main project features: Study aiming to identify the critical constraints to long-term economic growth and economic development of member countries.

Positions held: Spatial/Land Use and Resource Specialist

Activities performed: Evaluated development constraints from sparse distribution of poplautoin across Maldives and Poulation and Development Consolidation as a policy option for managing it.

Name of assignment or project: EIA for Gulhiufalhu Industrial Island Water and Swerage Development Project

Year: 2011

Location: Gulhifalhu Island, Maldives

Client: Maldives Water and Sewerage Company

Main project features: EIA for the proposed water and sewerage development project in Gulhifalhu Island.

Positions held: Lead Envrionmental Expert

Activities performed: Undertook baseline surveys and lead the report writing stage of the EIA development.

Name of assignment or project: EIA and SIA for Gulhiufalhu Industrial Island reclamation and development Phase I

Year: 2010

Location: Maldives

Client: Capital Investment and Finance Limited, UK

Main project features: EIA and SIA for the proposed reclamation and industrial activities in Gulhifalhu Island Phase II

Positions held: Lead Envrionmental Expert

Activities performed: Undertook baseline surveys and lead the report writing stage of the EIA development.

Name of assignment or project: EIA and SIA for Gulhiufalhu Industrial Island reclamation and development Phase II and III

Year: 2011

Location: Maldives

Client: Capital Investment and Finance Limited, UK

Main project features: EIA and SIA for the proposed reclamation and industrial activities in Gulhifalhu Island Phase II and III

Positions held: Lead Envrionmental Expert

Activities performed: Undertook baseline surveys and lead the report writing stage of the EIA development.

Name of assignment or project: EIA for the proposed water and sewerage development project in Hithadhoo Island, Addu City *Year:* 2011

Location: Maldives

Client: Bi-water Maldives Private Limited

Main project features: EIA and SIA for the proposedwater and sewerage components development in Hithadhoo Island. This is part of the project to develop water and sewerage system in all the islands of Addu City and Fuvahmulah Island.

Positions held: Terrestrial environment specialist

Activities performed: Undertook baseline surveys and lead the report writing stage of the EIA development.

Name of assignment or project: EIA baseline study of the Thilafushi Island for the proposed waste management project in Thilafushi Island.

Year: 2011

Location: Maldives

Client: International Finance Cooperation (IFC)

Main project features: EIA basleine study for the Public Private Partnership (PPP) project for waste management in Thilafushi Island. This project was completed in association with SENES Consulting India Pvt Ltd.

Positions held: Lead Local Environment Expert

Activities performed: Undertook baseline surveys and compiled write-ups for terrestrial and marine environment components.

Name of assignment or project: EIA baseline study of the Thilafushi Island for the proposed waste management project in Thilafushi Island.

Year: 2011

Location: Thilafushi Island, Maldives

Client: International Finance Cooperation (IFC)

Main project features: EIA baseline study for the Public Private Partnership (PPP) project for waste management in Thilafushi Island. This project was completed in association with SENES Consulting India Pvt Ltd.

Positions held: Lead Local Environment Expert

Activities performed: Undertook baseline surveys and compiled write-ups for terrestrial and coastal environment components.

Name of assignment or project: EIA for the proposed redevelopment of a resort island in Giraavaru Island, Male' Atoll.

Year: 2011

Location: Giraavaru Island, Maldives

Client: Dr. Ahmed Shiham Adam

Main project features: EIA baseline study, impact modelling and report write-up

Positions held: Terrestrial Environment Expert

Activities performed: Undertook baseline terrestrial surveys and surveys and compiled write-ups for terrestrial component.

Name of assignment or project: EIA for the proposed banquet Hall in Hulhumeedhoo Island, Addu Atoll

Year: 2011

Location: Hulhumeedhoo Island, Maldives

Client: Ministry of Housing and Environment

Main project features: EIA baseline study, impact modelling and report write-up

Positions held: Envrionmental Expert

Activities performed: Undertook impact modelling and compiled the report prepared by various specialists.

Name of assignment or project: EIA for the proposed road development project in Kulhudhuffushi Island, Phase I

Year: 2011

Location: Kulhudhuffushi Island, Maldives

Client: Maldives Road Development Cooperation

Main project features: EIA baseline study, impact modelling and report write-u*Positions held:* Lead EIA Expert

Activities performed: Undertook impact modelling and compiled the report prepared by various specialists.

Name of assignment or project: EIA for the proposed road development project in Kulhudhuffushi Island, Phase I

Year: 2011

Location: Kulhudhuffushi Island, Maldives

Client: Maldives Road Development Cooperation

Main project features: EIA baseline study, impact modelling and report write-up

Positions held: Lead Envrionmental Expert

Activities performed: Undertook impact modelling and compiled the report prepared by various specialists.

Name of assignment or project: EIA for the proposed construction of a staff swimming pool in Kuredhoo Island Resort and Spa

Year: 2011

Location: Kuredhoo Island Resort and Spa, Maldives

Client: Champa and Crown Resorts

Main project features: EIA baseline study, impact modelling and report write-up

Positions held: Envrionmental Expert

Activities performed: Undertook impact modelling and compiled the report.

Name of assignment or project: EIA addendum 2 for the proposed resort development project in Randheli Island

Year: 2011

Location: Randheli Island, Maldives

Client: I & T Management Private Limited

Main project features: EIA baseline study, impact modelling and report write-up

Positions held: Lead Envrionmental Expert

Activities performed: Undertook impact modelling and compiled the report.

Name of assignment or project: EIA addendum 1 for the proposed resort development project in Randheli Island

Year: 2010

Location: Randheli Island, Maldives

Client: I & T Management Private Limited

Main project features: EIA baseline study, impact modelling and report write-up

Positions held: Lead Envrionmental Expert

Activities performed: Undertook impact modelling and compiled the report.

Name of assignment or project: EIA and SIA for Gulhiufalhu Industrial Island reclamation and development Phase I
Year: 2010
Location: Maldives
Client: Capital Investment and Finance Limited, UK
Main project features: EIA and SIA for the proposed reclamation and industrial activities in

Gulhifalhu Island (the island next to Thilafushi Island)

Positions held: Lead Environment Expert

Activities performed: Undertook stakeholder consultations in Mal' region; field assessments and report compilation

Name of assignment or project: EIA for Sea grass removal and beach replenishment Year: 2010 *Location:* Herather Island, Maldives *Client:* Maldives Tourism Development Cooperation Main project features: EIA covering Coastal, marine, terrestrial and social aspects. *Positions held:* Lead Envrionmental Consultant Activities performed: Undertook stakeholder consultations with community; field assessments and report writing Name of assignment or project: EIA and SIA for land reclamation and construction of an Airport in Maafaru Island. Year: 2009 *Location*: Maldives Client: Noonu Hotels Private Limited Main project features: EIA and SIA for proposed development *Positions held:* Envrionmental Consultant Activities performed: Undertook stakeholder consultations with community; field assessments and report writing Name of assignment or project: EIA deep piling activities in Olhuveli Island. Year: 2009 Location: Olhuveli Island, Male' Atoll, Maldives Client: Noonu Hotels Private Limited Main project features: EIA for proposed development Positions held: Envrionmental Consultant Activities performed: Field assessments and report writing Name of assignment or project: EIA for the proposed sewerage development project in Miladhoo Island. Year: 2010 Location: Miladhoo Island, Maldives Client: Works Cooperation Ltd Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** Lead EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for resort redevelopment in Vilamendhoo Island, Ari Atoll. **Year:** 2010 Location: Vilamendhoo Island, Maldives *Client:* Champa and Crown Resorts Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** Lead EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for resort for harbour development in Sh. Madidhoo Island. **Year:** 2010 *Location*: Madidhoo Island, Maldives Client: ADK Travels and Tours Pvt Ltd Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Expert Activities performed: Undertook impact modelling and compiled the report. *Name of assignment or project:* EIA for the development of an aquaculture site in Kanduoigiri,

Kaafu Atoll.

Year: 2010 Location: Kanduoigiri Island, Maldives **Client:** Maldives Industrial Fisheries Company Ltd Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA addendum for resort development in Gaakoshibee Island, Shaviyani Atoll. Year: 2010 *Location*: Gaakoshibee Island, Maldives Client: ADK Travels and Tours Pvt Ltd Main project features: EIA baseline study, impact modelling and report write-up *Positions held:* EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for Seagrass removal and beach replenishment project in Olhuveli Island Resort and Spa, Kaafu Atoll. Year: 2010 *Location*: Olhuveli Island Resort and Spa, Kaafu Atoll., Maldives Client: Sun Travels and Tours Pvt Ltd Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: Environmental audit of Thunbafushi Island, Kaafu Atoll Year: 2010 Location: Thunbafushi Island, Kaafu Atoll, Maldives Client: Champa Brothers Private Limited. *Main project features:* EIA baseline study, impact modelling and report write-up Positions held: Environment Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: Island scoping study of 30 Islands in Maldives for resort development. **Year:** 2010 *Location*: Maldives Client: GMR Infrastructure Limited, India Main project features: Environmental baseline data collection and analysis for 30 islands **Positions held:** Lead Environmental Expert Activities performed: Undertake coastal baseline surveys and coral reef assessment. Name of assignment or project: Atoll wide Land Use Plan and Development Strategy for Addu Atoll Maldives, Maldives Year: 2010 *Location*: Maldives Client: South Province Office, Maldives Main project features: Atoll wide Land Use plan Development. Positions held: Planning Expert Activities performed: Undertook stakeholder consultations; planning concept development; report compilation *Name of assignment or project:* Island scoping study for 17 islands in Maldives for a regional waste site location

Year: 2009-2010

Location: Maldives Client: Ministry of Housing Transport and Environment / SENES Consultants, Canada Main project features: Environmental baseline data collection and analysis for 17 islands **Positions held:** Environmental Expert Activities performed: Undertook field assessment and data collection; conduct desk reviews; report compilation *Name of assignment or project:* Baa Atoll Conservation Plan base line surveys Year: 2009 *Location*: Baa Atoll, Maldives Client: UNDP/ GEF/ Baa Atoll Office- Atoll Ecosystem Conservation Project Main project features: Baseline environmental (terrestrial) surveys. Positions held: Terrestrial Environment Consultant Activities performed: Carried out field surveys, conduct undertook stakeholder consultations; report compilation Name of assignment or project: Coastal erosion study of Maldives Year: 2009 Location: Noonu, Raa, Baa and Lhaviyani Atolls, Maldives *Client:* World Bank/ Ministry of Housing and Environment. Main project features: Coastal erosion study of 20 islands across 4 atolls Positions held: Local consultant / environmental expert Activities performed: Undertook desk studies, historical erosion assessments using GIS; report wirting Name of assignment or project: EIA for agricultural island development in Felivaru, Noonu Atoll. Year: 2009 *Location:* Felivaru Island, Noonu Atoll, Maldives Client: Fantasy Private Limited.. Main project features: EIA baseline study, impact modelling and report write-up *Positions held:* EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for harbour development in Fiyoari, Gaafu Dhaalu Atoll. Year: 2009 Location: Fiyoari, Gaafu Dhaalu Atoll. Maldives *Client:* Ministry of Transport, Hosuing and Environment Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for resort development in Huvandhumaavattaru, Noonu Atoll Year: 2009 Location: Huvandhumaavattaru, Noonu Atoll, Maldives Client: Noonu Hotels Private Limited Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for Jetty and arrival lounge development project in Gan, Addu Atoll Year: 2009 Location: Gan. Addu Atoll. Maldives Client: Island Aviation Services Private Limited. Main project features: EIA baseline study, impact modelling and report write-up

Positions held: EIA Expert Activities performed: Undertook impact modelling and compiled the report. *Name of assignment or project:* EIA for sand sourcing and beach replenishment project of Viligilli Island, Addu Atoll Year: 2009 Location: Viligilli Island, Addu Atol, Maldives Client: Shangri-La at Viligilli. Main project features: EIA baseline study, impact modelling and report write-up *Positions held:* EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: Social and Economic Vulnerability Assessment of 10 Islands of the Maldives Year: 2008 *Location*: Maldives Client: UNDP Main project features: Social and Economic Vulnerability Assessment of 10 Islands **Positions held:** Social Expert Activities performed: Carried out field surveys; undertook stakeholder consultations; report compilation *Name of assignment or project:* Disaster Risk Assessment of 11 'Safe Island' in Maldives. Year: 2008 *Location*: Maldives Client: UNDP *Main project features:* Disaster Risk and Vulnerability Assessment of 11 Islands. **Positions held:** Environmental Expert Activities performed: Detailed environmental vulnerability assessment; baseline data collection and desk assessments; report compilation Name of assignment or project: EIA for proposed coastal protection, beach replenishment and aacces improvement of Elaa, Thaa Atoll. Year: 2007 *Location*: Elaa, Thaa Atoll, Maldives *Client:* Mr Abbas Mohamed, H. Merry Rose. *Main project features:* EIA baseline study, impact modelling and report write-up *Positions held:* EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for N. Randheli Resort Development Project. Year: 2007 *Location*: N. Randheli, Maldives Client: I&T Management Private Limited Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Expert Activities performed: Undertook impact modelling and compiled the report. Name of assignment or project: EIA for Gn Fuvahmulaku Tourist Hotel Development Year: 2005 Location: Gn. Fuvahmulah, Maldives Client: Turquoise Holidays Private Limited Main project features: EIA baseline study, impact modelling and report write-up Positions held: EIA Assistant Activities performed: Undertook impact modelling and contributed to report preparation.

Name of assignment or project: EIA for L.Gan Resettlement Project. Year: 2005 *Location*: L. Gan. Maldives **Client:** Disaster Management Centre Main project features: EIA baseline study, impact modelling and report write-up Positions held: EIA Assistant Activities performed: Undertook impact modelling and contributed to report preparation. Name of assignment or project: EIA Addendum (shore protection measures) for the Landaa Giraavaru Resort Development EIA. Year: 2004 Location: Landaa Giraavaru Resort, Maldives *Client:* Four Seasons Main project features: EIA baseline study, impact modelling and report write-up Positions held: EIA Assistant Activities performed: Undertook impact modelling and contributed to report preparation. Name of assignment or project: EIA for Fonaddoo Environmetal Impact Assessment Report for the development of fisheries complex, Fonaddoo, Maldives. Year: 2003 Location: Fonaddoo Island, Maldives Client: Fonaddoo Investments Private Limited Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Assistant Activities performed: Undertook field assessment and contributed to report preparation. Name of assignment or project: EIA for the development of a Four Season's Tourist Resort on the island of Landaa Giraavaru in Baa Atoll, Maldives.. Year: 2003 *Location*: Landaa Giraavaru, Maldives Client: Landaa Giraavaru Pvt. Ltd. Main project features: EIA baseline study, impact modelling and report write-up **Positions held:** EIA Assistant Activities performed: Undertook field assessment and contributed to report preparation. Name of assignment or project: EIA for the proposed coastal improvements to address coastal erosion concerns on Royal Island Spa Resort, Baa Atoll, Maldives. Year: 2003 Location: Horubadhoo, Baa Atoll, Maldives *Client:* Villa Travels and Tours Pvt. Ltd. Main project features: EIA baseline study, impact modelling and report write-up Positions held: EIA Assistant Activities performed: Undertook field assessment and contributed to report preparation.

Date:1 August 2020

APPENDIX D – Submission of EMP to Kaafu Atoll Council




Mohamed Faizan <faizan@cde.com.mv>

EMP - Installation of Inter-Island Submarine Communication Cable at Rahfalhu Huraa

1 message

Mohamed Faizan <faizan@cde.com.mv> To: secretariat <secretariat@kaaf.gov.mv> Thu, Oct 1, 2020 at 9:05 AM

Dear President of Kaafu Atoll Council,

I am sharing the Environmental Management Plan (EMP) for the proposed installation of inter-island submarine communication cable at Rahfalhu Huraa with this email.

Kindly acknowledge receipt of this email.

Thank you,

Mohamed Faizan Senior Environmental Consultant

CDE Consulting, 4th Floor, H.Orchidmaage, Ameeru Ahmed Magu, Malé 20095, Maldives. T: (960) 3312514, F: (960) 3315926. E: faizan@cde.com.mv W: http://www.cde.com.mv

EMP - Installation of Submarine Cable at Rahfalhuhuraa - v1.5 (optimized).pdf