



MINISTRY OF ENVIRONMENT



ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

ACCELERATING RENEWABLE ENERGY INTEGRATION AND SUSTAINABLE ENERGY
(ARISE) PROJECT (P172788)

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LIST OF ABBREVIATIONS

AIIB: Asian Infrastructure Investment Bank
BESS: Battery Energy Storage Systems
CDP: Cassa Depositi e Prestiti
CTF: Clean Technology Fund
CS: Communications Specialist
EHS: Environment Health and Safety
EPA: Environmental Protection Agency
ESMP: Environmental and Social Management Plan
ESMF: Environmental and Social management Framework
ESIA: Environmental and Social Impact Assessment
ESF: Environmental and Social Framework
ESO: Environmental and Social Officers
ESS: Environmental and Social Safeguards Specialist or Environment and Social Standard
EPPA: Environmental Protection and Preservation Act of Maldives
EV: Electric Vehicles
FSPV: Floating Solar PV
GAP: Gender Action Plan
GBV: Gender Based Violence
GoM: Government of Maldives
IC: Island Council
IDA: International Development Association
IEE: Initial Environmental Examination
IFC: International Finance Corporation
IFI: international Financial Institutions
IPP: Independent Power Producer
LMP: Labour Management Procedure
ME: Ministry of Environment
MIGA: Multilateral Investment Guarantee Agency
O&M: Operations and Maintenance
PA: Protected Area
PAD: Project Appraisal Document
PMU: Project Management Unit
PV: Photovoltaic
PQ: Prequalification
RE: Renewable Energy
SCADA: Supervisory Control and Data Acquisition
SEP: Stakeholder Engagement Plan
STELCO: State Electric Company Limited
VRE: Variable Renewable Energy
WBG: World Bank Group
WB: World Bank

EXECUTIVE SUMMARY

The Environmental and Social Management Framework (ESMF) is developed for Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) project. The project is funded by the World Bank and implemented by Government of Maldives (GoM). Ministry of Environment (ME) is the key implementation agency. Implementation partners for the project include State Electric Company Limited (STELCO) and FENAKA corporation limited the two-government owned electricity service providers in the country. The project is comprised of four components:

Component 1: Solar PV risk mitigation (US\$24.8 million IDA Guarantee and US\$6.2 million IDA Grant) – This component will provide risk mitigation packages to private sector Independent Power Producers (IPPs) to cover off taker risks. This component is expected to cover 36 MW of solar installation through a number of phases through various geographic localities across Maldives.

Component 2: Battery Energy Storage System (BESS) (USD 25 million CTF Loan) – This component will support deployment of BESS system in some islands to enable high penetration of solar PV. This addresses challenges posed of rapidly integrating variable energy to existing grids. The Component targets to support about 50 MWh of BESS in the selected grid systems, subject to market price trends.

Component 3: Grid Modernization for VRE integration (US\$2 million CTF Loan and up to approx. US\$25 million from other IFI co-financing) - This component will support grid upgrades and reinforcement to accommodate an increasing volume of renewable energy and BESS, especially for longer duration, in selected grid systems.

Component 4: Technical Support (USD 3 million CTF Grant) – This component provides technical assistance on the following key areas: (i) Institutional Capacity Building (Utility, ME and other energy producers); (ii) Pipeline Developments (Feasibility studies and other relevant studies); (iii) Other Sustainable Energy Developments; and (iv) Project management and implementation plan

The project applies the World Bank's Environmental and Social Framework (ESF) with the following standards being applicable: ESS 1: Assessment and Management of Environmental and Social Risks and Impacts; ESS 2: Labor and Working Conditions; ESS 3: Resource Efficiency and Pollution Prevention and Management; ESS 4: Community Health and Safety; ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; ESS 8: Cultural Heritage; ESS 10: Stakeholder Engagement and Information Disclosure. These aspects are applicable to components 2,3 and 4 of the project.

For Component 1, as the project involves private sector investments which has guarantee component from International Development Association (IDA) to cover off taker risks, International Finance Corporation (IFC) performance standards are applicable to the project. Like ESS the applicable PS for the project includes: PS1: Assessment and Management of Environmental and Social Risks and Impacts, PS2: Labour and Working Conditions, PS3: Resource Efficiency and Pollution Prevention, PS4: Community Health, Safety and Security, PS 6: Biodiversity Conservation and Sustainable Natural Resource Management and PS8: Cultural heritage.

A number of national regulations were identified as applicable for the project. This includes environmental, energy and social regulations. From environmental point of view the several regulations that were developed under Environmental Protection and Preservation Act (4/93) of the Maldives was found to be applicable. This includes: Environmental Impact Assessment Regulations, Waste management Regulation, Regulation on Protection of Old Trees, Regulation on Cutting Down, Uprooting and Transfer of Trees and Palms from One Island to Another, Protected Area Regulation, Migratory Birds Regulation and Dewatering Regulation. From the energy sector the applicable policies, legislation, regulations and guidelines identified include: Strategic Action Plan, Public Service Act (4/96), Net metering Regulation, Generation Distribution Supply Licensing Regulation, Guidelines for Power System Approval and Export Import Act and Export Import Regulation. From a social and cultural perspective the identified laws and regulations include: Land Act, Employment Act, Decentralization Act, Heritage Act,

Construction Site Health and Safety Regulation, laws and regulations related to migrant workers and laws and regulations in relation to gender.

Several gaps were identified between national requirements and that of World Bank ESS through a gap analysis. In general World Bank standards were identified to be more stringent. For instance, nationally, the focus of assessments and impacts on development projects is very much focused on environmental aspects while world bank standards give preference to both environmental and social aspects equally. Moreover, as per national requirements, the impacts of projects on vulnerable groups are not investigated in detail. Another aspect missing locally through legislation is the right for unionizing, collective bargaining and the right to strike. Furthermore, for pollution prevention air quality requirements were found to be missing from local legal requirements. Mechanisms to address grievances that arise as a result of projects are also found to be missing through local regulations.

Six islands have already been identified to undertake project activities as a first phase. This includes: Addu City, Fuvahmulah City, Kulhudhufushi City, Thinadhoo, Hinnavaru and Eydhafushi. Key environmental and social features of these islands were presented in the ESMF. In this regard, it was identified that there are a number of wetland areas in majority of these locations including Addu, Fuvahmulah, Kulhudhufushi and Thinadhoo. It was identified that many of these islands have cultural and historical significance. For example Fuvahmulah used to be a location where political prisoners were banished, Addu used to be a base for British Airforce during World War II and Thinadhoo was involved in a significant and violent uprising.

The main impacts identified for the project include impacts that occur due to disposal of hazardous waste (PV systems and Battery) installed through the project at end of life, vegetation clearance, impacts on aviation where solar PV is installed in airports, impacts on light and heat reflection, impacts on buildings where solar PV is installed, impacts on land use, labour related impacts, impacts on vulnerable groups and impacts on marine habitat due to floating solar PV.

The ESMF identifies mitigation measures to address these impacts. This include; ensure safe disposal of solar panels and battery systems by including provisions in contracts, preferring vegetation relocation and where it has to be removed planting two trees to every tree removed, undertaking glare assessment for PV installed close to airports, structural assessment undertaken where PV is installed on rooftops, signing MOU with council to secure land, preferring land which cannot be used for another purpose, involving vulnerable groups in all stages of the project, establishing labour management procedures for the project, establishing stakeholder engagement plan for the project and undertaking feasibility assessments prior to undertaking floating solar installation. The ESMF also includes chance find procedures for cultural heritage and grievance redress mechanism for addressing public grievances regarding the project.

The ESMF also lays out the steps that needs to be followed when attaining approval for various activities that are undertaken through the project. In this regard, for Component 1, it has been determined that prior to bidding, structural assessment of buildings, glare assessment for projects close to airports and feasibility studies for floating solar projects, need to be undertaken. Moreover, for this component, Environmental and Social screening needs to be undertaken and the level of assessment required for IPP identified and information disclosed prior to the bidding process. As for Components 2 and 3, the ESMF identifies that screening and the required ESIA or ESMP following screening needs to be completed and included in bidding documents for works contractors.

The ESMF mentions the responsible parties and administrative arrangements for implementation of ESMF. In this regard, the all environmental and social screening will be undertaken by the Project Management Unit (PMU) of ME for all the components. For Component 2 and 3, Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) will be prepared by PMU. For component 1 it will be undertaken by IPP.

The Environmental and Social Safeguards Specialist (ESS) of the PMU will assume the prime responsibility of implementation of this ESMF, while the Communications Specialist (CS) will provide support in implementing the requirements in terms of undertaking consultations and awareness session required under this ESMF.

Furthermore, STELCO and FENAKA will identify island-level Environmental and Social Officers (ESOs) as focal points to provide support for implementation of this ESMF. Moreover, the Monitoring and Evaluation Specialist will take the lead in implementing the Gender Action Plan.

A detailed Grievance Redress Mechanism (GRM) for the project has been included in the SEP and also referenced in the ESMF. The first tier of the mechanism is the site, the second tier is the council and the third tier is Ministry of Environment. This system was defined based on the experience from previous energy projects implemented in the Maldives. Information on GRM is required to be displayed at the site, at the council, at the electricity service provider office and on the website of ministry, council and the electricity service provider.

The ESMF also identifies capacity development requirements. This includes training given to direct project staff by the World Bank and training given to ESO by the PMU. Cost estimates for implementation of this ESMF and capacity development needs were identified in the ESMF.

1 CHAPTER 1: INTRODUCTION ACCELERATING RENEWABLE ENERGY INTEGRATION AND SUSTAINABLE ENERGY

1.1 PROJECT DESCRIPTION

1.1.1 PROJECT DEVELOPMENT OBJECTIVE

The development objective is to increase generation capacity from renewable energy sources and facilitate their integration into the country’s grid infrastructure.

1.1.2 PROJECT COMPONENTS

The proposed Project would mobilize private sector investment in solar PV generation capacity, support BESS deployment and grid modernization to enable VRE integration and provide technical assistance for institutional capacity building and pipeline development. The project design would allow to address key bottlenecks to scaling up investment in renewable energy, notably high-risk perception of the private sector and insufficient grid capacity to absorb a high share of renewable energy in wide spread isolated island systems.

The proposed project is consisted of four components as described below.

Component 1 – Solar PV Risk Mitigation (US\$24.8 million IDA Guarantee and US\$6.2 million IDA Grant). This Component aims to leverage the success of the previous World Bank programs in the Maldives (including the ASPIRE Project (P145482)) to support the government in increasing the solar PV capacity through private sector participation from independent power producers (IPPs). Component 1 will provide risk mitigation package to private sector IPPs to cover off-taker risks including PPA payments delays and termination payments. Given the weak financial performance and the dependence on government subsidy of the offtakers, the private sector would view the provision of a credit enhancement to mitigate the off-taker risk critical in investment decision making. IPPs will be selected through competitive tendering to install and operate solar PV generation facilities. This component is expected to cover various solar PV applications for IPPs that will be identified over time, including rooftop PV, land-based PV, and floating PV, across various islands (not only Greater Malé and larger islands, but also outer islands and atolls), targeting about 36 MW of installed capacity in aggregate.

This Component will support multiple IPPs in phases during the implementation period. Given the severe land constraints in the Maldives, following the ASPIRE approach, the PMU will in advance identify suitable spaces for installing and operating solar PV, either on rooftop, ground or waterbed such as lagoon, and aggregate a number of spaces for each bidding phase. The bidding package, including a feasibility study and environmental and social screening, will be prepared by the PMU. An indicative pipeline of IPPs to be supported under the Project is as below in Table 2.

Table 2. Indicative IPP Pipeline

Seq.	Scale/type	Location	Indicative Guarantee Amount ¹	Current Status
1	11 MW ground mounted solar PV	Addu City, Fuvahmulah City, GDh. Thinadhoo, B. Eydhafushi, Lh. Hinnavaru, and HDh. Kulhudhufushi	US\$8.8m	PQ launched
2	10 MW floating solar PV	Addu City	US\$10.4m	PQ launched
3	7 MW ground mounted solar PV	Laamu atoll	US\$5.6m	Under development
4	About 8 MW ground mounted, rooftop and/or floating solar PV	Other regions	US\$8m	Under identification
Total	About 36 MW		US\$ 32.8m	

¹ Indicatively, solar CAPEX is assumed US\$11m for #1, US\$13m for #2, US\$7m for #3 and US\$10m for #4, and guarantee coverage assumed at 80%. Accurate figures to be refined during implementation.

As part of the bidding package for each IPP to be identified, one or more IDA Guarantees will be provided. An IDA Guarantee will be offered for two potential purposes: (i) to backstop short term payment delays by STELCO or FENAKA under Power Purchase Agreements (PPAs), and/or (ii) to partially cover termination events caused by defaults for which STELCO, FENAKA or the Government of Maldives is responsible or in certain cases to cover GoM force majeure events. With respect to the termination event coverage, in the very rare cases where there are very serious and chronic utility and GoM non-performance issues, contract termination proceedings under PPAs could be initiated. If such proceedings result in a termination payment obligation due to the private sector IPPs, and if such termination payment obligation is not honored, then, once all other modalities have been exhausted, the IDA Guarantee would be used to backstop a portion of the funds due to the IPPs.

IDA Grant will be available to (i) fund an escrow account to backstop short term payment delays by STELCO or FENAKA under PPAs; and (ii) provide cost buydown grant for solar PV IPPs, in particular floating solar PV applications that are expected more costly. IDA Grant will be flexibly allocated between the two different uses, subject to market sounding and the structure of the risk mitigation package at each round of bidding.

The coverage under the risk mitigation package will be revisited at each round of bidding. Subject to market sounding, the coverage may be adjusted, i.e. the number of months of PPA payment and/or the portion of the termination payment to be covered. As the market develops and private sector gets confidence in investment opportunities in the Maldives, the coverage provided in the risk mitigation package is also expected to be reduced in parallel while still incentivizing private sector investment.

A “one” WBG approach is being considered in order to provide the most flexible financing solution for the Project. There are ongoing discussions with International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA) to potentially collaborate on the Project. IFC is considering providing financing to the winning bidders of each round, subject to its own due diligence. While MIGA may provide further support for risk mitigation where expanded risk mitigation coverage is required. The Bank will continue to coordinate with IFC and MIGA to improve the investment climate in the Maldives and assist the government in its efforts to scale up renewable energy generation in the country.

Component 2 – Battery Energy Storage Systems (BESS) (US\$25 million CTF Loan). This component will support deployment of BESS in Addu City and other islands to enable a high penetration of solar PV in the power system while ensuring reliable supply in a cost-efficient manner. As the share of renewable energy in the power system continues to grow, with support under Component 1, particularly rapidly in islands with a smaller grid, integrating variable renewable energy (VRE) while maintaining or improving quality of service poses significant challenges to STELCO and FENAKA. The Project will support a comprehensive assessment of each island grid where solar PV IPPs are invited under Component 4 and determine proper solutions to integrate proposed solar PV capacity in a cost-efficient manner. In case that BESS is required for VRE integration, it will be introduced to provide ancillary services, load shifting and other benefits. The Component targets to support about 50 MWh of BESS in the selected grid systems, subject to market price trends.

A CTF concessional loan of US\$25 million will be provided to procure and operate BESS. The CTF loan will be provided to the Government of Maldives with 40-year maturity, 10-year grace period and 0.25 percent of service charge on the disbursed and outstanding loan balance. There will be an MDB fee equivalent to 0.45 percent of the total loan amount, payable in a single lump sum amount, which will be paid by the borrower out of its own resources or capitalized from the loan proceeds following the effectiveness of the loan. The concessionality of CTF loan is essential to introduce such an innovative technical solution of which the price could be prohibitive on commercial basis.

The ME, through its PMU, will lead a procurement process through a competitive bidding procedure for the BESS. STELCO and FENAKA will coordinate with the PMU and closely coordinated throughout the preparation and implementation of the procurement process. To ensure a proper life cycle management of the BESS deployed under the Project, the contract with suppliers will include provisions on safety infrastructure during operation and used battery management and disposal in accordance with international standards. Operation and maintenance (O&M) of the BESS may pose some challenges for the utilities as they have limited experience in operating longer-duration BESS. During the preparation of tendering, different options on O&M arrangement will be explored to ensure that BESS functions as intended and that the utilities are equipped with sufficient O&M capacity over a long run.

Component 3 – Grid Modernization for VRE Integration (US\$2 million CTF Loan and up to approx. US\$25 million from other IFI co-financing). This component will support grid upgrades and reinforcement to accommodate an increasing volume of renewable energy and BESS, especially for longer duration, in selected grid systems. The current grid systems in many islands are obsolete and insufficient to integrate a high share of solar PV and BESS and optimize grid operation among multiple sources of generation or supply. An increasing use of electric vehicles (EVs) and the need for EV charging stations are expected to pose additional challenges to the power system.

The main scope will include strengthening network capacity, deploying supervisory control and data acquisition (SCADA) systems and optimizing interactions among renewable energy generation, BESS and existing conventional power plants. As the penetration of solar PV and renewable energy increases, interconnection among islands will be also considered to improve system balancing and flexibility, which helps integration of solar PV. Associated infrastructure with electric mobility can be also supported subject to detailed assessment under Component 4. The existing grids across the Maldives will be first assessed for investment requirements, considering a potential growth in electricity demand, renewable energy and EVs. The ME will lead implementation of this Component, in close coordination with STELCO and FENAKA.

Terms of the CTF concessional loan will be same with Component 2. There is a financing gap of around US\$25 million in Component 3. Co-financing from other sources would be critical to meet the increasing investment need under the Component. There has been a preliminary discussion to mobilize concessional loan financing from the Bank's bilateral program with Canada, currently under preparation. The Bank is also in discussion with other international financial institutions (IFIs) including Asian Infrastructure Investment Bank (AIIB) and Cassa Depositi e Prestiti (CDP) to provide loans to co-finance this Component.

Component 4 – Technical Assistance (US\$3 million CTF Grant). This Component will provide technical assistance (TA) support to be implemented by the ME, through its PMU. It will support the following areas:

(i) Institutional capacity building: It will provide technical capacity support and training to the ME, STELCO, FENAKA and other relevant stakeholders for power system planning incorporating renewable energy, BESS and EVs and operating improved power systems with renewables, battery storage, EMS and SCADA. It will also support capacity building to strengthen a policy and regulatory framework for BESS risk management.

(ii) Pipeline development: This will cover identification of appropriate subproject sites, pre-feasibility and feasibility studies, preparation of safeguard instruments, and technical advisory for the tendering process.

(iii) Other sustainable energy development: To exploit renewable energy potential beyond solar PV and develop sustainable energy sector, this area will support technical assistance on, but not limited to, offshore wind potential assessment, policy and regulatory frameworks and system planning for scaling up the use of EVs, feasibility assessment and roadmap for EV charging stations, vehicle-to-grid technologies and associated infrastructure, feasibility assessment of green hydrogen for energy storage and transportation, potential energy efficiency policies and engagement, and improving financial sustainability of the power sector.

(iv) Project management and implementation support: This will cover hiring consultants necessary for the PMU functions, including technical experts, financial management, ESMF, procurement as well as incremental operating expenses and office supplies.

1.2 OBJECTIVE OF ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

Projects and Programs financed with IDA resources need to comply with World Bank Operational Policies. Therefore, components and related activities eligible for funding under this project will be required to satisfy the World Bank's safeguard policies, in addition to conformity with environmental legislation of the GOM.

However, since details of sites and specific investments of the project are not available at this stage, site-specific Environmental and Social Assessments cannot be conducted. What is possible at this stage would be to carry out an identification of generic issues that are typically associated with activities that would potentially be funded by the project and apply the information to site specific environmental assessments, as and when the need arises.

Therefore, the purpose of this document is to outline a framework for environmental assessment and management, giving details of potential environmental issues and guidelines on what type of environmental assessment tools to be applied for various sub-project activities. This will serve as the basis in the preparation of, site-specific specific Environmental and Social Assessments (ESAs) and/or Environmental and Social Management Plans (ESMPs). As stated earlier, it is being submitted in lieu of a project environmental and social assessments and has formed the basis for appraising the environmental and social aspects of the project. It will be made available for public review and comment in appropriate locations in the Maldives and in IDA's Public Information Center in accordance with World Bank's policy of Access to Information.

It is expected that detailed environmental and social assessments (ESAs, ESMPs) for sites and/or for activities will be carried out (in accordance with this Framework) by the implementing agencies and will be reviewed and cleared by the Environmental Protection Agency (EPA), or any other agency, as applicable, under prevailing national environmental legislation in the Maldives. If applicable and by IDA for all physical activities prior to the approval of disbursement of funds.

The objectives of this Environmental and Social Management Framework (ESMF) are:

- a. To establish clear procedures and methodologies for environmental and social planning, review, approval and implementation of subprojects to be financed under the Project
- b. To carry out a preliminary assessment of environmental and social impacts from project investments and propose generic mitigation measures.
- c. To specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects
- d. To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF
- e. To provide practical resources for implementing the ESMF

1.2.1 DUE DILIGENCE PRINCIPLES

This ESMF considers and incorporates principles of due diligence that will be applied during project preparation and implementation in managing potential environmental and social risks that may be encountered. The key due diligence principles are as follows:

Principle 1: Review and Categorization. All physical interventions will be subject to a social and environmental review and shall be categorized based on the magnitude of potential impacts and risks in accordance with environmental and social screening criteria.

Principle 2: Social and Environmental Assessment. As per the GoM regulatory requirements, where necessary Initial Environmental Evaluations (IEEs) or Environmental and Social Impact Assessments (ESIAs) will be undertaken to address, as appropriate, the relevant social and environmental impacts and risks. The Assessment will also propose mitigation and management measures relevant and appropriate to the nature and scale of the proposed project as described earlier.

Principle 3: Applicable Social and Environmental Standards. The ESMF will refer to the applicable World Bank Operational Policies and Environmental Health and Safety (EHS) Guidelines, as well as policies and standards of the GoM. The Assessment will establish the project's overall compliance with, or justified deviation from, the respective World Bank Operational Policies, Performance Standards and EHS Guidelines where applicable. The Assessment will address compliance with relevant Maldivian laws, regulations and permits that pertain to social and environmental matters.

Principle 4: Environmental and Social Management System. For all physical activities, an Environmental and Social Management Plans (ESMPs) and monitoring indicators will be developed which addresses the relevant findings and draws on the conclusions of the assessments. The ESMPs will describe and prioritize the actions needed to implement mitigation measures, corrective actions and monitoring measures necessary to manage the impacts and risks identified in the assessments. These actions will be costed and reflected as part of the contractual documents of the civil works contracts.

Principle 5: Consultation and Disclosure. For all activities affected communities will be consulted within a structured and culturally appropriate manner. If principle project activities or subproject activities are assessed to have significant adverse impacts on affected communities, the process will ensure their free, prior and informed consultation as a means to establish whether those activities have adequately incorporated affected communities' concerns. In order to accomplish this, this framework as well as all other safeguard instruments will be made available to the public by the borrower for a reasonable minimum period. The process will be documented, and account will be taken of the results of the consultation, including any actions agreed resulting from the consultation. For projects with adverse social or environmental impacts, disclosure will occur early in the assessment process, and on an ongoing basis.

Principle 6: Grievance Redress Mechanism. To ensure that consultation, disclosure and community engagement continues throughout project implementation, a grievance redress mechanism will be established, scaled to the risks and adverse impacts of the project or subproject, as part of the management system. The grievance redress mechanism will allow for concerns and grievances about the project's social and environmental performance raised by individuals or groups from among project-affected communities to be received and to facilitate resolution of those concerns and grievances.

Principle 7: Monitoring and Reporting. All ESMPs will be monitored based on the monitoring schedule identified in the ESMP by the relevant responsible party. The Environmental and Social Coordinator will be responsible to ensure the monitoring activities have taken place including his/her monitoring and consolidate monitoring report is prepared bi-annually.

Principle 8: Training. Training to ensure project staff, staff of civil contracts and other parties who would play a role in managing environmental and social impacts will be necessary to ensure successful implementation of this ESMF. Necessary budget should be allocated to carry out the training plan.

2 CHAPTER 2: INTRODUCTION TO PREVAILING ENVIRONMENTAL CONDITIONS IN PROJECT AREA

2.1 INTRODUCTION

Maldives is an island nation in the Indian Ocean oriented north-south off India's Lakshadweep Islands. The Maldives consists of 1,192 coral islands grouped in a double chain of 26 atolls. The country's atolls encompass a territory spread over roughly 90,000 km², making it one of the world's most geographically dispersed countries. Over 200 of its 1,192 islands are habituated by the country's population, with an average of 5-10 islands in each atoll being inhabited islands that have infrastructure such as housing, roads and other facilities built in. The country's total land area is estimated to approximately 300 Km², with islands varying in size from 0.5 km² to 5.0 km². A significant number of uninhabited islands in each atoll have also been converted to resorts and tourism facilities as well as house infrastructure such as industrial facilities and airports.

The atolls are composed of live coral reefs and sand bars, situated atop a submerged ridge 960 km long that rises abruptly from the depths of the Indian Ocean. Maldives is noted as the country placed at the lowest elevation in the world, with maximum and average natural ground levels of only 2.4 m and 1.5 m above sea level, respectively. More than 80 per cent of the country's land is composed of coral islands which rise less than one meter above sea level. The islands consist of coral, sea grass, seaweed, mangrove and sand dune ecosystems which are of great ecological and socio-economic significance. Maldives is home to a number of ecologically sensitive marine habitats in shallow and intertidal zones which have been designated as protected areas by the Ministry of Environment and Energy (MEE) and access and any activities in their vicinity are stringently monitored and managed.

The project focuses on the population centers in Maldives with highest population and hence highest energy demand. So far, the islands identified for the project include: Addu City, Fuvahmulah City, Kulhudhufushi City, Gdh.Thinadhoo, Lh.Hinnavaru and B.Eydhafushi. Specific environmental and social features of these islands are discussed in section 2.6. Some additional islands considered for the project include L.Gan, L.Fonadhoo and Lh. Hinnavaru. Activities are likely to be undertaken in some other populous islands as well. Thus, the project is unique in that it covers the whole country.

Generic physical characteristics across the atolls, including topographic, geographic and climatic conditions across the atolls do not vary on great scale. The same applies for the biological context as terrestrial ecosystems and marine ecosystems across the atolls are similar, except for minor variations such as the presence of mangroves, wetlands and sensitive marine protected areas. Detailed outlines of these baseline conditions are presented below. While atoll specific details are scarce due to a lack of data, specific environmental and social assessments under the project will establish baseline data for all inhabited islands the project will be working. The project will predominantly be working in urban centers that have already undergone significant anthropogenic modifications due to human habitation.

2.2 GEOGRAPHY AND GEOLOGY

2.2.1 GEOGRAPHIC AND TOPOGRAPHIC CHARACTERISTICS COMMON TO ALL ATOLLS

The islands of the Maldives are flat, with topographic variations generally less than two meters at highest elevation across. Over 80% of the total land area of the country is less than one meter above mean sea level and the highest point recorded in the country is a beach storm ridge at Fuvahmulah, in the Southern most Atoll with an elevation of four meters above mean sea level. Historically the Maldives is divided into 26 natural atolls, however based on a scientific evidence concluded in the 2004 the Maldives is classified into 16 complex atolls, five oceanic faros and four oceanic platform reefs. The 2008 Constitution of the Maldives, in its Schedule Two, divides the Maldives into 20 administrative atolls, and the capital Island of Male. Administratively 04 cities have been identified in Maldives, Male, Addu, Fuvahmulah and Kulhudhufushi.

The coral atolls of the Maldives are formed upon minor elevations on the Chagos-Lacative submarine plateau, which ascends from the deep Indian Ocean. This plateau has provided a base for reef building corals, from where they have risen to the surface as illustrated in Figure 1. Most of the atolls have a number of channels or openings in the outer reef which provide access to the islands in the enclosed interior sea or lagoon of the atoll. The shape of the atolls varies from circular and oval, to pear shaped. Some are fairly large such as Huvadhu Atoll in the

south, which has approximately 250 islands and a lagoon area covering approximately 2,800 sq. km. Other atolls are very small and contain only a single island, such as Kaashidhoo and Gaafaru in the North Male' Atoll.

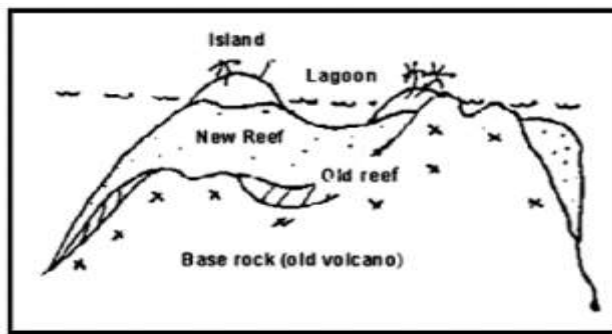


Figure 1 Profile of an Atoll and Lagoon

The islands can be divided physiographically into three zones namely: i) the foreshore or lower beach, ii) the beach crest (beach top) and iii) the inner island. The foreshore or lower beach zone, which includes the beach area between the high tide line and the beach crest, is totally exposed to wave action, wind and salt spray. It is unstable and composed mainly of coarse coral sand in the lower portion and shingle. The beach crest or beach top rises gradually and sometimes abruptly to a height of 0.8 to 1 m above the high tide line and includes a stable beach frontage composed of coral sand and rubble. It is exposed to winds and salt spray and its lower margin is occasionally or, in the case of an eroding beach, regularly inundated by seawater during spring tides. The beach crest may extend 5 to 20 m. The microclimate of the inner islands, protected by the beach-crest communities make them good environments for growth of larger trees.

In total there are 1,192 islands in the coral atolls of the Maldives, out of which 1,074 vegetated islands and approximately 450 un-vegetated islands in the Vegetated islands comprise both natural vegetated islands and artificial vegetated islands. The un-vegetated islands include natural sand banks (inolhu), natural coral conglomerates above High Tide Level (Huraa) and artificial un-vegetated islands. The distribution of islands by administrative atolls are presented below.

Table 1 Distribution of islands by administrative atolls

#	Administrative Atolls	Atoll Code	Vegetated Islands	Unvegetated Islands	Total
1	North Thiladhunmathi	Haa Alifu	38	5	43
2	South Thiladhunmathi	Haa Dhaalu	34	4	38
3	North Miladhunmadulu	Shaviyani	49	8	57
4	South Miladhunmadulu	Noonu	64	13	77
5	North Maalhosmadulu	Raa	79	21	100
6	South Maalhosmadulu	Baa	66	48	114
7	Faadhippolhu	Lhaviyani	50	31	81
8	Male' Atoll	Kaafu	99	54	153
9	North Ari Atoll	Alifu Alifu	30	28	58
10	South Ari Atoll	Alifu Dhaalu	45	32	77
11	Felidhe Atoll	Vaavu	18	21	39
12	Mulakatoll	Meemu	35	28	63
13	North Nilandhe Atoll	Faafu	16	19	35
14	South Nilandhe Atoll	Dhaalu	42	27	69
15	Kolhumadulu	Thaa	64	33	97
16	Hadhunmathi	Laamu	77	22	99
17	North Huvadhoo Atoll	Gaafu Alifu	85	24	109
18	South Huvadhoo Atoll	Gaafu Dhaalu	154	25	179
19	Fuvammulah	Gnaviyani	1	-	1
20	Addu Atoll	Seenu	28	6	34
Total			1074	449	1523

(Source: Shaig 2008)

Freshwater resources are scarce in the Maldives. There are no rivers or streams in the islands. The main source of freshwater in the islands is the groundwater aquifer. Increased extraction exceeding natural recharge through rainfall over the years, has dramatically depleted the freshwater availability in inhabited islands. Sewerage contamination and salt water intrusion have made the water in inhabited islands unfit for portable sources thus many inhabited islands obtain water via reverse osmosis of sea water or rain water harvesting for portable uses and drinking water consumed is usually bottled and transported to the Islands.

2.2.2 SOILS

The soils in the islands of the Maldives are geologically young. They consist of substantial quantities of the unweathered coral parent material, coral rock and sand. Soils are coarse in texture and shallow in depth with a top layer of brown soil (0 to 40 cm in depth) followed by a transition zone on top of the underlying parent material of coral reef limestone. In some low-lying areas and areas subjected to significant mechanical breakdown from human activity, fine deep soils are found with accumulated deposits of clay. In the wetland environment called kulhi the depth of the clay is substantial due to the accumulation of material from marine and biological sources over a long period of time, however as most of the wetlands in the Maldives are protected this material is not used for building purposes. In many places, top layers of the soils have a weakly developed structure and at times a 30 cm thick hard-pan layer cemented with calcium carbonate is present, preventing penetration of the roots of most plants except large trees. The water-holding capacity of the soil is very poor due to high porosity and very high infiltration rates. The soils of the Maldives are generally alkaline with pH values between 8.0 and 8.8, this high alkalinity is due to the presence of excess calcium. The soils that contain higher levels of humus, as found in depressions and wetlands, are less alkaline. The quality of the soils in the small islands is generally poor with marked deficiency in nitrogenous nutrients, potassium and several micronutrients particularly iron, manganese and zinc. Though the phosphorus content of the soils is high it is unavailable to plants as it is present mostly in the form of calcium phosphate.

2.3 GENERAL CLIMATIC CONDITIONS

2.3.1 RAINFALL

Climatic conditions in the Maldives belong to the tropical-monsoon category with temperatures ranging between 24°C and 33°C throughout the year. Climatic conditions in the Maldives is predominantly affected by the large landmass of South Asia situated to the north. The presence of this landmass causes differential heating of land and water. These factors set off a rush of moisture-rich air from the Indian Ocean over South Asia, resulting in the southwest monsoon. Two seasons dominate Maldives' weather: the dry season associated with the winter northeastern monsoon and the rainy season which brings strong winds and storms.

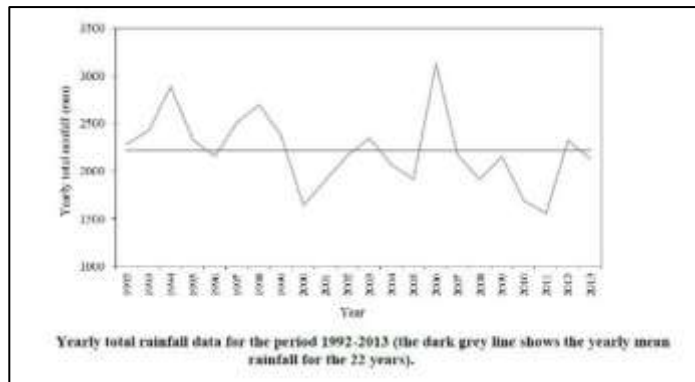


Figure 2 Rainfall Patterns in the Maldives

The shift from the dry northeast monsoon to the moist southwest monsoon occurs during April and May and the southwest monsoon Maldives in the beginning of June and lasts until the end of August. Annual rainfall averages 254 cm in the north and 381 cm in the south, with the southern region experiencing more rain. Average monthly rainfall analysis shows a general increase in rainfall as the year progressed from January to December. February and March are the driest months while the month of October is the wettest month. Last four months of the year from September through to December, the average rainfall is significantly higher than the rest of the months except in the month of May (Figure-2). Moreover, in general south of Maldives receive more rainfall than north of Maldives. Southern atolls receive on average 2280 mm of rain per year while the northern atolls receive on average 1790 mm of rain per year. Figure 03 shows the rainfall distribution by month from the three main weather stations in Maldives.

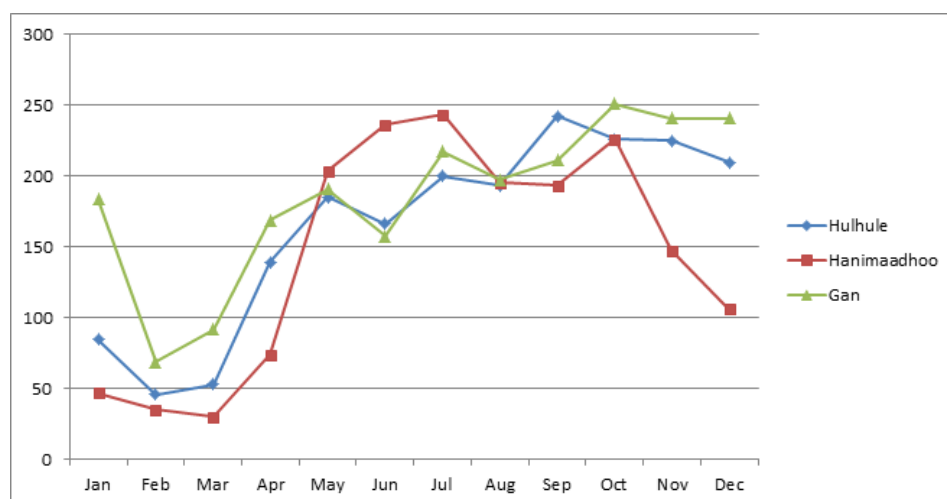


Figure 3 Rainfall distribution over Maldives

(Source: Maldives Meteorological Service, Data since 2000)

2.3.2 WIND

The winds that occur across Maldives are mostly determined by the monsoon seasons. The two monsoons are considered mild given that Maldives is located close to the equator. As a result, strong winds and gales are infrequent although storms and line squalls can occur, usually in the period May to July. During stormy conditions gusts of up to 60 knots have been recorded at Male'. Wind speed is usually higher in central region of Maldives during both monsoons, with a maximum wind speed recorded at 18 ms-1 for the period 1975 to 2001. Mean wind speed as highest during the months May and October in the central region. Wind analysis indicated that the monsoon was considerably weaker in the south (Naseer, 2003). During the peak months of the SW monsoon, southern regions have a weak wind blowing from the south and south-eastern sectors.

Winds recorded at National Meteorological Center in Hulhule indicates that heavy windy conditions occurred during south-west monsoons (Figure 4).

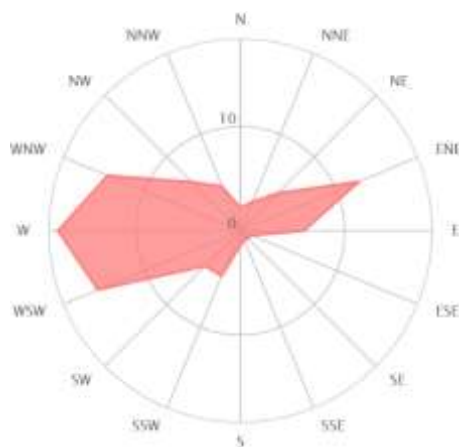


Figure 4 Windrose Diagram based on Data from Hulhule (data from 2002 to 2017)

Wind gusts of 35 mph to 45 mph were occasionally recorded when effects of cyclones from Arabian Sea were felt in the country. Direction of wind changes predominantly from north-east in the northeast monsoon to west and south-west in the southwest monsoon and variable direction of wind are experienced in the monsoon transition periods (Table 3).

Table 2 Summary of general wind conditions in Malé region

Month of year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
	01	02	03	04	05	06	07	08	09	10	11	12	1-12
Dominant wind direction	↙	↙	↙	↘	↘	↘	↘	↘	↘	↘	↘	↙	↘
Wind probability >= 4 Beaufort (%)	55	40	15	16	48	47	34	34	34	39	23	38	35
Average Wind speed (kts)	11	10	8	7	11	11	10	9	10	10	8	10	9
Average air temp. (°C)	30	30	31	31	31	30	30	30	30	30	29	29	30

2.3.3 TEMPERATURE

The temperature of Maldives varies little throughout the year with a mean daily maximum temperature of about 32°C and mean low of 26°C and are rarely below 25°C or above 33°C. The highest temperature ever recorded in the Maldives was 36.8°C, recorded on 19 May 1991 at Kadhdhoo Meteorological Office. Likewise, the minimum temperature ever recorded in the Maldives was 17.2°C, recorded at Hulhule on 11th April 1978. The highest recorded temperature for Male' was 34.1°C on 16th and 28th of April 1973. The hottest month of the year is usually April reaching a peak around 24 April. The figure below shows the maximum and minimum average temperature pattern across the three weather stations in Maldives, Hulhule in central, Hanimaadhoo in north and Gan in South.

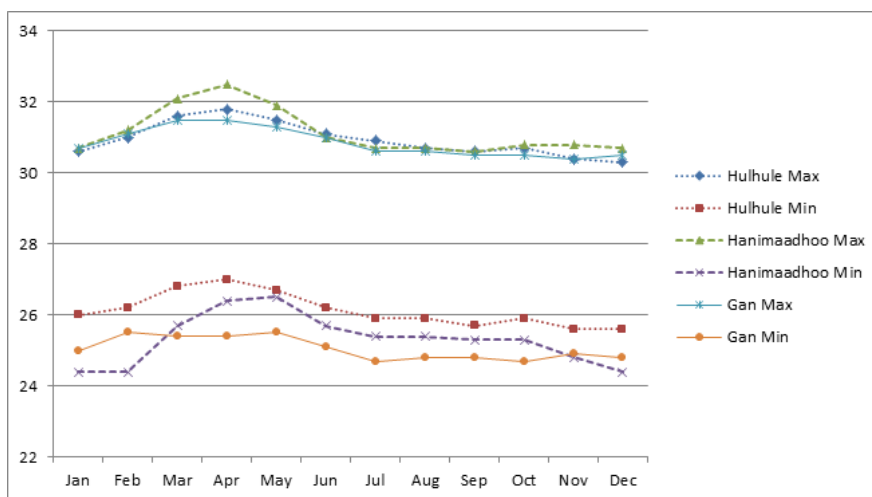


Figure 5 Average maximum and minimum temperature by month

(source: Maldives Meteorological Service, Data since 2000)

2.3.4 SUNSHINE

On average Maldives received plentiful sunshine throughout the year, as the country is located in the equator. On average Maldives receives 08 to 09 hours of sunshine daily. Most sunshine is received during the month of March and least during June (Figure 5).

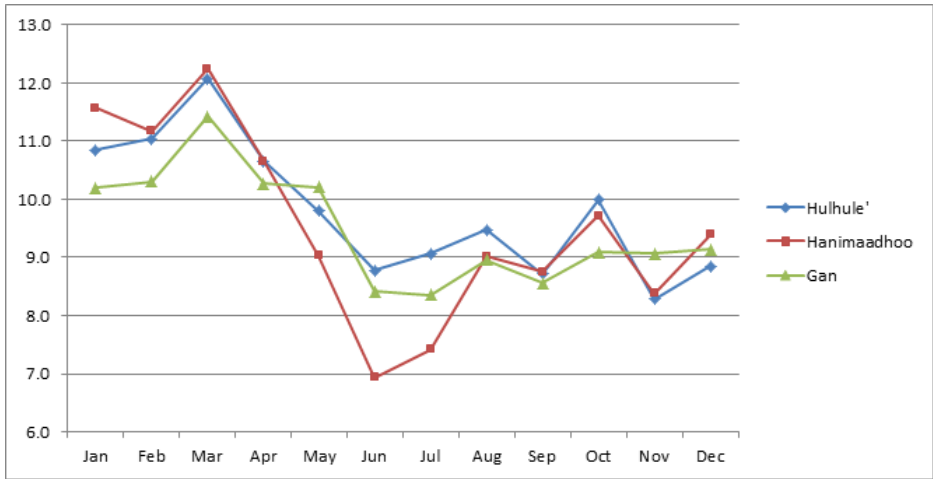


Figure 6 Average Sunshine by month

(Source: Maldives Meteorological Service, Data since 2000)

This information can be used to compute monthly average solar energy. This is very useful when considering installation of solar PV. As can be seen from Figure 6 The average daily incident shortwave solar energy experiences some seasonal variation over the course of the year. The brighter period of the year lasts for 2.3 months, from January 27 to April 5, with an average daily incident shortwave energy per square meter above 6.0 kWh. The brightest day of the year is February 25, with an average of 6.4 kWh (Figure 6). The darker period of the year lasts for 3.2 months, from May 11 to August 19, with an average daily incident shortwave energy per square meter below 4.6 kWh. The darkest day of the year is June 1, with an average of 4.1 kWh (Figure 6).

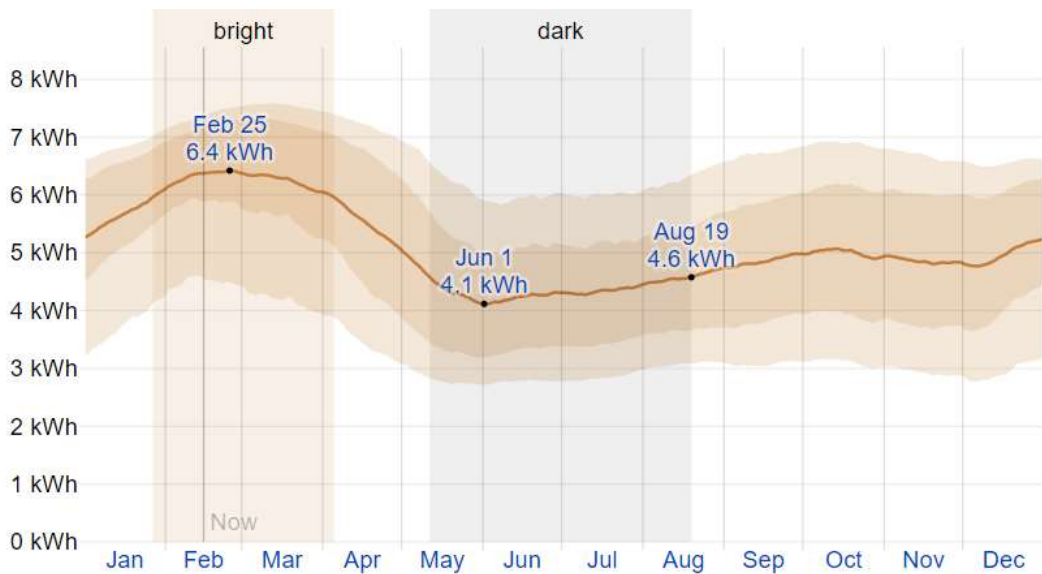


Figure 7 The average daily shortwave solar energy reaching the ground per square meter (orange line), with 25th to 75th and 10th to 90th percentile bands

(Source: weatherspark.com, Data from 1980 to 2017).

2.4 HYDROGRAPHY

2.4.1 TIDES

Tides affect wave conditions, wave-generated and other reef-top currents. Tide levels are believed to be significant in controlling amount of wave energy reaching an island, as no wave energy crosses the edge of the reef at low tide under normal conditions. In the Maldives where the tidal range is small (1m), tides may have significantly important influence on the formation, development, and sediment movement process around the island. Tides also may play an important role in lagoon flushing, water circulation within the reef and water residence time within an enclosed reef highly depends on tidal fluctuations.

Semidiurnal tides are experienced in the Maldives that is two high tides and two low tides a day. The tide varies slightly from place to place, depending on the location and on the shape and depth of the basin, channels and reefs and time of the year.

The following figure shows the astronomical tidal variation recorded in the country with respect to the mean sea level. Astronomical tides are related to the motion of the earth-moon-sun system and have a range of periodicities. The highest astronomical tide was recorded as 0.64 cm above the mean sea level and the lowest astronomical tide was recorded as 0.56 below the mean sea level. Tidal variation of 1.2m from lowest to the highest tide levels were recorded in the country.

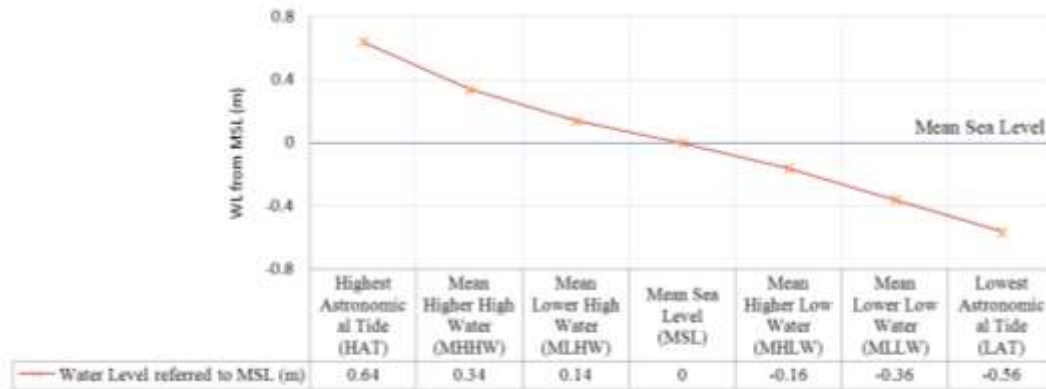


Figure 8 Astronomical tidal variation in the Maldives

1.1.1 CURRENTS

Studies on current flow within a reef flat in Malé Atoll suggests that wave over wash and tides generate currents across the reef platforms, which are also capable of transporting sediments (Binnie Black & Veatch 2000). However, available information suggests that tidal currents are not strong due to small tidal range.

Generally current flow through the Maldives is driven by the dominating two-monsoon season winds. Westwardly flowing currents are dominated from January to March and eastwardly from May to November. The change in currents flow pattern occurs in April and December. In April, the westward currents flow are weak and eastward currents flow will slowly take place. Similarly, in December eastward currents flows are weak and westward currents will take over slowly.

2.4.2 WAVES

Wave energy is important for sediment movement and settlement, and it is also a crucial factor controlling coral growth and reef development. Waves have been attributed to the diversity and the abundance of coral and algal species. These aspects have implications for the type and perhaps the supply of sediments into the island.

Studies by Lanka Hydraulics (1988 & 1989) on Malé reef indicated that two major types of waves on Maldives coasts: wave generated by local monsoon wind and swells generated by distance storms. The local monsoon predominantly generates wind waves which are typically strongest during April-July in the south-west monsoon period. During this season, swells generated north of the equator with heights of 2-3 m with periods of 18-20 seconds have been reported in the region. Local wave periods are generally in the range 2-4 seconds and are easily distinguished from the swell waves.

Distant cyclones and low-pressure systems originating from the intense South Indian Ocean storms are reported to generate long distance swells that occasionally cause flooding in Maldives (Goda 1988). The swell waves that reached Malé and Hulhule in 1987, thought to have originated from a low-pressure system of west coast of Australia, had significant wave heights in the order of 3 meters.

In addition, Maldives has recently been subject to earthquake generated tsunami reaching heights of 4.0m on land (UNEP 2005). Historical wave data from Indian Ocean countries show that tsunamis have occurred in more than one occasion, most notable been the 1883 tsunami resulting from the volcanic explosion of Karakatoa (Choi et al 2003).

Table 3 Summary of Wave Conditions in Male Region

Season	Total	Long Period	Short Period
NE - Monsoon	Predominantly from E-S.	From SW-W	Mainly E-NE.
Transition Period 1	Mainly from SE	From E-SE	Mainly from NE-SE
SW - Monsoon	From W-NW. Mainly from W. High Waves also from W	From W	Mainly from W. High waves from W
Transition Period 2	As SW monsoon	From W and WNW	From W-NW. Higher waves from W and WNW

2.5 BIOLOGICAL ENVIRONMENT

2.5.1 TERRESTRIAL FLORA

The tropical vegetation of Maldives differs in the inhabited and in the uninhabited islands. Inhabited islands have small groves of *coconut*, banana, papaya, drumstick and citrus trees by the homesteads, while breadfruit trees and coconut palms are grown in available patches of land. On the other hand, uninhabited islands have mostly different kinds of bushes (*magū*, *boshi*) and mangroves (*kuredi*, *kandū*) along the waterline as well as some coconut trees.

Despite the poor and infertile soils, and lack of different habitats, the Maldives has a relatively diverse vegetation cover. The plant communities in the islands grow as per the physiographic morphology of the Islands. According to the Fifth National Report to the United Nations Convention on Biological Diversity, the flora of the country consists of 583 vascular plants of which 323 (55%) are cultivated plant species, while 260 are native and naturalized plants. Of the 260 native or naturalized plant species, fewer than 100 are truly indigenous.

Each of physiographic zone in an Island provides relatively uniform environment with its own associated plant community. As a result of the harsh environmental of the foreshore conditions, this zone supports no vegetation except occasional creeping sand-binders such as *Ipomoea littoralis* and *I. biloba* along with a few individuals of *Launaea pinnatifida* and *Portulaca alata* in the upper portion. Due to the extension inland that beach crests form it provides a suitable environment for strand plant communities including a distinct association of trees and shrubs and a few sand-binding creepers and herbaceous plants. These strand plant communities include: the *Scaevola taccada* scrub community (the most common scrub community found on beach crests of both northern and southern islands of the Maldives), the *PESMPHis acidula* scrub community, which is commonly found on elevated reef rock, coral conglomerate beach rock or hard pan coral in open sites at or above the high tide level and can also be seen growing in association with a similar looking plant, *Suriana maritima*; the *Tournefortia argentea* community is found as a dominant strand community of the beach crest particularly in drier places in some of the northern islands. It is sometimes associated with *Pandanustectorius* and *Scaevola taccada*, the *Guettarda speciosa* community is normally found only on highly elevated beach crests and is characterized by the presence of other species such as *Scaevola taccada*, *Pandanus tectorius* and a scattering of *Pisonia grandis* and *Cordia subcordata* trees. The microclimate of the inner islands, protected by the beach-crest communities, supports the growth of a number of trees and shrubs, which occur either in pure stands or as a mixed forest. In

many islands coconut grows abundantly in the areas immediately adjacent to beach crest vegetation and in moist areas the shelter provided by a complete coconut tree canopy supports the growth of under story tree species such as *Morinda citrifolia* and *Guettarda speciosa*. In some places, *Pandanus odoratissimus*, *Calophyllum inophyllum* and *Hibiscus tiliaceus* are also found in low numbers within coconut groves. In moist areas small pure stands of *Hernandia nymphaeifolia*, *Cordia subcordata* and *Barringtonia asiatica* are present.

2.5.2 WETLAND ECOSYSTEMS

There are at least 75 islands with wetland or mangroves in the Maldives. The wetland or mangrove areas cover a total area of approximately 8.01 km² according to a survey conducted by the Ministry of Planning and National Development in 2007. Many of the islands identified so far for the project have wetland areas. In this regard, Hithadhoo, Hulhudhoo-meedhoo, Fuvahmulah, Thinadhoo and Kulhudhufushi all have wetlands. In addition, Gan in Laamu atoll which is also considered for the project have many wetland areas. Wetland areas in the Maldives are protected and thus no development activities are allowed in close proximity to these areas on inhabited islands, except for eco-tourism-based activities.

2.5.3 FAUNAL DIVERSITY

The islands of the Maldives are not known for their abundant wildlife in comparison and demonstrate a rather small proportion of the representatives in comparison to the rich terrestrial faunal diversity of the region. Maldivian reptilian fauna including: two gecko (*Hemidactylus spp*) commonly seen throughout the country; two agamid lizard including the common garden lizard or blood sucker *Calotes versicolor*; the snake skink, *Riopa albopunctata*; and two species of snakes including the common wolf snake *Lycodon aulicus*, and *Typhlops braminus*. One species of frog is known, the short-headed *Rana breviceps*, and a larger toad, *Bufo melanostictus* has also been found. Among the reptiles of the Maldives, the Maldivian Black Turtle (*Melanochelys trijuga thermalis*) is a species of turtle listed on the International Union for Conservation of Nature (IUCN) Red List as 'near threatened'. The Maldivian black turtle is currently found in only three islands which are protected: Kaashidhoo (Kaafu Atoll in Zone III), Muli (Meemu Atoll in Zone IV) and Kunburudhoo (Haa Dhaalu Atoll). Maldives has also been noted to be particularly rich in spider species. Some 130 insect species including scorpions, centipedes, rhinoceros beetle and paper wasps were identified during scientific investigations across the Islands. The only native mammals endemic to the country are the two subspecies of fruit bats, *Pteropus giganteus ariel* and *Pteropus hypomelanus maris*. The latter is very rare and has been recorded only once in the Maldives, in Addu Atoll (Holmes et al, 1994). Other mammals, all likely to have been introduced, are the house mouse, black rat, Indian house shrew and cats (Webb, 1988). In the homestead, the domesticated animals reared are chickens and goats.

Over 167 bird species have been recorded in the Maldives including seabirds, shorebirds and terrestrial birds, a majority include breeding residents, southern winter visitors (shearwaters and storm-petrels), and northern winter visitors (mostly waders, raptors, passerines, as well as some terns). For some of the latter, the Maldives lies at the southern end of the major Indus-Valley – West Indian flyway. A few are introductions, and imported as pets. Very few bird species reside in the country, most of which are seabirds. Terrestrial birds are very minimal compared to other tropical islands and most are likely to be introductions. At least 40 to 50 species of seabirds are seen in the Maldivian waters, of which only 13-15 are known to nest and breed in the country. Some of them are terns including *Sterna sumatrana*, *S. albifrons*, *S. anaethetus*, *S. dauglli*, *S. bergi*, *S. bengalensis*, and *S. fuscata*, *S. saundersi*; others include two species of noddies, *Anous stolidus* and *A. tenuirostris*, as well as the white tern *Gygis alba monte* which is known to breed only in Addu Atoll (Anderson, 1996). Others such as frigate birds, white-tailed tropic birds, boobies and some shearwaters are also known to breed in the Maldives (Shafeeg, 1993). Most of the shorebirds found are common winter visitors to the Maldives; however, there are some resident and immigrant species. Four subspecies of bird have been identified as endemic to the Maldives (MHAHE, 2002). The bird subspecies endemic to the Maldives are Maldivian pond heron (*Ardeola graii phillipsi*), Maldivian little heron (*Butorides striatus albidulus*), central Maldivian little heron (*Butorides striatus didii phillipsi*), and the Maldivian water hen (*Amouronis phoenicurus maldivus*).

2.5.4 MARINE BIODIVERSITY

In contrast to the terrestrial biological diversity found in the country, marine biological diversity shows an outstanding richness, especially in the coral reefs. Indeed, the marine biodiversity of the archipelago is among the

richest in the entire region, and the Maldives' has been recognized as having one of the world's most diverse marine ecosystems.

More than 250 different species of hermatypic corals exist, belonging to 41 genera from the north and 55 from the south. Over 1 200 reef fish species have been recorded¹⁵ (Pernetta, 1993). As many as 5 000 different shell species, 100–200 sponge species, more than 1 000 species of marine crustaceans and over 100 species of echinoderms exist. A large range of different types of marine algae¹⁶ have also been documented (Pernetta, 1993). In addition, a variety of sharks, eels, rays, dolphins, whales and aquarium fish are commonly observed throughout the archipelago. Five species of endangered turtles, namely loggerhead turtles, green turtles, hawksbill turtles, olive ridley turtles and leatherback turtles, are also known to live in Maldivian waters (Frazier and Frazier, 1987).

A recent research study, carried out by the Marine Research Section (MRS) of the Ministry of Fisheries and Agriculture, has documented economically important fish species in the Maldives. Some 900 species have been identified, nearly 300 of which were completely new records for the Maldives, and 7 of which had never before been recorded anywhere in the world¹⁷. A second study records some 899 species of pelagic and shore fish, including 201 records new to the Maldives (Randall and Anderson 1993).

At one time, the Maldives was the only country harvesting tuna from the Indian Ocean. Tuna fishing remains particularly important to the economy of the Maldives. Eight different types of tuna and similar fish are harvested commercially from the open seas. Tuna fishing requires live bait fish which are caught in lift nets near the reef and kept alive in the flooded hull of the dhoni. Bait fish are composed of species associated with the reef, and are dependent on a thriving reef environment. Twenty different species, regularly caught and used as bait fish, may be classified in to this group.

Over the last few decades many efforts have been made to ensure the protection of the marine biodiversity and the most sensitive reef ecosystems and habitats of vulnerable charismatic marine species, along with wetlands and mangrove ecosystems have been demarcated as protected areas.

2.5.5 CLIMATE HAZARD VULNERABILITY

The primary sources of natural hazard risks in Maldives are strong winds during monsoons or freak storms, earthquakes, island interior flooding caused by heavy rain, coastal flooding caused by high surf, storm surge, prolonged strong monsoonal wind, high astronomical tides or tsunamis, and sea level rise (Pernetta and Sestini, 1989, RMSI, 2005, Severe weather events in 2002 2003 and 2004, (2005), Woodroffe, 1989). Coastal flooding related flooding and wind damage can be considered as the most frequent natural hazards that occur in Maldives (Most of these risk factors (apart from earthquake, wind damage and rainfall flooding), stems from the extremely low elevation of all Maldivian islands: the average elevation is 1.5 meters above sea level. In spite of the occasional natural hazards, Maldives in general is relatively free from high risk natural disasters.

Spatial variations in hazards are evident across Maldives (Maniku, 1990, RMSI, 2005, Shaig, 2005). Northern atolls are more exposed to intense storm systems, increasing the risk of wind damage in these atolls. In comparison, southern atolls experience less storm systems, but are more exposed to flooding events, probably as a result of exposure to intense South Indian Ocean storm surges and wind-waves during south west monsoons.

2.6 POPULATION AND HOUSING CONDITIONS COMMON TO ALL ATOLLS

2.6.1 POPULATION

The total population enumerated in Census 2014 is 407,660. For the first time, in Census 2014, a distinction was made between the resident population and non-resident population. Hence, for analytical purposes, reference to respective population would be made as given in the table below.

Table 4 Total population by sex

Population	Both Sexes	Male	Female
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Total Population	407,660	230,453	177,207
Resident Population	402,071	227,749	174,322
Maldivian	338,434	171,962	166,472
Foreign 1_/	63,637	55,787	7,850
Non-Resident Maldivian	5,589	2,704	2,885

1_/ Foreign population enumerated in Census 2014 is less than the official figures recorded in Immigration documents (Source: Census, 2014)

2.6.1.1 POPULATION GROWTH

Of this total, the Resident Population is 402,071, which consist of 338,434 as Resident Maldivians and 63,637 foreigners. Census 2014 captured 5,589 Maldivians as living abroad, and hence following the notion of previous censuses, the 'Total Maldivian Population' in Census 2014 was 344,023. Between 2006 and 2014, the total Maldivian population had increased by 45,076, i.e. a 15 percent increase. Over the past two decades, however, the population growth rate continued to decline due to decreasing fertility. The total fertility rate declined from 6.4 to 2.2 children per women during this period. The rate of decline has slowed down since 2000 and remains under 2 percent.

2.6.1.2 POPULATION DISTRIBUTION

Maldives is one of the world's most geographically dispersed countries and poses wide range of development constraints. The population is distributed within the country among administrative and non-administrative islands. Census 2014 enumerated population from 188 inhabited islands, 109 resorts and 128 industrial and other islands. Table 3 gives a picture of Total Maldivian population distribution by these major categories.

2.6.1.3 POPULATION IN ADMINISTRATIVE ISLANDS

Table below gives a quick glimpse of the total picture as close to 96 percent of the population lives in administrative islands. From 1995 onwards, the female population outnumbered the male population in the Administrative islands. This outcome was caused by the out migration of males for Employment, especially to tourist resorts.

Table 5 Total Maldivian Population by categories, 1985-2014

Census Year	1985	1990	1995	2000	2006	2014
Maldivian population						
Both Sexes	180,088	213,215	244,814	270,101	298,968	344,023
Male	93,482	109,336	124,622	137,197	151,459	174,666
Female	86,606	103,879	120,192	132,904	147,509	169,357
Maldivian Population in Administrative Islands (including Male')						
Both Sexes	175,854	208,423	239,212	262,186	288,101	330,468
Male	89,319	104,622	119,070	129,407	140,914	161,518
Female	86,535	103,801	120,142	132,779	147,187	168,950
Maldivian Population in Resorts and Industrial Islands						
Both Sexes	4,234	4,792	5,602	7,915	10,867	13,555
Male	4,163	4,714	5,552	7,790	10,545	13,148

Female	71	78	50	125	322	407
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2.6.1.4 POPULATION IN NON-ADMINISTRATIVE ATOLLS

With the expanding economic development initiatives of the government, the shift of the population from Administrative islands to non-Administrative island has increased over the years. As illustrated by the above table, the Total Maldivian population residing in Non-Administrative islands increased from 4,234 in 1985 to 13,555 in 2014. This owes to increased number of operating resorts, agricultural islands and other ongoing projects in such islands. Population in resort islands accounted for 77 percent of the residents in these islands.

2.6.1.5 POPULATION IN MALE' AND ATOLLS

The Maldives population is vastly distributed across atolls consisting of small islands. Administratively there are 20 Atolls. Though there is no official categorization of urban and rural areas, capital Male' is widely referred to as the urban center and the rest of the Atolls recognized as the rural area. Census 2014 showed that 38 percent of the population lives in Male' the capital, while majority of the population resides in the Atolls. In Maldives, as in other small island states, internal migration and growth of urban area can be attributed to inequalities between the Capital and the rest.

Male' population has increased rapidly over the past decades. Male' remained as the country's fastest growing and most populated island. The development of tourism within Male' Atoll, rapidly expanding government and private sector, and establishment of major health and educational facilities in Male', have created significant disparities between Male' and the Atolls. In addition, developments in Male' attracts migration from all parts of the country. It passed the threshold of 100,000 population in 2006, making it one of the most densely populated cities in the world. Today, with the resident population, this rate stand as 65,201 per km² (population density of Male' exclude Hulhumale' and Villinmale').

2.6.1.6 POPULATION STRUCTURE

The population growth and the changing age-sex composition of the Maldives resembles that of a developing country with a relatively large proportion of people in the adult age categories (below 30 years of age), and a relatively small proportion of people in the older age categories (above 60 years).

The age cohort of 10 to 14 years is the smallest among the child population in 2014, reflecting on the shift of 0-4 years of population of 2006. In 2014, the population pyramid broadens at the youth age, showing a passing demographic window of opportunity of the Maldives population.

2.6.2 HOUSING

There were a total of 68,249 resident households in the census 2014, out of which 55,949 were Maldivian households and 12,300 as other households. Out of the total households 39 percent of households are in Male' and 60 percent of households are found in administrative islands of the Atolls and 1 percent in the non-administrative islands of the atolls.

The types of Household types are divided into 2 categories, which are housing units and collective living quarters. A nationwide total of 65,765 falls in to the category of housing units. Out of this 96 percent are house/flats/apartments. A total of 2,484 have been recorded as collective living quarters which consist of labour quarters / staff quarters and other collective living quarters. These account for 4 percent of all households.

Table 6 Total Households by type of housing, by locality, 2014

Type of Households	Republic	Male'	Atolls	Administrative Islands	Non- Administrative Islands
Housing Units	65,765	25,673	40,092	39,919	173
Collective living quarters	2484	1066	1418	968	450

Source: Census, 2014

Given that 38 percent of the total population resides in Male', the average household size in Male' for a Maldivian household is 5.5 and other households is 6.1. Household size for the whole nation for Maldivian households was at 5.4 percent and 8.1 percent for other households.

2.7 POTENTIAL PROJECT SITES

The project is focused on the most populous islands in Maldives with highest power demand. So far 06 islands have been identified for project intervention through component 1. The table below provides information on peak load, population and planned solar installation for the 06 islands so far selected for the project.

Table 7 Project site information

Atoll	Island	Peak Load (KW)	Population	Population Prediction 2030	Solar Installation (MW)
S	Hithadhoo, Maradhoo, Feydhoo, Maradhoo-Feydhoo)	7840	21367	24,655	11
S	Hulhudhoo Meedhoo	850	3676	3831	2
Gn	Fuvahmulah	3000	9873	10,758	2
GDh	Thinadhoo	2062	6222	6184	2
HDh	Kulhudhufushi	3041	9560	10,397	2
Lh	Hinnavaru	835	2683	2,668	1
B	Eydhafushi	1200	2894	2,838	1
Total					21

Other than this, the project is likely to impact around 05 other locations so far to be determined. Some likely islands initially identified include Lh. Naifaru, L.Gan and L. Fonadhoo. Given below is a brief description of the characteristics of the islands confirmed for project intervention.

2.7.1 ADDU CITY

Addu City is the second-largest urban area in Maldives, in terms of population, with a resident population of 21,198. It is the southern-most atoll in the Maldives. It is one of the three urban areas to get the status of "city" other than the capital city, Malé. Addu City has 6 administrative islands they are Hithadhoo, Maradhoo-Feydhoo, Maradhoo, Feydhoo, Hulhudhoo and Meedhoo. Of these Hithadhoo, Maradhoo-Feydhoo, Maradhoo and Feydhoo are linked by a link road. These islands are also linked to the international airport located in Gan. Hulhudhoo and Meedhoo are located separately in the eastern rim of the atoll.

In terms of economic activities it is home to one of three international airports in Maldives, i.e. Gan International Airport. In addition, Hithadhoo port is one of the four ports in the entire country. As for tourism, Addu City is home to 03 resorts, 01 city hotel and 08 guest houses. Other economic activities undertaken include fishing and agriculture. Agriculture is especially prevalent in Hulhudhoo and Meedhoo islands of the city.

Addu is also a city with notable environmental features, as it is home to the largest protected area network in a single atoll in Maldives. Promoted as Addu Nature Park, the park currently consists of 3 Protected Areas; Eydhigali Kilhi and Koathey Mangrove (Figure 9), Wetland and marine area, an year round manta point off Kandihera- Maakandu channel and British Loyalty shipwreck. Additional areas are planned to be protected in Addu and there are plans for making the atoll a UNESCO Biosphere reserve.



Figure 9 Eydhigali Kilhi Protected Area

Addu City also has a notable historical significance with the Royal Airforce (RAF) base being established in Gan during World War 2 by the British. The people of the island speak a unique dialect of Dhivehi language.

2.7.2 FUVAHMULAH CITY

Fuvahmulah City is the third largest city in the country in terms of population size, with a population of 9873. Fuvahmulah is one of the most isolated islands in the Maldives, it is an atoll, an island and also a city. The island is located at 73°25'40"E, 0°17'53"S and lies between the equator and the southernmost Addu atoll. Fuvahmulah is the third largest island in Maldives with a land area of 424 hectares. As described previously it has the highest point in Maldives. In terms of environmental significance, about one third of the island is comprised of protected wetlands and marshland surrounding two of the largest freshwater lakes, namely Bandaara Kilhi (Figure 10) and Dhadimagi Kilhi, found in Maldives. These areas together with the unique thundi (sand spit) found in the island make up the Fuvahmulah Nature Park. Fuvahmulah is also famous for divers with 'Farikede Faru' being the most famous location. The dive spot is best known for an area on a rocky limestone plateau known as Thresher Point, named after two species of thresher sharks that frequent the area. Other marine life commonly seen in the area include whale sharks, ocean sunfish (Mola Mola) and oceanic manta rays (Manta birostris). The dive spot was declared protected on 4th February 2020.



Figure 10 Bandaara Kilhi Protected Area

The naturally fertile soil of Fuvahmulah is ideal for agriculture and the island is especially known for its Taro cultivation. Historically due to the isolated nature of the island it has been used for banishing political prisoners by the central government in Male'. The isolated nature of the island and the rough sea surrounding has lead to many tragic accidents of boats capsizing while entering the island. The connectivity to the island has been significantly improved with the opening of the domestic airport in 2011. Like Addu the people of Fuvahmulah also speak in a unique dialect.

2.7.3 THINADHOO

Thinadhoo is located in the western periphery of Huvadhu atoll at geographic coordinates 0.5311° N, 72.9977° E. While there are nor islands on the north of thinadhoo the south of thinadhoo is comprised of kaadehdhoo (domestic airport), madaveli and hoadehdhoo. Thinadhoo is around 4.5km from the airport. The resident population of Thinadhoo is 6222 people. It is the most populous island in Huvadhu atoll, which is the biggest atoll in the Maldives in terms of geography and is the capital of south huvadhu atoll.

The island used to have 16 ha mangrove area in the southern end which was reclaimed during the 1980s. Thinadhoo was joined to Maahutaa uninhabited island through reclamation. There is a very small wetland area in Thinadhoo of 0.25ha which was originally in Maahutaa. Current land area of Thinadhoo is around 180ha of which 80 percent is reclaimed land. The island being reclaimed there are no notable environmental features in the island.



Figure 11 Wetland Area in Maahutaa

The majority of the people are involved in industrial activities with some 15 percent involved in fisheries. Like other dialects in the south, huvadhu atoll is also known for the unique dialect. During 1962 the island was

forcefully completely abandoned by the orders of the central government, which marked the end of the separatist movement by the three most southern atolls of Maldives forming the United Suvadive Republic. The island was repopulated in 1966.

2.7.4 EYDHAFUSHI

Eydhafushi is administrative capital of Baa atoll. Eydhafushi is located in the middle of the atoll in the eastern rim. The geographic coordinates of Eydhafushi is $5^{\circ} 6'7.81''N$, $73^{\circ} 4'7.03''E$. It is the most populous island in the atoll with a resident population of 1200 people. The total area of the island is 55 ha, which includes 25 ha of reclaimed land. The island being the capital of the atoll most of the services are established in Eydhafushi.

Even though, Eydhafushi doesn't have unique environmental features, Baa atoll is the first declared biosphere reserve in Maldives with many environmentally sensitive sites. The major economic activities in this island include government employment, working in resorts, retail business, fishing and thatch weaving.



Figure 12 Proposed Solar Installation site Eydhafushi

2.7.5 HINAAVARU

Hinnavaru is administrative capital of Lhaviyani atoll. Located north-east of the atoll with geographic coordinates of $5^{\circ}29'35.85''N$, $73^{\circ}24'46.07''E$. The resident population of Hinnavaru is 835. Like many other islands selected for the project Hinnavaru also has significant reclaimed land, total land area of Hinnavaru is 50 ha of which around 50 percent is reclaimed. The island is around 5 kilometers from the new domestic airport being built in Madivaru.

There are no salient environmental features that are of significance in Hinnavaru. In terms of history and culture like some other islands in Lhaviyani atoll, the roads and households of Hinnavaru are unique, in this regard very narrow streets with living quarters in one side of the road and kitchen in other side of the road are the norm in some older households (Figure 13).



Figure 13 The narrow streets of Hinnavaru

2.7.6 KULHUDHUHFUSHI CITY

Kulhudhufushi city is the most populous island north of Maldives. With a resident population of 9560. It is the most recent island to receive the city status. Located in the eastern side of Haa Dhaalu (Thiladhunmathi Dhekunuburi) Atoll on geographic coordinates of 6°37'0"North and 73°3'0"East. The land area of the island is 247 Hectares (ha). The length of the island is approximately 2.5 km and 0.89 km in width.

The most significant natural feature of the island is existence of two wetland area. The larger one is in the northern end and small one in the south end of the island (Figure 14). Several true mangrove species are known to be found in this wetland area including, Black Mangrove (*Lumnitzera Racemos*), *Rhizophora apiculate* and small-leafed orange mangrove (*Brugeria cylindrical*). Most dense vegetation exists near the wetland area and eastern side of the island. The wetland area on the north of the island was reclaimed in 2018 and an airport was built in this location. It caused lot of controversies both nationally and internationally.



Figure 14 Wetland area of Kulhudhufushi

Kulhudhufushi is seen as the northern most hub of Maldives, with many from HA, Hdh, Shaviyani atoll moving to the island to meet education and health needs. Being an economic hub, most people in Kulhudhufushi are involved in retail and wholesale business.

2.8 THE ENERGY SECTOR

The dispersed nature of the islands of Maldives makes it very costly and difficult to provide basic services universally to all the citizens in an efficient manner. Universal access to electricity to all the islands were provided only by 2008. However, power outages and power disruptions are still very common in many islands.

Due to the nature of Maldives, power stations are required in all the inhabited islands. In this regard, there are 186 powerhouses in the inhabited islands of Maldives. Majority of the powerhouses are operated by the government owned utility companies. In this regard, 148 powerhouses are operated by Fenaka, 35 powerhouses by Stelco, 01 powerhouse in V.Rakeedhoo by Male Water and Sewerage Company (MWSC). F. Nilandhoo, K.Huraa, Sh. Funadhoo and R.Ungoofaru have powerhouses operated by the councils of these islands. A private company operates the powerhouse of Adh. Maamigili (Ministry of Environment, 2018).

The inhabited islands of Maldives have a total installed capacity of 240 MW of diesel generators to cater for electricity demand. Electricity generation of Male’ region (Male’, Hulhumale’, Villingili) accounts for 56.9% of electricity generation of Maldives. This is the region with the highest annual electricity consumption of about 400 GWh, with an installed capacity of 101 MW. As of end of 2017 11 MW of solar PV has been installed (Ministry of Environment, 2018). This number has almost doubled and increased to 21MW by the end of 2018. This includes around 11MW by the government, 09 MW by the private sector and 01MW through net metering.

Under ASPIRE project, the sister project of ARISE, 05MW of solar PV is planned to be installed this year in Hulhumale. Moreover, as highlighted before a 21MW solar installation prequalification has been opened under ARISE. Thus, solar installation in Maldives is rapidly expanding.

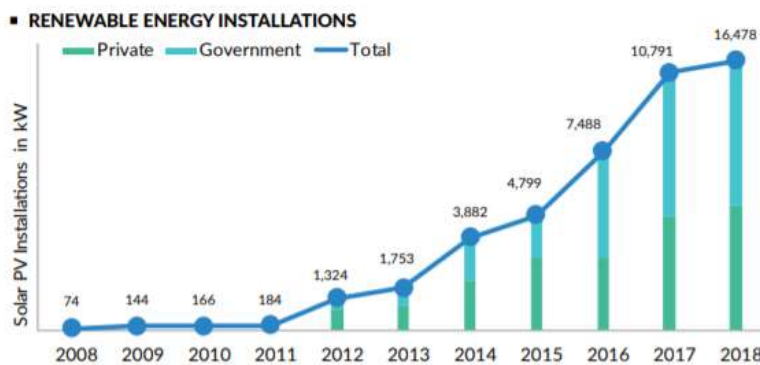


Figure 15 Renewable Energy Installation Trend

With increased development power demand is increasing across Maldives. Thus, the trend of fuel imports is also increasing. In 2017, 561,435 metric ton of fuel was imported. Out of this, 14,483 metric ton was cooking gas, 447,555 metric ton was diesel, 57,730 metric ton was petrol and 41,666 metric ton was aviation gas (Ministry of Environment, 2018). The trend of fuel imports are also overall increasing, except for an outlier in 2014 which has been attributed to increase in aviation gas import (Figure 10).

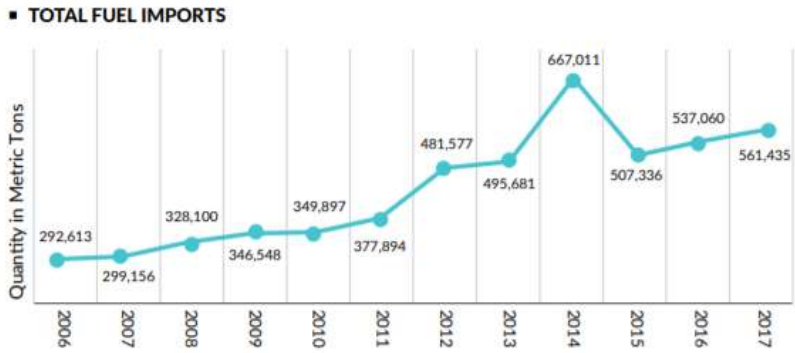


Figure 16 Fuel import Trend

In addition to inhabited islands renewable energy has also been installed in a number of resorts as well. Official data is not available on the amount installed in tourist resorts. Based on the available information online in excess of 5.9MW is installed in resorts. This includes a number of floating solar installations as well.

3 CHAPTER 3: ENVIRONMENTAL, ENERGY AND SOCIAL LEGISLATION, REGULATORY AND INSTITUTIONAL FRAMEWORK IN THE REPUBLIC OF MALDIVES

3.1 ENVIRONMENTAL POLICIES AND LEGISLATION

The Ministry of Environment holds the mandate for protection and preservation of environment. The Environmental Protection Agency (EPA) established under Minister of Environment, is responsible for implementation and enforcement of all laws and regulations relevant for environment protection.

The Project will be required to comply with the national environmental legislation, in particular that relating to protected areas, EIA for all civil works, compensation for loss of land and the cutting down of trees. The key aspects of the policies, legislations and regulations are described in the following sections.

3.1.1 THE ENVIRONMENT PROTECTION AND PRESERVATION ACT (4/93)

The basic environment law, Law No.4/93 Environment Protection and Preservation Act (EPPA) was enacted in April 1993 as an umbrella law to protect and preserve the environment of the country. The main elements of the EPPA are as follows:

Introduction: The natural environment and its resources are a national heritage that needs to be protected and preserved for the benefit of future generations. The protection and preservation of the country's land and water resources, flora and fauna as well as the beaches, reefs and lagoons and all-natural habitats are important for the sustainable development of the country.

Environmental Guidance: The concerned government authority 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.

Environmental Protection and Conservation: The Ministry of Environment, Energy and Water [*now the Ministry of Environment and Energy*] shall be responsible for formulating policies, as well as rules and regulations regarding the environment in areas that do not already have a designated government authority already carrying out such functions.

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

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

The Termination of Projects: The Ministry of Environment, Energy and Water [*now the Ministry of Environment and Energy*] has the authority to terminate any project that has any undesirable impact on the environment. A project so terminated shall not receive any compensation.

Waste Disposal, Oil and Poisonous Substances: Any type of waste, oil, poisonous gases or any substance that may have harmful effect on the environment shall not be disposed within the territory of the Maldives. In case where the disposal of the substance stated in paragraph (a) of this clause 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 precautions shall be taken to avoid any harm to the health of the population.

Hazardous/ Toxic or Nuclear Wastes: 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. Permission shall be obtained from the relevant government authority at least 3 months in advance for any trans-boundary movement of such wastes through the territory of the Maldives.

The Penalty for Breaking the Law and Damaging the Environment: The penalty for minor offenses in breach of this law or any regulations made under this law shall be a fine ranging between MVR 5.00 (five Rufiyaa) and MVR 500.00 (five hundred Rufiyaa) depending on the actual gravity of the offence. The fine shall be levied by the Ministry of Environment, Energy and Water [*now the Ministry of Environment and Energy*] or by any other government authority designated by the ministry. Except for those offenses that are stated in (a) of this clause, all major offenses, under this law shall carry a fine of not more than Rf 100,000,000.00 (one hundred million Rufiyaa) depending on the seriousness of the offense. The fine shall be levied by the Ministry of Environment, Energy and Water [*now the Ministry of Environment and Energy*].

Compensation: The Government of Maldives reserves the right to claim compensation for all the damages that are caused by the activities that are detrimental to the environment. This include all the activities that area mentioned in clause 7 of this law as well as those activities that take place outside the projects that are identified here as environmentally damaging.

Definitions: Under this Law: (a) The “environment” means all the living and non-living things that surround and effects the lives of human beings; and (b) A “project” is any activity that is carried out with the purpose of achieving a certain social or economic objective.

3.1.2 THE REGULATION ON ENVIRONMENTAL LIABILITIES (REGULATION NO. 2011/R-9)

The objective of this regulation is to prevent actions violating the Environmental Protection and Preservation Act 4/93 and to ensure compensations for all the damages that are caused by activities that are detrimental to the environment. The regulation sets mechanisms and standards for different types of environmental liabilities and equal standards that shall be followed by the implementing agency while implementing the regulation. According to this regulation the Government of Maldives reserves the right to claim compensation for all the activities which have breached the Environmental Protection and Preservation Act 4/93.

3.1.3 ENVIRONMENTAL IMPACT ASSESSMENT REGULATION (NO. 2012/R-27) AND AMENDMENTS

EPA stipulates under Article 5, any development work or project that have a significant impact on the environment should have an Environmental Impact Assessment consented to by the Ministry of Environment, Energy and Water [*now the Ministry of Environment*].

The EIA regulation defines the procedure to follow when attaining environmental approval for development projects. The regulations lists those projects that require EIA (schedule D), those projects that do not require EIA (Schedule T) and those projects that can be undertaken as per the mitigation plan provided by EPA (Schedule U). Roof mounted solar PV projects are listed in Schedule T, thus locally environmental assessments are not required for roof mounted solar PV.

All the other projects need to go through a screening process identified in article 08 of the regulation. Following screening EPA decides the level of assessment required. In this regard, an EIA maybe required, EMP maybe required, project maybe undertaken with mitigation plan or project can be undertaken with no assessment. For all other solar projects, ground mounted and floating solar, need to go through the screening process specified in the regulation

For projects that require EIA the regulation details the scoping process that needs to be following in article 11. Following scoping a terms of reference will be issued which will guide the level of assessment required.

EIA can be prepared by a consultant who is registered in EPA under article 16 of the regulation. The consultant registration process is administered by a consultant registration board. The functions and composition of this board is detailed in article 17 of the regulations.

Once the EIA report is submitted, EPA sends the review to two independent reviewers as per article 13 of the Regulation. The review period depends on the amount paid by the proponent for review. In this regard the following payment structure is specified in the regulations (article 07 and article 13):

1. For a review fee of MVR5000 15 days for review
2. For a review fee of MVR 10,000 10, days for review

3. For a review fee of MVR 5000 05 days for review

Following review EPA informs the proponent if any addition information is required, or approval can be given for the project, or the EIA report needs to be rejected or the project needs to be rejected due to irreversible damage to the environment.

Article 15 lists procedure for appeal the decision. The appeal decision will be made by Minister of Environment. Article 20 lists fining mechanism for non-compliance.

3.1.4 REGULATION GOVERNING RECLAMATION AND DREDGING OF ISLANDS AND LAGOONS OF MALDIVES 2013/R-15

The Article 22 of the Constitution states that the State shall undertake and promote desire based economic and social goals through ecologically balanced sustainable development and shall take measures necessary to foster conservation, prevention pollution, the extinction of any species and ecological degradation from any such goals and this regulation is constituted for the purpose of pursuing this undertaking. It determines the guidelines that would minimize the damage caused to the environment due to reclamation and dredging pursuant to Article 3 of Environment Protection and Preservation Act. This regulation is enforced by the Environmental Protection Agency.

The aim of this regulation is to minimize environmental damage associated with dredging and reclamation activities. All dredging and reclamation activities requires EPA approval through this regulation. The regulation identifies the following conditions:

- Beach replenishment is restricted to a maximum extent of 10 m from the registered shoreline.
- The following restrictions apply to dredging:
 - 500 m from the ocean side reef edge
 - 50 m from the shoreline
 - An environmentally sensitive site
- Reclamation cannot take place within 200 m of an environmentally sensitive or protected area.
- Reclamation should not exceed 30% of the house reef.

3.1.5 STONE, CORAL AND SAND MINING REGULATION

This regulation addresses sand mining from islands and bird nesting sand bars. Sand and aggregate mining from beaches of any island whether inhabited or uninhabited is banned for protection of the islands. Permissions for sand and aggregate mining from other areas shall be obtained from the relevant authorities.

There is another similar regulation named “Regulation on Coral Mining (1990), which is only applicable to coral mining from the ‘house reef’ of islands and the atoll rim reefs.

3.1.6 BY-LAW - CUTTING DOWN, UPROOTING, DIGGING OUT AND EXPORT OF TREES AND PALMS FROM ONE ISLAND TO ANOTHER

This regulation is enacted under Act 4/93 (environment Protection and Preservation Act). As such, this regulation is a compilation of guidelines to be adhered towards cutting-down, uprooting, removing and transfer between islands, of palms and trees in the Maldives.

Palms and trees may only be cut, uprooted, removed or transferred between islands out of mere necessity. No one shall be exempted from this regulation except the parties/exemptions mentioned in Article 4 of this regulation.

Article 8 of the regulation requires permission to be obtained if more than ten coconut palms that have grown to height of 15ft or if more than 10 plants that have grown to a height of 08ft are to be removed.

Article 2 (d) of the regulation also enforces replacement of the vegetation that is lost as a result of re-plantation. In this regard, 02 palms or trees need to be replanted for every palm or tree removed.

Pursuant to the *Environmental Protection and Preservation Act* of the Maldives, the Ministry of Environment and Energy has developed this by-law in order to educate and guide developers about acceptable practices for the management of trees and palms. The by-law prohibits the cutting down, uprooting, digging out and export of trees and palms from one island to another unless there is no other viable alternative. It also requires that for every tree or palm removed at least 2 should be replanted on the same island. The by-law also provides particular protection to the following:

- coastal vegetation extending 15 metres into the island;
- all trees and palms growing in mangrove and wetland areas;
- all trees and palms growing in Government protected areas; and
- trees and palms that are abnormal in structure.

3.1.7 WASTE MANAGEMENT REGULATION (NO. 2013/R-58)

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

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

3.1.8 DEWATERING REGULATION (213/R-1697)

This regulation is constituted for the purpose of ensuring that the drainage of water in the islands of The Maldives in the process of dewatering and subsequent dumping of discharge water into the soil or to the sea, is conducted with minimal impact to the environment. Given water is the source of life and one of the essential elements forming the environment, the purpose of this regulation is to avoid contamination of the groundwater table, to mitigate the damage caused to the water table; and to protect the habitat, the environment, the public and all living organisms from the impact of dewatering.

This regulation is enacted from the rights vested on the Ministry from article 3 of Act 4/93(Maldives Environment Protection and Preservation Act). This regulation is enforced by the Environment Protection Agency on behalf of the Ministry.

In addition to the institutions of the state, it is a responsibility of every individual to protect the groundwater table of the islands of the Maldives and to manage it in a sustainable manner. The process of dewatering for any industrial purpose shall be conducted on any island pursuant to the guidelines prescribed in this regulation and after having obtained permission in writing from the implementing agency or from their delegate.

3.1.9 REGULATION ON PROTECTION OF OLD TREES

The regulation is made under article 04 of EPPA. Article 03 of the regulation lists four categories of trees that can be protected. This includes:

- All trees above 50 years of age
- Unique and threatened species in Maldives in general or in a specific island

- Trees of environmental significance
- Trees of cultural significance

As per article 04 of the regulation all protected trees need to be advertised by the Ministry. The list needs to be updated every 05 years. Article 06 of the regulations states that the boundary of a protected tree is within a 02 meter radius of the tree. Article 05 suggests that trees that are located within a private boundary are exempted from this regulation. Moreover those trees that are grown for the purpose of agriculture are exempted from this regulation. The regulation also defines responsible parties for maintenance of such trees and also activities like trimming of old branches that can be undertaken for maintenance purpose.

3.1.10 REGULATION ON MIGRATORY BIRDS (2014/R-126)

The aim of the regulation is to ensure that the migratory birds and their habitat are protected from damage and destruction. Article 06 of the regulation stipulates that it is prohibited to catch, use as pets, trade of birds or any parts and harm the birds or their nests in anyway. Article 07 of the regulation lists all birds except migratory birds found in the Maldives. The regulation also stipulates that exemptions. In this regard as per article 08, research purpose and incase of spread of disease is identified as exemptions.

3.1.11 PROTECTED AREA REGULATION (2018/R-78)

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

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

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

- Areas of International Significance
- Strict Nature Reserves
- Wilderness Area
- National Park
- National Monument
- Habitat Species Management Area
- Protected Area with Sustainable Use

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

3.2 ENERGY POLICIES AND LEGISLATION

Like environment protection, the main policy body for energy sector is Ministry of Environment. Maldives Energy Authority (MEA), established under the Ministry is responsible for enforcement of all regulations and laws. The Strategic Action Plan (SAP) of the government recognizes establishment of Utility Regulatory Authority (URA), with the combined functions of regulating energy, water and sewer and is going to be established before 2021. The key aspects of the policies, legislations and regulations are described in the following sections.

3.2.1 STRATEGIC ACTION PLAN

The current governments policy on all development aspects are defined in Strategic Action Plan (SAP). In this regard, the strategic action plan of the government outlines the developmental targets and priorities of the government for the five-year period 2019 to 2023. Under chapter 04 “Jazeera Dhiriulhun” it lists the targets for energy sector. In this regard the following targets are listed in the plan:

- Target 1.1: By 2023, electricity subsidy implemented on a means tested basis
- Target 1.2: By 2023, reduce distribution inefficiency by maintaining distribution loss within 7%
- Target 2.1: By 2023, share of renewable energy in the national energy mix increased by 20% compared to 2018 levels
- Target 2.2: By 2023, at least 10MW of solar PV is installed under net metering regulation
- Target 3.1: By 2023, reduce fuel usage for electricity generation by 40 million liters
- Target 3.2: By 2023, renewable energy storage capacity is increased to 30MWh
- Target 4.1: By 2021, Utility Regulatory Authority (URA) for integrated utility services is functional
- Target 4.2: By 2023, new public infrastructure projects shall have provision to install renewable energy
- Target 4.3: By 2023, energy data is up to date and reliable and utilised for policy making
- Target 5.1: By 2023, green labelling is implemented for energy sector
- Target 5.2: By 2022, provisions for green procurement in the Public Finance Act is implemented

A number of strategies, actions and lead implementation agencies are identified in the SAP to achieve these targets. ARISE project is expected to contribute to achieve these targets set by the government.

3.2.2 PUBLIC SERVICE ACT (4/96)

Under this act, the general public services are electricity, telephone, water and sewerage services. Article 3 states that any party can provide general public services only after getting registered in the relevant authority and according to its regulations. Article 4 states that any public service must be provided after a contract agreement has been made between the service provider and the customer. The agreement must be made according to the regulations put forward by the relevant authority. Article 5 states that a transfer of service between customers must be made only after a contract has been made between the customers according to the service providers regulations. If the customer fails to comply with the agreement, the service provider can discontinue service only after approval from relevant authority.

Article 7 states that the service provider can permanently discontinue its services according to regulation mentioned in article 3 of the act. However temporary discontinuation can be made after giving prior notification to the customers and according to the agreement made between the service provider and the customer.

Article 8 states that the tariffs for the services must be approved from the competent authority prior to implementation. Further, any amendments to tariff structure also must be approved from the relevant authority before implementation. Article 9 states that any damage made to service provider’s facilities by anyone, he/she can be sentenced to a maximum of 10 year prison time or banishment. Further, any action against this law (excluding what is mentioned in article 9 (Haa) of this law) can be charged between MVR 100 to MVR 5000 by the relevant authority.

Currently Maldives Energy Authority is mandated to regulate the energy sector under this Act, and all regulations that have are currently in effect is backed by this Act. There is currently an Energy Bill drafted and submitted to the Parliament which, once comes into effect, would further strengthen the regulatory role of the regulatory authority through delegation of more power in regulating the overall sector.

3.2.3 NET METERING REGULATION (2015/R-231)

Net-metering regulation allows utility/grid customers to produce energy through their own solar PV grid connected systems to offset their own electricity consumption, and have simpler administrative processes for grid connection through support from utilities. The regulation is enforced by Maldives Energy Authority (MEA).

The main objectives of the regulations as defined under article 05 of the regulation includes the following:

- To provide opportunity for grid customers to produce part of the energy required for energy service providers
- To reduce the amount of cost required for the energy service provider to provide electricity service.
- To reduce reliance on fossil fuels for electricity generation and increase the proportion of renewable energy.
- To reduce the subsidy required to be paid by the government to maintain electricity tariff at a reasonable rate.

It is stated in article 06 (a) that this regulation is only applicable to solar PV installation. However, under article 6 (b) it is stated that the energy service regulator can change this requirement based on the development and availability of new technologies.

Under this regulation, article 07 requires that the installed capacity should not exceed the total energy demand of the customer, based on annual consumption. Furthermore, under article 08 it is stated that the cumulative solar PV capacity connected to grid by all net metering customers should not exceed 30% of the peak demand of the island grid. The total capacity that can be offered for net metering systems (based on this 30% peak demand) on each island grid, is required to be published periodically by the respective electricity provider (utility).

Article 12 of the regulation stipulates that the customers with net-metering should be charged only if the imported electricity is more than that exported through net metering. If the export is higher than the import, any excess electricity from solar PV is exported into the grid, such will be metered as a credit and will be carried forward to the subsequent month's bill. Article 14 of the regulation defines safety and quality standards/guidelines that need to be in place to ensure safety of the system. The system needs to be designed and installed by a MEA licensed engineer.

3.2.4 Generation, Distribution and Supply Licensing Regulation (2015/R-143)

The objective of this regulation is to ensure that all electricity service operators are regulated parties licensed by Maldives Energy Authority. Under article 04 all parties who produce, transmit, distribute and supply electricity should be registered under this regulation. As per article 05 electricity service can be provided by a government company, private company, island council or a cooperate society. Under this regulation three types of license maybe provided:

- Service Provider License: This license is given to the general service provider of electricity in each islands
- Independent Power Producer License: This license is given to those parties who sell electricity to service providers by means of generation. The source of generation is currently limited to renewable energy only.
- Transmission License: This license is given to those parties who operate transmission networks (high voltage) between regions in the same island or in-between islands. Existing public utilities fall under both Service Provider and Transmission categories as all of them own and operate transmission and distribution networks as well.

Under article 7 an independent power producer can only supply power into the electricity grid through a Power Purchasing Agreement (PPA) made with the Service provider. This provision creates an enabling environment and provides flexibility for large-scale renewable energy power producers, especially private investors to establish renewable energy plants and sell electricity in bulk to the utility.

Article 08 of the regulation also defines situations in which licensing is exempted. This includes:

- Situations in which the customer does not receive the required electricity due to lack of capacity of the service provider.
- When there is a service disruption backup generators could be used in certain places, this as defined under the regulations includes:
 1. Places where health care service is provided.
 2. For firefighting systems
 3. Places of National Security
 4. Radio, Television and places of providing telecommunication service
 5. Places where medicine is stored
 6. Storage of material that goes bad
 7. Lift and escalator
 8. Lighting of common areas of buildings
- Where there are no Service Providers in the island assigned by the government.

Under article 14 the following aspects will be considered by MEA when giving the license:

- The impact on social, cultural and recreational aspects
- Impacts on the environment as per Environment Protection and Preservation Act (4/93) of the Maldives.
- Impacts on Landuse
- Cost of operation and mechanism to attain this cost
- Health and Safety aspects
- Level of technical and financial competence
- Cost of service
- Other aspects that MEA identifies that may impact

As per article 17 license can be given for a period of 05 years. 90 days prior to expiry of the license the party needs to apply to renew the license. Under article 20 MEA has the right to suspend the license where there is a breach of the regulation or conditions set forth by the authority when issuing the license. As per article 22, if any party with license wants to stop the service they have to inform MEA in writing 06 months prior to termination of service.

The regulation also has provisions regarding cost of service. In this regard, as per article 28 of the regulation, any fees or charges should be lower than the what is set forth by MEA for the service provided.

3.2.5 GUIDELINES FOR POWER SYSTEM APPROVAL

This guideline sets the information that needs to be submitted for power system approval. The following are required when submitting for approval:

1. General System
 - Site Layout or Facility Layout – showing immediate surrounding.
 - Powerhouse Floor Plan – showing major equipment and dimensions.
 - Powerhouse Sectional view – showing major equipment and dimensions.
 - Technical Specification of Generating sets and associated plant.
2. Generator Control Panel and Distribution Panel
 - Single line diagram of the panels
 - Panel Load Calculations
3. Fuel System
 - Fuel system layout (fuel storage & fuel handling system) – single line diagram.
 - Type of fuel and its specification
 - Day tank and bulk tank capacities
4. Distribution Network

- Layout of Distribution Network; Substations, Distribution boxes and service cables on a scaled diagram.
 - Single line diagram of distribution panels above 60A.
 - Single line diagram of distribution boxes.
 - Load forecast for the network.
 - Voltage drop calculation and Network loss on each feeder.
5. Electric Cable
 - Technical specification of the cables used for transmission, distribution and electrical installations.
 - International conformity certification for the cables. (If not approved by MEA).
 6. Fire Fighting Equipment and lightening protection
 - Certification or reference of approval firefighting system from relevant government agency
 - Lightning Protection designs to be approved by MEA.
 7. Environmental Impact Assessment of the generation facility
 - Certification or reference of approval from relevant Government agency.
 8. Tariff
 - Estimated Capital Cost (in detail)
 - Income and expenditure procedures for 10 years
 - Electricity demand forecast for 10 years
 - Proposed tariff for 10 years

In addition to these a number of regulations and standards are in development. This includes, energy efficiency standards, engineering licensing regulation, installation standards, Technical guidelines implemented by MEA follow the British Standard (BS) and more prominently International Electrotechnical Commission (IEC).

3.2.6 EXPORT IMPORT ACT AND EXPORT IMPORT REGULATION

Duty exemption for renewable energy related equipment had been in enforcement from 2011 onwards. This was enabled through an amendment introduced in December 2011 into the Export Import Act (No. 31/79) Article 7 “Lhaviyani” and “Kaafu”, as well as the Export, Import & Re-export Regulation (2012/R-34), Article 19, and corresponding Appendix 2.

The key categories for duty exemptions according to the said law and regulation are:

- Vehicles and vessels powered by renewable energy.
- Machinery, equipment, vehicles/vessels powered by renewable energy
- Equipment which are powered solely by renewable energy
- Equipment and systems used to produce renewable energy.

Under the said Regulation, Maldives Energy Authority (MEA) had been mandated to oversee the duty exemption process. The basic process for duty exemption are as follows:

1. Consignee submits invoice and shipping documents 2 weeks prior to the arrival for shipment
2. MEA verifies items that are eligible for duty exemption will coordinate with the applicant for clarifications
3. Once items list is verified, MEA sends request to Maldives Customs Service (MCS) with the recommendation
4. Consignee submits copy of the request to MCS during clearance to get duty exemption.

GoM may also consider a similar duty exemption process for energy efficient equipment, upon establishment of Energy Performance Standards and rollout of an Energy Efficiency Labelling Program. Such mechanism will further drive the market for energy efficient equipment, enabling energy savings with multiple fiscal and non-fiscal benefits to sector in general.

3.3 SOCIAL POLICIES AND LEGISLATION

Unlike environment and energy, there is no single ministry responsible overall for social wellbeing. Moreover the laws and regulations that fall under this category are implemented by a number of different agencies and ministries.

3.3.1 LAND ACT

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

The Act Empowers Government to allocate land for five purposes:

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

Under the Act, all Maldivian citizens who do not have a place of residence are entitled to a parcel of land for residential purposes, entitled a “state dwelling”. Such parcels are issued by the respective Atoll Office and must not exceed 4,000 ft² (372 m²). The parcel is forfeit if not developed (“settled”) within five years. State dwellings are heritable and divisible, down to no smaller than 600 ft² (56 m²).

State dwellings can be privatized by purchase from the government. Conversion to non-residential purposes is possible subject to compliance with land use policy, and a permit. Sales of private land attract a 15% tax.

Buildings, trees and other assets on land belong to the owner of the land or official user of the land, unless third-party ownership can be proven under Shari’ah.

Land for agriculture is allocated to residents by island administrations on an annual renewable basis. The land remains government property. No rent is paid, but the plots are generally small and the system provides little security or incentive to invest in and improve the land. It is understood that the Ministry of Fisheries and agriculture (MoFA) is preparing an Agricultural Land Act to address these issues, with assistance from the UN Food & Agriculture Organization (FAO).

When land is required for public projects, it is understood that the legal owner or registered user is compensated on a land-for-land basis, with fixed assets being paid for at fair market price.

Maldives Land and Survey Authority established in 2011 is responsible to conduct surveys and collect and update information on the most beneficial use of lands, lagoons and reefs of the Maldives, and formulate and implement cadastral survey standards.

3.3.2 DECENTRALIZATION ACT

The final version of the Decentralization Act was passed in April 2010 and was ratified in May 2010. The Decentralization Act provided for the Local Government Authority (LGA) which was established in late 2010. Under the Decentralization Act Island Councils are accountable to Atoll Councils and Atoll Councils are accountable to the LGA.

The Constitution mandates Councils to provide democratic and accountable governance; foster the social and economic well-being and development of the community; and establish safe, healthy and ecologically diverse environment. The Constitution entitles Councils to a grant from central government and to raise own revenues.

Chapter 4 of the Decentralization Act has direct relevance to the administration of this Project. The Act gives island councils specific powers and responsibility for, amongst other things:

- Administering and developing the island in accordance with the Constitution and statutes and providing municipal services as prescribed in this Act;
- Preparing island development plans in consultation with the community, and submitting the plan to the Atoll Council;
- Implementing development projects planned and assigned by the government in line with the island development plans formulated by islands and submitted to the Atoll Councils;

- Assisting Government Ministries and Atoll Councils in monitoring the progress of various development projects;
- Formulate island level policies necessary to discharge the powers and responsibilities conferred to the island council by this Act and formulate and implement required regulations for the purpose.

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

Under Chapter 14 of the Act the Island Councils have the power to formulate regulations on matters which fall within their jurisdiction with advice of the Local Government Authority. In addition, with the advice of the Local Government Authority, the city councils, atoll councils, and the island councils have the power to make regulations about waste management and disposal on their islands.

The act has gone a number of revisions the most recent revision occurred in 2019. The key aspects covered in this revision are highlighted below:

- As per the article 69-1 of the act the island and city councils are overall responsible to provide the electricity service in the respective island or city. As per article 69-2 of the same act the council needs to have an agreement with utility service provider for implementation of the service. Under the same article it is stated that this agreement needs to be made as per conditions that are set by a regulation prepared and implemented by the central government. The referred agreements above need to be made within 01 year of enforcement of the act, hence before 15th December 2020. Moreover, the act provide opportunity for island and city councils to provide electricity service themselves.
- As per article 68 of the act for any development project undertaken in an island consultation needs to be undertaken with the council and other relevant authorities established in the island. The same article also states that any EIA reports developed for any project needs to be shared with the council and information on the impacts and mitigation measures should be shared with the council.
- As per article 107-1 of the act the council should hold meetings with the public regarding any important development activities undertaken in the island. The same article also specifies that the time and location of the public meeting should be announced 05 days prior to the meeting.
- As per article 56-6 of the act a Women’s Development Committee should be established. The members of the committee should be elected based on an election held amongst the women of the community. As per article 56-7 of the act one of the functions of the committee is to give input to the council regarding various development activities undertaken within the island.

3.3.3 HERITAGE ACT (12/2019)

The main objective is to determine the procedure to assign cultural heritage, determine the responsibility of the government and the people regarding cultural heritage, to determine means of penalizing acts of damaging cultural heritage, to determine means of undertaking research on heritage.

Article 04 of the act defines cultural heritage. In this regard the following can be considered as cultural heritage:

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

Article 12 of the act suggests that all policy level decisions will be made by the Minister. Article 14 stipulates that National Centre for Cultural Heritage needs to be established, with the prime function of establishing procedures required for setting, categorizing, research, maintaining list of heritage sites, and managing heritage sites.

Fourth Chapter of the act deals with the heritage trust fund, the composition and the functions.

Articles 28 and 29 of the act provides details of the procedure to follow, if any party comes across anything that might be considered as cultural heritage. In this regard, within 48 hours the council needs to be reported and subsequently the council needs to report to national centre within 48 hours of knowing.

Article 36 of the act suggests that impacts on cultural heritage needs to be covered through the Environmental Impact Assessment undertaken for development projects.

3.3.4 CONSTRUCTION SITE HEALTH AND SAFETY REGULATION (2019/R-156)

As per article 5, the aim and objective of this regulation is to provide minimum standard for safety and security of the community and labour force. The same article suggests that if the value of the project exceeds 1.5 million Maldivian Rufiyaa, health and safety aspects regarding the project needs to be defined and training given to the labour force. It states that safety nets need to be installed and other precautionary measures taken such that the neighbouring households are not impacted as a result of the project. It also stipulates that Personal Protective Equipment (PPE) that is relevant to the work undertaken should be worn. In this regard, it states that safety helmets, safety shoes, safety goggles, welding mask and gloves need to be used where required. The same article stipulates that, it is the responsibility of the employer to provide PPE to the employee. It also stipulates that steps need to be undertaken during excavation to ensure damage to nearby properties are avoided. It also stipulates that appropriate safety signs need to be installed in construction site.

Furthermore, article 06 stipulates that Emergency Response Plan (ERP) is required for projects that exceeds MVR 1.5 million. The provision requires the emergency response plan to be visible and to undertaken drill for emergency response plan at least twice every year. Moreover, a complete first aid kit and a trained first aid person should always be available at the construction site for such projects. The contractor is also required to assign a site safety supervisor (article 7). Such a person should have a minimum five year experience working as a site supervisor.

Article 09 of the regulation stipulates that for projects above MVR 5 million third party insurance needs to be taken to cover for damages. The regulation also have provisions that highlights that all open pits should be covered or demarcated with fence, to have pedestrian detour if work is undertaken next to a road, If work is undertaken in height safety warning signs or warning flags or lights need to be installed at the site and all idle equipment's need to be switched off (article 10). The regulation also suggest that the construction boundary needs to be hoarded. As per the regulation, the minimum height of the hoarding should be 1800 millimeters (article 12).

If working above 03 meters it is stated that a guardrail should be there to prevent falling from height (article 14). Moreover, in article 16 it is stated that safety harness and belt need to be used when working at such heights. The regulation also has special provisions when working on roofs. Use of static line and inertia reel when working on roofs and ensuring that they are installed appropriately. Preassembling the materials required as much as possible prior to lifting to the roof, to minimize work undertaken on the roof. Scaffolding should be installed by a person who has special training and experience for installing scaffolding. The regulation also states that While installing safety net work should be undertaken using a mobile scaffolding or a tower scaffolding. All scaffolding used on site needs to be tested at least once a week (article 18).

Specific provisions are also there regarding electricity supply. In this regard, as per article 20 one of the following conditions should be met:

1. All electric equipment should be connected to a supply that does not exceed 230 V.
2. To install an earth circuit monitor on the electricity supply line.
3. Use of equipment that have double insulation.
4. Utilize earth leakage circuit breaker.

The switchboard installed to provide temporary power should be covered to prevent weather damage (article 21).

Article 22 stipulates that all electrical equipment used on the site needs to be tested every 03 months to ensure functionality and safety. The regulation also highlights that where chemicals and hazardous materials are used each contractor needs to identify a plan to handle such material and the identified plan needs to be implemented in the work site (article 24). It is also suggested when handling hazardous materials, the workers need to be fully covered.

If any flammable materials are on site firefighting equipment should be available and fire protection clothing should be available on site (article 29). The regulation suggests that heavy machinery like cranes should not be used in any areas where public could access (article 32). Moreover, the same article states that cranes should operate 04 meters away from any overhead electric lines. Moreover cranes should be inspected every 12 months and the records of the inspection should be kept available in the crane.

To keep log records of any accidents that occur in site and reporting any such incident to police is also specified in the regulation (article 39). Articles 43 and 44 of the regulation specified non-compliance penalties.

3.3.5 EMPLOYMENT ACT (2/2008)

Employer/employee relationships are governed under the Employment Act (2/2008) and the subsequent amendments to it. An employer is defined in the Act as, “any person, company, government or association of persons providing employment pursuant to an employment agreement which includes the use of services of non-independent contractors, successors, assigns of such employers, and any person to whom the rights of such employers are transferred in accordance with the law”. An employee is any person seeking to work pursuant to an employment agreement. Maldives National Defense Force and Maldives Police Service are exempted from the Act. The Act prohibits forced employment, and discrimination in granting of employment, increase in remuneration, provision of training, determination of conditions and manner of employment, dismissal and resolution of other employment related issues; based on race, color, social standing, religion, political beliefs or affiliation with any political party, sex, marital status, family obligations, age or disability.

3.3.5.1 MINORS

The law considers a minor to be a person under the age of 18. Chapter 3 of the Employment Act allows minors between the ages of 16 and 18 to be engaged in employment, provided consent is obtained from their legal guardian. Minors under the age of 16 are prohibited from engaging in employment, unless it is as part of a training for their education. A minor may also be employed in a family business with the consent of such minor and their family. All children are protected from employment that would have a detrimental effect on their health, education, safety or conduct. These rights are further stipulated in the Rights of the Child Act [19/2019] under which the Labour Relations Authority (LRA), is mandated to enact necessary regulations and monitoring the implementation of the same, for the prevention of child labour.²

3.3.5.2 EMPLOYMENT AGREEMENT

All employers are required to enter in to an employment agreement in writing, with their employees. The Act recognizes three types of employment agreements, which are, (a) fixed term contracts or agreements with a definite term, (b) agreements with an indefinite term or permanent employment agreements, and (c) agreements for a specific task or project.³ Direct workers or project staff in the PMU falls under this latter category. Such agreements are considered neither permanent nor fixed term contract. And they are considered terminated upon the completion of the specific task or project.

All agreements must at minimum have included in them the following details;

- i. The name of the employee, permanent address, current address, identity card number or passport number, date of birth, nationality, emergency contact person’s name, address and phone number;
- ii. Whether employment is permanent or temporary;
- iii. Date of commencement of employment agreement;
- iv. Salary and other benefits;
- v. Method and guidelines for calculation of salary;
- vi. Pay day;
- vii. Days on which leave may be granted;
- viii. Principles pursuant to which disciplinary measures may be taken against the employee due to his conduct;
- ix. Staff appraisal; and

² Article 26, [19/2019]

³ Article 13, [2/2008]

- x. Manner of dismissal from employment.

Employers are also obligated to provide employees with a job description.

3.3.5.3 WORKING HOURS

Working hours of employees, under the Employment Act must not exceed 48 hours per week. This however does not cover overtime work.⁴ Employees may not work for more than six consecutive days without taking a day off. The employment agreement must stipulate how overtime work can be obtained from an employee. Employees working overtime are entitled to a pay of 1 ¼ times their hourly wage and if working on a public holiday, 1 ½ times their hourly wage.⁵

3.3.5.4 DISMISSAL

Employees have a right not to be dismissed unfairly, without cause. The Act provides a list of disciplinary measures that can be taken reasonably against an employee due to misconduct and which must ordinarily be exhausted before any dismissal. This includes, cautioning verbally, a written warning, 14 day suspension and demotion, in that order.

Employers must establish procedural fairness and substantive fairness before an employee is dismissed. Procedural fairness is ensuring that due process of the law is followed in any decision to dismiss an employee, including among other things, providing the employee with due notice or money in lieu of such notice and ensuring that the employee is given ample opportunity to defend themselves. Substantive fairness means the actual reason or the misconduct of the employee preceding such dismissal must be one that warrants dismissal. It must be reasonable and fair. The employers must take in to account the circumstances surrounding the case, the previous records of the employee, and actions taken for similar conduct in previous cases.⁶

3.3.5.5 LEAVES

Entitled leaves for employees under the Act includes, 30 (thirty) days of paid annual leave, 30 (thirty) days of paid sick leave, 60 (sixty) days of paid maternity leave, upon expiry of which either parent may choose to take up to 01 (one) year of unpaid leave, 03 (three) days of paid paternity leave, 10 (ten) days of paid leave for family responsibility, and 05 (five) days of paid leave for a parent of a child undergoing circumcision.⁷

On March 2019, the government decided to grant all government employees with a paid maternity leave and paternity leave of 06 (six) months and 01 (one) month, respectively. This practice has since been taken up by state owned enterprises as well.

3.3.5.6 TRAINING

Employees may be engaged with training, on the job or otherwise, subject to a separate agreement entered in to with the employer, for the purpose. The agreement must have in them at minimum, the details of the employer and the employee along with, details of the type of training, the period it would take to complete the training, costs incurred by the employee in relation to the training and the rights and obligations of each party if the training is not completed.⁸

3.3.5.7 HEALTH AND SAFETY

All employers are obligated under the Act to take measures for the safety and protection of their employees, without any charge. These measures include;

⁴ Article 32, [2/2008] as amended by Article 6 Second Amendment Act to the Employment Act [14/2008]

⁵ Article 38, Employment Act [2/2008]

⁶ High Court of Maldives case number: 209/HC/2010

⁷ Articles 39-49, [2/2008]

⁸ Article 70, [2/2008]

- Providing a safe work place environment and procuring of secure tools and machinery for carrying out work, and ensuring the continued safety of the same;
- provide resources necessary to carry out the work with safety;
- provide protective attire and equipment in the event that the nature of work is such that it is not possible to eliminate or control health hazards arising out of work;
- provide education and training to employees on the use of protective gear and safety equipment, and disseminate information to employees on all issues of related concern;
- conduct regular health checks for employees involved in any work that may cause physical ill health or for employees working with chemical or biological materials that may pose a threat to their health;
- provide or arrange for appropriate medical care for employees injured during the course of their employment
- facilitate first aid to employees who are involved in emergencies or accidents.

Employees are required to;

- maintain safe practices at work to avoid danger to the safety and wellbeing of the employee and co-workers, which may be caused by inattentiveness to safety and security measures;
- assist the employer and co-workers in maintenance of measures designed to ensure health and safety in the work place;
- use safety equipment and protective gear as instructed in accordance with the training and education provided for use of such equipment and gear;
- report to the employer any damage, loss of or destruction of protective gear or safety equipment;
- inform the employer or his designated supervisor immediately of the occurrence of any incident which the employee believes may cause danger and which the employee is unable to resolve;
- inform the employer or his designated supervisor of any accidents or damage sustained at work or related to work.

Employees have the right to abstain from work where there is serious threat to health or life.⁹

3.3.5.8 UNIONIZING, COLLECTIVE BARGAINING AND THE RIGHT TO STRIKE

The Employment Act 2008 is notably silent on the right to strike or the right to form trade unions and is lacking of any provisions on collective bargaining. While these are constitutional rights, and Maldives remain party to the ILO Convention on Right to Organize and Collective Bargaining (No. 98), there is a lack of a specific legislative framework ensuring the right to organize and collectively bargain. Employees can however create clubs and associations, which are governed under the Associations Act (1/2003). Such clubs and association are required under the law to be registered at the ministry with the relevant mandate.

The Regulation on Resolving Disputes between Employers and Employees (2011/R-12), issued by Labour Relations Authority outlines principles for employees to comply with in exercising the right to strike and abstain from work. To strike, under the Regulation is defined as, to abstain from work by peaceful exercise of the employees' freedom of assembly and speech. Under the Regulation, before any decision is taken to conduct a strike due to a dispute between the employers, the employees are to carry out discussions with their respective employers. The Regulation provides for a three tier process to be followed in carrying out such discussions. First step involves informal discussion between the parties failing which formal discussions are to be held at a sectional or departmental level. Second tier involves lodging the grievances to a Grievance Committee made up of the head of the respective organization, heads of the relevant departments, and parties representing the aggrieved employee(s). If the Grievance Committee fails to resolve the dispute, the matter is to be forwarded to the Labour Relations Authority. If either party is dissatisfied with the decision of the Authority, the matter can be submitted to the Employment Tribunal for adjudication.

3.3.5.9 REDRESS, LABOUR RELATION AUTHORITY AND EMPLOYMENT TRIBUNAL

Labour Relations Authority (LRA) formed under Article 77 of the Employment Act (2008) is mandated with implementing the necessary administrative measures to ensure compliance with the Act. The Authority also issues regulations governing employer/employee relationships. As such employees can lodge complaints to LRA, regarding an employer's action which they deem is in contravention of the law, and request to enforce compliance.

⁹ Articles 73-76, [2/2008]

LRA has the authority to enter in to and inspect work places and obtain documents through Employment Officials. Officials have the authority to order an employer to make changes, within a specified time, to the machinery or the manner in which an equipment is set up, to ensure health and safety of the employees as stipulated under law. An officials can also order urgent steps to be taken in order to avert a danger where the risk of a danger to the employee's health and safety exists in the opinion of such official.

If an employer is unhappy with the decision or order of LRA, they can appeal to Employment Tribunal.

The Tribunal established under Article 85 of the Employment Act consists of 07 (seven) members appointed by the President. The members hold office for a tenure of 05 (five) years and should have the educational qualifications and experience to comprehend and resolve employment related issues.

The Tribunal reviews and deliberates at the first instance on matters of employment. Decisions of the Tribunal are appealed at the High Court.

3.3.6 MIGRANT WORKERS

Foreigners are required to obtain an employment approval as per applicable law, and deposit a security with the relevant government agency. This deposit is to be used by the government for costs incurred to remedy an employers' default of their responsibilities under relevant Regulation on Employment of Expatriates in Maldives (2011/R-22), or as payment for any unpaid fees related to work permit or work visa, or for travel expenses of the worker, where government decides to deport such worker. Article 62 of the Employment Act gives the minister with the relevant government mandate to issue regulations related to the employment of foreigners.

Under the Regulation on Employment of Expatriates in Maldives (2011/R-22), government issues a specific number of "Quotas" for companies, upon request in order to employ expatriates. No foreigner is allowed to work in the Maldives without a valid work permit and a work visa. Employers are required to treat their foreign employees in accordance with the Employment Act and other applicable law. They are responsible for paying any fees related to the work permit or visa accordingly and of returning the worker to their home country once the work permit expires, or if for any reason the government decides that the worker should leave the country. Employers are also required to, upon the death of a worker, to return the body to their family in their home country.

3.3.7 GENDER

Promoting and protecting the rights of vulnerable groups have been among the most important objectives of the Government's human rights policy and has announced that the nation has made significant progress in this regard. The Domestic Violence Prevention Act, the Prevention of Sexual Harassment and Abuse Act, and Sexual Offences Act have strengthened the legal framework to protect women, children, and migrants from violence and sexual abuse. The President ratified the Bill on Gender Equality on 23 August 2016. On ratification, the Act has now been published in the Government Gazette. The Gender Equality Act seeks to ensure to eliminate discrimination between genders and establishes the role of government and other agencies in the implementation of the Act. This act will cement the national standards on gender equality and confirm that the policies and legal framework are consistent with the Convention on Elimination of All Forms of Discrimination against Women.

The Disability Act boosted the protection and rights afforded to persons with disabilities. Now, persons with disabilities have access to financial assistance, there are regulations on minimum standards and identification of persons with disabilities, and room for affirmative action including access to gainful employment.

More recently the Anti-Trafficking Act was a milestone in combating trafficking in the country, especially affording protection to the large number of migrant workers in the country from exploitation. The National Action Plan to Combat Trafficking in Persons for 2015-2019 has been finalised. The Parliament has, on 27 April 2015, approved Maldives accession to the Optional Protocol to prevent, suppress and punish trafficking in persons, especially women and children. This will undoubtedly boost the protection framework offered to migrant workers in the country.

There has been no question about the role and the participation of women in politics and decision-making in the Maldives. Women in the Maldives have always been among the most emancipated in the region, without the systemic barriers of race, class, and caste that are prevalent in some parts of the world. Maldivian women have had the constitutional right to vote since 1932, which is way ahead of some developed countries. Maldivian women have always, without question, had equal pay, and paid maternity leave. Women have the same access to education and employment opportunities, with girls doing even much better than boys in higher education. Despite the apparent parity, challenges remain. Therefore, the Government is now concentrating on making women economically Empowered by introducing targeted micro-loans, single mother benefits, home-based employment opportunities, and day-care facilities. The Government policy framework hopes to see women, one half of our population, become more productive citizens of the country, in whatever capacity they choose for themselves.

The President's human rights policy is guided by the belief, that human rights are not just about international instruments or pieces of law. It is also about belief; belief that needs to be carefully cultivated and nurtured.

The 2008 Constitution bans discrimination on grounds of sex except as prescribed by Islamic Sharia's. This sits uneasily with the Maldives' earlier commitments to international agreements including the Convention on the Elimination of All Forms of Discrimination (CEDAW) in 1993 and the CEDAW Optional Protocol in 2006 (with reservations on Articles 7 (a) and 16). The Maldives is also signatory to several international instruments addressing gender equality including the Commonwealth Action Plans on Gender Equality, and is party to all major human rights treaties, except for the Conventions on the Rights of Migrant Workers and their families.

3.3.8 INTERNATIONAL LABOUR ORGANIZATION CONVENTIONS

Maldives have ratified a number of International Labour Organization Conventions on 04th January 2013. These conventions are described in brief below:

1. Forced Labour Convention, 1930 (No. 29): "This fundamental convention prohibits all forms of forced or compulsory labour [...] Exceptions are provided for work required by compulsory military service, normal civic obligations, as a consequence of a conviction in a court of law [...], in cases of emergency, and for minor communal services performed by the members of a community in the direct interest of the community. The convention also requires that the illegal extraction of forced or compulsory labour be punishable as a penal offence, and that ratifying states ensure that the relevant penalties imposed by law are adequate and strictly enforced." (See Rules of the game: a brief introduction to international labour standards, p. 35)
2. Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87): "This fundamental convention sets forth the right for workers and employers to establish and join organizations of their own choosing without previous authorization. Workers' and employers' organizations shall organize freely and not be liable to be dissolved or suspended by administrative authority, and they shall have the right to establish and join federations and confederations, which may in turn affiliate with international organizations of workers and employers." (See Rules of the game: a brief introduction to international labour standards, p. 28).
3. Right to Organise and Collective Bargaining Convention, 1949 (No. 98): "This fundamental convention provides that workers shall enjoy adequate protection against acts of anti-union discrimination [...] Workers' and employers' organizations shall enjoy adequate protection against any acts of interference by each other [...] The convention also enshrines the right to collective bargaining" (See Rules of the game: a brief introduction to international labour standards, pp. 28-29).
4. Equal Remuneration Convention, 1951 (No. 100): "This fundamental convention requires ratifying countries to ensure the application of the principle of equal remuneration for men and women workers for work of equal value. The term 'remuneration' is broadly defined to include the ordinary, basic or minimum wage or salary and any additional emoluments payable directly or indirectly, whether in cash or in kind, by the employer to the worker and arising out of the worker's employment" (See Rules of the game: a brief introduction to international labour standards, p. 40).
5. Abolition of Forced Labour Convention, 1957 (No. 105): "This fundamental convention prohibits forced or compulsory labour as a means of political coercion or education or as a punishment for holding or expressing political views or views ideologically opposed to the established political, social or economic

system; as a method of mobilizing and using labour for purposes of economic development; as a means of labour discipline; as a punishment for having participated in strikes; and as a means of racial, social, national or religious discrimination” (See Rules of the game: a brief introduction to international labour standards, p. 35).

6. Discrimination (Employment and Occupation) Convention, 1958 (No. 111): “This fundamental convention defines discrimination as any distinction, exclusion or preference made on the basis of race, colour, sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation. [...] It requires ratifying states to declare and pursue a national policy designed to promote, by methods appropriate to national conditions and practice, equality of opportunity and treatment in respect of employment and occupation, with a view to eliminating any discrimination in these fields. The Convention covers discrimination in relation to access to education and vocational training, access to employment and to particular occupations, as well as terms and conditions of employment.” (See Rules of the game: a brief introduction to international labour standards, p. 42).
7. Minimum Age Convention, 1973 (No. 138): “This fundamental Convention sets the general minimum age for admission to employment or work at 15 years (13 for light work) and the minimum age for hazardous work at 18 (16 under certain strict conditions). It provides for the possibility of initially setting the general minimum age at 14 (12 for light work) where the economy and educational facilities are insufficiently developed.” (See Rules of the game: a brief introduction to international labour standards, p. 37).
8. Worst Forms of Child Labour Convention, 1999 (No. 182): “This fundamental Convention defines as a “child” a person under 18 years of age. It requires ratifying states to eliminate the worst forms of child labour, including: all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict; child prostitution and pornography; using children for illicit activities, in particular for the production and trafficking of drugs; and work which is likely to harm the health, safety or morals of children. The Convention requires ratifying states to provide the necessary and appropriate direct assistance for the removal of children from the worst forms of child labour and for their rehabilitation and social integration. It also requires states to ensure access to free basic education and, wherever possible and appropriate, vocational training for children removed from the worst forms of child labour.” (See Rules of the game: a brief introduction to international labour standards, p. 37).

3.3.9 OTHER SOCIAL LAWS

Some other social laws and conventions applicable to the project are listed below.

Year	Name	Details
1984	<i>International Convention on the Elimination of All Forms of Racial Discrimination</i>	Accession 24 April 1984
1990	<i>Prevention of Terrorism Act (Act No.10/1990)</i>	The Act prohibits acts of terrorism and imposes severe punishment for offenders.
1991	<i>Convention on the Rights of the Child</i>	1991 Ratified 11 February 1991
1993	<i>Convention on the Elimination of All Forms of Discrimination Against Women</i>	Accession 1 July 1993
2002	<i>Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography</i>	Ratified 10 May 2002
2004	<i>Convention Against Torture and other Cruel, Inhuman or Degrading Treatment or Punishment</i>	Accession 20 April 2004

Year	Name	Details
	<i>Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict</i>	Ratified 29 December 2004
2006	<i>Human Rights Commission Act (Act No. 6/2006)</i>	Established the Human Rights Commission as an independent legal entity mandated to protect, promote and sustain human rights in the Maldives, and to assist NGOs.
	<i>Human Rights Commission of Maldives</i>	The Human Rights Commission of the Maldives was first established on 10 December 2003 as an independent and autonomous statutory body by Decree by the President of the Republic of the Maldives. The Commission was later re-established under the Human Rights Commission's Act in 2006. The aim of the Commission is to lead the promotion and protection of Human Rights under the Maldives Constitution, Islamic Sharia's and regional and international Human Rights Conventions ratified by the Maldives. Although the Human Rights Commission currently focuses mainly on the public sector, the Commission also works with the private sector, specifically in creating awareness on human rights issues.
	<i>Optional Protocol to the International Covenant on Civil and Political Rights (OPICCPR)</i>	Ratified 19 September 2006
	<i>International Covenant on Economic, Social and Cultural Rights (ICESCR)</i>	Ratified 19 September 2006
	<i>Optional Protocol to the Convention on the Elimination of All Forms of Discrimination Against Women</i>	Ratified 13 March 2006
	<i>Optional Protocol to the Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment</i>	Accession 22 June 2006 (founding member)
2008	<i>Employment Act (Act No. 2/2008)</i>	Specifies the rights and duties of Employers and employees. The employment Act specifically prohibits forced labour, discrimination at the work place, and child labour.
2009	<i>Pension Act (Act No. 8/2009)</i>	Mandates upon every Employer to enrol all employees on a defined contribution pension scheme.
	<i>Employment Tribunal</i>	The Tribunal was established pursuant to the employment Act with the objectives of examining and arbitrating legal matters arising in the work environment between the Employer and employee and any matters ascribed to the employment Tribunal pursuant to the employment Act or any other Act or regulation or under any agreement, in an expeditious and simple manner.
2010	<i>The Convention on the Rights of Persons with Disability (CRPD)</i>	Ratified 1 April 2010

Year	Name	Details
	<i>Sexual Harassment Bill [under development]</i>	Defining sexual harassment in work place and assigns responsibilities for prevention of different stakeholders of such acts and sets out penalties for the offenders.
Other	<i>The President of Maldives Award for Human Resource Development in the Tourism Industry</i>	The Award was established to encourage hoteliers and resort operators to invest and contribute towards training and development of staff to demand for qualified staff within the tourism industry.

Source: FJS Consulting (2010)

4 CHAPTER 4: OVERVIEW OF THE WORLD BANK'S ENVIRONMENTAL AND SOCIAL FRAMEWORK, RELEVANT ENVIRONMENTAL STANDARDS AND THE IFC PERFORMANCE STANDARDS

4.1 ENVIRONMENTAL AND SOCIAL FRAMEWORK

The World Bank's Environmental and Social Framework sets out the Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity.

The E&S Framework comprises of (1) Vision for Sustainable Development, which sets out the Bank's aspirations regarding environmental and social sustainability; (2) The World Bank Environmental and Social Policy for Investment Project Financing, which sets out the mandatory requirements that apply to the Bank; and (3) The Environmental and Social Standards, together with their Annexes, which set out the mandatory requirements that apply to the Borrower and projects.

The World Bank Environmental and Social Policy for Investment Project Financing sets out the requirements that the Bank must follow regarding projects it supports through Investment Project Financing.

The Environmental and Social Standards set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts and mitigation measures associated with projects supported by the Bank through Investment Project Financing.

The E&S standards is expected to: (a) support Borrowers in achieving good international practice relating to environmental and social sustainability, (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance nondiscrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement.

There are ten Environmental and Social Standards (ESS) that the Borrower¹⁰ and the project needs to meet through the project life cycle:

- ESS 1: Assessment and Management of Environmental and Social Risks and Impacts;
- ESS 2: Labor and Working Conditions;
- ESS 3: Resource Efficiency and Pollution Prevention and Management;
- ESS 4: Community Health and Safety;
- ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- ESS 8: Cultural Heritage;
- ESS 9: Financial Intermediaries; and
- ESS 10: Stakeholder Engagement and Information Disclosure.

Environmental and Social Standard ESS1 applies to all projects for which Bank Investment Project financing is sought. ESS1 establishes the importance of: (a) the Borrower's existing environmental and social framework in addressing the risks and impacts of the project; (b) an integrated environmental and social assessment to identify the risks and impacts of a project; (c) effective community engagement through disclosure of project-related information, consultation and effective feedback; and (d) management of environmental and social risks and impacts by the Borrower throughout the project life cycle. The Bank requires that all environmental and social risks and impacts of the project be addressed as part of the environmental and social assessment conducted in accordance with ESS1. ESS2–10 set out the obligations of the Borrower in identifying and addressing environmental and social risks and impacts that may require particular attention.

The World Bank Access to Information Policy, which reflects the Bank's commitment to transparency, accountability and good governance, applies to the entire Framework and includes the disclosure obligations that relate to the Bank's Investment Project Financing.

Borrowers and projects are also required to apply the relevant requirements of the World Bank Group Environmental, Health and Safety Guidelines (EHSGs). These are technical reference documents, with general and industry specific examples of Good International Industry Practice (GIIP).

¹⁰ Republic of Maldives, Ministry of Environment

Table 8 Screening for relevant ESS

Environmental and Social Standards (ESS)	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	√
ESS 2: Labor and Working Conditions	√
ESS 3: Resource Efficiency and Pollution Prevention and Management	√
ESS 4: Community Health and Safety	√
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	X
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	√
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	X
ESS 8: Cultural Heritage	√
ESS 9: Financial Intermediaries	X
ESS 10: Stakeholder Engagement and Information Disclosure	√

ESMF is an instrument that examines the risks and impacts when a project consists of a program and/or series of sub-projects, and the risks and impacts cannot be determined until the program or sub-project details have been identified. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social risks and impacts. It contains measures and plans to reduce, mitigate and/or offset adverse risks and impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project risks and impacts, including on its capacity to manage environmental and social risks and impacts. It includes adequate information on the area in which subprojects are expected to be sited, including any potential environmental and social vulnerabilities of the area; and on the potential impacts that may occur and mitigation measures that might be expected to be used.

4.1.1 ESS 1 - ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

ESS1 sets out the Borrower’s responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through Investment Project Financing, in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESSs).

The ESSs are designed to help Borrowers to manage the risks and impacts of a project, and improve their environmental and social performance, through a risk and outcomes-based approach. The desired outcomes for the project are described in the objectives of each ESS, followed by specific requirements to help Borrowers achieve these objectives through means that are appropriate to the nature and scale of the project and proportionate to the level of environmental and social risks and impacts.

Borrowers will conduct environmental and social assessment of projects proposed for Bank financing to help ensure that projects are environmentally and socially sound and sustainable. The environmental and social assessment will be proportionate to the risks and impacts of the project. It will inform the design of the project and be used to identify mitigation measures and actions and to improve decision making.

Borrowers will manage environmental and social risks and impacts of the project throughout the project life-cycle in a systematic manner, proportionate to the nature and scale of the project and the potential risks and impacts.

The objectives of this ESS are:

- To identify, evaluate and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs.
- To adopt a mitigation hierarchy approach to:
 - o Anticipate and avoid risks and impacts;

- Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels;
- Once risks and impacts have been minimized or reduced, mitigate; and
- Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible.
- To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project.
- To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate.
- To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.

ESS1 applies to all projects supported by the Bank through Investment Project Financing.

4.1.2 ESS 2 - LABOR AND WORKING CONDITIONS

ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker- management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. ESS2 applies to project workers including fulltime, part-time, temporary, seasonal and migrant workers.

The Borrower will develop and implement written labor management procedures applicable to the project. These procedures will set out the way in which project workers will be managed, in accordance with the requirements of national law and this ESS. The procedures will address the way in which this ESS will apply to different categories of project workers including direct workers, and the way in which the Borrower will require third parties to manage their workers in accordance with ESS2. The standard will apply to the direct project workers and the contracted workers.

4.1.3 ESS 3 - RECOURSE AND EFFICIENCY, POLLUTION PREVENTION AND MANAGEMENT

This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life-cycle consistent with GIIP. Objectives of this standards are:

- To promote the sustainable use of resources, including energy, water and raw materials.
- To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- To avoid or minimize project-related emissions of short and long-lived climate pollutants 3.
- To avoid or minimize generation of hazardous and non-hazardous waste.
- To minimize and manage the risks and impacts associated with pesticide use.

The applicability of this ESS will be established during the environmental and social assessment described in ESS1. The ESMF included provisions for screening and management of such risks.

4.1.3.1 RESOURCE EFFICIENCY

The Borrower will implement technically and financially feasible measures for improving efficient consumption of energy, water and raw materials, as well as other resources. Such measures will integrate the principles of cleaner production into product design and production processes to conserve raw materials, energy and water, as well as other resources. Where benchmarking data are available, the Borrower will make a comparison to establish the relative level of efficiency.

4.1.3.2 POLLUTION PREVENTION AND MANAGEMENT

The Borrower will avoid the release of pollutants or, when avoidance is not feasible, minimize and control the concentration and mass flow of their release using the performance levels and measures specified in national law or the EHSGs, whichever is most stringent. This applies to the release of pollutants to air, water and land due to routine, non-routine, and accidental circumstances, and with the potential for local, regional, and transboundary impacts.

4.1.3.3 CLIMATE ADAPTATION

Inspired by the vision for Sustainable Development, the World Bank Group is globally committed to environmental sustainability, including stronger collective action to support climate change mitigation and adaptation, recognizing this as essential in a world of finite natural resources.

It recognizes that climate change is affecting the nature and location of projects, and that World Bank- financed projects should reduce their impact on the climate by choosing alternatives with lower carbon emissions. The World Bank works on climate change because it is a fundamental threat to development in our lifetime.

At a project level, the WB seeks to address project-level impacts on climate change and consider the impacts of climate change on the selection, siting, planning, design and implementation and decommissioning of projects. This issue is addressed as part of the environmental and social risks and impacts assessment. This aspect is mainly considered mainly within ESS1 and ESS3.

4.1.4 ESS 4 - COMMUNITY HEALTH AND SAFETY

ESS4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities.

ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. Within the ESMP will address impacts from the project related activities on health, safety of the project-affected communities possible issue could be project related traffic. It is not expected that there will be significant security related risks to the communities.

4.1.5 ESS 6 - BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES

ESS6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. Biodiversity often underpins ecosystem services valued by humans. Impacts on biodiversity can therefore often adversely affect the delivery of ecosystem services

ESS6 recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support. Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment. All habitats support complexities of living organisms and vary in terms of species diversity, abundance and importance.

The objectives of this ESS are:

- To protect and conserve biodiversity and habitats.
- To apply the mitigation hierarchy⁴ and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.
- To promote the sustainable management of living natural resources.
- To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.

The applicability of this ESS is established during the environmental and social assessment described in ESS1. Based on the environmental and social assessment, the requirements of this ESS are applied to all projects that potentially affect biodiversity or habitats, either positively or negatively, directly or indirectly, or that depend upon biodiversity for their success.

The environmental and social assessment as set out in ESS1 will consider direct, indirect and cumulative project-related impacts on habitats and the biodiversity they support. This assessment will consider threats to biodiversity. It will determine the significance of biodiversity or habitats based on their vulnerability and irreplaceability at a global, regional or national level and will also take into account the differing values attached to biodiversity and habitats by project-affected parties and other interested parties.

4.1.5.1 FORESTS AND WETLANDS

Forests and wetlands are considered as habitats, which is defined as terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment. Habitats vary in their significance for conserving globally, regionally and nationally important biodiversity, their sensitivity to impacts and in the significance different stakeholders attribute to them. Because, in most instances, habitat loss, degradation or fragmentation represents the greatest threat to biodiversity, much of the focus of biodiversity conservation actions is on maintaining or restoring suitable habitats.

This ESS requires a differentiated risk management approach to habitats based on their sensitivity and values.

Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.

If natural habitats are identified as part of the assessment, the Borrower will seek to avoid adverse impacts on them in accordance with the mitigation hierarchy. Where natural habitats have the potential to be adversely affected by the project, the Borrower will not implement any project related activities unless:

- a) There are no technically and financially feasible alternatives; and
- b) Appropriate mitigation measures are put in place, in accordance with the mitigation hierarchy, to achieve no net loss and, where feasible, preferably a net gain of biodiversity over the long term. When residual impacts remain despite best efforts to avoid, minimize and mitigate impacts, and where appropriate and supported by relevant stakeholders, mitigation measures may include biodiversity offsets adhering to the principle of "like-for-like or better."

Where the project includes commercial agriculture and forestry plantations (particularly projects involving land clearing or afforestation), the Borrower will locate such projects on land that is already converted or highly degraded (excluding any land that has been converted in anticipation of the project). In view of the potential for plantation projects to introduce invasive alien species and threaten biodiversity, such projects will be designed to prevent and mitigate these potential threats to natural habitats. When the Borrower invests in production forestry in natural forests, these forests will be managed sustainably. As the Maldives has no areas designated as forests or commercial forests this aspect of the standard does not apply.

4.1.5.2 PROTECTED AREAS

Where the project occurs within or has the potential to adversely affect an area that is legally protected¹¹ designated for protection, or regionally or internationally recognized⁵, the Borrower will ensure that any activities undertaken are consistent with the area's legal protection status and management objectives. The Borrower will also identify and assess potential project-related adverse impacts and apply the mitigation hierarchy so as to prevent or mitigate adverse impacts from projects that could compromise the integrity, conservation objectives or biodiversity importance of such an area. Appendix A of this report provides a full list of protected areas in the Maldives.

4.1.6 ESS 8 - CULTURAL HERITAGE

ESS8 recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. People identify with cultural heritage as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. Cultural heritage, in its many manifestations, is important as a source of valuable scientific and historical information, as an economic and social asset for development, and as an integral part of people's cultural identity and practice. ESS8 sets out measures designed to protect cultural heritage throughout the project life cycle.

The requirements of ESS8 apply to cultural heritage regardless of whether or not it has been legally protected or previously identified or disturbed. The requirements of ESS8 apply to intangible cultural heritage only if a

¹¹ A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. ⁵ Internationally recognized areas of high biodiversity value include World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites, among others.

physical component of a project will have a material impact on such cultural heritage or if a project intends to use such cultural heritage for commercial purposes.

The Borrower will implement globally recognized practices for field-based study, documentation and protection of cultural heritage in connection with the project, including by contractors and other third parties.

A chance finds procedure is a project-specific procedure which will be followed if previously unknown cultural heritage is encountered during project activities. It will be included in all contracts relating to construction of the project, including excavations, demolition, movement of earth, flooding or other changes in the physical environment. The chance finds procedure will set out how chance finds associated with the project will be managed. The procedure is provided in section 6.7 of this report.

The procedure will include a requirement to notify relevant authorities of found objects or sites by cultural heritage experts; to fence-off the area of finds or sites to avoid further disturbance; to conduct an assessment of found objects or sites by cultural heritage experts; to identify and implement actions consistent with the requirements of this ESS and national law; and to train project personnel and project workers on chance find procedures. The procedure is included in section

4.1.7 ESS 10 - STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. A stakeholder engagement plan is prepared to meet the requirements of this standard.

4.2 IFC PERFORMANCE STANDARDS

4.2.1 ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS (PS1)

The primary objectives of PS1 is are to: (i) identify and evaluate environmental and social risks and impacts of the project; (ii) mitigation of impacts and/or identifying compensation; (iii) improved social and environmental performance and ; (iv) promote and provide means for adequate engagement with Affected Communities. This Performance Standard applies to private sector business activities with environmental and/or social risks and/or impacts.

A key requirement of this standard is to prepare an Environmental and Social Assessment and Environmental and Social Management Systems (ESMSs) appropriate to the nature of and scale of the proposed project.

The ESMS shall incorporate the following elements: (i) policy; (ii) identification of risks and impacts; (iii) management programs; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) stakeholder engagement; and (vii) monitoring and review.

Given that the ASPIRE project involves private sector involvement and that the project proponents are going to be private investors, this performance standard should be adhered. The requirement for ASPIRE program EAs (as described in the next chapter) incorporates the requirements specified here.

4.2.2 LABOUR AND WORKING CONDITIONS (PS2)

The objectives of Performance Standard 2 are to: (i) promote the fair treatment, nondiscrimination, and equal opportunity of workers; (ii) to establish, maintain, and improve the worker-management relationship; (iii) to promote compliance with national Employment and labor laws; (iv) to protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain; (v) to promote safe and healthy working conditions, and the health of workers, and ; (vi) to avoid the use of forced labor.

Three groups of workers are defined: (i) direct workers; (ii) contracted workers, and; (iii) supply chain workers. For each group a specific set of requirements are defined. Labour management procedures have been prepared regarding the project in order to meet the requirements of PS2 and ESS2.

4.2.3 RESOURCE EFFICIENCY AND POLLUTION PREVENTION (PS3)

The objectives of Performance Standard 3 are to: (i) avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; (ii) promote more sustainable use of resources, including energy and water, and; (iii) reduce project-related GHG emissions.

The choice of technology for the ARISE program – integrated solar energy systems – will contribute to reduce emissions in Maldives and contribute positively to the improvement of air quality. There are also no major pollution anticipated during construction or operations stage. However decommissioning will lead creation of hazardous waste which is also addressed in chapter 5.

4.2.4 COMMUNITY, HEALTH, SAFETY AND SECURITY (PS4)

Performance Standard 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. The objectives of this Standard is to: (i) anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances and; (ii) ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

The ARISE program’s proposed construction activities on existing public buildings/spaces and their proximity to neighbouring buildings, necessitates the adherence to “Infrastructure and equipment design and safety” clauses identified in this standard.

In particular, the client will have to consider incremental risks of the public’s potential exposure to operational accidents and/or hazards and be consistent with the principles of universal access. Structural elements will have to be designed and constructed by competent professionals, and certified or approved by competent authorities or professionals.

The proposed ESMP requirement for this project contains provisions to ensure community safety.

4.2.5 BIODIVERSITY CONSERVATION AND SUSTAINABLE NATURAL RESOURCE MANAGEMENT (PS6)

The objective of Performance Standard 6 is: (i) to protect and conserve biodiversity; (ii) to maintain the benefits from ecosystem services, and ; (iii) to promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.

The applicability of this Performance Standard will be based on the results of environmental screening. The project is generally expected to have minimal negative impact on biodiversity. However, the vegetation clearing and pruning is expected as an activity for some of the subprojects, Some of the islands proposed for Phase II contains protected areas, sensitive environments and protected trees.

Depending on the scope of vegetation clearance in ARISE project, the sections on protection and conservation of biodiversity (clause 10), modified habitat (Clauses 12), natural habitat (clauses 14 and 15), critical habitat (clause 17) and, legally protected and internally recognized areas (Clause 20) are applicable.

This standard requires a process of risk identification (clause 6), mitigation (clause 7) and use of professionals to carry out tasks related to natural habitat appraisal.

4.2.6 CULTURAL HERITAGE (PS8)

The objective of Performance Standard 8 is to protect cultural heritage from the adverse impacts of project activities and support its preservation, and to promote the equitable sharing of benefits from the use of cultural heritage. Applicability of this standard will be determined at the project screening stage as identified in the next chapter.

Thus, the sections on Protection of cultural heritage in project design and execution, particularly, general clauses (clauses 6, 7) and consultations (clause 9) are applicable.

4.3 WORLD BANK'S EHS GUIDELINES

The World Bank Groups Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice (GIIP). EHS Guidelines are applied as required by their respective policies and standards. These industry sector EHS guidelines are designed to be used together with the General EHS Guidelines document, which provides guidance to users on common EHS issues potentially applicable to all industry sectors.

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the Defined as the exercise of professional skill, diligence, prudence and foresight that would be reasonably expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally. The circumstances that skilled and experienced professionals may find when evaluating the range of pollution prevention and control techniques available to a project may include, but are not limited to, varying levels of environmental degradation and environmental assimilative capacity as well as varying levels of financial and technical feasibility. Environment, and other project factors, are taken into account.

The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects are expected to achieve whichever is more stringent. If less stringent levels or measures than those provided in these EHS Guidelines are appropriate, in view of specific project circumstances, a full and detailed justification for any proposed alternatives is needed as part of the site-specific environmental assessment. This justification should demonstrate that the choice for any alternate performance levels is protective of human health and the environment.

The **World Bank Group General EHS Guidelines** contain information on cross-cutting environmental, health, and safety issues potentially applicable to construction and can be downloaded via the following link.

- https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

The **World Bank Group ESH Guidelines for Construction Materials Extraction** is also applicable to the project and used as key guidance provided to contractors on the management of environmental health and safety during construction material extraction in addition to specific guidance provided in the EAMF. This document includes information relevant to construction materials extraction activities such as aggregates, limestone, slates, sand, gravel, clay, gypsum, feldspar, silica sands, and quartzite, as well as to the extraction of dimension stone. It addresses stand-alone projects and extraction activities supporting construction, civil works, and cement projects. Although the construction materials extraction guidelines Emphasize major and complex extraction schemes, the concepts are also applicable to small operations and should be used for guidance. These guidelines can also be downloaded via the link provided above.

4.4 GAPS BETWEEN WORLD BANK REQUIREMENTS AND NATIONAL REQUIREMENTS

Based on the discussions in this chapter, several gaps can be identified between the World Bank procedure and the national requirements. In general, the World Bank requirements appear to be more stringent than the national requirements. The stricter option will always be preferred during project implementation. However, with the implementation of many new legislations and regulations there are very few differences between local and World Bank requirements. Described below are the gap analysis for the World Bank Environment and Social Standard (ESS) relevant to the project and the subsequent national requirements.

4.4.1 ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS (ESS1)

The equivalent national legislation is Environmental Impact Assessment Regulations (No. 2012/R-27) identified and described in chapter 3. The focus of the National regulation is very much focused on the environmental aspect when compared with the social aspect. When identifying impacts and mitigation measures as well the focus is on environmental impacts and mitigation measures rather than social impacts and mitigation measures. However, the ESS1 give equal importance to both environmental and social impacts which is even apparent in the introduction of ESS1:

“ESS1 sets out the Borrowers responsibilities for accessing, managing and monitoring, environmental and social risks and impacts associated with each of the project supported by the Bank through Invest Project Financing in order to achieve environmental and social outcomes consistent with the Environmental and Social Standards (ESS)”

Moreover, under the local regulation, the involvement of the affected public is only limited during report preparation phase. However, the World Bank’s procedures highlight the importance of public/stakeholder participation throughout the project lifecycle from site selection, project development, project implementation and monitoring/evaluation.

In addition, as one of the objectives of ESS1 it is stated:

“To avoid differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are disadvantaged in sharing development benefits and opportunities resulting from the project”

Local regulations on the other hand, do not even mention disadvantaged/vulnerable groups. However, despite not being specified in the Environmental Impact Assessment Regulations as identified in Chapter 3, recent amendments to the Decentralization Act requires public consultation on development activities undertaken in each island by the council. Moreover, as per this amendment, Women’s Development Committees are required to be consulted on all development activities undertaken. Moreover, the ESS specifies that the relevant environmental and social requirements need to be incorporated into relevant tender documents and contracts with the contractors. This is often not practiced locally when awarding contracts and contractors are not often aware of environmental and social commitments.

This ESMF has been prepared in compliance with ESS 1 and includes measures for carrying out screening as well as assessment of social risks and impacts alongside those relating to the environment. Consultations, including with vulnerable groups, are key aspect of the procedures laid out in the ESMF as well as the separate Stakeholder Engagement Plan (SEP) and Labor Management Procedure (LMP) prepared under the project. Further, as mentioned in the ESMF, the relevant environmental and social requirements will be incorporated into the relevant tender and contract documents, and the contractor will also be required to prepare a separate contractor’s ESMP in accordance with this ESMF.

4.4.2 LABOUR AND WORKING CONDITIONS (ESS 2)

The majority of the issues relating to labor and working conditions as highlighted in ESS 2, are covered through Employment Act (2/2008). Specifically, as described in Chapter 3, the Employment Act has provisions regarding employment of minors, mechanisms to address employee grievances, working hours, employment agreement, leaves and health and safety. Health and safety aspects especially regarding construction industry are further covered through a comprehensive Construction Site Health and Safety Regulation (2019/R-156) which as described in Chapter 3 covers many aspects highlighted under occupation, health and safety standard of the World Bank.

Moreover, Prevention of Sexual Harassment Act (16/2014) have provisions to ensure that sexual harassment prevention committees are formed in all government offices and mechanism is established for government offices to address issues of sexual and workplace harassment. Gender Equality Act (18/2016) ensures promotion of gender equality both in government and private sector. As identified in chapter 3. Regulation on Employment of Expatriates in Maldives (2011/R-22) covers aspects specific to migrant workforce.

The only aspect that is missing in the local regulations that is recognized in ESS2 is worker organizations for unionizing, collective bargaining and the right to strike. Even though Maldives remain party to the ILO Convention on Right to Organize and Collective Bargaining (No. 98), there is a lack of a specific legislative framework ensuring the right to organize and collectively bargain. Employees can however create clubs and associations, which are governed under the Associations Act (1/2003). Such clubs and association are required under the law to be registered at the ministry with the relevant mandate. ESS2 states that:

“...where national laws restrict workers organizations, the project will not restrict project workers from developing alternative to express their grievances and protect their rights regarding working conditions and terms of employment...”

It is not so much a restriction, as Maldives is party to ILO convention 98, the case here is the required legislative framework have not yet been implemented.

Despite the availability of legal instruments in the Maldives to address labor issues under ESS2, it is the enforcement of these requirements which is weak. Especially aspects regarding migrant workers and forced labor are an issue with migrant workforce. Moreover, health and safety aspects are still not strictly enforced under the newly implemented OHS regulations.

To address the gaps, the Labor Management Procedure (LMP) prepared under the project includes specific provisions relating to labour rights, labour working conditions, work visa, occupational health and safety issues, GBV-related issues among others, that are in accordance with the requirements under ESS 2. In addition, the provisions for a worker's grievance redress mechanism, incorporation of labor management issues in the contractor and sub-contractor's document as well as a framework for monitoring and reporting the implementation of the LMP, is envisaged to ensure the implementation and enforcement of provisions laid out in the ESS 2 as well as national regulations.

4.4.3 POLLUTION PREVENTION AND MANAGEMENT (ESS3)

Pollution prevention and management locally is primarily governed by Waste Management Regulation (2013/R-58). As identified in Chapter 3, the regulation covers aspects related to defining waste management standards for waste collection, transfer, treatment, storage, waste site management, landfill management and hazardous waste management. Moreover, waste transfer standards are defined for land and sea transfer. The areas that are lacking regulatory backing is regarding resource efficiency with regards to energy use, water use, and raw material use are not defined in terms of project management under any regulation or standard. Furthermore, air quality standards are not established in the Maldives and air quality emissions are not regulated strictly while ESS3 requires in addition to other emissions, to measure gross GHG emissions from the project.

The project will apply the World Bank Group Sectoral Guidelines on Solid Waste Management and follow the criteria on producer management of waste, including the transport of decommissioned systems out of the country as part of the investments via mandatory provisions in contracts with suppliers and contractors. These will be in line with both national legislation and applicable international conventions, including measures such as a buy back arrangement of hazardous waste by the suppliers.

4.4.4 COMMUNITY, HEALTH, SAFETY AND SECURITY (ESS4)

The regulations relevant to this aspect locally is the Construction Site Health and Safety Regulation (2019/R-156). As identified in Chapter 3, this regulation has safety provisions that ensure public safety while construction activities are undertaken. In addition, recently formulated regulation, Construction Material Testing Regulation (2019/R-105) ensures that the material used for construction is tested and safe to use for the designated purpose. However, World Banks ESS4 specifies that structural design should take into account climate change risks. This aspect is not covered in these regulations implemented locally. Moreover, notably quality and safety related regulatory requirements are lacking in energy sector. In this regard, safety specifications for PV and Battery are lacking locally. Furthermore, there are no regulations that deal with the community level impacts that arise due to influx of migrant workers into the population.

The project will integrate various safety measures into the project design to meet the requirements of the World Bank Group's Environmental Health and Safety Guidelines. Further, measures to manage the risks associated with labor influx will be clearly laid out in the LMP prepared for the project.

4.4.5 BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES (ESS6)

The aspects covered in this ESS is covered nationally through regulations and legislations including, Environmental Protection and Preservation Act (4/93), Protected Area Regulation (2018/R-78), Regulation on Protection of Old Trees, Regulation on Migratory Birds (2014/R-136), Cutting Down, Uprooting, Digging out and export of trees and palms from one island to another. *This can be identified as a strong suite nationally as there are many regulations covering this aspect and thus an apparent gap is not evident.*

4.4.6 CULTURAL HERITAGE (ESS8)

The Heritage Act (12/2019) identifies procedures to follow on chance find which is consistent with the same requirement under ESS8. As specified in ESS8, the Act also identifies that any impacts to cultural heritage needs to be addressed through the EIA process as well. Procedures to follow for different categories of cultural heritage identified in ESS8 namely; Archaeological sites and materials, built heritage, natural features with cultural significance and movable cultural heritage are covered under the Heritage Act (12/2019). Moreover, the Act goes beyond the requirements of ESS8 in considering non-tangible heritage like language and features of language as part of cultural heritage. *Thus, there does not seem to be any apparent gap between World Bank standard and the local requirements here.*

4.4.7 STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE (ESS10)

As per the provisions under ESS1, the recent amendments to Decentralization Act and EIA regulation ensures that consultation is undertaken with relevant stakeholders including affected public prior to project implementation. However, consultation is missing during project implementation and during monitoring and evaluation. Moreover, locally there is no requirement that ensures a feedback mechanism. In addition, identification and consultation of vulnerable groups during project implementation is not required legally either. These aspects are important aspects highlighted under ESS10. There are some requirements for information disclosure under local requirements. This includes:

- Requirements under EIA regulations (2012/R-27) to publish EIA reports online for public comments.
- Requirements under EIA regulations (2012/R-27) to public EIA decision statements online.
- Requirement under Decentralization Act to submit EIA reports and provide information on impacts and mitigation measures with respect to the project to local island councils.

ESS10 also requires Stakeholder Engagement Plans (SEP) to be developed for the project. Developing project specific SEP is not required under local regulations. Moreover, establishment of mechanisms to address grievances during project implementation is not covered through local laws or regulations.

To address these gaps, a standalone Stakeholder Engagement Plan (SEP) that is consistent with the ESS 10, will be prepared for the project. The SEP will require consultations with stakeholders during the entire project cycle, procedures for disclosing information about the project, mechanisms for addressing and responding to grievances, and reporting back to the stakeholders thus closing the feedback mechanism loop.

5 CHAPTER 5: ASSESSMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS AND MITIGATION MEASURES

5.1 ENVIRONMENTAL AND SOCIAL RISK CLASSIFICATION AS PER THE WORLD BANKS ESF

This ESMF provides for initial risk assessment and classification based on the available documentation and data. The environment and social risks are rated as moderate by the World Bank as per the following rationale, in line with the World Bank’s Environmental and Social Policy and ESF.

Environmental Risk Rating	Moderate
<p>The proposed project activities include the conversion to solar energy to produce electricity via the establishment of floating, land and roof top solar energy generation systems, which will reduce the fossil fuel-based energy production dependency in the Maldives. The energy storage systems and grid upgradation works to the existing grid, can provide social and environmental benefits through the improvements of energy resilience and efficiency. They will also promote the increased use of clean electricity from renewable sources. Although specific information on subprojects such as the exact locations are unknown at this concept stage, the proposed subprojects are not likely to be complex. The footprint size of proposed subprojects are expected to be small to medium in scale. Project sites, including those to be selected for land based solar installation, BESS system installation and power houses and grid infrastructure will be on inhabited islands and in areas where anthropogenic activities have taken place already. Areas such as harbors, jetty areas and docks, are being explored as sites for the establishment of floating solar systems to ensure they are located away from sensitive lagoon and marine areas and other environmentally sensitive locations. Negative environmental impacts that have moderate risks are associated with the solar energy generation system investments. The grid upgradation works are expected to be localized in nature and arise only during the construction/upgradation stage and future decommissioning of the solar energy systems at the end of their lifetime. These impacts would be in the form of civil works related environmental impacts such as localized dust, noise and minor worker and public health and safety issues as well as waste generation. While the proposed Battery Energy Storage System (BESS) are not complex and are small in installation footprint, the environmental risks associated with this activity will be moderate in nature. In particular, potential fire and explosion risks and environmental hazards related to the disposal of used batteries containing hazardous waste will be mitigated via risk management measures that will include product specifications and “cradle to grave” provisions in the contracts of supplier for batteries used in the BESS and solar cells in accordance with International best practice. Due to these reasons the overall environmental risks and impacts have been assessed as moderate at the project concept stage.</p> <p>The Ministry of Environment (ME) has demonstrated good capacity and experiences for successfully implementing World Bank safeguards and WBG ESHS Guidelines for over a decade. Sector specific E&S risks have also been successfully managed under the ASPIRE project. Further capacity is required on E&S due diligence, in line with the ESF. In accordance with adaptive management approach, the Risk Classification will be reviewed and changed at a future date if necessary.</p>	
Social Risk Rating	Moderate
<p>Social risks associated with the project is rated as being ‘moderate’ at the concept stage. The project is expected to bring positive social impacts through the promotion and use of renewable energy technology and increased energy efficiency. Proposed conversion to solar energy to produce electricity will reduce the fossil-fuel based power generation, which is identified as the best solution in terms of cost-benefits and socio-environmental needs of the Maldives. The installation of solar PVs is a source of temporary and permanent employment since it will generate both technical and unskilled jobs in design, installation, operations and maintenance, project development and marketing. Further, at the household level, the project is likely to result in cost savings, increase income levels of households, improve standard of living, and increase property value in the project location.</p> <p>Project activities, including installation of land-based and floating solar systems as well as installation of Battery Energy Storage System (BESS), power houses and grid infrastructure, are not likely to cause significant social risks on the community in terms of land acquisition and resettlement. However, the installation of PV solar panels will require roof/space lease agreement between the owner and the developer. Installations of the solar panels in port areas,</p>	

residential, commercial areas, also pose potential risks in terms of disturbances to commercial activities, restriction on access to land or use of other resources, including marine and aquatic resources. Further, there are culturally sensitive buildings in the Maldives, such as mosques, cultural or historical buildings, cemeteries, etc., that may become a source of public resentment if used for solar panel installation.

Other social risks associated with the project include possible exclusion of certain groups, including local communities, in stakeholder consultations as well as the decision making process relating to project activities (e.g., specific sites for the installation of the solar panels); and insufficient engagement and coordination with different stakeholders associated with the project, including the different public utilities, private sector, local communities, etc. While the project is expected to generate employment opportunities, the non-use of local manpower during the construction of the infrastructures could be a potential source of social tension at the local level. Further, there are also risks associated with labor and working conditions, particularly since most of the workers recruited during the construction/installation phase are likely to be migrant workers. The influx of such migrant workers increases the risks of social conflicts, increased burden on and competition for public service provisions, increased risk of illicit behavior and crime, local inflation of prices, increased risks of gender-based violence, etc. However, these potentially adverse social impacts are likely to be minimal, site-specific and manageable with appropriate mitigation and due diligence measures in place.

In order to address the risks described in detail above the following instruments have been prepared:

- i. Environment and Social Management Framework (ESMF)
- ii. Stakeholder Engagement Plan (SEP)
- iii. Labor Management Procedures (LMP).

Further, this ESMF is based on applicable ESF Standards and the World Bank Group's Environmental Health and Safety Guidelines. The ESMF has outlined procedures, elaborated in Chapter 6 for determining where and when site specific Environment and Social Impact Assessments (ESIAs)/Management Plans (ESMPs) via Environmental and Social Screening.

The following risk management instruments in line with each of the applicable ESSs and specific measures or actions are planned to prevent, avoid, minimize, reduce or mitigate the environmental and social risks and impacts of the projects over the project cycle:

5.1.1 ESS 1 - ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

The proposed solar photovoltaic systems and energy storage investments are anticipated to have indirect environmental benefits, including the improvements of energy resilience and efficiency and the decrease of CO₂ emission through the integration of more clean electricity from renewable sources as the Maldives is currently heavily dependent on energy generation via the burning of fossil fuels. The potential impacts associated with solar cell and BESS installation works, and grid upgradation works that will be financed via the project will lead to mainly small scale localized environmental impacts during the civil works stage due to the expected scale and footprint. During the installation of photo-voltaic systems, on land and in water, potential impacts include those such as the need for small-scale land clearance, dust, noise, occupational health and safety. Likewise, impacts associated with operation of such systems includes noise, aesthetic impacts and waste generation associated with decommissioning of systems at the end of their lifetime which will be managed via environmental screening and management instruments such as Environmental and Social Management Plans (ESMPs). BESS and solar panels produce a special type of hazardous waste for which the Maldives does not have appropriate final disposal facilities. As a risk management measure, via project design, the bidding documents and contracts with investors/contractors/suppliers will include mandatory "cradle to grave" provision for the safe transport, installation, operation & maintenance and disposal of used batteries and other hazardous wastes in accordance with international best practice.

In terms of social risks and impacts, the project aims to reduce the cost of electricity production in the Maldives and improve energy security thus leading to significant positive benefits at the household as well as national level. Social risks in terms of land acquisition and resettlement are not expected. However, installations of the solar panels in residential, commercial areas, and culturally sensitive buildings poses potential risks in terms of disturbances to commercial activities, restriction on access to land or use of other resources, etc., that could potentially become a source of public resentment. Exclusion of vulnerable groups in stakeholder consultations as well as the decision making process relating to project activities; insufficient coordination with different stakeholders associated with the project, including the different public utilities, private sector, local communities, etc.; non-use of local resident qualified manpower for the employment generated through the project; risks of

poor labor management and working conditions; and high rates of labor influx, particularly with the recruitment of migrant workers, could potentially escalate social conflicts, increase burden on and competition for public service provisions while also increasing the risks of gender-based violence.

Based on the proposed project activities within the ARISE project the following instruments have been prepared: (i) Environment and Social Management Framework (ESMF); (ii) Stakeholder Engagement Plan (SEP); and (iii) Labor Management Procedures (LMP). The ESMF is based on applicable ESF Standards and the World Bank Group's Environmental Health and Safety Guidelines.

The ESMF via Chapter 6 and all relevant guidance Annexures the required process of Environmental and Social due diligence and management in line with ESS1 and all relevant ESSs.

5.1.2 ESS 2 - LABOR AND WORKING CONDITIONS

The expected types of workers that maybe employed by the project include: Direct workers (workers and staff at the PMU and PIU); Contracted workers (investors, contractors, sub-contractors, laborers); Primary supply workers (BESS supplier, suppliers of construction materials such as aggregates, equipment, etc.); and Community workers. Significant community workers are not likely to be employed by the project.

While the scope of construction work involved is comparatively small, it will require contracted workers to be brought in. In the context of the Maldives, where labor, both skilled and unskilled is scarce, to meet this demand, it may or may not be possible to find the required labor force and associated goods and services locally for a number of reasons, among them, worker's unavailability and lack of technical skills and capacity. Therefore, a sizeable proportion of the labor force may have to be brought in from outside the project area, in the form of migrant workers.

The various categories of workers hired for the anticipated civil works (as required) and the influx of 'followers' will be subject to the requirements of ESS2 (and ESS4), including clear information on the terms and conditions of employment, principles regarding non-discrimination and equal opportunity and the establishment of workers' organizations, rules regarding child labor and forced labor, and occupational health and safety measures. There will also be a grievance mechanism for labor issues, drawing on national laws and procedures. The project will apply the GBV Risk Assessment Tool and measures for addressing any risks associated with GBV, if relevant, will be included in an action plan following the GBV Good Practice Note prepared by the Bank.

The direct project workers will be those hired by the project whereby the contracted workers will be those hired by the investors/ contractors to do the works for the facilities to be financed by the project. It is estimated that around 11 permanent project workers will be employed. And for each contract during construction phase will be around 15. During the operation phase for component 1 each investor is expected to use around 04 staff for each subproject. For component 2 and 3 operational aspects will be handled by already established utility offices in the islands.

A comprehensive Labor Management Procedure (LMP) in line with the requirements of ESS2, has been prepared in parallel to this ESMF. The LMP highlights in detail some of the risks associated with the project in the context of the country. In this regard, labour rights, labour working conditions, work visa and other such issues in relation particularly to foreign labour has been identified as key risks. In addition, working without PPE has also been identified as a key risk in the Maldives. Moreover, risk of fire and safety during sea travel has been identified as risks based on recent tragic incidents. The plan proposes means to address these aspects. For contracted workers, the plan suggests to include clauses of compliance into the contracts.

Further, to ensure health and safety of workers during the construction and operational phases of sub-projects to be financed via the project, a Guidance Occupational Health and Safety (OHS) plan, in line with the World Bank Group Environmental Health and Safety Guidelines and Good International Industry Practice (GIIP), in line with the nature of works expected via the project interventions is presented in Annex 13. For each specific sub-project, OHS aspects will be included in the respective ESMPs as well. The OHS plan will provide guidance in the preparation of sub-project specific OHS actions and plans and will be specifically identified in the ESCP.

5.1.3 ESS 3 - RESOURCE AND EFFICIENCY, POLLUTION PREVENTION AND MANAGEMENT

The proposed photovoltaic sub-projects, energy storage investments and grid upgradation works are designed to reduce curtailment and deploy new emerging use of Renewable energy in the Maldives. This is expected to lead to positive impacts overall, via the improvements of energy efficiency and the reduction of greenhouse emission

through the use of fossil fuels for power generation. However, used solar cells and batteries are identified as hazardous waste which may pose health and safety risks to humans and the environment if environmentally sound final disposal is not undertaken. As the Maldives does not have existing standards or requirements for management (including storage, transportation and disposal) of hazardous waste, international best practice guidance such as the World Bank Groups Sectoral Guidelines on Solid Waste Management and strict criteria on producer management of waste, including the transport of decommissioned systems out of the country as part of the investments, will be followed via mandatory provisions in contracts with suppliers and contractors. These will be in line with both national legislation and applicable international conventions, including measures such as a buy back arrangement of hazardous waste by the suppliers.

As per the ESMF and project design the contractual documents of Solar PV and BESS Suppliers will clearly stipulate that during the construction/upgradation stage and future decommissioning of the solar energy systems at the end of their lifetime will be managed by the supplier and all hazardous waste material will be managed via a cradle to grave system and taken out of the waste stream in country.

5.1.4 ESS 4 - COMMUNITY HEALTH AND SAFETY

The grid-side and demand-side subprojects sites where upgradation works will be conducted on existing grid facilities, will possibly be located adjacent to residential areas. While most of the workers employed during the construction phase is likely to be migrant workers, it is also anticipated that this expected influx of workers will be compounded by an influx of other people (“followers”) who follow the incoming workforce with the aim of selling them goods and services, or in pursuit of job or business opportunities. The rapid migration to and settlement of workers and ‘followers’ in to already congested urban areas proposed for the project, could have adverse impacts in terms of risks of social conflicts, increased burden on and competition for public service provisions, increased risk of illicit behavior and crime, local inflation of prices, increased risks of gender-based violence, communicable diseases, etc. However, considering the scale of the project only limited number of labor is likely to be mobilized (check 5.1.2) hence, the project-resulted disturbance to local communities is expected to be limited during construction phase and during operational phase as identified in section 5.1.2 much labour mobilization in the islands are not envisioned. However, the operation of neighboring energy storage system may expose nearby communities to additional fire, explosion and electrical shock hazards associated with batteries and electrical systems. In addition, the operation of BESS will lead to the limited increase of noise level around the station. Following current national environmental legislation and ESF requirements, safety assessment, firefighting review will be conducted as part of the ESIA/ESMP process for all the project activities before implementation to ensure the integration of all the necessary safety measures into the project design, including minimum safety distance (with reference to the specifications for substations), container requirements, illumination system, air-conditioning and ventilation systems, fire-extinguishing systems, controlling systems, earthing systems, access control systems, electrical wiring, safety manual, noise abatement measures, etc.

The ESMF provides guidance on the minimal acceptable standards on the above and all ESIA/ESMPs will meet the requirements of the World Bank Group’s Environmental Health and Safety Guidelines.

5.1.5 ESS 6 - BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES

Due to sensitive nature of the Maldives islands and their surrounding that consist of important natural habitats, both terrestrial and marine, negative impacts are possible that could generate as a result of improper location, construction or decommissioning of solar PV systems and BESS systems. Attention will need to be given to protection and conservation of biodiversity at project sites and captured in respective ESIA, which include measures to avoid, minimize, mitigate or offset any potential impacts to natural habitats and living natural resources. While most project activities are expected to be proposed in areas that are inhabited and potentially away from environmentally sensitive areas, under the ESMF all subprojects will be screened against the exclusion list to eliminate the activities situated in any nature reserve, critical habitat or scenic sites.

The Environmental screening and management processes presented in the ESMF include specific screening questions and measures to ensure compliance with ESS6 requirements.

5.1.6 ESS 8 - CULTURAL HERITAGE

Culturally significant sites even though well documented in inhabited islands it is not so in many uninhabited islands. The project activities will be undertaken in inhabited islands hence such sites are easily identifiable. It is important that culturally significant sites are not impacted as a result of the project. In this regard, preference will

be given to avoid any known such sites. Where there is chance find by a contractor a clear mechanism has been defined under section 6.7 of this ESMF. Project specific issues will be captured in respective ESIA's, which include measures to avoid, minimize, mitigate or offset any potential impacts to cultural heritage. While most project activities are expected to be proposed in areas away from culturally sensitive areas, under the ESMF all subprojects will be screened against the exclusion list to eliminate the activities situated in any cultural heritage sites.

Environmental and Social Screening will further inform ensure that no such sites are selected and chance find procedures in line with the ESMF, will be included in the ESIA process and ESMPs.

5.1.7 ESS 10 - STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

ESS 10 is considered relevant for the project since there are a variety of stakeholders associated with the project, including (i) individuals and groups that would be affected by the project (e.g., STELCO/FENAKA, local council, local residents, fishermen, roof/space owners etc.) and (ii) other interested parties (e.g, relevant ministries, agencies, Maldives Energy Authority, private sector, NGOs, etc.). Accordingly, consultations and disclosure of information with stakeholders will be at the core for planning and implementation of the project. The ME will map all stakeholders, identify their interests in the project, plan on engagement with these stakeholders, develop procedures for disclosing information about the project, prepare a procedure for addressing and responding to grievances, and a devise a mechanism for reporting to the stakeholders. These issues and measures have been included in the Stakeholder Engagement Plan (SEP) prepared. The SEP so prepared during preparation will be updated proportionate to the nature and scale of project during implementation.

5.2 ASSESSMENT OF IFC'S PERFORMANCE STANDARDS ITS APPLICATION FOR COMPONENT 1

5.2.1 PS1 ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

This PS is applicable to all project interventions under Component 1. Given the severe land constraints in the Maldives, following the ASPIRE approach, the PMU will in advance identify suitable spaces for installing and operating solar PV, either on rooftop, ground or waterbed such as lagoon, and aggregate a number of spaces for each bidding phase. All sites will be subject to Environmental and Social Screening. The procedures stipulated in this ESMF have been implemented under the ASPIRE project and in order to ensure continuity will be followed for all projects that fall under the framework of the IFC Performance Standards under Component 1 and will seek project financing under Component 1. The PMU will undertake Environmental Screening prior to Bidding and include a screening report, specific recommendations/ assessments as required in the bidding package. The ME will ensure the quality and adequacy of the respective ESMS of all IPPs seeking project financing under the components. The preparation of the site-specific ESIA's/EMP's will follow the requirements of ESS1 which is aligned with and PS 1 in regard to private sector investments. As solar panels produce a special type of hazardous waste for which Maldives does not have appropriate final disposal facilities. As a risk management measure, via project design, the bidding documents and contracts with contractors/suppliers will include mandatory "cradle to grave" provision for the safe transport, installation, operation & maintenance and disposal of used batteries and other hazardous wastes in accordance with international best practice.

5.2.2 PS 2 LABOR AND WORKING CONDITIONS

This PS is applicable for the private sector investment activities. It will ensure ESMS of incorporates rights of the workers, promote safe and healthy working conditions and be in compliance with national employment and labor laws.

Further, an Occupational Health and Safety (OHS) plan, in line with the World Bank Group Environmental Health and Safety Guidelines and Good International Industry Practice (GIIP), has been prepared as annexure to the ESMF in line with the nature of works expected via the project interventions to guide IPPs in preparing OHS Plans for their respective projects.

5.2.3 PS 3 RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT

The choice of technology, i.e. solar energy is contributing positively in the reduction of GHG emissions. In addition, setting up and operationalizing solar systems will have no adverse impacts to the human health and environment. However, disposal after decommissioning will contribute to pollution and therefore, the ESIA will be required to pay attention to the requirement of disposal of decommissioned parts so it will not contribute to pollution including the institutional responsibilities and contractual arrangements as per project design will ensure any hazardous material will be transported out of the Maldives by the IPP.

5.2.4 PS 4 COMMUNITY HEALTH AND SAFETY

It is expected that the land allocated on the islands and marine solar will be located in predesignated sights away from human habitation, however some rooftops may likely to be used for setting up of solar panels, there may be impacts on community safety due to inadequate structural integrity of the systems. Safety assessment, including firefighting review, will be conducted as part of the Environmental and Social Impact Assessment process for all the project activities before implementation to ensure the integration of all the necessary safety measures into the project design, including minimum safety distance (with reference to the specifications for substations), container requirements, illumination system, air-conditioning and ventilation systems, fire-extinguishing systems, controlling systems, earthing systems, access control systems, electrical wiring, safety manual, noise abatement measures, etc.

It is also anticipated that the expected influx of workers will be compounded by an influx of other people (“followers”) who follow the incoming workforce with the aim of selling them goods and services, or in pursuit of job or business opportunities. The rapid migration to and settlement of workers and ‘followers’ in to already congested urban areas proposed for the project, could have adverse impacts in terms of risks of social conflicts, increased burden on and competition for public service provisions, increased risk of illicit behavior and crime, local inflation of prices, increased risks of gender-based violence, communicable disease etc. Thus, the project-resulted disturbance to local communities is expected to be limited during construction phase and disturbances in the long term associated with the influx of migratory labor, also manageable should be managed via the private sector entities ESMP.

5.2.5 PS 6 BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES

Due to sensitive nature of the Maldives islands and their surrounding that consist of important natural habitats, both terrestrial and marine, negative impacts are possible that could generate as a result of improper location, construction or decommissioning of solar PV systems under component-1. Attention will need to be given to protection and conservation of biodiversity at project sites and captured in respective ESIA, which include measures to avoid, minimize, mitigate or offset any potential impacts to natural habitats and living natural resources. While most project activities are expected to be proposed in areas that are inhabited and potentially away from environmentally sensitive areas, under the ESMF all subprojects will be screened to eliminate the activities situated in any nature reserve, critical habitat or scenic sites.

5.2.6 PS 8 CULTURAL HERITAGE

While cultural heritage resources are relatively well documented on inhabited islands, there is no adequate documentation of such on uninhabited islands. The project is however is expected to take place only on inhabited islands. It will be important to ensure that the proposed solar photovoltaic sub-projects do not impact any buildings or any other sites of heritage significance (for example, mosques, heritage sites or cultural sites) in the Maldives in terms of aesthetic impacts as well. The ESMF will include due diligence procedures in line with ESS8 to screen for risks and impacts on cultural heritage in its E&S Screening process and to apply the relevant requirements through PS1, which is also aligned with PS8.

5.3 AN OVERVIEW OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS ASSOCIATED WITH THE PROPOSED ARISE OPERATION.

Environmental and social impact analysis of a project (or project options) consists of comparing the expected changes in the biophysical and socioeconomic environment with and without the project. For each potential environmental or social impact, the analysis should predict the nature and significance of the expected impacts or explain why no significant impact is anticipated.

Based on the information available for the selected case studies / sub-projects for the development of ESMF, key environmental issues / impacts identified that would require detailed investigations during the ESIA stage are

listed below. A summary of the issues and potential impacts is presented in the following paragraphs to guide preparation of sub-project ESIA and ESMPs.

5.3.1 AIR EMISSIONS

Physical interventions that will be financed under the ARISE operation will be renewable energy (RE) projects. RE projects are cleaner energy generation options than the diesel-powered generators used for electricity production in the islands of the Maldives. The zero dependence on imported fossil fuels and the consequent reduction in the emission of greenhouse gases (GHG) make RE options preferred choice. CO₂ emissions from the proposed solar PV are much lower than that of diesel or natural gas-based energy generation. Although Solar RE projects will be emission free in the Maldives, it must be noted that some GHG emissions are embodied in renewable technologies caused by the fossil fuel sources used in the production and manufacturing of equipment, waste disposal and recycling. However, these life-cycle emissions are significantly lower than those coming from diesel generated electricity and the project will have little control over the process, as already manufactured material imported will be used in the project. One of the aims of ARISE is contain and reduce GHG and other toxic emissions conventionally associated with energy products. A key impact of solar farms is emissions from solar energy projects if the sites are located in land with vegetation. Any vegetation/trees with potential of affecting shade and physical obstruction has to be cleared resulting in release of GHG from the project otherwise sequestered in the vegetation. While site selection will ensure such sites are pre-selected, where ever the removal of vegetation is identified as per Environmental and Social Screening for on ground solar subprojects, where space is available replanting of any vegetation removed should be undertaken. If trees are removed as per local regulations for every tree removed two trees need to be planted. Thus, it is unlikely that there will be significant air emissions from the project.

5.3.2 NOISE EMISSIONS

Compared with wind energy and other forms of renewable energy, there will be no noise emissions from solar PV. For battery and inverters only expected noise is the hissing sound caused by the cooling fans. Thus for battery systems also during operation phase noise impacts are not anticipated. However, the construction stage may involve increased noise and disturbances to surrounding properties and the project site residents. As per studies conducted by the Massachusetts Clean Energy Center conducted a study of noise of utility-scale solar facilities running at optimum capacity. It measured the noise that the panels and inverters make at various distances and concluded that, while solar panels do make some noise, that noise is negligible to begin with and becomes inaudible from between 50–100 feet from the site of operation. The inverter (or, more specifically, the cooling fan within the inverter) makes a bit more noise than the panels, but not much more. At 30 feet away, the sound is about 65 decibels—or about the equivalent of the sound level of a conversation. By 500 feet, sound levels were reported to be totally inaudible.

5.3.3 SOLID AND HAZARDOUS WASTE MATERIAL

It is estimated that the volume of waste produced during construction stage of this project will be minimal. The general construction wastes that may be generated from this project include packaging waste and, electric cables and associated parts. The contractor should be made responsible to take all waste generated during construction to a regional waste management facility, no construction waste should be disposed to island waste management center.

Waste has to be transported to government designated waste management site. The clean-up of accidental spills of oil, fuel and paints whenever they occur will be monitored to ensure that the clean-up is promptly and properly done.

Decommissioning of solar panels and BESS systems is expected to have the highest impact on the environment. Lithium mercury and cadmium are elements that are used in making solar modules and BESS Systems. However, there is no evidence that these elements do not get released from solar panels, except during disposal. Used solar cells and batteries are identified as hazardous waste which may pose health and safety risks to humans and the environment if environmentally sound final disposal is not undertaken. At the moment, these panels are classified as Special Waste in the waste regulation, which requires specially registered handling facilities. Given the presence of harmful substances in the panels, it can also be classified as a Hazardous Waste, which requires special facilities as well. At present there are no facilities in Maldives to handle large quantities of such waste. As the Maldives does not have existing standards or requirements for management (including storage, transportation and disposal) of hazardous waste, international best practice guidance such as the World Bank Groups Sectoral

Guidelines on Solid Waste Management and strict criteria on producer management of waste, including the transport of decommissioned systems out of the country as part of the investments, must be followed via mandatory provisions in contracts with suppliers and contracts to manage potential impacts

In terms of end-life, recycling will be the option preferred if not possible disposal will be considered. As for recycling R-2 certified or equivalent recycling facility should be utilized. If disposal is considered, a registered hazardous waste disposal facility in an Organization for Economic Co-operation and Development (OECD) country should be considered.

All hazardous waste material generated during end-life should be stored and transported in sealed containers. It should be properly labeled to indicate the content and hazardous nature of the waste. Moreover, prior to transport, the containers should be stored in a space with proper leachate barriers like concrete floor, screed and roofing.

Local transportation should confirm to Waste Management Regulation (Regulation No: 2013/R-58) and the transport vessel needs to have registration for waste transport. As for transboundary movement, the transportation of hazardous waste should confirm to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The Convention established a system of controls for the transfrontier shipment of waste based on 'prior informed consent'. This requires a notification document, which sets out the details of a proposed movement, to be completed and sent to the competent authorities in the countries of export, import and transit for their assessment and authorization.

These will be guaranteed through contracts that is made with suppliers and/or through the handover agreements made with the electricity service provider.

5.3.4 HEAT AND LIGHT REFLECTION

According to studies conducted on the hazardous glare potential to aviators from utility-scale flat-plate photovoltaic systems, solar panels are designed to absorb light from the visible spectrum, not to reflect it—although some upward reflection does occur. To assist light absorption, each PV panel is treated with an anti-reflective coating. Naturally occurring sea, ponds, streams and even certain kinds of soil and vegetation are similarly reflective. Studies note that sunlight, reflected away from solar panels, produces the same amount of glare as a flat pond or lake. Additionally, the solar panels are mounted at an angle that allows the light to be absorbed throughout the year, which results in the panels facing the sky at shallow angles (typically less than 25 degrees).

However, as some of the locations that are selected for ground mounted solar installation include areas close to airports, glare assessments will be undertaken to ensure that glare impacts are avoided. All projects financed solar to be set in proximity to airports are required to be approved by Maldives Civil Aviation via site specific glare assessments to ensure potential glare hazards for aviators are specifically identified and addressed.

As for rooftop solar, neighboring properties may complain if the panels are located in such a way that sunlight is reflected on to their doors and windows for a prolonged period of time. Thus, when undertaking project specific ESIA/ESMPs for any rooftop solar installation this aspect needs to be investigated, particularly if there are buildings very close-by which are of different heights.

5.3.5 IMPACTS ON BIODIVERSITY

Majority of the areas that are going to be selected for Solar Installation under ARISE is expected to be land areas within urban centers. Thus, impacts on any flora and fauna are expected to be minimal. However, some vegetation clearance activities may need to be undertaken to clear the paths for solar installation. Even where required, it will be first attempted to relocate any significant trees, if not possible due to space limitations, age of tree etc, for every tree removed two small trees, of similar type will be planted as per the Regulation on Cutting Down Uprooting and Transfer of trees and palms from one island to another.

As for rooftops, if the adjoining properties have trees that obstruct the use of solar panels on the target building, the owner of the building, under General Laws Act 4/68, may be able to prune or cut down the obstruction, after a legal proceeding. Given this provision, there is potential for impact on vegetation. These scenarios are expected to be minimal as project is undertaken in the most urbanized islands of the country.

For floating Solar PVs while specific impacts on biodiversity have been studied as rare, site and technology specific feasibility assessments must be undertaken, and all sites should be ensured to be situated in areas that have no sensitive marine biodiversity documented and well away from protected areas. However, floating solar PV will reduce light penetration reaching the benthic zone and hence can impact negatively on organisms that rely on photosynthesis for survival. This includes marine micro algae which together with cyanobacteria form marine phytoplankton and macro-algae referred to as seagrass. As corals also rely on algae as a source of food through photosynthesis, lack of light in marine environments can lead to bleaching of corals or even worse mortality of corals. Moreover, the shadow created by floating solar will reduce heat input and thus can change temperature stratification, this in turn may alter the fauna found at the site. Thus, it is important that the selected site for floating solar platforms are located away from areas of live coral cover and the proposed design incorporates means of some sunlight reaching the benthic surface.

There are possible impacts to biodiversity unless appropriate national guidelines and processes are put in place on the disposal of material at the time of decommissioning, as highlighted in section 5.3.3.

5.3.6 CULTURAL HERITAGE

There are culturally sensitive buildings and sites in the Maldives that may become a source of public resentment if used for solar panel installation. These include places like mosques, cultural or historical buildings/sites and cemeteries. It will be important to ensure via Environmental and Social screening that the proposed projects do not have an effect on a place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical or social significance or other special value for present and future generations. Most sites of cultural heritage in inhabited islands of Maldives are well known and demarcated and protected thus reducing the risk of siting of any project financed facilities near such sites.

5.3.7 LABOR RELATED IMPACTS

The program will provide a source of temporary and permanent employment. Installation of Solar PV under component 1 will generate both technical and unskilled jobs. Solar PV will generate jobs in design, installation, operations and maintenance, project development and marketing. Moreover, under component 2 technical jobs in relation to battery systems are likely to be introduced in both FENAKA and STELCO. Moreover, upskilling of existing labour force will be undertaken for staff of STELCO and FENAKA through the project. The Maldives needs to generate new jobs that match the aspirations of young people and RE sector is one source of jobs that will be attractive to young people. Hence ARISE will help address youth unemployment and contribute to social and economic development in the country.

5.3.7.1 IMPACT OF LABOUR INFLUX

At the peak of construction, it is expected that 15 laborers will be working at the site. The influx of workforce will put additional pressure on existing resources. The workforce normally consists of solitary migrant males and that can be potential risk for host population. Specifically, influx of labor force can lead to:

- a. Risk of conflict and social unrest due to cultural differences between the laborers and local community
- b. Risk of spread of communicable diseases due to interaction of the laborers and the local community
- c. Risk of gender-based violence
- d. Health hazard for host community due to lack of sanitation facilities and waste management.

5.3.7.2 SAFETY, OCCUPATIONAL SAFETY AND HEALTH ISSUES

Workers in the solar energy industry are potentially exposed to a variety of hazards, such as arc flashes that can cause burns, electric shock, and falls can cause injury and death.

The competency to undertake tasks, guidance on procedures and standards on safety and availability and use of personal protective equipment would need to be closely monitored continuously during both the constructional and operational phases. The contractors should properly sanction all employees who refuse to use the protective equipment provided. To ensure that personal protective equipment is always readily available, all defective equipment will be promptly replaced. Regular safety tests as recommended by manufacturers will be conducted on equipment such as cranes and winches.

In addition, during operational phase risks such as fires are possible which requires safety equipment and fire safety plan in place, as well as training the building users on fire safety plan. These aspects are covered in more detail in the labor management procedures developed for the project.

5.3.8 LAND ACQUISITION AND RESETTLEMENT-RELATED IMPACTS

Through screening it was identified that ESS 5 and PS5 does not apply to the project, as project activities, including installation of land-based and floating solar systems as well as installation of Battery Energy Storage System (BESS), power houses and grid infrastructure, are not likely to cause significant social risks on the community in terms of land acquisition and resettlement. Specifically, the project will not involve acquisition of any private space for the purpose of installation of ground mounted or floating solar PV.

Installations of the solar panels in port areas, residential, commercial areas, poses potential risks in terms of disturbances to commercial activities, restriction on access to land or use of other resources, including marine and aquatic resources, but these are not envisaged to cause impacts associated with land acquisition and resettlement.

In case solar panels are installed on roof tops of private or public buildings, roof lease will be signed between the owner and the developer; and in cases of ground-mounted PV installations a space lease agreement will be signed, the acquisition of the land will be a private transaction with no involuntary resettlement (Annex 9). The project will ensure that the owner agrees to sign the roof lease agreement voluntarily and without any pressure. The roof/space lease agreement will be a valid and time-bound legal agreement, and the project will develop template for such agreement to be followed by the contractor (Annex 9).

5.3.9 ECONOMIC IMPACT AND LIVELIHOODS

The project is aimed at reducing the cost of electricity production in the Maldives and improve energy security. Hence, at the household level the project is likely to result in cost savings, improve standard of living, increase income levels of households, and increase property value in the project location. At the level of businesses, the project may lead to re-organization of supply chains which could have overall positive impacts. At the national level, in the long term, the ARISE project is likely to reduce the economic dependency of the Maldives on imported diesel, reduce national debt, and increase overall economic resilience.

5.3.10 IMPACTS ON VULNERABLE GROUPS

As per the ESF, 'Vulnerable Groups' are persons who may be disproportionately impacted or further disadvantaged by the project(s) as compared with any other groups due to their vulnerable status, and that may require special engagement efforts to ensure their equal representation in the consultation and decision-making process associated with the project.

In Maldives, especially in islands, when public meetings are held often men participate in such meetings and are often the dominant voice in such meetings. Women are the primary caretakers of the household taking care of all household chores from cooking, cleaning to childcare. Especially women with young children are excluded from such consultative exercises.

In addition to women, in some islands there are migrant population that have moved to the islands from other islands through the policies of various governments to move islands with smaller population to bigger islands. Also, some of these communities were moved due to the loss of livelihood that occurred as a result of the Indian Ocean Tsunami in 2004. Such migrant populations often form small minority groups within the community and

are often excluded from decision making avenues. Moreover, based on type of occupation certain groups maybe excluded from activities undertaken through the project. For example, in many fishing communities the fishermen are often busy fishing during daytime and will be only available during evening time for community activities/gatherings.

Furthermore, if rooftops are used for the PV installations, those who use the buildings are likely to be disproportionately impacted when compared with rest of the community. This includes tenants of buildings, staff/children/parents in school, community members in mosques, to cite few examples. Thus, these groups can also be identified as vulnerable groups.

In addition, Maldives is a country which has a history of discrimination for foreign construction labour. Especially discrimination against construction workforce by both the employer and the community is common. These aspects are considered in more detail in the Stakeholder Engagement Plan (SEP) and Labour Management Procedures (LMP) developed for the project. Some specific measures to ensure participation of vulnerable groups as described in SEP is described below.

Table 9 Measures to ensure participation of vulnerable women

#	Vulnerable Groups	Specific Measures to ensure participation	Responsible Parties
1	Women	Household surveys targeted at receiving feedback/responses from women Hold public consultation meetings during evening (to ensure that women who could not participate due to household chores could participate) Training of women’s development committees in the islands to undertake awareness sessions targeted at women	Project Management Unit, Electricity Service Provider, Island Council
2	Minority community groups (migrant population)	Special targeted consultation with minority groups within the community. These groups usually reside in a single location thus household surveys will be undertaken in such locations.	Project Management Unit, Electricity Service Provider, Island Council
3	People who reside and use buildings	Targeted Consultation with users and residents of the buildings whose roofs are utilized (tenants, for schools parents and teachers, staff of an office buildings and for mosques for example households within a particular ward in which the mosque is located)	Project Management Unit, Electricity Service Provider, Roof/Space Owner
4	Disadvantaged due to profession (eg: Fishermen)	Hold public consultation meetings during evening. When employment commitments are not there and when most of the fishermen are back in the island.	Project Management Unit, Electricity Service Provider, Island Council
5	Foreign construction labour	Ensure the information highlighted in Labour Management Procedure (LMP) which covers safety and rights aspects are communicated to the construction workers prior to commencement of construction works	Project Management Unit, Works Contractor, Independent Power Producer Provider

The input given by these groups will be utilized in the following manner:

1. For site selection, to ensure that any existing vulnerabilities/structural weaknesses of the buildings are not further enhanced

2. While preparing ESMP and ESIA to ensure that the impacts to these groups are taken into consideration and the required mitigation measures are planned and implemented
3. While undertaking project monitoring to determine acceptability of the project interventions to the community.

Moreover, the SEP developed for the project defines feedback mechanism for the stakeholders, so that all stakeholders are aware of the way in which their input has been utilized in decision making.

1. All meeting minutes will be shared and finalized based on the input of the respective stakeholder
2. Perception surveys will be undertaken with stakeholders to determine acceptability of project interventions and level to which concerns are addressed by the project.
3. Following perception surveys, a report will be compiled and publicly made available through the website of the ministry, island council, and Electricity service provider.

As gender is one of the key gaps that exists, especially in the energy sector, the project has developed a Gender Action Plan (Annex 2) which ensures that various activities undertaken through the project is gender inclusive and have provisions to facilitate gender equality. (See Section 6.10 on a brief overview of the Gender Action Plan).

5.3.11 POTENTIAL SOCIAL CONFLICTS

Potentially adverse social impacts are likely to be minimal, and like environmental impacts, manageable. Such potential impacts may include: fairness and equity of decision-making process, the non-use of local resident qualified manpower during the construction of the infrastructures. This could cause some frustrations and social tensions at the local level, potentially leading to social conflicts. To the extent possible, employment of locals should be encouraged. This will also encourage local buy-in of the project and its activities under implementation.

Poor maintenance, following construction completion, may lower intended impacts in the community resulting in disillusionment with such projects. This may occur due to a lack of funds, negligence of staff, poor supervision, or failure during the monitoring stage.

On the positive side, construction works under the ARISE project can contribute to creating jobs where the work is initiated. It can increase local employment and hiring of skilled workers—masons, carpenters, building workers, plumbers, electricians, and others. Increased employment will help increase the incomes of the local populations, improve their living conditions, and contribute to the fight against poverty.

The use of community buildings may also be a source of conflict and resentment, if there are no direct benefits received to the community from presence of the panels. Such incidents are known to have occurred in other similar projects. To address this, the MOU signed between the Ministry and the roof/space owner identifies that the roof/space lease attained should be used to fund a project that will lead to social benefit of the community. The MOU is provided in annex 24 of this ESMF. This is incorporated based on the experience of ASPIRE, where tenants of buildings on which solar PV were installed wanted to see some kind of direct immediate benefit. As electricity generation is heavily subsidized and government determines the tariff, a direct benefit in terms of electricity cost reduction is unlikely. The focus of ARISE is mostly on adding value to usable space, thus, such issues are less likely to arise in this project when compared to rooftop solar installation.

5.4 PRE-CONSTRUCTION AND CONSTRUCTION STAGES

Soil Erosion and Water Contamination: During site clearing, any vegetation that is not properly disposed of can block drains and waterways and contaminate the water. Gravel/soil brought for any filling purposes if not properly stored and is exposed to the natural elements can be washed off to low lying areas and sea causing sedimentation. Storm water congestion on site can create inconveniences to existing activities and construction work. Also waste water generated during construction and from labor camps can also contaminate drinking water sources if not properly treated, particularly in islands where groundwater is still utilized for bathing purposes. The use of machines working with fuel, oils and lubricants on work sites maybe a source of groundwater contamination risks by infiltration. Accidental spillage of oil and chemicals are also possible during construction, which will impact groundwater, as well as uncontrolled site runoff to nearby mangrove areas and/or coastal waters will impacts the water quality due to suspended solids and other contaminants.

Waste Generation: Various types of waste such as litter, human waste, food waste, etc. from labor camps, as well as construction-related wastes will be generated that can create an inconvenience to public and users, as well as contribute negatively towards public health if not properly managed. In addition, wastes that are not disposed of properly can become breeding grounds for vector borne diseases and can contribute to groundwater and coastal water contamination. Unsafe disposal of asbestos from degraded roofs may cause public health issues. Moreover, the local waste management centers are not designed to accept construction waste generated. Hence if taken to such centers can lead to overburden of already stretched waste management facilities.

Resource Extraction: The construction work is likely to create a huge demand for construction materials such as sand, timber, coral aggregates, etc. which will place a burden on resources. Groundwater extracted for construction work, if uncontrolled may lead to its depletion and salination.

Transport: Transportation of material to and from the site will create disturbances during operational hours; can cause injury to people and increase traffic congestion in the area. Transportation of construction material on open vehicles and the high speed of vehicle running can generate dust and will cause potential safety issues.

Labor Camps: As construction work will be conducted on premises, if labor camps are required, location of camps and workers interactions with community can create negative social impacts, especially since most of the laborers working in Maldives are expatriates, if they are not made aware of the social norms of the community such impacts can be significant.

OHS/ Safety: Safety of workers and residents will be an issue. Construction related operations will generate safety risks to workers and residents alike. Given that the work will be on premises, construction sites that are not cordoned off can contribute towards potential safety hazards to residents who are located close to the construction site.

Noise: During site preparation and construction work noise will be generated due to construction related work. During daylight hours this may create disturbances to sensitive receptors and to residents living close to the construction site. In addition, construction-induced traffic movement from pick-ups, excavators, dump trucks, etc., use of powerful mechanical equipment, and demolition of existing buildings will also contribute to noise pollution.

Dust: Dust generated during excavation work, backfilling, reinstatement work, demolition activities, cement mixing, handling construction material, truck movement in the site area in addition to wind erosion can impact the air quality during construction. Dust generated during clearing and construction work can cause difficulties to people who have respiratory problems and become a nuisance during day light hours. Soil/ gravel kept for long periods without proper cover can generate dust and become an inconvenience during operational hours and for surrounding residents. Transportation of materials to site will also generate dust. Decommissioning of existing structures can also create dust that is potentially hazardous.

Other Air Quality Impacts: The possibilities of burning of vegetation removed can contribute to air pollution. In addition to gaseous emissions from construction plants, paint and vehicles are also possible.

5.5 INDICATIVE MITIGATION MEASURES

The Generic ESMP Presented in Annex 10 provides in summary indicative mitigation actions to be taken on the part of the contractor(s)/operators in order to minimize such impacts such as those described in the previous sections. In the construction activities as well other actions, the contractor will be required to abide by the provisions of the World Bank and the Maldives EIA regulations, including considering constructive input from stakeholders.

The impacts mitigation is discussed for the following three phases of the project implementation: For the ASPIRE sub-projects, these mitigation measures should be combined with the previous mitigation measures, as applicable.

- Pre-construction phase;
- Construction phase; and
- Operation and Maintenance phase.

Any additional impacts, if any, and relevant to the project's implementation would be reviewed by EPA based on detailed assessments that will be undertaken as part of the implementation process. As indicated earlier, the environmental laws of the Maldives, the IFC Performance Standards and the ESF of the World Bank require that all projects be screened for potentially adverse environmental and social impacts. Consistent with these

guidelines, an ESMF for the ARISE project has been prepared to minimize adverse, including any cumulative impacts.

6 CHAPTER 6: PROCEDURES FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT DURING PROJECT IMPLEMENTATION

6.1 ENVIRONMENTAL AND SOCIAL PROCESSING STEPS

Implementation of environmental requirements will follow the following steps closely linking with activity planning, design and implementation steps.

The processes outlined below follows the relevant requirements of the World Bank's Environmental and Social Standards, especially ESS1, ESS2, ESS3, ESS4, ESS6, ESS8, ESS10 and identifies where ESS5 and ESS7 are relevant. It provides a mechanism for ensuring that potential adverse environmental and social impacts of ARISE sub-projects are identified, assessed and mitigated as appropriate, through an environmental and social screening and management process.

Step 1: Environmental and Social Screening of Identified Physical Subprojects

Step 2: Preparing Environmental & Social Assessments, Management & Monitoring Instruments

Step 3: Concurrence and Clearance

Step 4: Inclusion of environmental & social specifications and management plans in bid documents

Step 5: Method Statements and ESHS Performance Clauses in Contractual Documents/MOUs

Step 6: Compliance Monitoring and Reporting

6.2 ENVIRONMENTAL AND SOCIAL SCREENING

Environmental and social screening is counted to be a useful tool in identifying safeguard issues in large investment programs consisting of many sub-projects. The main objective of Environmental and social screening of sub-projects will be to (a) determine the anticipated environmental/social impacts, risks and opportunities of the sub-project (ii) determine if the anticipated impacts and public concern warrant further environmental/social analysis, and if so to recommend the appropriate type and extent of assessments needed.

At the national level, screening is the process by which proposed developments are reviewed to determine the level of environmental and social assessment to which they should be subjected, which could range from none at all up to a full Environmental & Social Impact Assessment (ESIA). At the project level, screening is the process of reviewing a proposed activity against a checklist of factors to determine whether it is likely to have adverse environmental and social effects, and if so, what mitigation measures should be applied. The present ESMF is largely concerned with the project level, but some notes are provided on national screening for completeness.

6.2.1 NATIONAL LEVEL SCREENING

The Maldives national requirements for environmental and social assessment are set out in the Environmental Impact Assessment (EIA) Regulations, 2012. Part III of those regulations includes a description of the Screening Process applied to development proposals. The regulations lists those projects that require EIA (schedule D), those projects that do not require EIA (Schedule T) and those projects that can be undertaken as per the mitigation plan provided by EPA (Schedule U). Roof mounted solar PV projects are listed in Schedule T, thus locally environmental assessments are not required for roof mounted solar PV.

As per article 08 of the regulations all other projects need to go through a screening process to determine the level of assessment that is required. As ground-mounted solar PV and floating solar PV are not in any of these schedules, screening needs to be undertaken. Within 10 days, the EPA will decide whether the proposed development is approved, or needs further study, which may be required in the form an ESIA or ESMP. If more information is required to make an informed decision through screening EPA may inform following screening to make an Initial Environmental Evaluation (IEE) is required. Based on previous screening decisions for some floating solar installations in resorts, it is very likely that for floating solar PV an ESIA will be required. The level of assessment required for ground-mounted solar PV is likely to depend on the environmental and social conditions of the sites utilized. For example, if significant amount of vegetation is to be removed, ESIA will most possibly be required.

In practice, all reports are required to be submitted to EPA and a copy of EIA is sent to the respective councils for their contentment. Relevant councils are also invited to scoping meetings. Further, EPA should be consulted at the outset, to determine whether the formal national screening process should be applied. EPA's Screening

form is presented in Annex 2. As for the World Bank safeguard requirements and experience in similar projects, all projects will be required to prepare ESMP at the minimum.

6.2.2 PROJECT LEVEL SCREENING

At the project (component) level, proposed sub-component activities need to be subjected to screening to determine whether they should be subject to an Environmental & Social (E&S) Review. (This is a simple review, by the component team, of the likely implications of the activity, to determine whether it is acceptable, and if so, whether any particular mitigation measures should be applied.). The objective here is to provide a level of environmental / social review that is appropriate to the small scale of the sub-component activities, i.e. where there is no need to conduct an ESIA.

All project activities will be the subject of an environment and social screening as the key management tool for identifying and assessing risk of environmental and social impact. An outcome of the above environmental and/or social reviews will, in most cases, be the development of Environmental and Social Management Plans (ESMPs).

Screening, in particular to BESS and Floating Solar PV, will be conducted as per the guidance presented in the following Annexes 3, 4 and 5. A Preliminary E&S screening for a number of project sites has already been completed under the ASPIRE operation as pre-preparation and is presented in Annex 23

6.2.2.1 SCREENING METHOD

Preparation of the screening reports will be conducted in four distinct stages, namely (i) field visits, data collection and stakeholder consultation; (ii) data analysis and interpretation; (iii) impact identification; and (iv) filling the screening including recommendations for next steps. The methodologies for each of these steps are explained briefly below. The proposed screening report format is given in **Annex 2 and Annex 3** should be used for guidance as well.

6.2.2.2 DATA COLLECTION AND STAKEHOLDER CONSULTATIONS

Data will be primarily collected through field visits, discussion with stakeholder agencies and known sources of literature. In addition, supportive tools such as GIS based mapping using GPS coordinates covering the sub project sites, where-ever possible is encouraged.

Literature Survey will broadly cover the following aspects and attributes necessary for environmental screening:

- Project details/ Reports/ Maps/ documents including design details available with the implementing agencies
- Literature on flora/ fauna/ biodiversity/land use/soil/geology/ hydrology/ climate /socio economic profiles and environmental planning collected from GOSL agencies
- Hydrological/ rainfall/ drainage datasets

6.2.2.3 FIELD VISITS:

Each sub-project sites will be visited by the expert/s filling the screening form together with representatives from the design team to assess the existing environment (physical, biological and socio-economic environment) and gather information with regard to the proposed sites and scale of the proposed sub projects and any prevalent issues. During these visits rapid reconnaissance surveys will be conducted in order to record the faunal, floral diversity, where necessary, to verify and support information gathered through the literature survey.

6.2.2.4 FOCUS GROUP DISCUSSIONS/ MEETINGS:

Focus group discussions will be carried out with other stakeholder agencies, local authorities and community to discuss pertinent issues. In addition, the community/visitors will be consulted to record their views and opinions about the proposed site-specific investment.

6.2.2.5 DATA ANALYSIS AND INTERPRETATION

Data collected from field visits and stakeholder discussions will be analyzed by the expert and discussed with the technical team of the project proponent for feedback.

6.2.2.6 IMPACT IDENTIFICATION

This will be carried out by the environmental and social specialist and team through discussion with the technical team. *Guidance for Impact Identification specific to subprojects is presented in Chapter 5 Annexes 4 and 5.*

6.2.2.7 FILLING SCREENING REPORTS

The screening report will be filled with details on the proposed project intervention, physical/ecological baseline conditions of the site, assessment of potential impacts, feedback from community/public/visitor consultations and recommendations for the type of environmental assessment required. If the findings confirm that anticipated impacts are not significant enough for a stand-alone EA and that an ESMP would suffice to mitigate the likely impacts, the screening exercise would be completed with the preparation of a site-specific ESMP.

If the likely impacts are significant and would require greater environmental analysis, the screening report would recommend appropriate assessment type for the implementation agency to carry out before designs are finalized. A description of the commonly used environmental management tools are given below with guidance on preparation based on the nature of subprojects that the project will finance.

Annex 7 provides guidelines for ESMP preparation and the World Bank Group General EHS Guidelines and the Generic ESMPs and guidance presented in Annex 12 and 13 will be used in identifying impacts due to the proposed sub-project activities in addition to guidance presented in Chapter 5 via Preliminary Impact Identification.

6.3 ENVIRONMENTAL AND SOCIAL SAFEGUARD ASSESSMENTS

6.3.1 INITIAL ENVIRONMENTAL EVALUATIONS (IEES)

As identified previously IEE is an instrument used if additional information on the environment and social aspects are required to make a decision through the screening process. The screening process is the first step in the EA process. The objective of the IEE screening process is to rapidly identify environmental and social aspects of the island environment which may be impacted upon by the proposed activities.

6.3.2 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENTS (ESIAs)

While it is envisioned that many of the Solar and Bess installation activities financed under the project may not require ESIAs as per the thresholds of the Maldives government FSPV, projects close to airports and those that require significant vegetation clearance will likely require ESIAs. Further, while the EPA does not need ESIAs unless the activities fall within the set thresholds, in order for the Bank ESF requirements to be met an ESIA has to be conducted post site selection. Predominantly to ensure that all environmental and social due diligence is completed.

6.3.3 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS (ESMPs)

All physical sub-projects/activities will prepare ESMPs that will describe and prioritize the actions needed to implement mitigation measures, corrective actions and monitoring measures necessary to manage the impacts and risks identified in the screening assessments, IEEs or ESIAs. A generic term of reference for ESMP is provided in Annex 10. The project will ensure that all works contracts will include the ESMPs, and the cost of implementing the ESMPs will be identified as an item in the Bill of Quantities for the respective contracts of physical interventions.

An ESMP will be kept as simple as possible, clearly describing adverse impacts and mitigation actions that are easy to implement. The scale of the subproject will determine the length of the ESMP. A small-scale subproject's ESMP can be elaborated in a few paragraphs or in tabular format, keeping it as simple as possible with concrete mitigation actions, timelines and responsible persons. The basic elements of an ESMP are;

- a. A description of all possible significant adverse impacts that are likely to arise due to the project that the ESMP is intending to deal with;
- b. A description of planned mitigation measures, and how and when they will be implemented;
- c. A program for monitoring with measurable indicators that will allow to determine the effectiveness of the mitigation actions
- d. A description of who will be responsible for implementing the ESMP

- e. A cost estimate and source of funds

(Refer Annexes 10, 11, 12, 13 for guidelines for developing ESMPs)

It is essential to involve local communities during the development of the ESMP since they are likely to be the most affected parties due to the proposed development. Further, most of the local knowledge is important in identifying, designing and planning the implementation. In addition, the success of the implementation of the ESMP will depend on community support and action. Measures and actions that address identified impacts and risks will favor the avoidance and prevention of impacts over minimization, mitigation wherever technically and financially feasible. Where risks and impacts cannot be avoided or prevented, mitigation measures and actions will be identified so that the activities operate in compliance with applicable national laws and regulations etc. and meets the requirements of relevant World Bank standards.

A standalone ESMP is only considered appropriate in situations where a detailed environmental analysis is not required as per the findings of the Environmental and Social Screening. As per the nature of the proposed physical interventions of the ARISE Operation, it will be Mandatory that all proposals/ physical interventions implemented will require an ESMP to mitigate sub-project specific impacts identified during the screening exercise at minimum. ESMPs are to be prepared at the stage of project design and included in bidding documents, to be costed for accordingly, and will be part and parcel of contract documents. Activities outlines in the ESMPs will be implemented by the respective investors/contractors implementing the subproject and monitored accordingly by the project management unit during the construction phase.

Chapter 5 presents guidance on possible impacts to be addressed in ESMPs and a generic ESMP for the typology of project interventions that provide guidance to facilitate sound ESMP preparation during the project implementation stage are presented in Annex 10.

In addition, annexure to this ESMF provide guidance on identifying potential impacts and mitigation measures as well as outline requisite standards to be maintained in terms of environmental and social management during the implementation of activities under the program.

The World Bank Group General EHS Guidelines contain information on cross-cutting environmental, social, health, and safety issues potentially applicable to construction and is available via the following link.

- https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

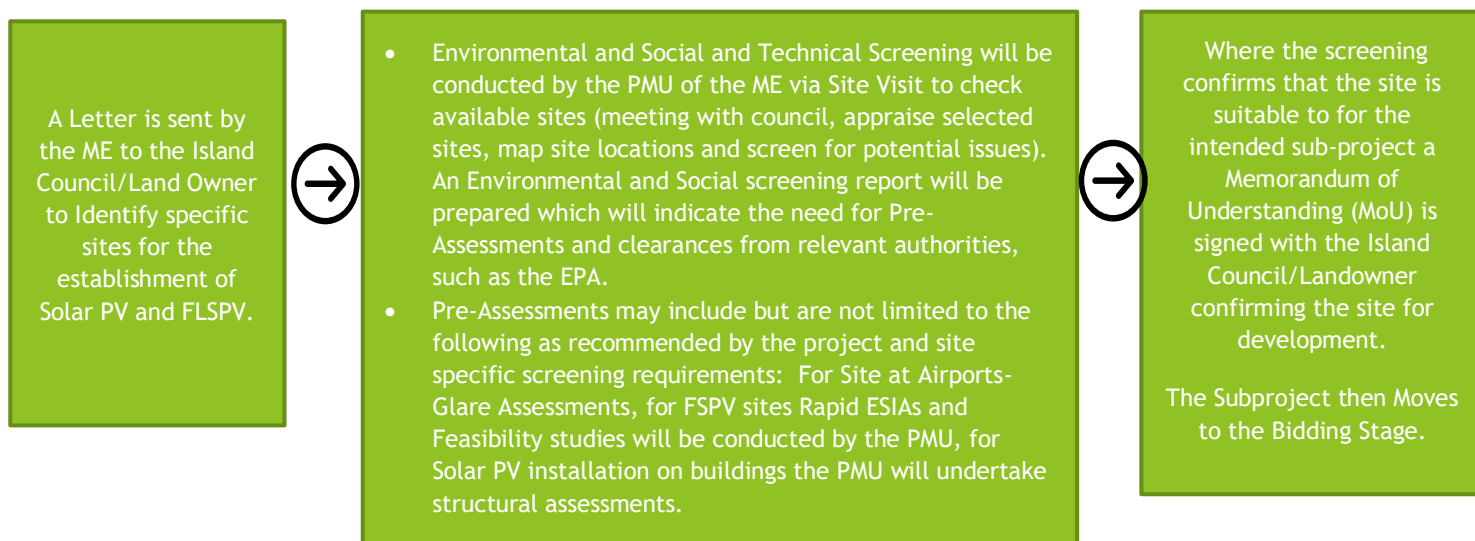
The World Bank Group ESH Guidelines for Construction Materials Extraction is also applicable to the project and used as key guidance provided to contractors on the management of environmental health and safety during construction material extraction in addition to specific guidance provided in the ESMF. This document includes information relevant to construction materials extraction activities such as aggregates, limestone, slates, sand, gravel, clay, gypsum, feldspar, silica sands, and quartzite, as well as to the extraction of dimension stone. It addresses stand-alone projects and extraction activities supporting construction, civil works, and cement projects. Although the construction materials extraction guidelines emphasize major and complex extraction schemes, the concepts are also applicable to small operations and should be used for guidance. These guidelines can also be downloaded via the link provided above.

6.4 PROCEDURES TO BE FOLLOWED FOR ALL PROJECT INTERVENTIONS UNDER COMPONENT 1

As ARISE has a number of parallel works that will follow parallel levels of management the following processes will be used as per the ESMF in order to ensure Environmental and Social due diligence.

For activities, under Component 1 will support multiple IPPs in phases during the implementation period. Given the severe land constraints in the Maldives, following the ASPIRE approach, the PMU will in advance identify suitable spaces for installing and operating solar PV, either on rooftop, ground or waterbed such as lagoon, and aggregate a number of spaces for each bidding phase. All sites will be subject to Environmental and Social Screening. The following procedures have been implemented under the ASPIRE project and in order to ensure continuity will be followed for all projects that fall under the framework of the IFC Performance Standards under Component 1 and will seek project financing under Component 1. The PMU will undertake Environmental Screening prior to Bidding and include a screening report, specific recommendations/ assessments as required in the bidding package.

6.4.1 SITE SELECTION



The ME has already conducted an Environmental and Social Screening and Pre-Assessment of potential sites that may be selected by IPPs during the implementation of phase 1 of Component 1, this report is presented in Annex 25. For the pilot FSPV subprojects the ME has also in the process of undertaking an independent Feasibility Study which also includes assessment of potential Environmental and Social Impacts. The Findings of this study will then be included along with the Bidding Documents in accordance with section 6.4.2 of this ESMF.

6.4.2 AT THE BIDDING STAGE

Bid Preparation: At the bidding stage, the Bid Documents will include, copies of all relevant E & S Documents pertaining to the respective sub projects. These are not limited to but will include a copy of the Environmental & Social Screening Report (ESSR) and copies of all relevant additional assessments, specific guidance for the preparation of ESIA's/ESMPs will be presented in the screening report.



Shortlisting of Successful Bidder: The Environmental and Social Specialist of the PMU of the ME will undertake a screening of all shortlisted bidders to appraise if the IPP has an Environmental and Social Management System (ESMS) in place as well as Environmental Certification and recommend to the Project Manager the appraised list.

The successful Bidder will then be required contractually to have an Environmental and Social Management System in Place, inline with the IFC Performance Standards as well as valid certification and submit all documents for review prior to being confirmed as the successful bidder.

The PMU's Environmental and Social Officer will undertake the following assessment and share

- An Assessment of the ESMS of the Company identifying and clearly indicating if there are any gaps in line with the pre-requisites of the IFC Performance Standards.
- A Pre-Verification note on the status of all the Independent Environmental Certifications of the Company (ISO14000 series or other equivalents) and copies.

Both of these documents will be subject to the review and clearance of the World Banks. If the bidder has successfully met the above evaluation criteria the contract can be awarded.

Post Contract Awarding: The IPP will be responsible for undertaking all assessments and adhering to all Environmental and Social Requirements stipulated in the contractual agreement as recommended by the respective ESSR and Pre-Assessments, including Environmental and Social Clearances from government entities such as the EPA where relevant.

As per the contractual operations of the ARISE operation the IPP shall ensure the following:

- i. An ESIA and/or ESMP for the respective project prepared by the IPP will be prepared and submitted within 90 days of signing as per the Power Purchasing **Agreement** (PPA) to the ME.
- ii. All ESIA/ESMPs will be carried out and meet the criteria presented in the ESMF of the ARISE operation and adhere to the stipulated standards- including those on management of labor as per the LMP and SEP of the ARISE operation.
- iii. All pre-assessments (structural and glare) will be confirmed by the investor.
- iv. The ESIA and/or EMP will be subject to the clearances of the World Bank and EPA and the IPP cannot proceed with any interventions on the site prior to receiving the said clearance.
- v. The IPP will submit monthly monitoring reports as per the ESIA and ESMP to the ME.
- vi. The IPP will hire a qualified Environmental and Social Specialist as per the minimal requirements presented in the ESMF (Annex X) prior to carrying out any works on the project site and submit details of the hired personnel to the ME's ESS.
- vii. All sites will be subject to independent supervision by the ME during project implementation stage for adherence to ESIA and ESMP requirements.

6.5 MANAGEMENT OF PROJECT INTERVENTIONS UNDER COMPONENT 2 AND 3

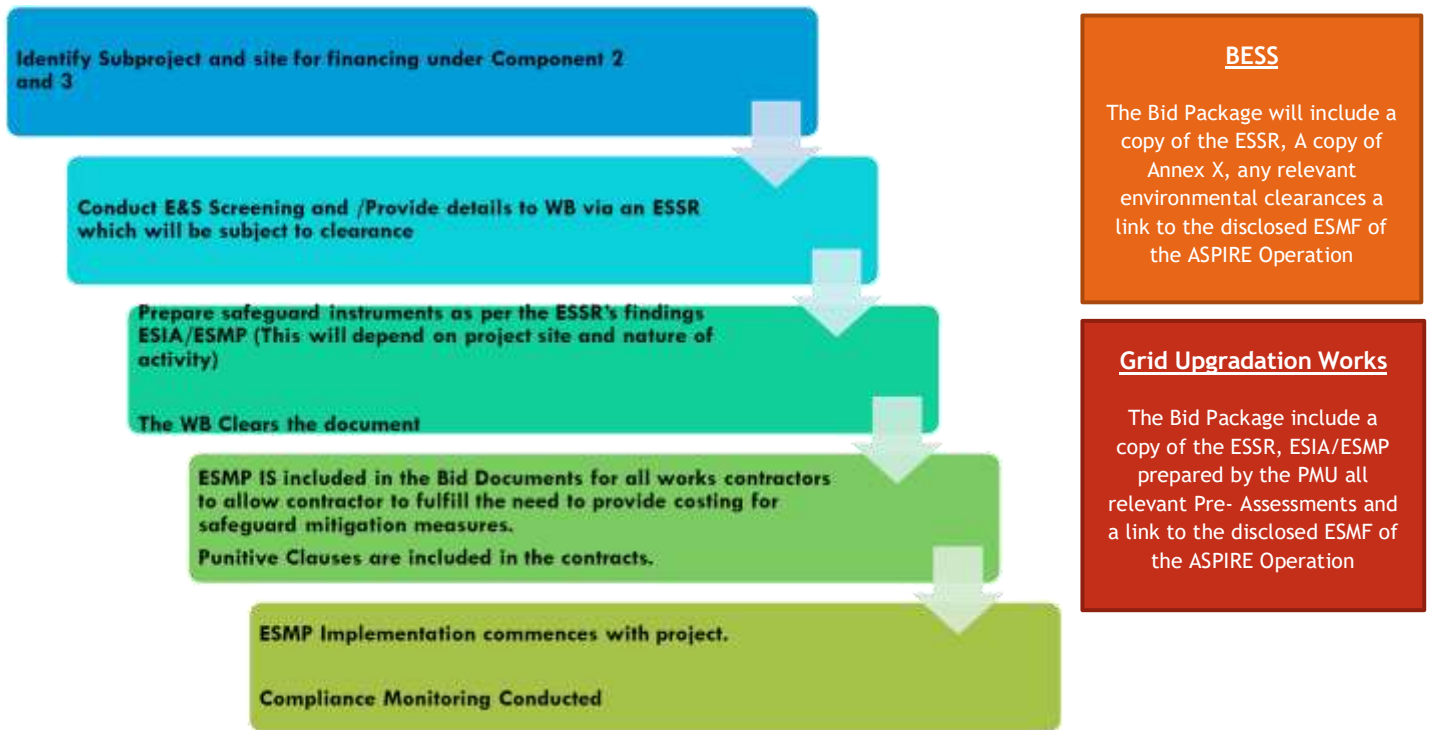
Under Component 2 the ME, through its PMU, will lead a procurement process through a competitive bidding procedure for the BESS. STELCO and FENAKA, as implementing partners, will coordinate with the PMU and closely coordinated throughout the preparation and implementation of the procurement process, including conducting supervision during installation works.

To ensure a proper life cycle management of the BESS deployed under the Project, the contract with suppliers will include provisions on safety infrastructure during operation and used battery management and disposal in accordance with international standards. The ESMF provides additional guidance via Annex 5 on Standard Guidance on Safety Considerations to be Included in the Implementation of Battery Energy Storage System (BESS) Subprojects as per International Best Practice. The minimal standards presented here should be adhered to during deployment of BESS subprojects.

During the preparation of tendering, different options on O&M arrangement will be explored to ensure that BESS functions as intended and that the utilities are equipped with sufficient O&M capacity over a long run.

Under Component 3, the main scope will include strengthening network capacity, deploying supervisory control and data acquisition (SCADA) systems and optimizing interactions among renewable energy generation, BESS and existing conventional power plants. As the penetration of solar PV and renewable energy increases, interconnection among islands will be also considered to improve system balancing and flexibility, which helps integration of solar PV. Associated infrastructure with electric mobility, including the laying of cables, upgradation works to existing networks and power houses and equipment, can be also supported subject to detailed assessment under Component 4.

The existing grids across the Maldives will be first assessed for investment requirements, considering a potential growth in electricity demand, renewable energy and EVs. The ME will lead all associated procurements with this component when identified. All subprojects under both Component 2 and 3 will be subject to the Environmental and Social Due Diligence processes described in Chapter 6 of the ESMF as follows.



6.6 MANAGEMENT OF PROJECT INTERVENTIONS UNDER COMPONENT 4

Component 4 will support technical assistance on, but not limited to, offshore wind potential assessment, policy and regulatory frameworks and system planning for scaling up the use of EVs, feasibility assessment and roadmap for EV charging stations, vehicle-to-grid technologies and associated infrastructure, feasibility assessment of green hydrogen for energy storage and transportation, potential energy efficiency policies and engagement, and improving financial sustainability of the power sector. All ToRs pertaining to these studies will be reviewed in accordance with the ESSs of the World Bank's ESF in order to ensure key areas on Environmental and Social considerations aspects are embedded in to the studies. All ToRs will be subject to World Bank Clearance.

6.7 PROCEDURE FOR MANAGEMENT OF PHYSICAL CULTURAL RESOURCES - PROTECTION AND CHANCE FIND PROCEDURES

All ESMPs will include the following Protection and Chance Find Procedures. If any person discovers a physical cultural resource, such as (but not limited to) archeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the Contractor shall:

1. Stop the construction activities in the area of the chance find;
2. Delineate the discovered site or area;
3. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible authorities take over;
4. Notify the Supervising Officer who in turn will notify the responsible authorities (island councils and National Center for Cultural Heritage) immediately (within 24 hours or less);
5. Responsible authorities are in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by archeologists.

6. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values used by the GoM;
7. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
8. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and
9. Construction works could resume only after permission is granted from the responsible local authorities concerning safeguard of the physical cultural resource.

6.8 PROCEDURE FOR SECURING ROOF AND SPACE LEASE AGREEMENTS

It is not expected that people will be adversely affected by actions undertaken as part of the project, especially in relation to impacts related to land acquisition and resettlement. Indeed, the avoidance of a need for resettlement is one of the screening criteria for subprojects supported. As the project uses existing buildings and add value to common space or use unusable land through ground mounted installations, impacts on future settlements, is also unlikely.

In case solar panels are installed on roof tops of public buildings, roof lease agreement will be signed between the owner and the developer; and in cases of ground-mounted PV installations, space lease agreement will be signed between the owner and the developer. A sample agreement is provided in Annex 9. This agreement will be signed between the IPP and the government owner—for example, example local councils, government ministries and institutions. The project will ensure that the government owner agrees to sign the roof/space lease agreement voluntarily and without any pressure. The roof/space lease agreement will be a valid and time-bound legal agreement, depending on the nature and scope of the sub-project activities.

As reflected in the sample agreement presented in Annex 9, there are safety provisions built into the agreement to ensure safety and security of the buildings/spaces. In this regard, as mentioned in Section 6.4, during the bidding process, the necessary pre-assessments including structural assessment for roofs, where buildings are used, glare assessments for airports and feasibility studies for floating solar are undertaken by the Ministry, the IPP needs to verify the information provided through their own assessments and verifications and is made accountable through the lease agreement (Annex 9).

6.9 CONSULTATION PLAN

The project team, led by the E&S Coordinator, has undertaken consultations with key stakeholders during project preparation and the minutes of the consultations are provided in **Annex 25** of the ESMF. The consultation was undertaken on 20th February 2020. Parties invited to consultation include; STELCO, FENAKA, island councils of the selected islands for the project, Ministry of National Planning and Infrastructure, Ministry of Housing, Civil Aviation Authority, Regional Airports, Maldives Energy Authority, Ministry of Finance and prominent environmental NGOs. Except regional airports and environmental NGOs all other parties participated in the consultations (Annex 28).

In summary the main issue raised by the councils is related to direct benefits to the community in terms of electricity price reductions. It was highlighted by ME that as electricity is highly subsidized and since electricity is provided through a common tariff for all the islands, this is highly unlikely during the project implementation period. However, ME suggested that reduction in fuel subsidies mean that funds are available in the central budget for other development activities including schools, hospitals etc.

Moreover, the need to involve locals in technical trainings undertaken under component 4 was highlighted by majority of the councils. The need to upgrade the grid and include battery system while developing solar PV projects were also highlighted. In addition, the lack of proper maintenance of solar PV systems installed through previous projects implemented by ME was highlighted by some councils. ME highlighted that the systems installed through ARISE will be by investors and it is in the interest of the investor to maintain the system and produce the required electricity and this was highlighted as an advantage of this model when compared with what was done through previous projects.



Figure 17 Consultation undertaken regarding ARISE, ESMF, SEP and LMP

Further consultations will be undertaken as part of screening, feasibility studies and ESIA or ESMP preparation. These should be duly documented in the respective outputs of the consultancies. In addition, the technical coordinators, E&S Coordinator and the island level officials will be required to undertake continuous consultations with stakeholders and report as part of ESMF monitoring. An extensive stakeholder engagement plan has been developed for the project.

6.10 GENDER ACTION PLAN

A Gender Action Plan (GAP) for the project has been developed to include clear targets, quotas, gender design features and quantifiable performance indicators to ensure women's participation and benefits during project implementation. Often women are excluded and benefit invariably less from activities undertaken through various development initiatives and thus, specific actions are required to address this gap. Especially since ARISE project is undertaken for a traditionally male dominated sector, to have such a plan for this project is critical. It is essential that project interventions are planned in such a way to address this gap. This brief plan was developed to address such gaps.

GAP was formulated following consultation with women's NGOs and gender focal points in STELCO and Fenaka. Both utilities already undertake a number of activities to address the gender gap in energy sector. Rather than reinventing the wheel the project aims to facilitate and support the activities identified by Fenaka and STELCO while implementing various components of the project. In summary the activities identified under GAP for the project includes the following:

- Undertaking Career Talks on Women in Energy to school children
- Undertaking a certificate level course to train electricians under component 4 targeted to women
- Ensuring that at least 30% of those who are trained under component 4 are women
- Ensuring that at least 65% of those who are trained and assigned to become Environmental and Social Officers (ESOs)¹² are women
- Involving Womens Development Committees and NGOs in undertaking awareness activities in the island.

Annex 27 provides the details of the GAP including the process followed in identifying the gaps and details of activities that will be undertaken through the project to address the gaps.

6.11 CLEARANCE PROCEDURES WITH THE WORLD BANK

All ESF instruments listed below will be subject to World Bank prior review and clearance by the World Bank environmental and social specialist assigned to the ARISE operation. Only cleared environment and social

¹² Check section 8.1.2 for the functions of ESOs

instruments can be included in bidding documents and other procurement instruments. No work can commence on project sites without due clearance of the respective ESF instrument.

- All Environmental and Social Screening Reports
- The following assessments for all investors seeking financing under Component 1
 - An Assessment of the Environmental and Social Management System of the Company
 - Pre-Verification note of the Independent Environmental Certification of the Company (ISO or otherwise)
- All TORs for ESIAAs
- All ESIAAs, and ESMPs
- All TORs for studies to be undertaken under Component 4.

Upon project commencement the Environmental and Social Specialist of the PMU will be required to prepare a table, tracking all requisite ESF instruments for sub-projects as outlined in the generic template Environmental and Social Instrument Preparatory Tasks Tracking Sheet presented in **Annex 22**. This sheet should be continuously updated and managed by the project PMU and shared with the World Banks Environmental and Social specialist every quarter or when requested.

6.12 ENVIRONMENT AND SOCIAL ISSUES IN BID DOCUMENTS

6.12.1 INCLUSION OF E&S SPECIFICATIONS AND ESMP IN BID DOCUMENTS

It is important to ensure the environmental specifications and ESMP are included in the bid documents prior to commencement of the bidding process for subprojects where the World Banks Standard Bidding Documents will be used. This applies to all sub-projects or activities directly implemented by the PMU or Implementing Agencies. It will be necessary to include a provisional sum for the ESMP as part of the Bill of Quantities for those mitigations measure that are not part of the engineering costing. The environmental specifications should also include penalty clauses for non-compliance, specifically for complex and large contracts. The procurement staff of the relevant implementing agency and PMU together with environmental officer(s) will be responsible for this step.

6.12.2 GUIDANCE ON INCORPORATION OF ESHS REQUIREMENTS FOR CONTRACTS AS PER THE WORLD BANK'S STANDARD BIDDING DOCUMENTS

With the revision to the World Bank's Standard Bidding Documents in January 2017, Environmental and Social Health and Safety (ESHS) requirements are now more clearly defined in the document and there is also the need for an ESHS Performance Security to be incorporated in to the requirements from potential bidders for implementation of works under project financing. This revision incorporates changes to enhance environmental, social, health and safety performance. A positive measure that is intended to enhance the commitment of a given contractor towards sound environmental and social management which clearly define what the expectation is from them as an implementing entity during project execution and reporting.

The following guidance will facilitate in the tailoring of these ESHS requirements during the use of the World Bank Groups Standard Bidding Documents for procurement activities. The Environmental Specialist and team of the PMU will be required to liaise with the Procurement Specialists of the project on ensuring the following guidance is incorporated accordingly.

- All standard language on ESHS and guidance is presented in the Standard Bidding Documents on what expectations are there from the contractor's side and what information should be provided from the client's side during procurement, implementation and reporting in terms of ESHS. The Environmental Specialist and team should conduct a thorough review of these requirements and ensue the following.

- All sections are to be reviewed in detailed and cross reference will need to be made to the ESSs policies and instruments relevant to the specific subprojects which have been prepared as per the requirements of this EAMF.
 - Where required the PMU Environmental specialist may be required to update recommendations in the respective ESIA/ESMP to match the language in the Bid Document where major discrepancies have been noted to facilitate consistency in all documents.
 - In projects where ESF documents for environment and social are prepared independently, it is recommended that the project Environmental and Social teams, based in the PMU, work together to ensure that social safeguard requirements are incorporated and Social Management Plans (SMPs) and ESMPs are merged and represented as ESMP.
 - This ESMF already includes guidance for ESMPs that incorporate the requisite measures for labor management, labor working conditions, worker health and safety, public health and safety and grievance redressal are incorporated in line with all relevant ESSs.
- The ESHS Performance Security, is to be maintained between 1-3% of the total contract value as per the Guidance provided supplementing the World Bank's Standard Bidding Document, depending on the associated risks of the project. The total performance security for contracts will typically be 10% of the total contract value of which 3% should be allocated to the ESHS performance security, where a contract has a performance security of 20% the ESHS performance security is to be maintained at a maximum of 5% of the total contract value.
 - While it is recommended that indicative costs should be presented with ESMP measures, on the addition of ESMP related costs to the BOQ, if indicative costing have not been done on individual ESMP implementation items at the time of ESMP preparation, due the difficulty of estimating indicative costs in the context of Maldives the following is to be undertaken. A **Lumpsum amount of 5% of the total contract value** should be maintained as the allocation for ESMP implementation. *(This amount has been typically adequate in managing with some contingency also so the same should be exercised in the BOQ guidance in the bid documents in projects in the Maldives.)*
 - The contractor is required to provide a costing at minimum within this amount in his BOQ, listing itemized values for ESMP implementation.
 - The language should indicate that the contractor will be required to provide an itemized costing with the BOQ within this allocation.
 - In addition, for large scale contracts that are assessed as high risk during environmental screening, it is also requested for the contractors to have the following certifications in the Eligibility and Qualifications Subsection, in Section III of the Standard Bidding Documents, under Contractor Requirements.
 - Registration with ISO 14001 (Environmental Management)
 - Registration with ISO 45001/ OSHAS 18000/ or equivalent on (Occupational Health and Safety Management)
 - If not already registered, must be willing to register as such prior to requesting mobilization amount or any other payment for the contract.

6.13 COMPLIANCE MONITORING AND REPORTING

Supervision of final ESMPs for subprojects, along with other aspects of the project, will cover monitoring, evaluative review and reporting in order to achieve, among others, the following objectives:

- Determine whether the project is being carried out in conformity with environmental and social and legal agreements
- Identify issues as they arise during implementation and recommend means to resolve in time

Recommend changes to the proposed concept and the project design, as appropriate, as the project evolves or circumstances change; and identify the key risks to project sustainability and recommend appropriate risk management strategies. An appropriate environmental supervision plan will be developed aiming to ensure the successful implementation of the ESMP across the project and will be shared with the World Bank.

The environmental specialist and the environmental environment and social team based in the PMU will be responsible for overall monitoring of the ESMPs up to the project closure and transfer for management to the designated authority.

It is expected that the sub-project will be implemented via a “design and build” contract. In addition, there will be a supervision consultancy firm appointed for overall supervision of the closure activities on ground. The recruitment of an environment safeguard expert, with the stipulated minimum qualifications requirements outlined in the Addendum document, will be a requirement under the contract of the supervision consultant. The supervision consultants will be responsible for all aspects of the project including environmental and social compliance and reporting to the PMU, while the overarching monitoring responsibility and reporting to the World Bank will remain with the PMU.

The PMU ESS and team will confirm the performance of the supervision consultants by regularly visiting the project site during the implementation stage and providing guidance on corrective measures on any lapses as required.

Compliance monitoring comprises of on-site inspection of the construction activities to verify that measures identified in the ESMP are included in the clauses for contractors are being implemented. This type of monitoring is similar to the normal technical supervision tasks ensuring that the Contractor is achieving the required standards and quality of work. Photographic documentation of non-compliance as well as best practices will be used as a means of recording implementation conditions efficiently, in addition to written evidence

A standard Environmental and Social Compliance Monitoring Checklist for Project Activities is presented in **Annex 16**. In addition, the Special Monitoring Checklist for Ensuring Safe Conditions for Workers and Public, presented in **Annex 17** should be attached to the main monitoring update presented in Annex 18. For all project ESMPs in implementation Annex 18 and Annex 19 must be combined and maintained through intervention commencement in the field to implementation completion.

Regular World Bank missions will include specialists to monitor the project’s compliance with World Bank safeguard policies. The progress of environmental monitoring will be formally communicated to World Bank through regular progress reports and updates as per the compliance monitoring agreement made during project implementation.

Compliance monitoring reports should be submitted to the World Bank on a quarterly basis from the commencement of the contract.

7 GRIEVANCE REDRESS MECHANISM, MONITORING AND INFORMATION DISCLOSURE

7.1 GRIEVANCE REDRESSAL MECHANISM

The implementing agencies, both the PMU and IAs, will establish a grievance mechanism to receive and facilitate resolution of the affected communities' concerns and about the implementing agency's environmental and social performance during project implementation. The ESMP and its management program will establish a mechanism to address concerns raised promptly that is readily accessible to all segments of the affected communities, at no cost and without retribution.

For the grievances, the project implementation and/or supervision team at site will keep a feedback register and let the local stakeholder know that they can register their project related complaints or comments or suggestions. The project team will review the feedback and take appropriate actions. The overall environmental grievance process will be in line with the social grievance process proposed. All procedures on GRM stipulated in the Stakeholder Engagement Plan (SEP) of the ARISE Project will be followed (Annex 26).

All sub-project specific complaints incidents reported received during the implementation need to be managed according to the following steps and as stipulated in the ESCP of the ARISE operation.

- A register will be maintained of all complains received on sub-projects under the program during project implementation.
- The complaints register will be prepared subproject wise and each complaint recorded should be supplemented with copies of the letters received or signed note of the complaint, if the complaint is made verbally.
- Times, dates, names of complainant, nature of complaint should be recorded, and complaints should be graded as per the severity of the nature of the complaint.
- A complaint file, with hard copies and a complaint file of scanned soft copies on an electronic folder will be maintained. These files will be presented to the World Bank for supervision when requested.
- Once a complaint is received the following timelines are to be managed on providing resolutions:
- Feedback on agreed actions in relation to complains should be provided to the concerned parties within a period of 10 days.
- If complains take longer than the stipulated period to handle, weekly updated should be provided in writing indicating the reasons for delay.
- A summary sheet of all complaints received and resolved should be shared with the World Bank Task Team with environmental environment and social monitoring updates.
- Any complaint or incident categorized as high risk should be reported to the World Bank Task Team immediately.

7.2 ENVIRONMENTAL AND SOCIAL MONITORING DURING CONSTRUCTION

Monitoring is the continuous and systematic collection of data in order to assess whether the environmental objectives of the project have been achieved. Good practice demands that procedures for monitoring the environmental performance of proposed projects are incorporated in all relevant environmental management instruments. Monitoring provides information on the occurrence of impacts. It helps identify how well mitigation measures are working, and where better mitigation may be needed. Each respective safeguard instrument prepared will require a monitoring program to be included for the respective activities. The monitoring plan should identify what information will be collected, how, where and how often. It should also indicate at what level of effect there will be a need for further mitigation. How environmental and impacts are monitored is discussed below.

- Responsibilities in terms of the people, groups, or organizations that will carry out the monitoring activities be defined, as well as to whom they report amongst others. In some instances, there may be a need to train people to carry out these responsibilities, and to provide them with equipment and supplies;
- Implementation Schedule, covers the timing, frequency and duration of monitoring are specified in an implementation schedule, and linked to the overall sub project schedule;
- Cost Estimates and Source of resources for monitoring need to be specified in the monitoring plan;

- Monitoring methods need to be as simple as possible, consistent with collecting useful information, so that the sub project implementer can apply them.
- The data collected during monitoring is analyzed with the aim of:
- Assessing any changes in baseline conditions;
- Assessing whether recommended mitigation measures have been successfully implemented;
- Determining reasons for unsuccessful mitigation;
- Developing and recommending alternative mitigation measures or plans to replace unsatisfactory ones; and
- Identifying and explaining trends in environment improvement or degradation.

A set of Monitoring Requisite for the construction phase of subprojects are provided in detail in the following Annex 19

7.3 INFORMATION DISCLOSURE

Disclosure of relevant project information will help affected communities understand the risks, impacts and opportunities of the Project. The implementing agency will publicly disclose the ESAMF and all Environmental and Social Assessment documentation, the management program and action plan(s) for public review and comment in appropriate locations in the Project area.

The documentation will also be made available on the implementing agencies web site both in English and in local languages. Newspaper and other media outlets will alert the community to the availability of the documentation. The website will also enable the community opportunity to provide comment electronically.

All ESF Documentation will also be made available in the Maldives World Bank external website.

All procedures stipulated in the Stakeholder Engagement Plan (SEP) of the ARISE Project will be followed.

8 CHAPTER 8: INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION OF THE PROJECT

8.1 OVERALL PROJECT INSTITUTIONAL ARRANGEMENTS

Project implementation will entail the creation of project management unit (PMU) at the ME. The institutional responsibilities and arrangements for project implementation would be established for the participating implementation agencies, as follows:

8.1.1 PROJECT MANAGEMENT UNIT

- The PMU's main role will be to ensure operational compliance as per the World Bank policies as defined in the Project Appraisal Document, Financing Agreement and Operations Manual and Government policies as applicable.
- The PMU will be led by a Project Director and will include a team of specialized staff responsible for project management, financial management, procurement, environmental safeguards, social safeguards, monitoring and evaluation, civil works design review and contract management, as well as support staff such a secretary, fiduciary support staff and a driver.
- The PMU will also recruit specialized consultants necessary for specific technical assistance for overall implementation of activities.
- The PMU will liaise closely and also ensure overall coordination of all Project entities to ensure necessary data and information are shared and collated for reporting to Project Board and the World Bank. (*Ref Appraisal stage PAD, 2020*)

8.1.2 INSTITUTIONAL ARRANGEMENT FOR IMPLEMENTATION OF THE ESMF

The PMU to be established within the ME will need to second/hire environmental and social specialists to focus on the tasks and responsibilities outlined in the ESMF in the role of an Environmental and Social Specialist (ESS)

The Environmental and Social Safeguards Specialist at the PMU; will be responsible for the implementation of all steps presented in the environmental and social management framework of the project. The facilitation of the preparation of environmental and social instruments, such as ESMPs, requesting for clearances from relevant authorities such as the EPA where applicable, and monitoring/reporting on compliance of due diligence mechanisms set forth in the ESMF and relevant trainings. He/she will be responsible for the implementation of environmental and social management plans and grievance mechanism; liaison with other agencies, contractors and engineering supervisors at the island level; monitoring and evaluation; and training. For all environmental and social assessments required, the PMU will outsource detail studies to consultants and manage them. The PMU's ESS will be responsible for ensuring the delivery of such outsourced tasks. He/she will be responsible for the preparation of quarterly compliance summaries and formally communicate to the World Bank on environmental and social and ESF related matters. The ESS will be responsible for managing the Environmental and Social Officers assigned to the project.

Environmental and Social Officers; will be responsible for ensuring Island level activities as per the ESMF are well managed and report to the ESS based in the PMU. They will assist in collecting data and the timely completion of environmental and social instruments, such as ESSRs, ESMPs and EISAs, in collaboration with Island Councils and take proactive efforts during monitoring/reporting on compliance of due diligence mechanisms set forth in the ESMF as well as conduct trainings as instructed by the ESS of the PMU who will provide them with training as required. As these officers will probably be based in the Atolls they will be required to conduct regular monitoring visits and facilitate good communication between the ICs and the PMU on safeguards issues and provide guidance to the ICs. The officers in the atolls will also work closely with the ME, IAs and PMU teams on mobilization efforts with regard to sub-project preparation as well as on citizen engagement. For ARISE it is planned to identify focal staff from electricity service provider from each island as ESOs.

Communications Specialist; To provide updates to the media, to increase visibility of the project, to increase the awareness of the public on renewable energy in general & project interventions specifically and to ensure that

safeguards issues are adequately communicated to the public a communications specialist need to be hired. The specialist will report to the project manager and will work under the guidance of the project manager and the director.

The Role of Implementing Partners; STELCO and FENAKA, as implementing partners, will coordinate with the PMU and closely coordinated throughout the preparation and implementation of the procurement process, including conducting supervision during installation works and will assign from each island ESOs. In most cases, STELCO and FENAKA is going to be the operator of the facilities and therefore will be responsible to ensure that operational phase aspects highlighted in the respective ESMPs and ESIA are implemented. These aspects will be highlighted in the handover agreement made with STELCO and FENAKA. Moreover, as implementation partners STELCO and FENAKA becomes important parties in steering committee and technical committee of the project.

The Role of Island/City Councils: The councils will be responsible to identify the sites for solar PV installation. An MOU will be signed with the council and ME to secure the sites required for the project. Moreover, the island councils will be the second tier for attaining grievances related to the project. In addition, as per the amendment made to the decentralization act, councils are recognized as the party responsible to provide electricity in each island thus, councils have the option of providing electricity service themselves or through another party instead of STELCO and FENAKA. Thus, this situation may arise during project implementation atleast in some of the islands, in that case the councils become implementation partners themselves. Where specific island issues are discussed the councils will be invited to project steering committee meetings.

The Role of the EPA; the EPA will work closely with the PMU, providing timely clearance and guidance on technical requirements for respective safeguard assessments by issuing specific TORs, conducting timely review of safeguard documents that will require there clearance and also ensure the needs for operational monitoring are well incorporated in to the project. As the main regulator with regard to environmental management, once the sub-projects go in to the operational phase the EPA has the responsibility for conducting inspections to ensure that all subprojects that receive environmental clearance from them are implemented and are operated as per the applicable guidelines, national standards and ESMPs prepared. The PMU safeguards team will laisse closely with the EPA, who will have a supporting role in implementation as well as the sustainability of project outcomes.

The roles and responsibilities in terms screening, preparation of ESIA and ESMP and monitoring for the different components of the project are summarized below.

Table 10 Responsible parties for assessments and review

Activity	Component 1	Component 2 and 3	Review Responsibility
Pre-Assessments (Feasibility, glare assessment etc)	PMU	PMU	WB
Screening	PMU	PMU	EPA &WB
ESIA/ESMP	IPP	PMU	PMU, EPA &WB (Comp 1) EPA & WB (Comp 2&3)
EISA/ESMP Monitoring	IPP	PMU	PMU, EPA &WB (Comp 1) EPA & WB (Comp 2&3)

8.1.3 ROLES AND RESPONSIBILITIES OF WORLD BANK

The World Bank project task team, specifically the environmental and social safeguards specialists, will provide close supervision and necessary implementation support in the initial stages of the project in conducting screening, preparation of ESIA and ESMPs;

- Undertake prior review of a sample screening reports, ESIA/ESMPs and other relevant documentation of all project interventions.
- Ensure regular missions to review overall safeguards performance and provide further implementation support
- Share knowledge on technologies and best practices
- Provide training support on Bank’s safeguard policies and requirements of the project.

8.2 SEQUENCE AND ACTION PLAN OF ENVIRONMENTAL AND SOCIAL (E& S) DUE DILIGENCE INSTRUMENTS FOR SUBPROJECTS TO BE FINANCED UNDER THE PROJECT.

Timely planning and execution of environmental screening and follow up assessments/plans for sub-project investments would be crucial in achieving the overall project implementation and completion targets. Any delay in obtaining relevant environmental approvals/clearances would hold back commencement of sub-project activities thus causing project implementation to be delayed. Such delays can be costly in terms of project time as well as resources. Hence, it is extremely important that the PMU initiates sub-project specific screening and follow up assessments as soon as the concept designs become ready. All environmental assessments/plans should be completed by the time of tendering and the ESMPs should be a part of the bidding document so that the contractor is made duly aware of his commitments towards environmental environment and social management under each sub-project.

As a guide, the following table provides typical timelines for completing the assessment cycle for different types of safeguard instruments. This timeline is intended to guide the PMU in planning screening and environment and social assessment ahead and to determine a realistic timeframe to commence the tender process for the sub-project investments. Please note the table below does not include time taken for procurement of consultancy services to conduct the ESIA.

The PMU will prepare and share a project specific timeline with IDA during project implementation.

Table 11 Indicative timeline for required clearances

Stages in the process	ESIAs for FSPV	ESIAs	ESMPs	Remarks
Environmental Screening	2 weeks	2 weeks	2 weeks	The need for follow on assessments will be determined by the screening outcome and includes travel time.
Scoping and setting of TOR when applicable	2 weeks	1 week	1 week	
Report preparation	2 months	1 months	2 weeks	Length of time will be determined by complexity of issues involved. What is considered here is an average based on the type of projects.
Report appraisal	2 weeks	1 week	1 week	
Public consultation	1 month	1 month	1 month	
Report Finalization	2weeks	2 weeks	1 week	
Clearance	Clearance will be provided within a week after review comments and public concerns have been adequately addressed in the report.			
Other GoM Clearances where applicable	3 - 4 weeks			
Tentative time for EA cycle (min – max)	6 months	3-3.5 months	1.5-2 months	Times subjective to respective scale of operations and have been completed at shorter windows during the ASPIRE operation. The times indicated are the maximum requisite time periods.
Scenario 2: Sub-projects which trigger both OP 4.01 and ESIA under national regulations.				
Provision of preliminary project information	1 week	1 week	-	
Scoping & determine ESMP & TOR preparation	1 month	2 weeks	-	WB will review TOR and provide consent/comment
IEE/EIA report preparation	NS*	NS*	-	One report to satisfy both local and WB requirements
Checking adequacy of IEE/EIA report	NS	NA	-	WB will review and submit comments

Provision of additional information if required	NS*	NA	-	
Public consultation	1 month	1 month	-	WB safeguard policies will require a period of 120 days public commenting period
Forwarding Comments to the PP	1 week	NA	-	
Responding to public comments	NS*		-	
Decision	1 month	3 weeks	-	WB clearance will be provided con-currently
Concurrence on the decision				
Appeal against rejection (If rejected)				
Final Decision				
Tentative time for EA cycle	6-8 months approx.	3-6 months approx.		

8.3 ESF TRAINING

The Environmental and Social Specialist and team will be trained by the Environmental Specialist and Social Specialist of the WB project team on the ESMF implementation, World Bank ESF and procedural requirements of the WB.

Training will be provided for the Implementing Agencies on how to monitor and report on environmental and social requirements by the E&S Specialists. They will be also provided training on the use of Grievance Redressal mechanism, consultations. The generic scope required for such trainings are presented in the Session Plan presented in **Annex 24**.

All investors/ contractors are expected to disseminate and create awareness within the workforce ESMP compliance, and any staff training necessary for their effective implementation, specific training on basic Occupational Health and Safety considerations, use of PPP equipment and worker codes of conduct must be conducted. Where contractors do not have existing environmental staff, the PMUs Environment and Social Specialist and team and IAs will plan for adequate capacity building within the workforce to be involved.

Training on environmental and social management regarding operation of renewable energy and facilities will be provided to the designated authority officials who will in due course manage the operation and are inbuilt in to the project modality.

Table 12 Requisite training programs required for implementation of ESMF

Training Program	Target Audience	Conducted By	Minimum Number to be conducted over project period
ESF E-Learning Program- Online Modules	PMU Staff	Online Modules	Should be completed within the 1 st 2 months post recruitment.
ESMF and ESF Implementation Training: to cover world bank environmental and social management procedures, instrument preparation, consultation and monitoring during project implementation	PMU Staff	World Bank Environmental and Social Specialists and team	3 programs at minimum

and reporting- (including refresher)- Training for Trainers Modality			
ESMF and ESF Implementation Training: to cover world bank environmental and social management procedures, instrument preparation and monitoring during project implementation and reporting- (including refresher)	STELCO/ FENAKA/ICs and other IAs as relevant.	PMU ESSS and Team	10 programs (twice per annum)
Training on implementation of Environmental Management Plans in construction contracts- focused on contract management	Cluster of project contractors, implementing works under the project	World Bank Environmental and Social Specialists and team and external resource persons	3 programs at minimum
Training on implementation of Environmental Management Plans- Based on the subproject specific ESMPs	Contractor Staff of each subproject, including supervision consultants' environmental officers	PMU ESSS and Team	At minimum once, (prior to the contract commencing on the ground) for each subproject in implementation
Respective Occupational Health and Safety considerations, use of PPP equipment and worker codes of conduct must be conducted.	To all contractor staff during the sub-project implementation	Contractor/Investor	Every 3 months during the contracted project implementation period- specifically targeting the construction phase.

8.4 ROUGH COST ESTIMATES OF SAFEGUARDS INSTRUMENTS

It is difficult to provide accurate cost estimates for the preparation of safeguards instruments due to the dynamic nature of the environmental consultancy market within the Maldives. Drawing from the ASPIRE project experience and current indicative costs the following table provides a rough estimation of costs for safeguard instruments. In terms of costs, competition and an increase in the number of players in the consultancy market within the country has led to drops in preparation costs since 2017 when done by local consultants. However, for projects that require expertise that is specialized, such as the ESIA and certain Pre-Assessments may require international expertise to be brought in, an estimated minimum cost, drawing from other World Bank funded project experience is presented below. All safeguards instruments have been inbuilt into the project modality and will be financed via the project and detailed project cost tables will include the necessary costs accordingly.

Table 13 Indicative Costs of ESMP, ESIA and ESMR

Instrument	Rough Indicative Cost 2020
Environmental and Social Management Plan for by Local Consultants	US\$ 2500 at Minimum (MVR 38,550)
Environmental and Social Assessments for by Local Consultants	US\$ 5000 at Minimum (MVR 77,100)
Environmental Social Monitoring Report	US\$ 3000 at Minimum (MVR 46,260)

The associated cost to implement ESMPs has been integrated into the project budget. The project will ensure that all works contracts will include the ESMP, and the cost of implementing the ESMP will be identified as an item in the Bill of Quantities.

In terms of PMU staff that will be hired for the project, related to safeguards component and the indicative salaries are highlighted below

Table 14 Indicative Costs for staff remuneration

Staff	Indicative Salary (Monthly)
Environmental and Social Safeguards Specialist	US\$ 2500 at Minimum (MVR 38,550)
Communications Specialist	US\$ 2500 at Minimum (MVR 38,550)

As the project involves many islands across the span of Maldives, frequent travelling is envisioned for the ESS and CS of the project for implementation of ESMF together with staff from FENAKA and STELCO. The indicative costs for domestic travels required for the project is summarized in the table below.

Table 15 Indicative travel cost for implementation of ESMF

Island	No. of Pax	No. of Trips	Airfare (MVR)	Sea Transport (MVR)	Per Diem (MVR)	Total (MVR)
Addu	5	10	175,000	10,000	168,849	353,849
Fuvammulah	5	10	175,000		168,849	343,849
Thinadhoo	5	10	165,000	6,000	168,849	339,849
Kulhudhuffushi	5	10	150,000		168,849	318,849
Naifaru	5	10	150,000	30,000	168,849	348,849
Hinnavaru	5	10	150,000	40,000	168,849	358,849
Laamu	5	8	120,000	20,000	135,079	275,079
Island 1	5	4	60,000		67,540	127,540
Island 2	5	4	60,000		67,540	127,540
Island 3	5	4	60,000		67,540	127,540
Island 4	5	4	60,000		67,540	127,540
TOTAL	55	84	965,000	86,000	1,013,094	2,064,094

In addition to this, other costs like material printing, making videos for various awareness activities planned, consultations and information sessions need to be factored in, these costs are summarized in the table below.

Table 16 Other Costs

Activity	Cost (MVR)
Material Printing and Designing	300,000
Video/Visual Aid	200,000
TOTAL	500,000

ANNEXES

ANNEX 1: PROTECTED AREAS IN THE MALDIVES



Environmental Protection Agency



Protected Area of Maldives

Date: 01-Jul-2019

#	Name	x	y	Date	Directive No:	Area/ ha
1	Makunudhoo Kandu	73.38333000	4.56666667	01-Oct-1995	E/95/32	310.00
2	Rasfari Region	73.35091000	4.39590651	01-Oct-1995	E/95/32	2447.00
3	HP Reef (Thanburudhoo Thila)	73.58333000	4.31666667	01-Oct-1995	E/95/32	146.00
4	Banana Reef (Gaathu Giri)	73.53187000	4.23933042	01-Oct-1995	E/95/32	178.50
5	Giravaru Kuda Haa	73.41592000	4.21661458	01-Oct-1995	E/95/32	260.00
6	Lions Head (Dhekunu Thilafathuge Miyaruvani)	73.42600000	4.17892817	01-Oct-1995	E/95/32	151.00
7	Hans Hass Place (Gulhi Falhu)	73.46681000	4.17230860	01-Oct-1995	E/95/32	102.00
8	Embudhoo Kandu Olhi	73.53005000	4.08589985	01-Oct-1995	E/95/32	635.00
9	Guraidhoo Kanduolhi	73.46729000	3.89447761	01-Oct-1995	E/95/32	352.00
10	Maaya Thila	72.85335000	4.08294926	01-Oct-1995	E/95/32	1028.00
11	Orimas Thila	72.95097000	3.98160035	01-Oct-1995	E/95/32	1315.00
12	Fish Head (Mushimasigili Thila)	72.91652000	3.93694777	01-Oct-1995	E/95/32	270.00
13	Kudarah Thila	72.91960000	3.56157088	01-Oct-1995	E/95/32	270.00
14	Fushifaru Kandu	73.51667000	5.48333333	01-Oct-1995	E/95/32	1400.00
15	Miyaru Kandu (Dhevana Kandu)	73.50064000	3.57935829	01-Oct-1995	E/95/32	1391.90
16	Fushi Kandu	72.92927000	2.99671248	21-Oct-1999	10-C/99/38	2366.00
17	Vilinglee Thili	72.95702000	5.37916442	21-Oct-1999	10-C/99/38	266.00
18	Kuredhu Express (Kuredhu Kanduolhi)	73.47549000	5.55637984	21-Oct-1999	10-C/99/38	393.00
19	Nassimo Thila (Lankan Thila)	73.53333000	4.28333333	21-Oct-1999	10-C/99/38	267.00
20	Kari Beyru Thila	72.96140000	4.09503380	21-Oct-1999	10-C/99/38	1323.00
21	Rangali Kandu (Madivaru)	72.72116000	3.59388064	21-Oct-1999	10-C/99/38	865.00
22	Vattaru Kandu	73.42492000	3.22198831	21-Oct-1999	10-C/99/38	9780.70
23	Lazikuraadi (Hakura Thila)	73.54640000	2.94524812	21-Oct-1999	10-C/99/38	489.00
24	Filitheyo Kandu	73.03915000	3.20129446	21-Oct-1999	10-C/99/38	168.00
25	Dhigali Haa and Dhigili Giri	73.04164000	5.14715126	21-Oct-1999	10-C/99/38	91.44
26	Eedhigali Kilhi	73.07795000	-0.58534093	07-Dec-2004	20-H3/2004/97	771.00
27	Hura Mangrove	73.60134000	4.33410831	14-Jun-2006	174-AB1/2006/13	6.00
28	Hurasdhoo	72.77467000	3.66698271	14-Jun-2006	174-AB1/2006/13	515.00
29	Olhugiri	72.90589000	5.00154045	14-Jun-2006	174-AB1/2006/13	573.00
30	Hithaadhoo Island	73.24232000	0.84957298	14-Jun-2006	174-AB1/2006/13	803.00
31	South Ari Atoll Marine Protected Area	72.79942000	3.45491264	05-Jun-2009	138-EE/2009/19	5595.00
32	Hanifaru Area	73.14384000	5.17387978	05-Jun-2009	138-EE/2009/19	1168.87
33	Anga Faru	73.08859000	5.18896639	05-Jun-2009	138-EE/2009/19	1320.00
34	Mendhoo Region	72.99541000	5.17554644	05-Jun-2011	138-F52/1/2011/35	2140.00
35	Goidhoo Koaru	72.99846000	4.87942793	05-Jun-2011	138-F52/1/2011/35	171.00

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Protected Areas of Maldives | Page 1 of 2



Environmental Protection Agency



Protected Area of Maldives

Date: 01-Jul-2019

#	Name	x	y	Date	Directive No:	Area/ ha
36	Bathala Region	73.07259000	5.36186914	05-Jun-2011	138-FS2/1/2011/35	3399.00
37	Mathifaru Hura	72.89361000	4.81333333	05-Jun-2011	138-FS2/1/2011/35	748.00
38	The Wreck of "CORBIN"	72.90083000	4.90916667	05-Jun-2011	138-FS2/1/2011/35	330.00
39	Maahuruvalhi Reef Region	72.86032000	5.18692800	05-Jun-2011	138-FS2/1/2011/35	3474.00
40	Bandaara Kilhi	73.43063000	-0.29958960	18-Jun-2012	(IUL)438-PPIR/438/2012/2	53.00
41	Dhandimagu Kilhi	73.41771000	-0.28561970	19-Jun-2012	(IUL)438-PPIR/438/2012/2	63.00
42	Thoondi Area	73.41637000	-0.27652948	20-Jun-2012	(IUL)438-PPIR/438/2012/2	166.00
43	British Loyalty Shipwreck	73.11379000	-0.63888360	13-Sep-2018	2018/R-105	64.00
44	Kandihera-Maakandu Channel (Manta Point Addu)	73.15527000	-0.60963100	13-Sep-2018	2018/R-105	724.00
45	Rasdhoor Madivaru Area	72.99807000	4.26438200	07-Oct-2018	(IUL)438-PPIR/438/2018/262	676.11
46	Dhigulaabadhoo	73.15431000	0.21396500	07-Oct-2018	(IUL)438-ENV/438/2018/262	545.57
47	Farukolhu	73.29859000	6.19064000	07-Oct-2018	(IUL)438-ENV/438/2018/262	682.67
48	Baarah Mangrove Area	73.21189000	6.81408700	30-Dec-2018	(IUL)438-ENV/438/2018/322	50.77
49	Keylakunu	73.00937000	6.60319300	30-Dec-2018	(IUL)438-ENV/438/2018/322	235.54
50	Neykurendhoo Mangrove Area	72.98563000	6.54235700	30-Dec-2018	(IUL)438-ENV/438/2018/322	71.84
51	Bileydhoo Thila (including Innafinolhu)	72.81635363	7.05445035	17-Jun-2019	(IUL)438-ENV/438/2019/150	4354.00
52	Gallandhoo	72.97359091	6.95193270	17-Jun-2019	(IUL)438-ENV/438/2019/150	252.00
53	Kelaa Mangrove Area	73.21611720	6.94376130	17-Jun-2019	(IUL)438-ENV/438/2019/150	112.00
54	Finay Thila	73.05934310	6.74466085	17-Jun-2019	(IUL)438-ENV/438/2019/150	97.90
55	Innafushi	72.63721130	6.41800169	17-Jun-2019	(IUL)438-ENV/438/2019/150	1366.00
56	Bolissafaru	73.11640837	6.00346626	17-Jun-2019	(IUL)438-ENV/438/2019/150	954.00
57	Naalaa Huraa (Sand Bank)	73.03818882	6.12034824	17-Jun-2019	(IUL)438-ENV/438/2019/150	159.00
58	Fohdhipparu	73.20754867	5.74296104	17-Jun-2019	(IUL)438-ENV/438/2019/150	322.00
59	Kendhikulhudhoo Mangrove Area	73.41424534	5.95882788	17-Jun-2019	(IUL)438-ENV/438/2019/150	512.00
60	Orimas Thila	73.24995754	5.84550750	17-Jun-2019	(IUL)438-ENV/438/2019/150	46.30
61	Bodulhaimendhoo	73.30495973	6.01000930	17-Jun-2019	(IUL)438-ENV/438/2019/150	321.00

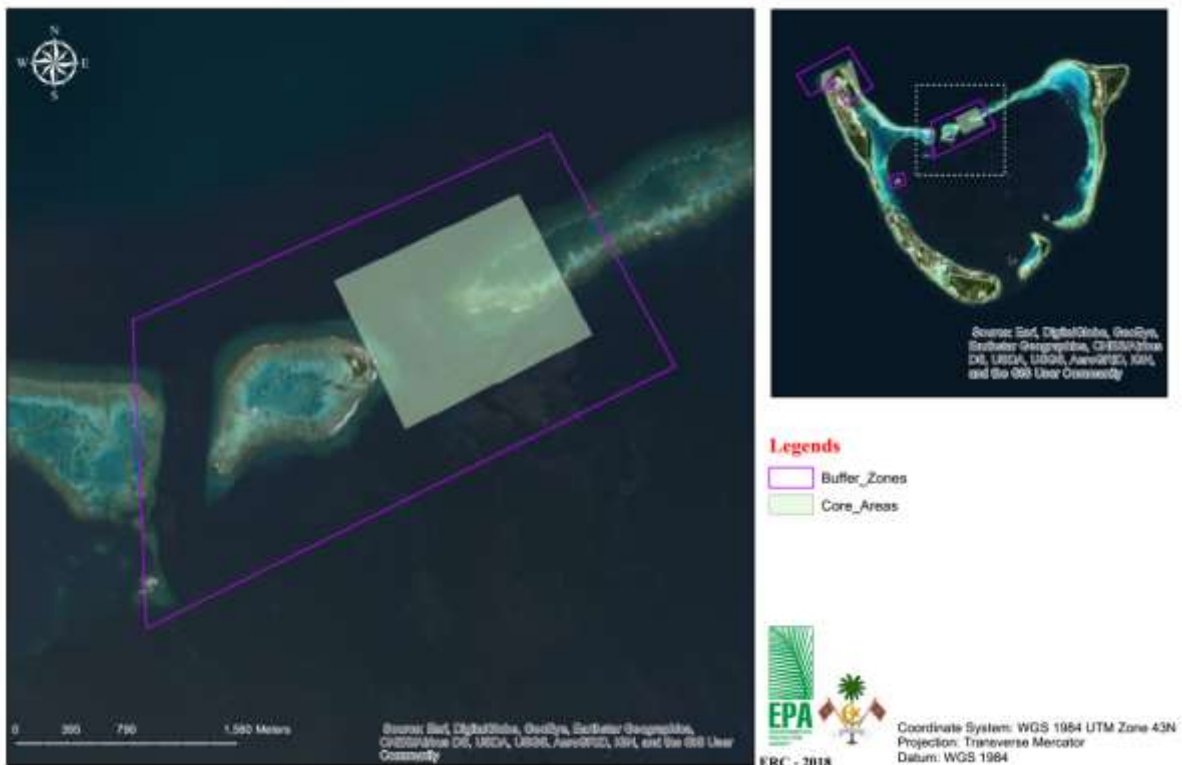
Maps of Protected Areas in the Project Locations

1. Addu

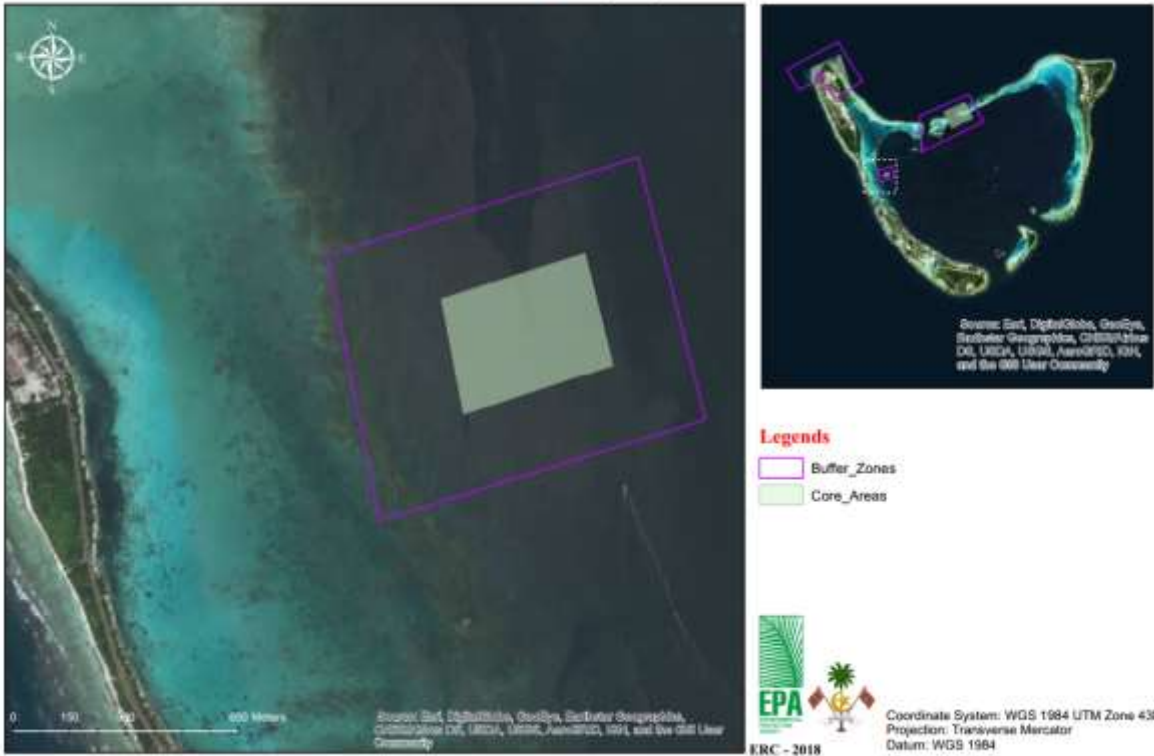
Eydhigali Kilhi and Koathey



Kandihera

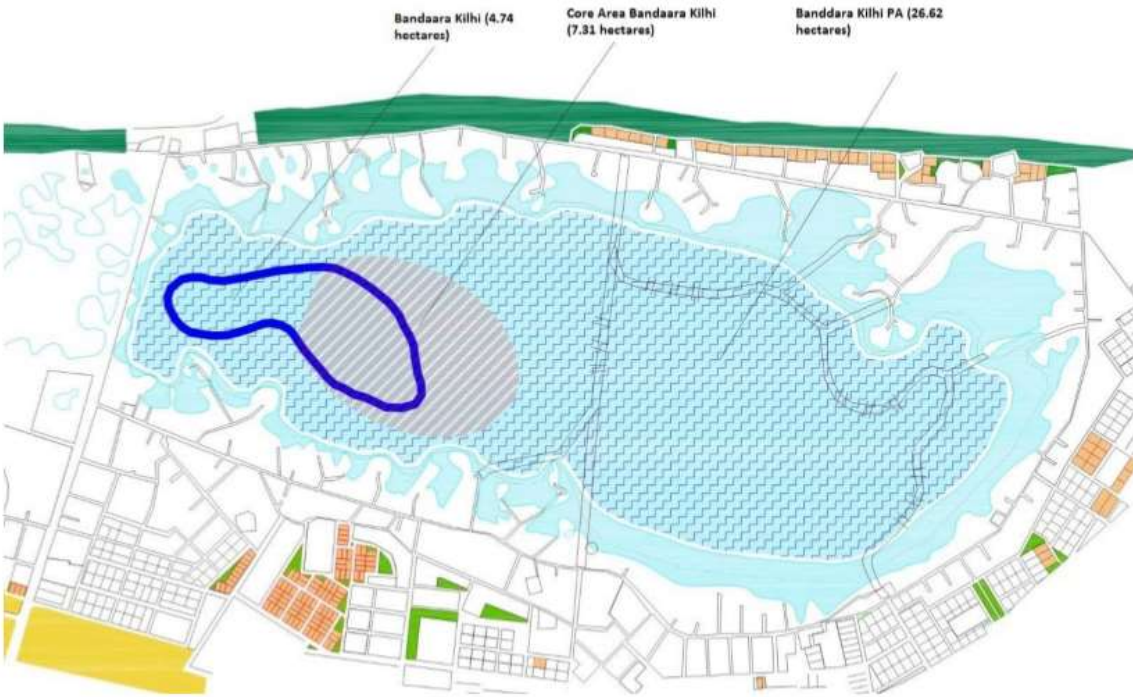


British Loyalty



2. Fuvahmulah

Banddara Kilhi



Dhandimagi Kilhi



Thundi



ANNEX 2: EPA EIA SCREENING FORM AND TRANSLATED VERSION

Ministry of Environment and Energy
 ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި



Environmental Protection Agency
 ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި

ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި

* ސަރުކާރުގެ ބޭނުންކޮށްދޭ ބިމުގެ ފަރާތްތަކުގެ ފަރާތުން ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި
 * ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި

1 ވަނަ ބައި ސަރުކާރުގެ ބޭނުންކޮށްދޭ ބިމުގެ ފަރާތްތަކުގެ ފަރާތުން

..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި
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 (..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި)

..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި
 (..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި)

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..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި
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* ސަރުކާރުގެ ބޭނުންކޮށްދޭ ބިމުގެ ފަރާތްތަކުގެ ފަރާތުން
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 (..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި)

..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި
 (..... ގަވާއިދު 2 ގެ ދަށުން ބަޔާންކޮށްފައިވާ ގޮތުގައި)

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ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި
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 20392 ގައި ބަޔާންކޮށްފައިވާ ގޮތުގައި
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 ފޯމް ނަންބަރު:
 ފޯމް ނަންބަރު:

Email: secretariat@epa.gov.mv
 Website: www.epa.gov.mv

DEVELOPMENT PROPOSAL SCREENING FORM

Form No: _____

(Office Use)

A Development Proposal Screening Decision will be issued after the receipt of this Development Proposal Screening Form.

The form is divided in 2 parts, please complete all parts.

Part 1: Proponents Information

Name of person submitting form:

.....

On behalf of (company, other person, self):

.....

Address:

.....
.....

Telephone Number: ID Card Number:

.....

Fax Number: Date: Year..... Month Day

.....

Email: Signature:

.....

Part 2: Project Description

Project Title:

.....
.....

Type of Development:

.....
..

Location of Project:

.....
.....

Duration of Project:

.....
.....

Government Agencies responsible for Authorization:
.....

.....
.....

Brief description of the project activities not exceeding 3 A4 size papers in chronological order (include information about equipment and machinery to be used):

.....
.....

Details of existing environment of the project location and the changes that will be brought to the environment by the project, not less than 5 A4 size papers:

.....
.....

- Please use additional sheets where appropriate

As the proponent of this project, we hereby declare that to the best of our knowledge the information provided here are accurate and complete.

Name:
.....
.....

Date: Year Month Day

Signature:

ANNEX 3: ENVIRONMENTAL AND SOCIAL SCREENING CHECKLIST

The Screening Report must include a copy of the technical engineering design for the proposed intervention (where available), at least preliminary concept and description of the proposed project activity.

A. Description of Intervention

Project Identification

Project title	
Project Proponent	

Project Location

Location	(Location Map and Site Photographs to be Annexed):
Definition of Project Area <i>(The geographical extent of the project & areas affected during construction)</i>	
Adjacent land and features	

. Project Justification

Need for the project <i>(What problem is the project going to solve)</i>	
---	--

Purpose of the project <i>(what is going to be achieved by carrying out the project)</i>	
Alternatives considered <i>(different ways to meet the project need and achieve the project purpose)</i>	

. Project Description

Proposed start date	
Proposed completion date	
Estimated total cost	
Present land ownership	
Description of the project <i>(with supporting material such as maps, drawings etc attached as required)</i>	
Project Management Team	Agency – Contact person - Nature of consultation and input received

B. Site Description Questionnaire

1. Site Setting and Land use/Ownership

- a) Who is the owner/occupier of the site (refer to land registry/title deed)?
- b) What is the current land use of the site?
- c) When was the site first developed to the current land use?
- d) What is the historical land use of the site prior to the current development of the site?
- e) What is the current land use of the properties surrounding the vicinity of the site and adjacent to the site? (Request for land use plan with planned developments at the island/note land use during site vicinity walk around);

2. Consultations with island council/local communities and civil society organization

- a) What are the main community groups/civil society groups that are active on the island?
- b) Would there be any households that may need to be relocated due to the planned extension/improvement work at the site?
- c) Would there be any loss of agricultural and residual land due to the planned extension/improvement work at the site?
- d) What would be your main concerns during the construction phase at the site (e.g. noise/dust/groundwater impact/waste management/foreign labors etc.)?
- e) Do you have any concerns/views regarding the source of construction material and labour force for the expansion/improvement work?
- f) In your view what would be important environmental and socio-economic issues that needs to be assessed/monitored during the construction phase?
- g) Do you have any concerns regarding the likely increase in number of students and teachers after the site has been upgraded?
- h) What are your needs and aspirations regarding the facility once the extension/improvement work is complete?

Additional information required from island council:

- 1) *Current and projected population;*
- 2) *Number of households (and Empty houses);*
- 3) *Planned development activities;*
- 4) *Present employment by industry;*
- 5) *Income distribution;*
- 6) *Public health status.*

C. Screening for Potential Environmental Impacts in relation to the proposed project intervention

Screening question	Yes	No	Significance of the effect	Remarks

				(Low, moderate, high)	
1	Will construction and operation of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc)				
2	Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?				
3	Will the Project produce solid wastes during construction or operation?				
4	Will the Project release pollutants or any hazardous, toxic or noxious substances to air?				
5	Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?				
6	Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater or coastal waters?				
7	Will the project cause localized flooding and poor drainage during construction? Is the project area located in a flooding location?				
8	Will there be any risks and vulnerabilities to public safety due to physical hazards during construction or operation of the Project?				

9	Are there any transport routes on or around the location which are susceptible to congestion or which cause environmental problems, which could be affected by the project?				
10	Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?				
11	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the project?				
12	Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other water bodies, mountains, forests which could be affected by the project?				
13	Is the location within or adjacent to the coastal zone? If so, what is the distance to the coast?				
14	Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, migration, which could be affected by the project?				
15	Are there mangrove, coral reef, sea grass bed, turtle beach habitats etc within close proximity?				
16	Is the project located in a previously undeveloped area where there will be loss of green-field land				
17	Will the project cause the removal of trees in the locality?				
18	Can any of the identified historic or culturally importance sites on or around the location be affected by the project?				
19	Are there existing land uses on or around the location e.g. homes, gardens, other private property, industry, commerce,				

	recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project?				
20	Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?				
21	Are there any areas on or around the location which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities, which could be affected by the project				
22	Are there any Defence Installations / Airport Routes				
23	Are there any areas on or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project?				
24	Are there any areas on or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?				
25	Will the project involve treatment of Solid Waste, if so indicate the amounts, nature of waste and briefly describe proposed waste management technologies to be implemented on site.				
Specific Screening Questions on Floating Solar					
3	Water body identified for floating solar is lagoon, coastal water way, harbor/jetty area or other, please provide details in the comments of the site				
4	Is the identified water body is used for water supply?				
5	Is the identified water body used for fishing activities?				
6	Is the identified water body used for any other human activity, such as recreation, docking of boats etc?				

7	Will the project activity restrict access to the water body or lead to safety concerns?				
8	Will the establishment of the Solar PV lead to aesthetic issues on site.				
Social Impact Screening					
1	Will the project create significant/ limited/ no social impacts? If so please provide details of what they will be.				
2	Land acquisition resulting in loss of income from agricultural land, plantation or other existing land-use.				
3	Land acquisition resulting in relocation of households.				
4	Cause any reduction of access to traditional and river dependent communities (to river and areas where they earn for their primary or substantial livelihood).				
5	Cause any displacement or adverse impact on tribal settlement(s).				
6	Lead to any specific gender issues.				
7	Will the project create significant / limited / no Social impacts during the construction stage?				
Impacts of Construction					
1	Will the project lead to flooding of adjacent areas				
2	Will it involve the improper storage and handling of substances leading to contamination of soil and water				
3	Will the activity lead to elevated noise and dust emission?				
4	Will project activities lead to disruption to traffic movements				
5	Will project activities lead to damage to existing infrastructure, public utilities, amenities etc.				
6	Possible conflicts with and/or disruption to local community				
7	Will lead to likely damage to existing infrastructure, public utilities, amenities etc.				
8	Are there adequate facilities for storage of construction goods & materials				
9	Will need to establish facilities for storage of any hazardous material				
10	Facilities for long term housing for operational workers				

11	Will the construction works (Permanent & Temporary) lead to alterations of the site				
12	Are facilities for construction workers (temporary labour camp, drinking water, waste disposal, etc.) required during implementation				
13	Are facilities for disposal of solid waste available on the Island- please specify the forms in the comments				
Cumulative Impacts					
1	Cumulative effects due to proximity to other existing or planned projects with similar impacts				

8. Project operating requirements

		Yes	No
24	Does the project belong to a prescribed category of the Environmental Protection Authority for EIA		
25	Does the project need to obtain clearances from agencies such as the EPA, Island Council, Atoll Council etc :		

9. Conclusion and Screening Decision

Summary of environmental effects:

Assuming that all mitigation measures are implemented as proposed, the following effects can be predicted

	N/S - Effect not significant, or can be rendered insignificant with mitigation
	SP - Significant positive effect
	SN - Significant negative effect
	U - Outcome unknown or cannot be predicted, even with mitigation

10. Screening Decision Recommendation (check one):

Environmental assessment is still underway, and not final.

	<p>All potentially adverse effects can be classified as general construction related impacts and are mitigatable with known technology and operational impacts are minimal. Public concern does not warrant further assessment.</p> <p>Therefore, standalone Environmental and Social Assessment not required, an Environmental and Social Management Plan would be required prior to the project proceeding.</p>
	<p>Potential adverse impacts are significant, hence, a standalone Environmental and Social Impact Assessment, including an Environmental and Social Management Plan is needed before the project can proceed</p>
	<p>Potential adverse impacts are significant, hence project cannot be justified</p>

11. Details of Persons Responsible for the Environmental Screening

Screening report completed by

Name/Designation/Contact information Date

Signature

Screening report reviewed by

Name/Designation/Contact information Date

Signature

Approved by

Name/Designation/Contact information Date

Signature

ANNEX 4: GUIDANCE NOTE: ENVIRONMENTAL AND SOCIAL STANDARDS TO BE FOLLOWED DURING THE IMPLEMENTATION OF FLOATING SOLAR PV SUBPROJECTS IN THE MALDIVES

Minimal Acceptable Screening, Management, Implementation and Monitoring Criteria.

1. Introduction

The proposed project looks at piloting Floating Solar PV (FSPV) subprojects in the Maldives via Component 1. As indicative activities there is a plan to invest in a 10 MW FSPV in Addu City in Addu Atoll, focusing on areas close to jetties and other areas where anthropogenic activities are already in existence.

The objective of the sub-projects is to demonstrate the operational and economic feasibility of this innovative solution in particular as the Maldives does face land resource constraints to meeting their renewable power deployment goals, due to the geographic setting of the country. The Republic of the Maldives seeks the support of the project to introduce scalable innovations that help it meet its ever-growing clean energy ambitions.

Practice, as per previous experience in the sector, suggests that on average approximately 1.7-2 hectares of lagoon/marine area is required for each 1 MWp installed. Based on this assumption, the ARISE target of 100 MWp installed generation capacity would cover approximately 17-20 hectares or 0.17-0.20 square kilometers (km²) of lagoon/marine surface area. Currently, the ME is looking at potential sites in the Addu City.

2. Potential Environmental Impacts Associated with FSPV

- a The area of potential impact of a FSPV sub-project will be its footprint and the associated areas of electrical evacuation infrastructure. Environmental impacts associated with the construction and operation of solar PV plants and their mitigation measures are well known. When the sub-project is expected to complement generation output with an existing hydropower plant there may be potential environmental impacts associated with any changes to the hydropower plant's operation, i.e. water levels and associated water flows. These associated impacts and mitigation measures are also well understood in the practice. There may also be well understood risks associated with the upstream construction and operation of evacuation infrastructure.
- b Potential environmental impacts that are somewhat novel to FSPV are their impacts to water quality and aquatic-supported biodiversity. These include but are not limited to:
 - i. Impacts on temperature stratification and on dissolved oxygen levels due to shading of water
 - ii. Impacts on marine/aquatic habitat resulting from shading
 - iii. Impacts on water quality and marine/ aquatic fauna/flora due to leaching from materials
 - iv. Impacts on water quality and marine/ aquatic fauna/flora from accidental release of oils and or lubricants of boats used during maintenance activities or detergents in panel washing
 - v. Impacts on marine/ aquatic habitat as a result of installations in shallower (littoral zone) and benthic zone (bottom of reservoir) due to mooring systems or disturbances from placement/movement of underwater electrical cables (i.e. increased turbidity)
 - vi. Impacts that could occur from exposure to Electro Magnetic Fields (EMF) associated with underwater electrical cables

- vii. Impacts on water feeding and surface diving birds while hunting at the water surface or pursuing fish or foraging underwater.
 - viii. Collision impacts to marine birds
 - ix. Impacts from the creation of waste from decommissioning and replacement of parts.
- c Collision risks associated with the operation of marine vehicles and other users of harbors, jetty's and public beaches.
 - d Aesthetic impacts to scenic coastal areas and vistas.
 - e The probability and scale of any of these impacts are site specific. For example, site characteristics vary widely, including from where harbor areas to other coastal areas and need to be studied specifically during Environmental and Social assessments, .

Note: The ME PMU Environmental and Social Staff are advised be full appraised on the findings and guidance provided via the **Where Sun Meets Water : Floating Solar Handbook for Practitioners**. Through this handbook, the World Bank Group, the Energy Sector Management Assistance Program (ESMAP), and the Solar Energy Research Institute of Singapore (SERIS) hope to contribute to this goal and to disseminate lessons learned from early projects which are useful in sub- project design and implementation

Specific Attention should be made to Chapter 6: Environmental and Social Considerations. This chapter summarizes the environmental and social issues commonly associated with the development, construction, and operational phases of floating solar photovoltaic (FSPV) activities and provides recommendations for their management.

The Document can be downloaded via the following link:

<http://documents.worldbank.org/curated/en/418961572293438109/Where-Sun-Meets-Water-Floating-Solar-Handbook-for-Practitioners>

3. Specific Areas to Be Screened and Used in Environmental and Social Assessment Processes.

The Following measures would be among the list of options to be considered in a comprehensive Environmental and Social Screening and Environment and Social Management Plan (ESMP) for the sub-project, based on the specific environmental and social impacts that have been identified in the Environmental and Social Impact Assessment (ESIA).

- a. Specific Site Selection Criteria Need to be included in Environmental Screening
- b. The siting and location of FSVPs should not be located in the proximity of marine/aquatic protected areas such as lagoons or reefs that are protected. Siting should be at least a minimum of 1Km from designated sites of importance.
- c. Water quality studies of the selected site will be conducted.
- d. Avoiding /minimizing use of motorized boats. Manual operating boats may be used while performing operations & Maintenances activities. Walkways/Platforms may be constructed wherever possible.
- e. Cleaning by using water without detergents or methods of dry cleaning may be explored.
- f. Cable mostly installed on the cable trays above the water surface. Only Mooring arrangement shall be done under water.
- g. The material to be used in the power plant, shall where possible be material that can be recycled or reused.
- h. The site design should include required equipment for fire safety, safety signage and be designated via demarcation structures or fencing.

3.1. Guidance on Screening Criteria and Procedures for FSPV Sub Projects under ARISE

1. The ME shall make a determination of the suitability of the proposed sub-project site on a case by case basis.
2. *While there is over 1 GW of FSPV installations worldwide, studies on environmental impacts of these sites are currently limited, especially in the context of the Maldives. Therefore, environmental screening, must be followed by a site-specific ESIA or a cluster ESIA will be required for each sub-project site and shall be consistent with applicable Environmental and Social Standards of the World Bank's Environmental and Social Framework/ IFC Performance Standards under the ARISE operation (as defined in the ARISE ESMF). The findings of the ESIA and the robustness of recommended mitigation measures will be used as the basis for the suitability of the site.*
3. As the objective of the ARISE operation is to achieve effective demonstration impacts and the limited number of sub-projects envisioned to achieve this objective, ME shall be guided by the following principles in screening potential sites:
 - a. identify and prioritize sites that minimize potential negative environmental and social impacts.
 - b. avoid all legally protected areas whether on land or water. These include various degrees of protection such as Marine or Terrestrial National parks, Biosphere Reserves, Sanctuaries, Conservation Reserves, Community Reserves that are specified in the Maldivian laws governing Protection environmentally sensitive areas.
 - c. avoid areas that are being proposed for such legal designation, where finalization is not yet done.
 - d. avoid areas identified as important areas for conservation using IBAT, a tool that the World Bank Group has internalized for screening of projects for their impact on biodiversity. (Further information on the use of the IBAT tool can be found on <https://ibat-alliance.org/>)
 - e. For locations that meet all the criteria above, the ME would ascertain presence of important marine species – either ask local experts of the Maldives Marine Research Center, Ministry of Fisheries and Agriculture, or fishermen whether any species listed in the IUCN Red List of Threatened Species.
 - f. Follow the ‘do no harm’ principle in assessing site suitability – because experience with FSPV is relatively limited, mitigate potential impacts by aiming to limit the footprint of the sub-project on a specific reservoir where aquatic flora and fauna exist.
 1. Based on this principle, favorable go/no go decisions are more likely if the subproject’s footprint is limited to ten percent of the average surface area of such a proposed area over the last decade.
 2. Subprojects larger than ten percent can be considered on such a provided that the ME can have reasonable assurance that the ESIA consultant would be able to collect sufficient data of satisfactory quality to assess the environmental and social impacts of a larger subproject on such a reservoir.
4. The ME shall prepare a recommendation with a FSPV Site Suitability Report based on its initial screening, including references to supporting documentation, as appropriate, and a proposed Terms of Reference for the scope of the site-specific ESIA (informed by ME inquiries above). ME shall submit it to the Bank for its review and no objection. A Bank no objection on ME’s recommendation is required prior to taking a go/no go decision on ARISE support and subsequent ESIA preparation.

3.2. Guidance on ESIA Preparation and Sub-Project Appraisal

1. The scope of work in the ESIA in addition to assessing impacts on such selected sites, would also analyze the potential measures to minimize, mitigate, compensate identified unavoidable adverse impacts – on water quality, ecology and any other environmental features deemed to be important in the particular context of that waterbody.

2. ME shall be responsible for the hiring of high-quality consultants to conduct the ESIA (and associated preparation of the ESMP or other instruments as may be needed), for quality control and eventually ensuring the ESMP is appropriately implemented following obligations spelled out in the ARISE legal agreements.
3. ME's sub-project appraisal will assess the likelihood and scale of environmental and social impacts and whether the proposed mitigation measures are likely to be effective, there is sufficient capacity to implement them and that they are appropriately resourced.
4. ME's appraisal findings and recommendations will be submitted to the World Bank for its no objection, which would include ME's recommendation for a go/no go decision on investing in the project with partial World Bank Financing prior to contracting.

3.3. Guidance on Implementation and Monitoring

1. Following the ESMF of the ARISE operation the ME shall also monitor safeguards compliance accordingly during implementation.
2. ME shall task its Environmental and Social staff of the PMU to monitor emerging literature and studies on FSPV. New studies may inform future sub-project preparation and development of appropriate ecosystems required to help sustainably scale up FSPV in the Maldives.
3. ME shall also explore opportunities to have its sub-projects participate in long-term studies that aim to fill knowledge gaps on environmental and social impacts, such as partnering with universities, scientific research institutes, etc.

ANNEX 5: STANDARD GUIDANCE ON SAFETY CONSIDERATIONS TO BE INCLUDED IN THE IMPLEMENTATION OF BATTERY ENERGY STORAGE SYSTEM (BESS) SUBPROJECTS AS PER INTERNATIONAL BEST PRACTICE.

1. SAFETY CONSIDERATION FOR BESS

Safety consideration has two aspects. First, which could be included in all projects (e.g. risk analysis and incident preparedness) and second are those that are specific to technology type or application environment and other project specific factors. Safety consideration should be given due consideration during entire span of project from planning to commissioning and until decommissioning; by creating processes and procedures that will ensure a safe life cycle for energy storage deployments.

A. Addressing Safety in Planning

One of the first steps in development of Battery Energy Storage System (BESS) is identifying and quantifying the need for energy storage. When assessing the identified need for services on a given electrical system, consider the environments where an energy storage device could be installed. Factors such as population density, available footprint, local weather, electrical power constraints, proximity to the nearest fire station, and availability of water may be accounted for when evaluating a site. If there are insufficient resources or non-ideal conditions at any one site, multiple sites can be considered for smaller systems with aggregated functionality. Identified needs could include a short list of unacceptable outcomes. Many unacceptable outcomes can be derived from environmental and safety regulations like, events such as arc flash or blast in excess of the available worker PPE, or chemicals spilling into nearby river in excess of EPA regulations. Additional unacceptable outcomes can be derived from the associated level of financial risk or potential for loss of reputation such as in the event of a fire that spreads to nearby structures. Understanding these boundaries helps to contextualize specifications and make safety requirements meaningful.

B. Addressing Safety in Procurement

Along with information about physical dimensions, performance, and cost, a set of requirements to procure and install an energy storage system and then operate that system should also include requirements that ensure that the system is safe and that its operation over time remains safe. The requirements should also address potential safety related incidents and the specific actions that must be taken if they should occur. These specifications afford users an opportunity to mitigate risk and will aid in ensuring that equipment supplied is safe, that the system is effectively commissioned and deemed safe, and that the user can ensure system is continued to be operated safely.

Functions and the associated performance of equipment is captured in two areas that can be referenced for ease in developing specifications.

1. Codes, Standards and Regulations (CSR): Mature CSRs are effective ways of reducing and eliminating risk. Compliance with CSRs is considered evidence of a safe ESS installation.
2. Analysis of Safety: It is used wherever there is gap in the field of applicable CSRs. There are many techniques available for analyzing safety in complex technological systems including Failure Modes and Effects Analysis (FMEA) and Systems Safety Analysis (SSA). When applied correctly, a safety analysis can provide a complete picture of how a devices or system will operate under normal, abnormal, and foreseeable abuse conditions. This information allows project developers and designers to make informed decisions about what safety critical functions.

C. Addressing Safety in Deployment and Integration

Key aspect to ensuring a safe installation is commissioning, which entails verification that the ESS and all associated controls, detection devices, shutoffs, etc. are functional and will operate under all anticipated conditions. Developer and supplier should be asked to provide a defined set of commissioning requirements for review and approving. Commissioning Plan should address following issues.

Documentation of completed Control Assurance Plan (CAP). Verification that safety critical control points are within compliance. CAP should include accuracy and delay compliance thresholds, recorded values, and testing interval. Simulated out-of-range inputs should be used to verify appropriate input or signal sanitization. The CAP should also stipulate data recording requirements and how stale data is handled for each point.

Documentation of completed Measurement Assurance Plan (MAP). Verification that safety critical measurements are within compliance. The MAP should include accuracy and delay compliance thresholds, recorded values, and testing interval. Simulated out-of-range measurements should be used to verify appropriate alarms and warnings before operation. MAP should also stipulate data recording requirements and how stale data is handled for each point.

Internal or External Communication Loss. If there is a loss of safety critical measurement or control, the system should gracefully shut down (e.g. loss of temperature measurement). If measurement or control is not safety critical (As determined in the FMEA and System Safety Analysis) then the system can continue to operate (e.g. loss of connection to off-site data backup).

D. Addressing Safety in Operations and Maintenance

Plans for inspecting, servicing, repair and renovation as well as any addition to the system (e.g. installation of additional storage capacity). Procurement specification should require Energy Storage supplier, developer, or integrator to deliver a complete operation and maintenance manual. This manual should provide instructions for all required operating and maintenance activities, the timing for these activities, and who will perform them. This manual should also include conditions under which the system will have met end of warranty, service life, and operational life.

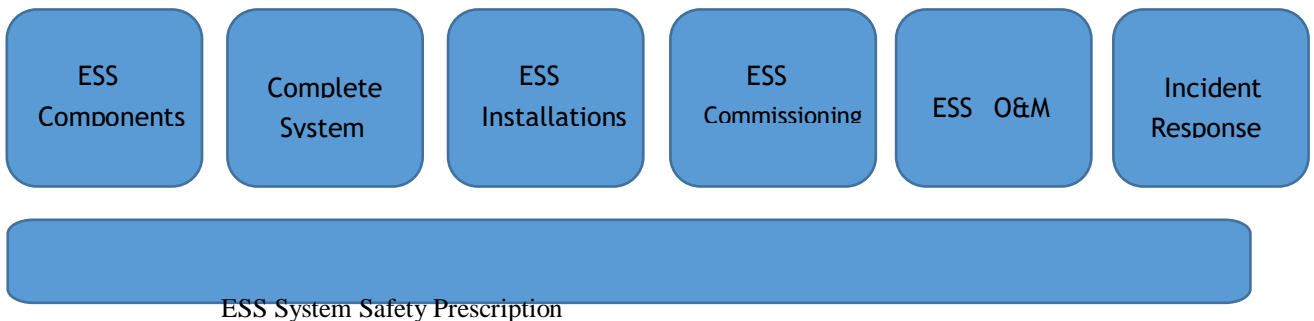
E. Addressing Safety in Decommissioning

After the system has reached the end of its operational life, system has to be decommissioned, disposed of or materials can be recycled. For this reason, it is recommended that the energy storage supplier, developer, or integrator be required to develop a decommissioning and disposal plan. This plan should explain the procedure for decommissioning, including any hazards it may present, as well as the steps to disconnect the system from external automated control systems. It should elaborate who is responsible for disposal and recycling, what costs this will incur, how articles should be packaged for disposal, and who is responsible for shipping the materials to the disposal or recycling site.

2. REFERENCE CODES AND STANDARDS AND REGULATIONS (CSR) FOR BESS

Following CSRs should be considered for the integration of energy storage to the distribution system and when preparing specifications and other documents necessary planning, design, construction, installation, commissioning, operations, maintenance and decommissioning of ESS. Additionally, these documents should be considered for providing for safety of personnel and property during these activities and responding to incidents that may occur that are attributable to or could affect the system.

Partial potential CSR sources for applicability are shown in figure below



A. Energy Storage System (Individual Components)

Safety criteria for ESS components (e.g., battery, inverter, controls, etc.) are intended to ensure the design and construction of each individual component meets the relevant safety-related metrics. The supplier of each component should design and construct the respective component to the standard and subject it to whatever testing is required by the relevant standard for that component. If the component satisfied the provisions of the standard and related testing criteria, then the individual component should be considered in compliance with the standard. Standards covering ESS components are of primary relevance to component manufacturers in deploying the component and to developers in specifying and procuring safe components. Manufacturers of complete ESS “products” or those that assemble an ESS on site from various components would benefit when using components that comply with relevant standards. Standards for Energy Storage System Components are listed in

Standards for ESS Components (Source: Electric Power Research Institute (EPRI))

Energy Storage System Components	Standard
Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures	UL 489
Electrochemical Capacitors	UL 810A
Lithium Batteries	UL 1642
Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources	UL 1741
Batteries for Use in Stationary Applications	UL 1973

B. Energy Storage System (Integrated Components)

Considering ESS as an assembly of components, a standard for a complete ESS “product” is likely to refer to various components and component standards. The complete ESS standard then simply ties together lower level requirements with industry best practices for safe system design. One approach these standards take is to specify that the components meet relevant component standards and specify documentation as to the acceptability of their combination as a safe ESS. Another is to consider the

ESS “product” as a black box and evaluate the entire ESS against a holistic standard. If the ESS “product” satisfies the provisions of the standard and related testing criteria and metrics, then the components of the ESS is considered in compliance with the standard. A standard for the product would provide both prescriptive design and construction requirements as well as testing requirements for specific issues with certain allowable limits.

Those issues would include but not be limited to:

- Documentation of thermal management system adequacy
- Documentation of thermal abuse limits
- Documentation of adequate enforcement of thermal limits (including below freezing)
- Documentation of electrical shock and arc flash hazards, required clearances, etc.
- Documentation of electrical abuse limits
- Documentation of adequate enforcement of electrical limits
- Documentation of mechanical abuse limits (vibration, and shock)
- Documentation of adequate enforcement of mechanical limits
- Thermal run-away propagation prevention adequacy
-

A complete system standard will document the safety of the ESS as a delivered product and its intended uses. Third-party certification programs inspect the initial design and ongoing production of the ESS to ensure compliance is both established and maintained. In addition, certification programs would review and assess the administrative and quality control aspects associated with the manufacturer of safety critical components. A system standard will reference and impose the requirements of applicable component standards. This will help the customer determine whether the operational environment imposed by the system is consistent with predictable and safe component behaviour.

Standards for ESS Types (Source: EPRI)

Energy Storage System Type	Standard
Stationary Energy Storage Systems with Lithium Batteries – Safety Requirements (under development)	IEC 62897
Recommended Practice and Requirements for Harmonic Control in Electric Power Systems	IEEE 519
Recommended Practice and Procedures for Unlabeled Electrical Equipment Evaluation	NFPA 791-2014

C. Installation

The installation of an ESS, as pre-packaged equipment, a matched set of components, or a mix-matched assembly of components involves two key topical areas: procedures and physical requirements. Procedures cover worker safety, transportation, handling, and functions associated with the act of installing the ESS and its component parts. Physical requirements cover the safety of the final installation in terms of the surrounding environment, buildings, and other systems, electrical protection, access, egress and other safety-related issues. Below Standards for ESS Installation lists standards for Energy Storage Project Design, Deployment and Operations.

Standards for ESS Installation (Source: EPRI)

Energy Storage System Installation	Standard
Transportation Testing for Lithium Batteries	UN 38.3
Safety of primary and secondary lithium cells and batteries during transport.	IEC 62281
Shipping, receiving and delivery of ESS and associated components and all materials, systems, products, etc. associated with the ESS installation.	DOT Regulations

Competency of Third Party Field Evaluation Bodies	NFPA 790
Fire and smoke detection	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Fire suppression	NFPA 1, NFPA 13, NFPA 15, NFPA 101, NFPA 850, NFPA 851, NFPA 853, NFPA 5000, IBC, IFC, state and local codes
Fire and smoke containment	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Fire alarm	NFPA 72
Protection of Electronic Computer/Data Processing Equipment	NFPA 75
Clean Agent Fire Extinguishing Systems	NFPA 2001
Ventilation, exhaust, thermal management and mitigation of the generation of hydrogen or other hazardous or combustible gases or fluids	NFPA 1, IEEE/ASHRAE 1635, IMC, UMC, state and local codes
Egress (operating and emergency)	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Access (operating and emergency)	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Working space	OSHA 29 CFR 1910.305(j)(7) and OSHA 29 CFR 1926.441 (if applicable), NFPA 70E, Article 320
Physical security	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Illumination (operating and emergency)	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Fire department access	NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes

Anchoring and seismic protection	NFPA 5000, IBC, state and local codes
Buildings, enclosures and protection from the elements	IEC 60529, UL 96A, NFPA 5000, IBC, state and local codes
Signage	ANSI Z535, IEEE C-2, NFPA 1, NFPA 70E, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Emergency shutoff	IEEE C-2, NFPA 1, NFPA 101, NFPA 5000, IBC, IFC, state and local codes
Spill containment, neutralizing and disposal	NFPA 1, IPC, UPC, IFC, IEEE1578, state and local codes
Electrical safety	IEEE C-2 (National Electrical Safety Code), NFPA 70E, FM Global DS 5- 10, DS 5-1, DC 5-19
Communications networks and management systems	IEC 61850, DNP3, Modbus
Seismic Requirements, Design, and Testing	IBC (International Building Code), IEEE 693, ACI 318-05, ACSE 7-10

D. Commissioning

The commissioning of an ESS occurs after installation and inspection to ensure it operationally complies with the applicable codes, standards, rules, and regulations in addition to any contractual obligations for performance of the ESS (e.g., efficiency, delivered power, availability, life, etc.). Essentially, commissioning ensures that the system operates as expected.

Commissioning plan can be developed along the lines of Standards given in Table below Standards for ESS Commissioning (Source: EPRI)

Energy Storage System Commissioning	Standard
Recommended Practice for Commissioning of Fire Protection and Life Safety Systems	NFPA 3
Building and Systems Commissioning	ICC 1000

E. Operations and Maintenance

The operations and maintenance of an ESS involves two key topical areas: qualification of operators, and the operations and maintenance (O&M) manual. Qualification of operators involves training and certification associated with those personnel who will be working with the ESS. The O&M manual dictates the processes and technical requirements for working on ESS during operation as well as the schedule and instructions for maintenance.

The energy storage supplier and developers may consider re-commissioning the system on a regular basis to verify the safe operation, control, and shutdown of the system under normal and incident response situations. In order to ensure efficient operation, the customer may consider requiring that the energy storage provider develop a qualification program to train operation and maintenance personnel. Standards for ESS O&M lists down Standards for operations and Maintenance.

Standards for ESS O&M (Source: EPRI)

Energy Storage System Operations & Maintenance	Standard
Hazardous materials storage, handling and use	NFPA 400
Standard on Maintenance of Electrical Equipment	NFPA 70B

F. Incident Preparedness

The ability to respond to an incident associated with an ESS involves two key topical areas: procedures, and automated systems. Standards for Incident Preparedness lists down standards ensuring the competency of those personnel doing response and then those standards and related documents associated with facilitating the response activity itself.

Standards for Incident Preparedness (Source: EPRI)

Incident Preparedness	Standard
Standard for Technical Rescuer Professional Qualifications	NFPA 1006
Standard for Fire Fighter Professional Qualifications	NFPA 1001
Standard for Fire Department Occupational Safety	NFPA 1500
Standard System for the Identification of the Hazards of Materials for Emergency Response	NFPA 704
Guide for Substation Fire Protection	IEEE 979
Fire Fighting	Emergency Planning and Community Right-to-Know Act (EPCRA)
Fire and Explosion Investigations	NPFA 921
Fire Safety Concepts Tree	NFPA 550

ANNEX 6: ENVIRONMENTAL AND SOCIAL CLEARANCE PROCEDURE WITH THE EPA

It is recommended that each proponents/investor go through the environmental clearance process for their subprojects. All the planned installations that fall under a sub-project can be lumped together as a single project.

The following process follows the EIA regulations issued by EPA in 2012.

- | Step | Environmental Clearance Procedure for the major subprojects. |
|-------------|--|
| 1 | The Proponent prepares a Development Project Screening form and Submit to EPA. |
| 2 | EPA will complete the process and inform the proponent either to: (i) undertake the preliminary Environmental assessment or (ii) to prepare an Environment Management Plan. |
| 3 | If a preliminary Environment Assessment is required, the Proponent will prepare the report and submit to EPA for further appraisal.
If an ESMP is required, follow Step 5. |
| 4 | EPA will issue a decision on the Environment Assessment and request to either: (i) prepare an ESMP or; (ii) and Environment and Social Impact Assessment.
For an ESMP, follow Step 5; and for an ESIA, follow Step 7 |
| 5 | Proponent will prepare an ESMP and submit to EPA for approval. |
| 6 | EPA will evaluate the ESMP and issue an approval. No further approvals are required after an ESMP approval is granted. |
| 7 | Proponent will prepare and submit an EIA report. |
| 8 | EPA will evaluate and either: (i) request additional information or; (ii) issue a Decision Note. If a Decision Note is issued, no further approvals are required. If additional information is required, follow Step 9. |
| 9 | Proponent will prepare the additional information and submit to EPA. |
| 10 | If the additional information is adequate, EPA will issue a Decision Note. If inadequate additional requests can be made and Step 9 will need to be followed.
EPA reserved the right to reject a project if there are significant environmental impacts that cannot be substantially mitigated. This situation is very unlikely for the ARISE projects, given its low impacts. |

Note: All the application forms are available from EPA website: www.epa.gov.mv.

ANNEX 7: TYPICAL STRUCTURE OF AN ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

The Environmental and Social Impact Assessment (ESIA) Report would cover the following sections and is based on the EIA regulations 2012.

Cover Page:

Should contain the project title, location(s), consultant names, proponent names and date

Executive Summary:

Should be prepared in local language or if the report is in English, in both Dhivehi and English.

Introduction:

A summary of information relating to the proponent, contractors, costing and terms of reference.

Project description:

A brief description of the project including its rationale, objectives, main components, activities, work plan, project management arrangements, inputs (such as solar panels, inverters, water for panel washing) and expected output (including solar panel decommissioning waste).

Analysis of Alternatives:

This section would address alternatives for the proposed action, which would include the "no project" alternative as well as other alternatives considered before selecting the proposed action. These may include alternative sites and solar panel types.

Legal and regulatory considerations:

A summary of the pertinent legislation, regulations and standards, and environmental policies that are relevant and applicable to the proposed subproject, and identify the appropriate authority jurisdictions that will specifically apply to the project. Include permits, approvals and agreements (including roof-lease agreement, if available) in the EIA document.

Description of the environment:

A summary of existing conditions around the site, including any vegetation cover present, adjoining building and how their windows are arranged. An assessment of social conditions in the proposed facility and surrounding buildings may be required.

Potential Impacts:

This section would identify potential environmental impacts that may arise as a result of the proposed project. All cumulative effects will be considered – positive and negative, direct and indirect, long term and short term. A stronger focus should be on social impact assessment, particularly surrounding buildings and social equity issues.

Mitigation Measures:

This section would include a detailed explanation of how the potential environmental impacts identified above could be mitigated.

Monitoring Plan:

This section should include a long term plan for monitoring to ensure that there no adverse impacts due to the project.

Environmental Management Plan:

Considering the nature of the sub-projects, it is unlikely that any major or irreversible environmental impacts will be encountered. Therefore, the most important section of the EIA would be the section on Environmental Management Plans (ESMPs). Prediction of potential adverse environmental and social impacts arising from project activities will be at the core of the environmental impact assessment process. By following the procedure described in this document and the EIA Regulations 2012, the environmental assessments to be conducted under the Project will be able to identify environmental and social impacts as a result of implementing the sub-projects. While impact identification is important, an equally essential element of this process is to develop measures to eliminate, offset or reduce impacts to acceptable levels during implementation and operation of the projects.

The integration of such measures into project implementation and operation is supported by clearly defining the environmental requirements within a ESMP. ESMPs provide an essential link between the impacts predicted and mitigation measures specified within the EIA and implementation and operation activities. The plan outlines the anticipated environmental impacts, the mitigation measures to minimize these impacts, responsibilities for mitigation, timescales, costs of mitigation and sources of funding.

The EHCED subprojects are classified as Category B Projects. World Bank guidelines state that detailed ESMP's are essential for Category A projects, but for many Category B projects, a simple ESMP may suffice. The ESMP will address the following aspects:

- Summary of impacts
- Description of Mitigation Measures
- Description of Monitoring Programs
- Institutional Arrangements/responsibilities
- Implementation Schedule and Reporting Procedures
- Cost estimates and sources of funds

ANNEX 8: GENERIC TERMS OF REFERENCE FOR ENVIRONMENTAL AND SOCIAL ASSESSMENT FOR SOLAR PV INSTALLATION PROJECTS

Note: The following generic Terms of Reference provide guidance on the essential elements to be included when developing a sub-project specific Terms of Reference which is in line with project safeguards requirements and guidance provided by the project Environmental and Social Management Framework.

Background Information and Introduction to the Project.

This section will provide pertinent background for potential parties who may conduct the environmental assessment, whether they are consultants or government agencies. The section will include a brief description of the major components of the proposed project, a statement of the need for it and the objectives it is intended to meet, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects. If there are other projects in progress or planned within the region which may compete for the same resources, identify them within this section.

Objective

To assess the existing status of environment in the study area and its vicinity (10 kms radius) and to identify threats and issues which have potential to adversely impact important environmental and social features of the project influence area.

Carry out environmental and social analysis of project area and potential activities envisaged under the project.

Analyze various options available in the site layout and arrangements for ancillary facilities like water supply, drainage, access, etc. to minimize adverse impacts and enhance positive impacts, where feasible

Identification of the project affected families; assessment of loss of livelihood / property resources for people living within the proposed site and in its immediate vicinity through primary surveys / consultations

Prepare a site specific environmental and social assessment report by documenting environmental features of the project area, socio-economic and cultural status of community in and around the probable project site. This assessment should also include considerations of safety – both for the workers in the site and related facilities, as well as of nearby residents, especially those that live close to ancillary facilities like borrow areas, for instance.

To identify the environmental and social issues associated with implementation of concentrated solar power project / solar farm and develop environmental codes of practices for common activities like site preparation, installation of panels, management of waste, occupational health and safety, etc. and social exclusion list that need to be followed during various stages such as planning, construction and operation & maintenance.

To undertake consultations with potentially affected people to understand their views, obtain their input regarding environmental and social issues, and to take these into account during the preparation of the management framework and plans that would be executed before the developers start working on the site.

To prepare an Environment and Social Management Plan (ESMP) that will outline actions that will be required during project implementation and operation from an environmental, health and safety, as well as social perspective to mitigate envisioned impacts.

Scope of the ESIA

The Environmental and Social Impact Assessment (ESIA) study (and the report) will specifically cover the following:

Executive Summary

This section shall present in a non-technical language a concise summary of the ESIA Report with a particular attention on the processes and procedures used; baseline conditions; the alternatives considered;

mitigation/enhancement measures; monitoring program; consultations with stakeholders; capabilities of environmental and social units and actions to strengthen those capacities; and cost implications. This Executive Summary shall be written in English and Arabic language for public consultations.

Introduction

The Introduction shall indicate the purpose of the ESIA, present an overview of the proposed project to be assessed, as well as the project's purpose and needs. This section identifies the project sponsor and the consultant assigned to carry out the ESIA. It shall also briefly mention the contents of the ESIA Report and the methods adopted to complete the assessment.

Chapter 1. Policy, Legislative, Regulatory and Administrative Considerations

This chapter will describe the pertinent policies, legal, administrative, regulations and standards governing environmental quality, health and safety, protection of sensitive areas, protection of endangered species, siting, land use control, etc., at international, national, regional and local levels.

This chapter will also include an assessment of the World Bank Safeguard Operational Policies, identifying which of these should be triggered. The results should be presented in a tabular format, showing each of the ten policies, status of triggering, and rationale for triggering or not. Details on the triggering of the safeguard policies are available in World Bank's Guidebooks.

Chapter 2. Analysis of Alternatives to the Proposed Project

This section will describe alternatives that were examined in the course of developing the proposed project and identify other alternatives which would achieve the same objectives, including the "without project option". The concept of alternatives extends to siting, design, technology selection, construction techniques and phasing, and operating and maintenance procedures. It will compare alternatives in terms of potential environmental impacts and suitability under local conditions.

On the alternatives part, in other words, the analysis should include an analysis of reasonable alternatives to meet the ultimate objectives of the power plant. Such alternatives should include, e.g., alternative ways of meeting the electricity demand including the "no action" alternative, alternative technologies, alternative fuels, alternative heat rejection systems, alternative water supply/intake, engineering and pollution control equipment alternatives, alternative sites, etc.

For each of the alternatives, the environmental and social impacts shall be quantified as possible, including their economic values where feasible. The selected alternative shall be the most environmentally and socially sustainable, taking into account the technical and economic feasibility.

Chapter 3. Description of the Proposed Project and Justification

This chapter will provide a brief description of the relevant parts of the project, using maps (at appropriate scale) where necessary, and including the following information: location; general layout; size, capacity, etc.; pre-construction activities; construction activities; schedule; staffing and support; facilities and services; operation and maintenance activities; required off-site facilities; and life span.

This section should include following-

Specify the project's physical "footprint", i.e. the surface area (ha or m²) and map locations of land to be cleared for the wind turbines, transmission lines, access road, and any other project facilities.

The ESIA should also indicate whether any project facilities are proposed in close proximity to sensitive receptors, such as existing or officially proposed protected areas, buffer zones of protected areas, schools, religious institutions, hospitals etc.

Descriptions of all ancillary facilities, such as power stations, power lines, storage facilities, access roads etc. The EA needs to be conducted for all facilities.

The ESIA should indicate the specific locations of (if already known) and approximate surface area of all complementary facilities needed for project construction, such as construction camps, storage yards, parking lots, borrow pits, and waste disposal sites. If the locations of some complementary facilities will be at the discretion of the construction contractor.

The ESIA should indicate whether any significant archaeological, paleontological, or historical items are known from the sites proposed for the wind farm and all complementary facilities. If such cultural property is encountered as part of the ESIA, it should be protected or salvaged (as needed) as part of the project, in accordance with national regulations and policies on physical cultural resources.

This section shall determine and characterize the anticipated liquid, solid and gaseous discharges from the processes, as well as the sources of nuisance such as noise, odors, visual nuisances, etc. It shall indicate the need for any resettlement plan or vulnerable group's development plan. It shall at least include a map showing the project location and area of influence.

The project justification should be based on combined economic, environmental and social assessments. To this end, this chapter shall describe the current situation in the sector, explain the problems or the needs to be satisfied by the project and present the constraints associated with the project implementation.

Chapter 4. Description of the Project Environment and Social Context

This chapter will evaluate and present baseline data on the relevant environmental characteristics of the study area. It will include information on any changes anticipated before the project commences.

Physical environment: geology; topography; soils; climate and meteorology; ambient air quality; surface and groundwater hydrology; existing sources of air emissions; existing water pollution discharges; and receiving water quality.

Biological environment: flora; fauna; rare or endangered species; sensitive habitats, including parks or preserves, significant natural sites, etc.; species of commercial importance; and species with potential to become nuisances, vectors or dangerous.

Socio-cultural environment (include both present and projected where appropriate): population; land use; planned development activities; community structure; employment; distribution of income, goods and services; recreation; public health; cultural prosperities; tribal peoples; and customs, aspirations and attitudes.

The analysis will be relevant and commensurate with the project.

The data generated via the baseline evaluation with regard to the nature of the project should specifically focus on issues related to the following;

Water- its quality, availability and adequacy vis-à-vis the requirements during different phases of the project life cycle

- Land and physical environment
- Physiographic characteristics
- Land, access requirements, land use, and involuntary resettlement
- Private land acquisition (if any) and impact on livelihood
- Ecology or biodiversity
- Socio-economic information and profile outlining the results of the social impact assessment, census and socio-economic surveys, with information on vulnerability, gender, indigenous peoples, labor, etc.
- Project design interventions including power evacuation
- Physical or cultural heritage (if any)
- Flooding and seismic risk
- Hazardous and domestic waste management, etc.

Review of the land take/lease process to assess any legacy or current/existing issues (like informal settlers, livelihood dependence, other usage etc) on the allotted land. It will also look at current and proposed development activities within the project's area of influence, including those not directly connected to the project

Chapter 5. Potential Impacts of the Proposed Project

This chapter will distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts during construction and operation phases indicating their importance level and their probability of occurrence. It will identify impacts which are unavoidable or irreversible. Wherever possible, it will describe impacts quantitatively. Cumulative effects shall also be addressed taking into account other projects or actions planned in the study area. This shall include the social – economic impact assessment.

Social issues, in particular questions such as whether the project site is located on territories inhabited by indigenous peoples and if the project leads to involuntary resettlement need to be included, will be addressed.

Chapter 6. Environmental and Social Management Plan (ESMP)

This chapter will provide details on the management initiatives and on the measures to be implemented during both the construction and operational phases of the project. Assessing the Social and Environmental impacts (both positive and negative) of solar energy project, with potential assessment of cumulative impacts (linked to development or other solar projects and the overall park), if relevant and as appropriate. Identify mitigation measures and any residual negative impacts that cannot be mitigated. Also evaluate impacts and risks from associated facilities and other third party activities. The mitigation measures shall be presented in the form of Environmental and Social Management Plan (ESMP)

The ESMP will have three main components:

Environmental and Social Mitigation Measures

This section will list the potential impacts and will propose the necessary mitigation measures. Also presented will be the roles and responsibilities for implementation and for supervision, monitoring measures to ensure implementation, and cost estimates. Such mitigation measures will be presented for both the construction and operation phases of the project and applies to all ancillary and complimentary facilities as well.

The ESIA should identify appropriate environmental restrictions in site selection (avoiding sensitive areas) and facility design (minimizing the disturbed area, post-construction restoration, etc).

The ESIA should provide (i) simple Chance Find Procedures, in case previously unknown cultural property is uncovered during project construction and (ii) good behavior rules for contractors and construction workers to help ensure that significant cultural property is not damaged or stolen.

Monitoring Program

This section will prepare a detailed plan to monitor the implementation of mitigating measures and continuously monitor the impacts of the project during construction and operation. Details on the parameters to be monitored, monitoring locations, and frequency will be provided; as well as the roles and responsibilities for implementation and supervision, and cost estimate.

The standards, guidelines or targets for performance measurement for the monitoring program should be specified as well. This may include social economic measurements in cases where re-settlement is required. Performance standards are typically based on national legislation and the guidelines contained in the World Bank Group's Environmental Health and Safety Guidelines for the Sector and the General Guidelines.

Institutional Arrangements

This section will review the authority and capability of institutions at local, regional, and national levels and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental and social assessment can be implemented. This may include hiring of staff, training and capacity building programs, and hiring of consultants. The costs and sources of funds for the proposed measures and any training requirements for capacity building in the field of environmental and social safeguards should be specified.

It is expected that the consultant will present the environmental and social management plan in a tabular format similar to the following:

A. Mitigation

Project Activity	Potential Environmental Impacts	Proposed Mitigation Measures	Institutional Responsibilities (Implementation AND Supervision)	Cost Estimates	Comments (e.g. secondary impacts)
Pre-Construction Phase					
Construction Phase					
Operation and Maintenance Phase					

B. Monitoring

Proposed Mitigation Measure	Parameters to be monitored	Location	Measurements (Incl. methods & equipment)	Frequency of Measurement	Responsibilities (Incl. review and reporting)	Cost (equipment & individuals)
Pre-Construction Phase						
Construction Phase						
O&M Phase						

C. Institutional Strengthening and Training for Implementation

Institutional Strengthening Activity	Position(s)	Scheduling	Responsibilities	Cost Estimates	
Training Activity	Participants	Types of Training	Content (modules, etc.)	Scheduling	Cost Estimates

--	--	--	--	--	--

Chapter 7. Inter-Agency Coordination and Public/NGO Participation

This chapter shall summarize the actions undertaken to consult the groups affected by the project, as well as other concerned key stakeholders including Civil Society Organizations. This will describe the process that will result in coordinating the environmental and social impact assessment with other government agencies, obtaining the views of local NGOs and affected groups. The detailed record of the consultation meetings shall be presented in annex to the ESIA Report. The first consultation will be a scoping session that will help address particular subjects of interest to the concerned public. Every effort should be taken to include broad representation from all economic and social sectors, especially the potentially marginalized groups such as women, lower socioeconomic standard, etc

Consultations with the people in the project area and others that may be affected is an essential part of the ESIA and should be documented in the report.

Chapter 8. Safety Measures during Operation

The analysis will include a review the existing codes of practice and procedure used nationally and check for their consistency with the World Bank guidelines and internationally recognized codes of practices for similar projects. The consultant will also propose measures to bridge gaps with the existing codes applied in Egypt. The consultant will therefore carry out a Quantitative Risk Assessment (QRA) study to:

Identify safety procedures based on

- a) existing practices and standards and
- b) Additional recommendation.

Conduct a risk assessment for the project to assess the probability and consequence of incidents.

Describe the preventive measures and actions to be taken in the event of a safety problem and the associated health risks.

The analysis will explicitly consider the mitigation measures that either exist or are considered necessary including the effect of these measures on the project and the associated environmental and social benefits. Environmental mitigation plans will also be discussed in terms of the requirements for implementation including procedures and staff.

Chapter 9. Conclusion

This chapter shall specify the environmental and social acceptability of the project, taking into account the impacts and measures identified during the assessment process. It shall also identify any other conditions or external requirements for ensuring the success of the project.

Annexes

- Maps of Project area and photographs documenting existing conditions on site.
- Project design documents and drawings
- List of the professionals and organizations having contributed to the preparation of the
- ESIA Report
- A copy of the Final Terms of Reference of the Study
- List of consulted documents, including project-related reports
- Baseline data referred to in the Report
- Record of consultation meetings with primary and secondary stakeholders.

LICENSE AGREEMENT

FOR THE INSTALLATION OF SOLAR PANELS

BETWEEN

(“LICENSOR”)

– AND –

(“LICENSEE”)

AGREEMENT NUMBER:

DATE:

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LICENSE AGREEMENT

This License Agreement (“Agreement”) is made and entered into as of the [Day] [month] [year] by and between:

[Insert name of the Licensor], a [Department/Ministry/Company] under the Government of Maldives with its offices at [Insert address of the registered office of the Licensor] (“Licensor”); and

[●], a [limited liability company/ partnership firm] organized and existing under the laws of [●], with its principal office located at [●] (“Licensee”).

WHEREAS:

The Government (as defined in the PPA), with support from the [●], has initiated a program called Accelerating Sustainable Private Investment in Renewable Energy (ASPIRE) for inviting private sector generators to develop solar PV (as defined in the PPA) projects in Maldives on a DBFOOT (i.e. design, build, finance, own, operate and transfer) basis. The electrical energy generated from such projects is proposed to be purchased by a Government owned utility under a long term power purchase agreement.

The Government had invited bids from interested independent power producers, *vide* RFP (as defined in the PPA) dated [●] for setting up solar power projects on the locations identified and procured by the Government in the RFP.

The Licensee had submitted a Proposal (as defined in the PPA) in response to the RFP, and has been selected by the Government *vide* Letter of Acceptance, dated [●] to develop a solar PV power project. Accordingly, the Licensee desires to construct, own and operate grid connected solar PV electric generating facilities situated at the Location with a total electric capacity equal to [●].

[●] (as defined in the PPA) is the identified state utility under the ASPIRE (as defined in the PPA) programme for purchase of the Electric Energy (as defined in the PPA) generated by the Licensee.

The Licensee has entered into a Power Purchase Agreement, dated [●] (“PPA”) with [●] to set forth the mechanism for sale and purchase of the Electric Energy generated by the Licensee and other mutual rights and the obligations of the Licensee and [●].

Government also proposes to support the Project, the details of which have been detailed in the Implementation Agreement (as defined in the PPA), setting forth mutual rights and obligations of the Licensee and the Government, executed between the Licensee and the Maldives.

In order to support the Project, the Government had identified in the RFP locations from [●].

The Licensee was the successful bidder, and the locations (together with adequate space for setting up a control room for the Instant Facility (as defined herein below)), the description of which is detailed in Exhibit A (“Site(s)”).

The Licensee has agreed to enter in to this Agreement with the Licensor for the purpose of developing the Project at the respective Site(s) as set out in Exhibit A, subject to and in accordance with the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants of each Party to the other contained in this Agreement and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties agree as follows:

ARTICLE 1

DEFINITIONS AND INTERPRETATIONS

1.1 Definitions

In this Agreement, unless the context otherwise requires, any term defined in Article 1.1 of the PPA but not defined herein shall have throughout this Agreement the meaning set forth against that term in the PPA, and the following terms shall have the meanings set forth below:

“**Access Rights**” has the meaning set forth in Article 6.6 hereof.

“**Agreement**” has the meaning set forth in the Preamble hereof.

“**Airport**” means Velana International Airport situated at Hulhulé island, located at Latitude 4° 10' 60 N Longitude 73° 31' 60 E, in the North Malé Atoll of the Republic of Maldives, comprising all land, runways, taxiways, aprons, terminals, buildings and other structures.

“**Applicable Law**” means any and all central, state, or local statutes, laws, municipal charter provisions, regulations, ordinances, rules, mandates, judgements, orders, decrees, Permits and Approvals, codes or license requirements, or other governmental requirements or restrictions or any interpretation or administration of any of the foregoing by any Governmental Authority, that apply to either Party under this Agreement, whether now or hereafter in effect.

“**Defect**” has the meaning set forth in Article 5.5 hereof.

“**Dispute Notice**” has the meaning set forth in Article 13.2 hereof.

“**Dispute**” has the meaning set forth in Article 13.2 hereof.

“**Emergency**” has the meaning set forth in Article 8.2 hereof.

“**Execution Date**” means the date of signing this Agreement.

“**Expert**” has the meaning set forth in Article 13.3 hereof.

“**Fee**” has the meaning set forth in Article 4.1 hereof.

“**Implementation Agreement**” has the meaning set forth in Recital F hereof.

“**Instant Facility**” means the solar PV systems, inverters, and related equipment, systems, components, fixtures, and facilities sharing a common point of interconnection with [●]'s Electric System, Licensee's Interconnection Facilities relating thereto, the canopy structure on top of which the solar panels shall be fixed and other assets, tangible and intangible, that comprise the Facility as set up on the Site(s).

“**Indemnified Party**” has the meaning set forth in Article 10 hereof.

“**Indemnifying Party**” has the meaning set forth in Article 10 hereof.

“**License**” means the license issued to the Licensee by the Licensor to design, build, maintain and operate the Instant Facility at the Site(s) in accordance with the terms and conditions of this Agreement.

“**License Term**” has the meaning set forth in Article 2 hereof.

“**Licensee**” has the meaning set forth in the Preamble hereof.

“**Licensee’s Interconnection Facilities**” has the meaning ascribed to the term “Seller’s Interconnection Facilities” in Article 1.1 of the PPA.

“**Licensor**” has the meaning set forth in the Preamble hereof.

“**MEA**” means the Maldives Energy Authority.

“**ME**” mean the Ministry of Environment of the Government of the Republic of Maldives.

“**PPA**” has the meaning set forth in Recital E hereof.

“**Possession Date**” has the meaning set forth in Article 3 hereof.

“**Reference Rate**” mean the rate notified by the Maldives Monetary Authority for 364 Days Treasury Bills, on the Day that is two (2) Business Days prior to the day on which interest shall begin to be calculated hereunder, subject to a maximum of five percent (5%).

“**Site**” means the public spaces on the location, chosen as the sites for developing the Project, more fully described in Exhibit A herein.

“**SIAC**” means Singapore International Arbitration Centre.

“**Taxes**” means any tax applicable in the Maldives, including any tax on income, excise duty, customs duty, value added tax, sales tax, good and services tax and other local tax, cess, any impost or surcharge of like nature, any interest, penalties and other sums in relation on the income, goods, material, equipment and services rendered by either Party, and charged, levied or imposed by a Government instrumentality.

“**Transfer**” means in relation to a property, the sale, gift, pledge, assignment, transfer, transfer of any interest in trust, encumbrance, or alienation or disposition in any manner whatsoever, voluntarily or involuntarily, including, any attachment, assignment for the benefit of creditors against the owner of a property or appointment of a custodian, liquidator or receiver in relation to the property.

1.2 Interpretations

In this Agreement:

any reference to any statute or statutory provision shall include:

all subordinate legislation made from time to time under that provision (whether or not amended, modified, re-enacted or consolidated);

such provision as from time to time amended, modified, re-enacted or consolidated (whether before or after the date of this Agreement) and (to the extent liability thereunder may exist or can arise) shall include any past statutory provision (as from time to time amended, modified, re-enacted or consolidated), which the provision referred to has directly or indirectly replaced;

reference to any Party under this Agreement shall also include its successors, administrators, legal representatives, and permitted assigns as the case may be;

heading to Articles and paragraphs are for information only, and shall not form part of the operative provisions of this Agreement and be ignored in construing the same;

references to Articles and schedules are to Articles and schedules to this Agreement. All of these form part of the operative provisions of this Agreement and references to this Agreement shall, unless the context otherwise requires, include references to the Articles and schedules;

unless the contrary is expressly stated, no Article in this Agreement limits the extent or application of another Article;

any reference to books, files, records or other information or any of them means books, files, records or other information or any of them in any form or in whatever medium held including paper, electronically stored data, magnetic media, film and microfilm;

“in writing” includes any communication made by letter or facsimile;

the words “include”, “including”, “inter alia” and “in particular” shall be construed as being by way of illustration or emphasis only and shall not be construed as, nor shall they take effect as, limiting the generality of any preceding words;

the words “directly or indirectly” mean directly or indirectly through one or more intermediary persons or through contractual or other legal arrangements, and “direct or indirect” shall have the correlative meanings;

the expression “*this Article*” shall, unless followed by reference to a specific provision, be deemed to refer to the whole Article (not merely the sub-Article, paragraph or other provision) in which the expression occurs;

the terms ‘*hereof*’, ‘*herein*’, ‘*hereby*’, ‘*hereto*’ and derivative or similar words shall, unless followed by a reference to a specific provision of the Agreement, be deemed to refer to this entire Agreement;

when any number of Days are prescribed in this Agreement, same shall be reckoned exclusively of the first and inclusively of the last Day, unless the last Day does not fall on a Business Day, in which case the last Day shall be the next succeeding Day which is a Business Day;

time is of the essence in the performance of the Parties’ respective obligations. If any time period specified herein is extended, such extended time shall also be of the essence;

a reference to any agreement is a reference to that agreement and all schedules, appendices and the like incorporated therein, as the same may be amended, modified, supplemented, waived, varied, added to, substituted, replaced, renewed or extended from time to time;

all provisions of this Agreement shall be interpreted and construed in accordance with their meanings, and not strictly for or against either Party, regardless of which Party may have drafted this Agreement or a specific provision;

grammatical variations of defined words shall be construed in accordance with the relevant definition(s);

references to the singular number shall include references to the plural number and vice versa; and

words denoting one gender shall include all genders.

ARTICLE 2

LICENSE TERM

The term of this Agreement shall enter into full force and effect on the Execution Date and shall expire upon the expiry of the PPA or upon an earlier termination of the PPA (“License Term”).

ARTICLE 3

GRANT OF LICENSE

Subject to the Licensee's compliance with its obligations in this Agreement, the Licensor hereby grants and the Licensee hereby accepts the License, to design, build, maintain and operate the Instant Facility on the Site(s), for the duration of the License Term, unless terminated earlier in accordance with the terms herein contained. The Licensor shall provide to the Licensee, access to the Site(s) on a Day mutually agreed between the Parties (the "Possession Date"), which Day shall not be later than seven (7) Days from the date of execution of this Agreement. The Licensee undertakes and covenants that the Site(s) shall only be used for the purposes of designing, building, maintaining and operating the Instant Facility in accordance with the terms and conditions herein mentioned, and for no other purpose.

ARTICLE 4

CONSIDERATION

4.1 In consideration of the grant of the License over the Site(s) to develop the Project and the grant of Access Rights, the Licensee agrees to pay to the Licensor, a one-time fee of Rufiyaa [●] (MVR [●]) for every kWp of Electric Capacity of the Facility (“Fee”). Parties acknowledge that this Agreement is being entered into towards fulfillment of the Maldives’ obligations to the Licensee under the Implementation Agreement, and in consideration, *inter alia*, of the Licensee’s obligation to develop the Project and sell Electric Energy to [●], which collectively with the Fee is acknowledged by the Parties to constitute adequate consideration for the grant of the License over the Site(s) and the grant of Access Rights under this Agreement. Accordingly, Parties undertake that neither Party shall question the validity of this Agreement for want or adequacy of consideration.

4.2 The Fee shall be paid by the Licensee within one (1) Calendar Month from the Execution Date.

ARTICLE 5

TAXES AND INSURANCE

5.1 Taxes in Relation to Instant Facility

Any Tax imposed by a Governmental Authority, with respect to the design, construction, financing, ownership, erection, installation, maintenance and operation of the Instant Facility and/ or on account of the income generated from the operation of the Instant Facility, shall be borne by the Licensee. To the extent possible under Applicable Law, the Licensee shall make such payments directly to the relevant Governmental Authority. In the event that any Tax that is payable by the Licensee is paid by the Licensor, the Licensee shall reimburse the same to the Licensor upon the Licensor submitting proof of payment of the same to Licensee within a period of fifteen (15) Days from the date of submission of such proof of payment. Failure to do so by the Licensee within the period specified herein shall entitle the Licensor to interest on the amount claimed, at an annual rate equal to the Reference Rate, from the original due date for payment of such amount until the payment of such amount.

5.2 Taxes on Fee

The Fee shall be paid by the Licensee without any deductions whatsoever, save and except the deduction of tax at source, if applicable. The liability for payment of any Taxes as applicable on the Fee shall be borne by the Licensee, even if the same is payable by the Licensor in accordance with the Applicable Law.

5.3 Commercial General Liability Insurance for Damage to the Site(s)

The Licensee shall procure and maintain commercial general liability insurance, employer's liability, worker's compensation, professional liability (with any exclusions subject to the prior written approval of the Licensor) up to the overall limit set out in Schedule 4 of the PPA, and within such commercial general liability insurance the Licensee shall also insure against liability for personal injury and damage to the Site(s), arising directly out of the installation of the Instant Facility or its use, in standard form, which shall include operations and blanket contractual liability coverage which insures performance by the Licensee of the indemnity provisions of this Agreement. The Licensee shall provide the Licensor a copy of the insurance so obtained by it within thirty (30) Days of the Possession Date.

5.4 Comprehensive "All Risks" Insurance of the Instant Facility

The Licensee, at its cost, shall within the overall limit set out in Schedule 4 of the PPA, procure and maintain comprehensive “all risks” insurance policy in respect of the Site(s) and Instant Facility against fire, accident, burglary, vandalism, machinery breakdown, earth movement such as earthquake, volcanic eruptions and subsidence, hurricane/ windstorms, flood including tsunami, debris removal, ordinance or law, extra expense and terrorism. The Licensee shall provide the Licensor a copy of the insurance so obtained by it within thirty (30) Days of the Possession Date. Upon failure by the Licensee to procure and maintain such comprehensive “all risks” insurance policy in respect of the Site(s) and the Instant Facility, and the occurrence of any such event that renders the Site(s) untenable for use by the Licensor (a “Defect”), the Licensee shall cure such Defect at its own cost, within thirty (30) Days of the occurrence of the Defect. Failure to do so by the Licensee within the period specified herein shall entitle the Licensor to obtain the required insurance. The Licensee shall reimburse the same to the Licensor upon the Licensor submitting proof of payment of the same to Licensee within a period of fifteen (15) Days from the date of submission of such proof of payment. The Licensor shall be entitled to interest on the amount claimed, at an annual rate equal to the Reference Rate, from the original due date for payment of such amount until the payment of such amount.

5.5 The Licensee shall, at its own cost, ensure that any insurance policy required to be maintained by it in accordance with this Article 5 is renewed before the expiry of such insurance policy. Such insurance policy shall also comply with the other requirements stated in Schedule 4 of the PPA, with the modification that all references to [●] therein shall be read as Licensor, and all references to the Seller therein shall be read as the Licensee. The insurance policies referenced herein shall be taken out in the names of the Licensor and the Licensee for the full value of their respective rights and interests provided that the premiums incurred by the Licensee in complying with this clause will not be unreasonable. The Licensor shall, at the cost of the Licensee, provide all reasonable necessary assistance and cooperation to the Licensee for the renewal of such insurance policy by the Licensee. The proceeds of any Proceeds of any insurance claim are to be applied towards the replacement, repair and/or reinstatement of the Site(s) and/or the Instant Facility.

5.6 On the occurrence of a partial or total loss or an event which, in the reasonable opinion of the Licensee would result in a claim against the insurance policies taken by the Licensee in respect of the Instant Facility, the Licensee shall forthwith and in any case not later than two (2) Days from the date of occurrence of loss or event inform the Licensor of the same.

ARTICLE 6

LICENSEE'S RIGHTS AND COVENANTS

6.1 The Licensee shall provide a copy of the duly executed PPA to the Licensor within fifteen (15) Days of the Execution Date.

6.2 The Licensee hereby represents and warrants that it has inspected or has caused an inspection of the Site(s) to be done, and has satisfied itself on the suitability of the Site(s) for the Instant Facility, and shall accept the possession of the Site(s) on an "as is where is" basis, on the Possession Date.

6.3 The Licensee shall be solely responsible for (a) all costs and the performance of all tasks required for installation, operation and maintenance of the Instant Facility at the Site(s) including costs related to capital improvement, removal, replacement and expansion of the Instant Facility; (b) ensuring that the design, construction, financing, ownership, maintenance and operation of the Instant Facility are in compliance with Good Engineering and Operating Practices, Codes and Standards, and Applicable Law, including those relating to safety norms, public health and environment; (c) ensuring that the performance of the tasks required for installation, operation and maintenance of the Instant Facility does not cause any damage to the Site(s); (d) obtaining all Permits and Approvals required for the Licensee's use of the Site(s); and (e) bearing all risk of loss in case of a theft, damage, casualty, condemnation or confiscation of the Instant Facility.

6.4 The Licensee agrees that any matter raised in relation to the installation, maintenance and operation of the Instant Facility by any person, shall be addressed as per the Environment and Social Impact Assessment (ESIA) and the Grievance Redress Mechanism (GRM) therein, developed pursuant to the Environmental and Social Management Framework (defined in the PPA) relating to ASPIRE.

6.5 The Licensor may, if in the event the Licensee is unable to attend to any issue in accordance with the GRM, upon giving 24 hour written notice, resolve such issues or remedy any damages or defects as maybe specified in the notice, and make such repairs thereto as the Licensor deems appropriate. Should the Licensor effect repairs, the Licensee shall pay to the Licensor the amount of such repairs reasonably incurred by the Licensor upon submission to the Licensee of an invoice with supporting documents showing the cost incurred by the Licensor for such repairs which shall be calculated at a fair and reasonable market rate.

6.6 During the License Term, the Licensee shall have the following rights ("Access Rights") in relation to the Site(s):

right to erect temporary structures, such as a scaffolding or similar structure at the Site(s) as may be reasonably required for the purpose of carrying out the construction and erection of the Instant Facility and/ or for the maintenance of the Instant Facility, provided that (i) the Licensee shall use all reasonable efforts to minimize the impact thereof on the normal operation of the such ways, paths and passages designated for the general public, and (ii) the Licensee shall obtain prior written approval of the Licensor in respect of such temporary structures and all approvals required under Applicable Law;

(b) right to use such ways, paths and passages designated for the general public as are reasonably necessary for the purpose of access to and egress from the Site(s), with or without workmen and for transporting, loading and unloading necessary tools, equipment and materials, provided that (i) the Licensor may in consultation with the Licensee and for a reasonable cause require the Licensee to change the route of any means of access to or egress from the Site(s) and may change the area over which any of the Access Rights are exercised; and (ii) [the use of such ways, paths and passages shall not obstruct the use of such areas by the public and other users, provided that where the Licensee's use of the path, ways and passages will result in an obstruction of the use of such areas by the public or by other users, such obstruction shall be done only after obtaining a prior written approval from the Licensor, and shall be only for a reasonable period of time as agreed with the Licensor, consistent with Good Engineering and Operating Practices.]

Provided that the Licensee shall provide the Licensor at least thirty (30) Days before the commencement of the construction of the Instant Facility, or a related activity, a schedule of construction of the Instant Facility. Upon receipt of such schedule of construction from the Licensee, the Licensor shall within five (5) Business Days respond with such reasonable changes to the schedule of construction, if any, as it may require, failing which the Licensor shall be deemed to have accepted the schedule of construction. If the Licensor requests any changes to the schedule of construction, the Licensee shall modify its schedule of construction after incorporating such reasonable changes suggested by the Licensor, and notify the finalized schedule of construction at least five (5) Days prior to the commencement of construction.

6.7 Subject to Article 5 hereof, the Licensee may make its own arrangements for and take reasonable measures, in consultation with the Licensor for the protection and security of the Instant Facility.

6.8 The Licensee shall have the right to construct canopy and such other supporting structures as necessary which forms part of the Instant Facility, and shall have the right from time to time both before and after the Commercial Operation Date, and at the Licensee's sole cost and expense, to make such additions, alterations or changes to such structures, as are reasonably required in compliance

with the provisions of this Agreement, Applicable Law, Good Engineering and Operating Practices and Codes and Standards; provided that: (a) the Licensee shall not cause any damage to the Site(s), and to any public property or to any property of a third party therein, and (b) the Licensee shall obtain the prior written approval of the Licensor, and such prior written approval shall not be unreasonably withheld, in respect of any such construction, additions, alterations or changes, except if such construction, additions, alterations or changes are cosmetic in nature and/ or are part of the day to day maintenance and repair of the Instant Facility; and (c) the Licensee shall provide to the Licensor a certificate from a civil engineer and/or architect having the requisite competence under Applicable Law for issuing such certificates, and acceptable to the Licensor and such acceptance shall not be unreasonably withheld, and which certificate shall certify that the proposed constructions, additions, alterations, or changes are in compliance with the Applicable Law, required for the construction of the Instant Facility.

6.9 The Licensee shall be solely responsible for day to day operation and maintenance of the Instant Facility, including without limitation the obligation to promptly make or pay (as determined by the Licensor) for, any repairs to any part or whole of the Site(s), to the extent damage is caused by the Licensee, its employees, officers, agents, contractors or subcontractors, during the License Term.

6.10 In complying with its obligations under Article 6.9, the Licensee shall to the extent possible give five (5) Business Days prior written notice for all repair and maintenance work of the Instant Facility or the Site(s) so as not to restrict or interfere with the use of ways, paths and passages designated for the general public. Upon such request for repair and maintenance work, the Licensor shall respond to such request within five (5) Business Days. If the Licensor does not respond to such request within five (5) Business Days, such request shall be deemed approved by the Licensor. The Licensee shall ensure that all such work undertaken must be completed in all respects in a timely manner.

6.11 At all times, the Licensee shall:

take due care to ensure that no damage is caused to any property on the Site(s) belonging to or used by the Licensor;

not cause inconvenience to the Licensor, as is reasonably practicable, except that the Licensor agrees that the exercise of the Access Right granted under Article 6.6(a) hereof may cause temporary obstruction and/ or interference with the use of ways, paths and passages designated for the general public and that such inconvenience shall not be deemed to be a violation of the Licensee's obligations under this Article 6.11(b).

6.12 In the event, there is any damage to the Site(s), and to any public property or to any property of a third party therein by reason of the Licensee exercising an Access Right or other rights under this

Agreement, the Licensee shall make good such damage (to the reasonable satisfaction of the Licensor) at its own cost.

6.13 The Licensee shall provide a list to the Licensor (or to any officer of the Licensor designated by the Licensor for this purpose), of the employees, agents, sub-contractors, and other representatives of the Licensee who shall be entitled to enter upon the Site(s), and shall ensure that the Access Rights granted hereunder are exercised by such employees, agents, sub-contractors, and other representatives, subject to the reasonable conditions for entry and exit to the Site imposed by the Licensor, and having regard to the public safety, and the safety of the Site(s).

6.14 The Licensee shall, as promptly as possible, notify the Licensor of the occurrence of any event or the existence of any condition or circumstance that it becomes aware of, in relation to the Site(s) and/ or the Instant Facility, and that in the Licensee's reasonable judgment, poses an imminent threat or hazard to the safety of the Site(s), the Instant Facility, public health or public safety.

6.15 The Licensee shall consult with the Licensor and obtain Licensor's approval in relation to design of the Instant Facility (including with respect to its placement within the Site(s) and technical specifications) and obtain written approval from the Licensor in case of any alteration to the design of the Instant Facility.

ARTICLE 7

OWNERSHIP OF THE INSTANT FACILITY

7.1 The Licensee shall be the exclusive owner and operator of the Instant Facility, including any part thereof, installed by the Licensee.

7.2 The Licensee acknowledges and agrees that, notwithstanding that the Instant Facility is a fixture on the Site(s), the Licensee shall have no right, title or interest in the Site(s) except as that of a Licensee as per the terms set out in this Agreement. The Licensee shall not directly or indirectly cause, create, incur, assume or suffer to exist any mortgage, pledge, lien, charge, security interest, encumbrance or claim, on the Site(s) or the Access Rights or any interest therein, and the Licensor will not suffer in any manner out of Licensee's use of the Site(s) whereby the estate, rights and interests of the Licensor in the Site(s) or any part thereof might be impaired, except in accordance with and subject to the provisions of this Agreement.

ARTICLE 8

LICENSOR'S COVENANTS

8.1 The Licensor shall take all reasonable efforts not to cause any interference with the effective operation the Instant Facility, including any interference with the Licensee's right to receive continuous and uninterrupted passage of light at all times across the Site(s) or have access to the Site(s) and the Instant Facility.

8.2 The Licensor shall, as promptly as possible, notify the Licensee of the occurrence of any event or the existence of any condition or circumstance that it becomes aware of, in relation to the Site(s), and that in the Licensor's reasonable judgment, poses an imminent threat or hazard to the safety of the Site(s), the Instant Facility, public health or public safety. The Licensor and [●] shall have the right (but not the obligation), to the extent permitted by Applicable Law, to enter into the Site(s) for the sole purpose of responding to any dangerous condition posing risk to, the Site(s), the Instant Facility, public health or public safety ("Emergency"); provided that any actions taken by the Licensor upon such entry shall be limited to those reasonably necessary to respond to the risks posed. The Licensee shall respond to any such Emergency as promptly as possible, and take all measures necessary to address the condition that gave rise to the Emergency. The Licensee shall not be required to bear the costs associated with an Emergency related to the Site(s) that are not caused by the Licensee and does not affect the Instant Facility.

8.3 The Licensor shall reasonably cooperate with the Licensee, at the Licensee's cost, so that the Licensee can procure all Permits and Approvals for design, engineering, construction, financing, operations, maintenance and deconstruction of the Instant Facility, and meet its obligations under this Agreement and the PPA.

8.4 The Licensor agrees and undertakes that this Agreement and the Access Rights shall run with the Site(s) and shall survive any Transfer of the Site(s). The Licensor shall give the Licensee at least six (6) Calendar Months written notice prior to any Transfer of all or a portion of the Site(s) identifying the transferee, the portion of the Site(s) to be transferred and the proposed date of Transfer. In the event of Transfer by any way or form of the Site(s), the Licensor shall cause the proposed transferee to execute an agreement identical in terms and conditions as that of this Agreement with the Licensee, for a term equal to the License Term outstanding at the date of such Transfer.

8.5 The Licensor recognizes the need of the Licensee to finance the Project by mortgage of the Instant Facility, accordingly, the Licensor shall reasonably cooperate with the Licensee in creation of charge on the Instant Facility in favor of the lenders to the Project, at the cost of the Licensee, including through furnishing such documents and certificates as may be reasonably requested by the Licensee's lenders.

8.6 The Licensor shall not, directly or indirectly, cause, create, incur, assume or suffer to exist any mortgage, pledge, lien, charge, security interest, encumbrance or claim, on or with respect to the Site(s), except with the prior written consent of the Licensee, which consent shall not be unreasonably withheld.

8.7 Subject to the terms and conditions of this Agreement and the Licensee's compliance with all provisions contained in this Agreement, and without prejudice to the rights of other users of the Site(s), the Licensor consents that the Licensee shall have quiet, unimpeded and peaceful access to the Site(s) and/or the Instant Facility throughout the License Term.

8.8 Except in the event of an Emergency, the Licensor will not initiate or conduct activities that it knows, or is reasonably expected to know to cause damage, impair or otherwise adversely affect the Instant Facility or its functioning without the Licensee's prior written consent, which consent shall not be unreasonably withheld or delayed.

8.9 Subject to the obligation of the Licensee under Article 6.9, the Licensor shall maintain and carry out at its own cost all major or structural repairs, modifications, or improvements, to the Site(s) at its own cost. Except in Emergencies, the Licensor shall give the Licensee at least fifteen (15) Days' notice in writing prior to commencing any such major or structural repairs, modifications, or improvements.

8.10 Third Party Rights

The Licensor and the Licensee hereby agrees to permit [●], the World Bank, ME and MEA the reasonable right of ingress and egress, consistent with safe operation of the Instant Facility, over the Site(s), to the extent:

(a) [●] deems such ingress and egress reasonably necessary in order to examine, test, calibrate, coordinate, operate, maintain, or repair any interconnection equipment involved in the parallel operation of the Facilities and [●]'s Electric System, including the Metering Devices and any [●] meteorological equipment; provided that Except in the event of actual or pending Electric System Emergency, or as otherwise provided in the Interconnection Requirements, as applicable, [●] shall give reasonable prior notice to the Licensee and Licensor prior to such ingress or egress, or

(b) World Bank deems such ingress and egress reasonably necessary in order to exercise its rights under any agreements with Maldives, [●] or the Licensee.

ARTICLE 9

REPRESENTATIONS AND WARRANTIES

9.1 Licensor's Representations and Warranties

The Licensor hereby represents and warrants to the Licensee, as of the date hereof, that:

the Licensor has the right to, and is sufficiently authorized to grant a License with respect to the Site(s) as provided for in this Agreement;

the Site(s) is free from all encumbrances or any other form of charge or claim that would hinder the Licensee from using the Site(s);

there is no pending or threatened action which affects or is likely to affect the interest or right of the Licensor in or to the Site(s);

the Licensor is a [company/ corporation/ body] wholly owned by the Government, duly established and validly existing under the constitution and laws of Maldives, is duly qualified to conduct business in Maldives, and has full legal right, power and authority to enter into and perform its obligations under this Agreement;

the Licensor has duly authorized the execution and delivery of this Agreement in accordance with Applicable Law. This Agreement has been duly executed and delivered by the Licensor and constitutes the legal, valid and binding obligation of the Licensor enforceable against the Licensor in accordance with its terms except insofar as such enforcement may be affected by bankruptcy, insolvency, moratorium, and other Applicable Law affecting creditors rights generally;

neither the execution nor the delivery by the Licensor of this Agreement nor the performance by the Licensor of its obligations hereunder:

will conflict with, violate, or result in a breach of any Applicable Law applicable to the Licensor; or

conflicts with, violates or results in a breach of any term or condition of any judgment, decree, franchise, agreement (including the certificate of [incorporation/ registration] of the Licensor) or

instrument to which the Licensor is a party or by which the Licensor or any of its properties or assets are bound, or constitutes a default under any such judgment, decree, agreement or installment.

there is no action, suit, or other proceeding as of the date hereof at law or in equity, before or by any Governmental Authority, pending or, to its knowledge, threatened against the Licensor, which is likely to result in an unfavorable decision, ruling, or finding which will materially and adversely affect the validity or enforceability of this Agreement or any agreement or instrument entered into by the Licensor in connection with the transaction contemplated hereby, or which will materially and adversely affect the performance by the Licensor of its obligations hereunder or under any such other agreement or instrument.

9.2 Representations and Warranties of the Licensee

Licensee hereby represents and warrants as of the date hereof that:

the Licensee is a [company/ entity] duly organized and validly existing under the laws of [●], and has full legal right, power and authority under Applicable Law to enter into and perform its obligations under this Agreement;

the Licensee has duly authorized the execution and delivery of this Agreement. This Agreement has been duly executed and delivered by the Licensee and will constitute a legal, valid and binding obligation of the Licensee, enforceable against the Licensee in accordance with its terms except insofar as such enforcement may be affected by bankruptcy, insolvency, moratorium, and other laws affecting creditors rights generally;

neither the execution nor the delivery by the Licensee of this Agreement nor the performance by the Licensee of its obligations hereunder: (i) will conflict with, violate, or result in a breach of any Applicable Law of Maldives; or (ii) conflicts with, violates, or results in a breach of any term or condition of any judgment, decree, franchise, agreement (including the certificate of [incorporation/ registration] of the Licensee), or instrument to which Licensee is a party or by which Licensee or any of its properties or assets are bound, or constitutes a default under any such judgment, decree, agreement or instrument;

there is no action, suit, or other proceeding as of the date hereof at law or in equity, before or by any Governmental Authority, pending or, to its knowledge, threatened against the Licensee, which is likely to result in an unfavorable decision, ruling, or finding which will materially and adversely affect the validity or enforceability of this Agreement or any agreement or instrument entered into by the Licensee in connection with the transaction contemplated hereby, or which will materially and adversely affect the performance by the Licensee of its obligations hereunder or under such an agreement or instrument.

ARTICLE 10

INDEMNIFICATION

The Licensee (also an “Indemnifying Party”) shall indemnify and hold harmless the Licensor and its employees, officers, agents, contractors, professional advisors and representatives (each an “Indemnified Party”) from and against all liabilities, losses, damages, penalties, costs, and expenses, including reasonable attorneys’ fees, that may be imposed upon or incurred by or asserted against the Licensor or any of its employees, officers, agents, contractors, professional advisors, representatives, by reason of any of the following occurrences during the License Term, except to the extent such liabilities, losses, damages, penalties, costs, and expenses, including reasonable attorneys’ fees, are caused by either (i) gross negligence or intentional wrongful acts of the Indemnified Party or (ii) failure or other breach by the Indemnified Party to perform any of its obligations under Applicable Law or Permits and Approvals:

- (a) any breach by the Licensee of its obligations, covenants, representations or warranties contained in this Agreement;

- (b) any negligence on the part of the Licensee or any of its agents, contractors, servants, employees, licensees or invitees in connection with the use of the Site(s) or in designing, construction, financing, ownership and operation of the Instant Facility or the Project; or

- (c) any failure on the part of the Licensee or any of its agents, contractors, servants, employees, licensees or invitees to comply with Applicable Law that require compliance by the Licensee or any of its agents, contractors, servants, employees, subtenants, licensees or invitees in connection with the Site(s) and its use, or design, construction, financing, ownership and operation of the Instant Facility, or the Project.

ARTICLE 11

FORCE MAJEURE EVENT

11.1 Adoption of provisions of PPA

Provisions of Article 12.4, Article 12.5 and Article 12.6 of the PPA shall *mutatis mutandis* apply to this Agreement, with the modification that all references to [●] therein shall be read as Licensor, and all references to the Seller therein shall be read as the Licensee.

11.2 Effects of Force Majeure Events

Without prejudice to the rights or obligations of the Government or [●] under the Implementation Agreement or the PPA,

(a) if the Force Majeure Event results in loss of the Site(s) or the Instant Facility, either Party shall have the right to terminate this Agreement in accordance with the provisions of Article 12.1(a) of this Agreement; or

(b) if a Force Majeure Event subsists for more than one hundred and eighty (180) Days and the PPA is terminated in accordance with Article 13.5, or Article 13.6, as the case may be, of the PPA, either Party may terminate this Agreement in accordance with Article 12.1(b) and Article 12.2, hereof.

ARTICLE 12

TERMINATION

12.1 Events of Termination

This Agreement shall terminate in the following circumstances:

If occurrence of a Force Majeure Event results in loss of the Site(s), either Party shall have the right to terminate this Agreement in accordance with Article 11.2(a), by a notice in writing to the other Party, with the termination being effective from fifteen (15) Days from the date of such notice.

Upon termination of the PPA, whether on account of expiry of the Contract Term, or otherwise, and whether in respect of the Project as a whole or in respect of the Instant Facility, either Party shall have the right to terminate this Agreement with effect from the date of termination of the PPA.

If the Government issues or is deemed to have issued a Concurrence Notice under Article 4.2(c)(iii) of the Implementation Agreement, either Party may terminate this Agreement.

If an Expert (as defined under the Implementation Agreement) determines in accordance with Article 4.2(c)(x) of the Implementation Agreement that the Site(s) is unavailable for use of the Licensee, the Agreement shall terminate with effect from the date of such determination or such other date as such Expert may determine.

12.2 Consequences of Termination

If the Agreement terminates in accordance with Article 12.1(b) but on account of expiry of the Contract Term and [●] chooses to purchase the Instant Facility in accordance with Article 2.2 of the PPA, the Licensor shall transfer the License provided for in this Agreement in favor of [●] on such terms and conditions as [●] and Licensor may agree in writing.

If the Agreement terminates in accordance with Article 12.1(a), or Article 12.1(b) but on account of expiry of the Contract Term and [●] chooses not to purchase the Instant Facility in accordance with Article 2.2 of the PPA,

termination of the PPA in accordance with Article 13.3(a) or Article 13.3(c) of the PPA, and [●] chooses not to exercise its right under Article 13.3(d) of the PPA to purchase the Project or the Instant Facility, or

termination of the PPA in accordance with Article 13.5(a) or Article 13.5(b) (where the PPA is terminated by the Seller, thereof) of the PPA,

the Licensee shall within one hundred and eighty (180) Days, decommission the entire Instant Facility set up at the Site(s), remove all its assets from the Site(s), and vacate and hand over peaceful possession of the Site(s) to the Licensor in a condition approximately original to that existing at the Possession Date, subject to normal wear and tear caused due to installation of Instant Facility or otherwise, failing which the Licensor shall be entitled to recover as damages (i) the cost of performing any work required to be (but not) done by the Licensee (towards decommission of the Instant Facility, and removal of all assets of the Licensee from the Site(s) before handing over the vacant possession of the Site(s) to the Licensor) under this Agreement at the time of vacating the Site(s), and (ii) the cost of restoring the Site(s) to approximately the original condition of the Site(s) as of the Possession Date of this Agreement, subject to exception for normal wear and tear.

If the Agreement terminates in accordance with Article 12.1(b) but on account of,

termination of the PPA in accordance with Article 13.4(c), Article 13.4(d), Article 13.6(a) or Article 13.6(c) of the PPA,

termination of the PPA by [●] in accordance with Article 13.5(b) of the PPA,

Licensor shall execute a license over the Site(s) in favor of the [●] simultaneously with the purchase of the Instant Facility by [●], on terms and conditions substantially similar to those contained in this Agreement, unless [●] and the Licensor agree otherwise.

If the Agreement terminates in accordance with Article 12.1(c) or Article 12.1(d), the Licensee shall relocate the Instant Facility to the alternative Site(s), promptly upon execution of the license agreement for the alternative Site(s), but in no event later than one hundred and eighty (180) Days, and vacate and hand over peaceful possession of the Site(s) to the Licensor in a condition approximately original to that existing at the Possession Date, subject to normal wear and tear caused due to installation of Instant Facility or otherwise, failing which the Licensor shall be entitled to recover as damages (i) the cost of performing any work required to be (but not) done by the Licensee (towards decommission of the Instant Facility, and removal of all assets of the Licensee from the Site(s) before handing over the vacant possession of the Site(s) to the Licensor) under this Agreement at the time of vacating the Site(s), and (ii) the cost of restoring the Site(s) to

approximately the original condition of the Site(s) as of the Possession Date of this Agreement, subject to exception for normal wear and tear.

ARTICLE 13

DISPUTE RESOLUTION

13.1 Continued Performance

Each Party shall continue to perform its obligations under this Agreement (including any payment obligations) pending resolution of any dispute pursuant to this Article 13. Provided that, if the dispute is with respect to any payments, neither Party shall be required to make such disputed payment(s) to the other Party so long as such dispute has been referred to the process for resolution pursuant to this Article 13; provided, that to the extent any amounts owed to either Party by the other Party are not disputed and can be segregated from amounts with respect to which there is a dispute, such undisputed amounts shall, in good faith, be identified by the Parties and paid as required by this Agreement. To the extent that any disputed amount was withheld from a Party, and such Party is ultimately found to be entitled to all or any portion of such disputed amount pursuant to this Article 13, then such Party shall be entitled to the payment of interest on any withheld amount, at an annual rate equal to Reference Rate, from the original due date for payment of such amount until the payment of such disputed amount.

13.2 Negotiation

If any dispute, controversy or claim arises under or relates to this Agreement or the breach, termination or validity thereof (the "Dispute"), such Dispute shall be referred by each Party to its designated senior officer for resolution upon five (5) Days written notice from either Party (the "Dispute Notice"). The Parties agree to attempt to resolve all Disputes promptly and equitably and to provide each other with reasonable access during regular business hours to any and all non-privileged records, information and data pertaining to any such Dispute.

13.3 Expert Determination

(a) A dispute may be referred to an expert (the "Expert") in accordance with this Article 13.3 if:

(i) the Parties are not able to agree under Article 13.2 (*Negotiation*) on an amicable resolution to such dispute; and

(ii) this Agreement expressly provides that such dispute shall be referred to an Expert or the Parties agree in writing that such dispute shall be referred to an Expert.

(b) Any Party to such a Dispute may initiate an Expert reference under this Article 13.3 by proposing to the other Party to the dispute the name of the Expert. If the other Party does not agree to the name suggested by the Party making the reference, and the Parties are otherwise unable to agree on the name of an Expert, either Party may apply to *Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland* for a list of not fewer than five (5) nominees and, on receipt of such list, the Parties shall alternately strike names therefrom, and the last remaining nominee on the list shall be the Expert for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) Days of the date of the list, *Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland* shall appoint, upon the request of either Party and from such list or otherwise, an Expert for the matter in Dispute.

(c) The Parties shall request that the Expert determine the referred dispute, within thirty (30) Days of receiving the reference, or in such additional time as may be reasonably required by the Expert to determine the Dispute, which shall not be more than one hundred and eighty (180) Days of receiving the reference.

(d) The Expert shall act as an expert and not as an arbitrator.

(e) The Parties shall have the right to make representations and submissions to the Expert. There shall be no formal hearing.

(f) The Expert shall have power to request any Party to provide him/her with such statements (which shall be written unless otherwise specifically required) or documents or information within their control as he may determine necessary and the Parties shall comply with any such request in accordance with the timeframes set out by the Expert or in the absence of such timeframes, in a timely manner as required to enable the Expert to determine the Dispute within the timeframe set forth in Article 13.3(c).

(g) The Expert shall give his/her decision to the Parties to the Dispute in writing and his/her decision, which shall promptly be given effect to by such Parties, shall be final and binding (save in the case of fraud or manifest error) on them.

(h) If the Expert decides that a sum is due and payable by one Party to another Party then:

(i) any such sum shall be due and payable within seven (7) Days of receipt by the Parties of written notice of such decision, unless the Expert decides otherwise; and

(ii) interest shall accrue at the rate of Reference Rate, compounded annually, from the date expiry of the period mentioned in Article 13.3(h)(i); provided that if the sum specified in Article 13.3(h)(i) includes any interest, no interest shall be payable on such interest.

(i) The fees of the Expert and any other costs of and incidental to the reference to Expert determination shall be payable by such Party to the Dispute as the Expert may determine but, in the absence of any such determination, by the Parties to the Dispute in equal shares.

13.4 Arbitration

Selection of Arbitrators

If the Parties are unable to resolve their Disputes through negotiation within thirty (30) Days of the Dispute Notice, either Party may initiate proceedings to submit the Dispute for arbitration. Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three (3) arbitrators, in accordance with the following provisions:

Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within thirty (30) Days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, either Party may apply to *Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland* for a list of not fewer than five (5) nominees and, on receipt of such list, the Parties shall alternately strike names therefrom, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) Days of the date of the list, *Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland* shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute.

Where the Parties do not agree that the dispute concerns a technical matter, the Parties may agree to appoint a sole arbitrator mutually agreed by them or, failing agreement on the identity of such sole arbitrator within thirty (30) Days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, each Party shall appoint one (1) arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the Parties do not succeed in appointing a third arbitrator within thirty (30) Days after the latter of the two (2) arbitrators named by the Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed by SIAC.

If, in a dispute subject to Article 13.4(a)(ii) above, one Party fails to appoint its arbitrator within thirty (30) Days after the other Party has appointed its arbitrator, the Party which has named an

arbitrator may apply to the SIAC to appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.

Rules of Procedure

Except as otherwise stated herein, arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the SIAC as in force on the date of this Agreement.

Substitute Arbitrators

If for any reason an arbitrator is unable to perform his/her function, a substitute shall be appointed in the same manner as the original arbitrator.

Nationality and Qualifications of Arbitrators

Each arbitrator appointed pursuant to Article 13.4(a)(i) to Article 13.4(a)(iii) shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute and shall not be a national of Maldives or the home country of the Licensee. For the purposes of this Clause, "home country" means any of:

the country of incorporation of the Licensee or their parent companies;

the country in which Licensee's principal place of business is located;

the country of nationality of a majority of the Licensee's shareholders; or

where the Licensee is a joint venture between two or more Persons, the country of incorporation, nationality or place of business of the partners or shareholders of such joint venture.

Miscellaneous

In any arbitration proceeding hereunder:

proceedings shall, unless otherwise agreed by the Parties, be held in Singapore;

the English language shall be the official language for all purposes; and

the decision of the sole arbitrator or of a majority of the arbitrators shall be final and binding and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.

13.6 Governing Law, Jurisdiction and Service of Process

Governing Law

This Agreement shall be governed by, and construed in accordance with, the laws of Maldives.

Jurisdiction

Subject to Article 13.3 and Article 13.4, each of the Parties consents to submit itself to the non-exclusive jurisdiction of the courts located in the Maldives in relation to recognition of any arbitral award, with respect to any Dispute that arises under this Agreement.

Service of Process

Subject to the rules of SIAC for the purposes of arbitration, each Party agrees that service of any process, summons, notice or document hand delivered or sent by certified mail, return receipt requested, to such Party's respective address set forth in Article 14.4 will be effective service of process for any action, suit or proceeding with respect to any matters to which it has submitted to arbitration as set forth in Article 13.4.

ARTICLE 14

MISCELLANEOUS PROVISIONS

14.1 Assignment

Licensee shall not assign or otherwise transfer this Agreement, except (i) for the collateral assignment to any lenders (only if such lenders are independent third party financial institutions) in connection with the provision of any financing for the Instant Facility, or (ii) to any Person who is a bona fide transferee of the PPA (in accordance with the terms of the PPA), subject to the transferee undertaking to comply with the obligations of the Licensee under the PPA, this Agreement, and the Escrow Agreement.

14.2 Further Assurances

Each Party agrees to, and shall use all reasonable efforts to, provide such information, execute and deliver any instruments and documents and take such action as may be necessary or reasonably

requested or required by the other Party which are not inconsistent with the provisions of this Agreement and which do not involve the assumption of obligations other than those provided for in this Agreement in order to give full force and effect to this Agreement and to carry out its intent.

14.3 Relationship of Parties

Except as otherwise explicitly provided herein, neither Party to this Agreement shall have any responsibility whatsoever with respect to services provided or contractual obligations assumed by the other Party and nothing in this Agreement shall be deemed to constitute either Party a partner, agent or legal representative of the other Party or to create any fiduciary relationship between or among the Parties.

14.4 Notices

Any notices required to be given hereunder shall be deemed delivered when (i) sent by facsimile upon electronic confirmation of successful transmission; (ii) delivered to an express courier service nationally recognized in Maldives that provides a receipt of delivery, (iii) sent by email, upon dispatch and the receipt of a delivery confirmation, provided that email shall be used as a mode of notice and communication only for non-material day-to-day matters; (iv) when delivered by personal delivery, in each case addressed to the following persons or such other persons as the Parties may designate in writing:

(a) If to the Licensor:

Name: [●]

Designation: [●]

Attn: [●]

Address: [●]

Email: [●]

Fax: [●]

with a copy to:

[●]

Name: [●]

Designation: [●]

Attn: [●]

Address: [●]

Email: [●]

Fax: [●]

and

MEE

Name: [●]

Designation: [●]

Attn: [●]

Address: [●]

Email: [●]

Fax: [●]

(b) If to the Licensee:

Name: [●]

Designation: [●]

Attn: [●]

Address: [●]

Email: [●]

Fax: [●]

14.5 Costs and Expenses

All costs, expenses, including any cost of documentation, reasonable attorney fees, court fee, and stamp fee, relating to creation and maintenance of the license on the Site(s), including execution of this Agreement, shall be borne by the Licensee.

14.6 Confidentiality

The Parties shall at all times keep confidential information acquired in consequence of this Agreement, except for information which the receiving Party already knows or receives from third parties or which the receiving Party may be entitled or bound to disclose under compulsion of Applicable Law or where requested by regulatory agencies or to their professional advisers, investments partners and other parties where reasonably necessary for the performance of their obligations under this Agreement. For the avoidance of doubt, the obligations in this Article shall not apply to information in the public domain or information which the Parties own or acquired lawfully from others and which may be freely disclosed to others without breach of any obligation of confidence

14.7 Waiver

No waiver of any provision of this Agreement shall be effective against a Party except as expressly set forth in a writing signed by such Party. The waiver by either Party of a default or a breach by the other Party of any provision of this Agreement shall not operate or be construed to operate as a waiver of any subsequent default or breach. The making or the acceptance of a payment by either Party with knowledge of the existence of a default or breach shall not operate or be construed to operate as a waiver of any subsequent default or breach.

14.8 Survival

Notwithstanding anything provided herein to the contrary, Article 12.2 (Consequences of Termination), Article 13 (Dispute Resolution) and Article 14 (Miscellaneous), shall survive the termination of this Agreement.

14.9 Third Party Rights

Nothing herein is intended to or should be construed to create any rights of any kind whatsoever in third persons not parties to this Agreement, except in favor of the Government, [●], and the World Bank.

14.10 Counterparts

This Agreement and any amendment hereto may be executed and delivered in one or more counterparts and by different Parties in separate counterparts. All of such counterparts shall constitute one and the same agreement and shall become effective (unless otherwise therein

provided) when one or more counterparts have been signed by each Party and delivered to the other Party. Delivery of this Agreement by facsimile transmission or electronic email shall be as effective as delivery of a manually executed counterpart.

14.11 Severability

In the event that any provision of this Agreement shall, for any reason, be determined to be invalid, illegal, or unenforceable in any respect, the Parties shall negotiate in good faith and agree to such amendments, modifications, or supplements to this Agreement, or such other appropriate actions, as shall, to the maximum extent practicable in light of such determination, implement and give effect to the intentions of the Parties as reflected herein, and the other provisions of this Agreement shall, as so amended, modified, supplemented, or otherwise affected by such action, remain in full force and effect.

14.12 Entire Agreement

All prior agreements, negotiations, representations, and understandings with respect to the subject matter hereof, are hereby superseded. No amendment, modification, or change to this Agreement or its Exhibit shall be effective unless the same shall be in writing, duly executed, authorized and approved by the Parties. In the event of any conflict between the terms and conditions of this Agreement and that of any Exhibit or other document referenced herein, this Agreement shall govern and control.

IN WITNESS WHEREOF, the Licensor and Licensee have caused this Agreement to be executed as on the date and the year first set forth above.

For and behalf of the LICENSOR

Signature/ Seal

Name:

Designation:

Company:

For and behalf of the LICENSEE

Signature/ Seal

Name:

Designation:

Company:

Witness One

Signature

Name:

Address:

Witness Two

Signature

Name:

Address:

EXHIBIT A

DESCRIPTION OF THE SITE(S)

ANNEX 10: GENERIC ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR MANAGEMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS DURING THE CONSTRUCTION/INSTALLATION OF SOLAR PV AND BESS SYSTEMS AND GRID INFRASTRUCTURE

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
<i>Management of Impacts from Design Poor Considerations</i>		
Negative impacts on ecologically significant wetland and marine habitats	<ul style="list-style-type: none"> Ensure that project sites are not located in these sites. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Contamination of groundwater	<ul style="list-style-type: none"> Ensure that designs look in to ensure the required measures to ensure that ground water contamination 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Safety Hazards from hazardous material found in Solar cells and BESS Systems and operational risks due to inadequate safety	<ul style="list-style-type: none"> Ensure all contractual documents include all the necessary safety provisions for the systems and all ancillary safety measures, such as fire safety are included. <p>Refer Annex X etc for further guidance on minimal safety requirements for BESS</p>	ME, FENAKA, STELCO, IPP, Contractor, Island Council
<i>Management of Impacts During Construction Associated with Installation of PVs, Grid Upgradation Works etc</i>		
Tree Removal	<ul style="list-style-type: none"> Identify the number of trees that will be affected with girth size & species type Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
	<ul style="list-style-type: none"> • Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area. • Contractor shall make every effort to avoid removal and/or destruction of trees of religious, cultural and aesthetic significance. • If such action is unavoidable the Engineer shall be informed in advance and carry out public consultation and report on the same should be submitted to the Engineer. • Contractor shall adhere to the guidelines and recommendations made by the Environmental Protection Authority of Maldives 	
Construction of labor camps	<ul style="list-style-type: none"> • The location, layout and basic facility provision of labor camp must be submitted to Engineer prior to their construction. • The construction will commence only upon the written approval of the Engineer. • The contractor shall maintain necessary living accommodation and ancillary facilities in functional and hygienic manner and as approved by the Engineer. • All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. The sewage system for the camp must be planned and implemented with concurrence from the Local Public Health Regulations • Adequate health care is to be provided for the work force. The layout of the construction camp and details of the facilities provided should be prepared and shall be approved by the engineer. • Labor camp sites after use should be cleared and the site should be reinstated to previous condition at the close of the construction work. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Material Sourcing	<ul style="list-style-type: none"> • The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry material they are sourcing to obtain soil , fine aggregate and coarse aggregate when imported in to the Maldives. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
Information Disclosure among Stakeholders	<ul style="list-style-type: none"> • Discussions should be conducted with the residents who reside around the immediate vicinity of the construction site; provide them with information on the project activities muster their views for possible impact mitigation as this will also ensure a good rapport and less complains. This should be done immediately once the contractor is mobilized. • The contractor will maintain a log of any grievances/complains and actions taken to resolve them. • A copy of the ESMP should be available at all times at the project supervision office on site. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Clearing of Land Removal and Disposal of construction debris and excavated materials	<ul style="list-style-type: none"> • During site clearance activities, removal of vegetation and debris must be carried out swiftly and in well-planned manner. • The contractor shall identify the sites for disposal of material cleared. • Plants, shrubs and other vegetation cleared should not be burned on site. • Spoil and other disposal materials should only be dumped at sites for which prior approval from relevant authorities such as the LA have been obtained. Taking into account the following <ul style="list-style-type: none"> • The dumping does not impact natural drainage courses • No endangered / rare flora is impacted by such dumping • Should be located in nonresidential areas located in the downwind side • Located at least 100m from the designated forest land. • Avoid disposal on productive land. • should be located with the consensus of the local community , in consultation with the engineer and shall be approved by the highways department • Minimize the construction debris by balancing the cut and fill requirements. • The contractor should avoid any spillage of spoil when transporting such materials to the approved material dumping sites. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Transport and Storage of construction materials	<ul style="list-style-type: none"> • All material should be transported in fully covered shipments. Overloading of boats and barges with materials should be controlled and done in a manner to suit the trucks capacity. • Construction material such as cement, sand and metal should be stored in closed structures or in a contained manner 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
Emission of Dust	<ul style="list-style-type: none"> All construction materials such as sand, metal, lime, bricks etc. should be transported under cover to the site and stored under cover at the sight. Plastic sheeting (of about 6 mm minimum thickness) can be used and held in place with weights, such as old tires or cinder blocks, with the edges of the sheeting buried, or by the use of other anchoring systems. This will minimize the levels of airborne dust. Mud patches caused by material transporting vehicles in the access road should be immediately cleaned Continual water sprinkling should be carried out in the work and fill areas and the access road if dust stir is observed. Water sprinkling should be done more frequently on days that are dry and windy (at least four time's day) as the levels of dust can be elevated during dry periods. Dust masks should be provided to the laborers for the use at required times. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Stockpiles of construction and demolition waste	<ul style="list-style-type: none"> Ensure waste materials are either reused by community or removed from island at the end of construction phased activities 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Damage to reef during materials unloading	<ul style="list-style-type: none"> Ensure adequate arrangements are available on all islands for unloading construction materials using only existing harbor areas 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Negative impact on ground water quantity due to over extraction and quality	<ul style="list-style-type: none"> Ensure fresh groundwater supplies are available in sufficient quantities The proposed small-scale civil works will not impact the quality of groundwater significantly <i>Note:</i> On almost all the island's ground water quality is poor for portable uses 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
Negative impact due to noise	<ul style="list-style-type: none"> Noise from vehicles, machinery and equipment Noise generating work should be limited to day time (6:00AM to 6:00PM). No work that generates excessive noise should be carried out during night hours where in close proximity (from 6:00PM to 6:00AM on the following day). All equipment and machinery should be operated at noise levels that do not exceed the permissible level of 75 dB (during construction) for the day time. For all construction activities undertaken during the night time, it is necessary to maintain the noise level at below 50 dB as per EOPA. All equipment should be in good serviced condition. Regular maintenance of all construction vehicles and machinery to meet noise control regulations. Ideally noise generating work should not be carried out during public holidays and religious days. Special care should be taken as there is a temple nearby. Labor gangs should be warned to work with minimum noise. Strict labor supervision should be undertaken in this respect. Number of night time resident laborers should be minimized. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Control of Soil Erosion	<ul style="list-style-type: none"> Debris material shall be disposed in such a manner that coastal areas, beaches, lagoons and other existing drainage paths are not blocked. Silt traps will be constructed to avoid siltation into the water ways and coastal areas, where necessary. To avoid siltation, drainage paths should not be directed to the tank and irrigation canals and they should be separated from these water bodies The work, permanent or temporary shall consist of measures as per design or as directed by the engineer to control soil erosion, sedimentation and water pollution to the satisfaction of the engineer. Typical measures include the use of berms, dikes sediment basins, fiber mats, mulches, grasses, slope drains and other devices. All sedimentation and pollution control works and maintenance thereof are deemed, as incidental to the earthwork or other items of work and no separate payment will be made for their implementation. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
Pollution of Soil and Water via Fuel and Lubricants	<ul style="list-style-type: none"> • The contractor shall ensure that all construction vehicle parking location, fuel/lubricants storage sites, vehicle, machinery and equipment maintenance and refueling sites shall be located away from rivers, atleast 200m away from lagoons and coastal areas. • Contractor shall ensure that all vehicle/machinery and equipment operation, maintenance and refueling will be carried out in such a fashion that spillage of fuels and lubricants does not contaminate the ground. • Contractor shall arrange for collection, storing and disposal of oily wastes to the pre-identified disposal sites (list to be submitted to Engineer) and approved by the Engineer. All spills and collected petroleum products will be disposed of in accordance with standards set by the EPA. • Engineer will certify that all arrangements comply with the guidelines of EPA or any other relevant laws. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Public and Worker Safety	<ul style="list-style-type: none"> • The construction site should be barricaded at all time in a day with adequate marking, safety tape, flags, reflectors etc. for safety of individuals using the site daily basis. (Items such as parking cones, lights, tubular markers, orange and white strips and barricades of a luminous nature for night visibility shall be procured where deemed necessary) • At all times, the Contractor shall provide safe and convenient passage for vehicles and pedestrians. Work that affects the use of existing accesses shall not be undertaken without providing adequate provisions to the prior satisfaction of the Engineer. • The construction site should be clearly demarcated by the above means and restriction of access to public to the site will help the safety of public. • Safety signboards should be displayed at all necessary locations. • The contractor should obtain a Third party insurance to compensate any damages, injuries caused to the public or laborers during the construction period. • All construction vehicles should be operated by experienced and trained operators under supervision. • Basic onsite safety training should be conducted for all laborers during the ESMP training prior to the start of the construction activities. • All digging and installation work should be completed in one go, if this task is not accomplished the area should be isolated using luminous safety tape and barricading structures surrounding the whole area. • Trenches should be progressively rehabilitated once work is completed. • Material loading and unloading should be done in an area, well away from traffic and barricaded 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
	<ul style="list-style-type: none"> Construction wastes should be removed within 24 hours from the site to ensure public safety. 	
Safety Gear for Labors	<ul style="list-style-type: none"> Protective footwear and protective goggles should be provided to all workers employed on mixing of materials like cement, concrete etc. Welder's protective eye-shields shall be provided to workers who are engaged in welding works. Earplugs shall be provided to workers exposed to loud noise, and workers working in crushing, compaction, or concrete mixing operation. The contractor shall supply all necessary safety appliances such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staffs. In addition, the contractor shall maintain in stock at the site office, gloves, ear muffs, goggles, dust masks, safety harness and any other equipment considered necessary. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored on a monthly basis and recorded. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Prevention of accidents	<ul style="list-style-type: none"> Prevention of accidents involving human beings, animals or vehicles falling or accidents due to open trenches/manholes during construction period. This needs to be ensured with proper barricading, signage boards and lighting etc. A readily available first aid unit including an adequate supply of sterilized dressing materials and appliances should be available at the site office at all times Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital should also be insured. Names and contact information for emergency services such as Ambulance services, hospitals, police and the fire brigade should be prepared as a sign board and displayed at the work site. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
Influx of migrant laborers additional pressure on the local resources and social infrastructures risk of social conflict	<ul style="list-style-type: none"> The contractor will preferably engage local labour force except for the laborer's requiring special skills and non-availability of such skilled labourers from local area. Project to assess and manage labor influx risk based on risks identified in the ESIA. Depending on the risk factors and their level, appropriate sitespecific Labor Influx Management Plan and/or a Workers' Camp Management Plan. Project will incorporate social and environmental mitigation measures into the civil works contract. The responsibilities for managing these adverse impacts will be clearly reflected as a contractual obligation, with a mechanism for addressing noncompliance. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
	<ul style="list-style-type: none"> • Provisioning adequate arrangements of drinking water, lighting, ventilation, bedding, bathing and other basic facilities in the labour camps; • Ensuring proper health-check-ups of all laborer's employed at the project site; • Providing separate toilet facilities for men and women at the accommodation as well as site; and • Facilitating healthcare services and medical care in case of sickness. • Locate handling sites away from populated areas • Follow proper operation and handling measures to minimize exposure • Provide prior warning /signals for blasting • Provide sirens in vehicles to avoid any collision with human/animals • Organize awareness programs on environmental resource management • Organize Health camps • Use of child labor will be strictly prohibited. • Contractor will maintain a labor register with name, age and sex with supporting document (preferably copy of Aadhar card or voter's ID card). This will be monitored by Environmental and Social office of contractor and SECI. • Provide signage near construction sites and approach roads <p>Avoiding Gender Based Violence</p> <ul style="list-style-type: none"> • Contractor will prepare and implement robust measures to address the risk of gender-based violence that include (i) mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; (ii) informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted; (iii) introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination), and (iv) contractors adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence 	
Operation of labor camps	<ul style="list-style-type: none"> • The Contractor shall construct and maintain all labor accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing. • Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities. 	ME, FENAKA, STELCO, IPP, Contractor, Island Council

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
	<ul style="list-style-type: none"> The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place. Ensure adequate water supply is to be provided in all toilets and urinals. The contractor shall provide garbage bins in the camps and ensure that these are regularly emptied and disposed of in a hygienic manner 	
Positive impact on island economy	<ul style="list-style-type: none"> Continue to encourage the use of labor and material from the island 	ME, FENAKA, STELCO, IPP, Contractor, Island Council
<i>Operational Impacts During Operation of Solar PV Systems and</i>		
Cleaning of solar panel lading to the wastage of water Generation of waste water	<ul style="list-style-type: none"> Necessary permits for use of water, including groundwater where applicable, shall be obtained in advance of beginning of operations. The use of water to be minimized through recycling of used of water for cleaning The waste water to be properly channelized through drains and stored in settling tank. The unusable water can be utilized for irrigation purpose in landscaping or in neighboring areas Rainwater harvesting facilities will be provided at site to collect the rainwater which should be utilized for ground water recharging and storing for cleaning purpose 	ME, FENAKA, STELCO
Land contamination Water Contamination Health Hazards due to random disposal of Battery wastes and E-Waste during operational and maintenance works.	<ul style="list-style-type: none"> All the non-functional batteries to be stored in a safe place following the norms stipulated in the batteries Management and Handling rules of the producer. The waste batteries to be handed over to the authorized vendors/recyclers via the suppliers. A record of such practices to be maintained by the supplier. All the electronic wastes should be disposed of as per International Best Practice, All the safety precautions in storage, handling and disposal of battery energy storage systems will be adopted as per safety consideration, which is enclosed as Annex X. 	ME, FENAKA, STELCO
Safety, Injury and sickness of workers during operations	<ul style="list-style-type: none"> The Contractor has to follow all the safety precaution during operations as stipulated in Annex 14 and 15 Contract provisions specifying minimum requirements for construction camps. All the workers must be provided with appropriate PPEs to the workers during works. Contractor to arrange for health and safety training sessions for workers. 	ME, FENAKA, STELCO

Generic Environmental Management Plan		
Impact	Mitigation Measures	Responsible Party
	<ul style="list-style-type: none"> All relevant safety signage as per industry practice, including fire hazard safety signage should be installed in sites. 	

Management of Construction Sites

It is acknowledged that most of the physical sub-components will be small-medium scale activities undertaken by local contractors. Nevertheless, it is necessary to apply best practice management measures to ensure that the work will have a minimum effect on the natural environment.

- Vehicles must not be washed at construction sites.
- All liquid fuel and lubricant storage tanks must be ‘bunded’ to retain the entire contents of the tank in the event of leakage or rupture.
- Construction sites must be watered to suppress dust whenever appropriate during the dry season.
- All site drainage water must be passed through a sediment trap.
- Care must be taken to prevent cement laden drainage water from entering the wetlands.
- Temporary toilets must be provided for construction workers.
- All sewage must be treated before discharge, e.g. using septic tanks.
- All effluents must comply with any national environmental standards.
- All emissions (e.g. from engines, crushers, batching plants, etc) must comply with any local environmental standards.
- All motor-driven generators, compressors, pumps, etc., must be properly silenced.
- The running of machinery and lighting in the vicinity of housing must be limited to normal working hours.
- All solid wastes must be properly disposed of (Management of construction solid wastes and toxic wastes below).
- Proscribed toxic and hazardous substances must not be used or disposed of (see below).
- All plant, equipment and wastes must be removed at the end of construction, and each site must be restored to its original condition.
- A Code of Practice must be issued to all construction workers. This should specify required behavior, e.g.:
 - No unauthorized cutting of trees or branches.
 - No lighting of fires.
 - No hunting or fishing.
 - No disposal of any kind of waste into water courses
 - Behaviour to comply with defined local cultural and religious sensitivities.
 - No unauthorised entry onto private property
 - Recommended health protection measures (see also Health and Safety below).

Environmental Standards – Contractors must comply with any national environmental standards. In the absence of relevant national standards, international standards should be applied, e.g. as published in the World Bank Pollution Prevention and Abatement Handbook, 1997.

Toxic and Hazardous Materials – Contractors must not use any substances which are internationally banned.

Management of construction solid wastes and toxic wastes

- Waste generation is to be minimised. The treatment of waste should follow the hierarchy: Avoid > Minimise > Reuse > Recycle > Treat > Dispose.
- All waste arising during construction is to be disposed of to the island's recognised waste disposal site. Recyclable materials (e.g. glass, cans, plastics, paper) should be separated and recovered. Organic waste should be composted.
- Any toxic or hazardous waste must be either returned to its source, or stored and disposed of separately in consultation with EPA; this includes oil filters, batteries, temporarily paint cans and the packaging of toxic construction materials.
- The containers of toxic or hazardous liquids must be punctured or crushed to avoid them being used subsequently for drinking water.
- Waste lubricating oil is to be stored prior to recycling.
- Vehicle batteries are to be stored prior to recycling.
- Vehicle tyres are to be stored prior to recycling.
- Construction generated wood, paper, glass bottles, cans, plastic and other recyclables are to be separated and recycled.
- No waste is to be burnt.

Management of Land

- Topsoil must be removed and stored for future use, before any further excavation work.
- In the case of temporary land take in agricultural areas, the positions of all walls, fences and hedges should be recorded, and they should be replaced at the end of construction.
- All land used temporarily during construction must be restored to its pre-construction condition.
- Cut and fill volumes must be planned to minimize the generation of spoil.
- Spoil from excavation must only be disposed of in planned spoil disposal sites that have been approved by the EPA; specifically, excavated spoil must not be dumped in wetlands or lagoons or on agricultural land. Completed spoil heaps must be profiled, covered in topsoil and grassed to maintain stability.
- All excavations below ground level should be bunded to prevent water inflow or outflow.
- Water pumped out of excavations should be passed through a settlement facility before disposal.
- The use of heavy machinery should be minimized to avoid soil compaction.
- Arrangements must be made for the halting of work and the consultation of specialists from the National Museum, in the event that any potential archaeological remains are uncovered during excavation.

Management of Transport

- All vehicles must be in a safe and legal condition with respect to all of their systems.
- All vehicles must comply with national regulations on emissions and noise.
- All drivers must be properly licensed for the class of vehicle they are driving.
- All vehicles must carry a fire extinguisher and first aid kit.
- All construction vehicles must have upward facing exhaust pipes.
- All vehicles must have audible indicators for reversing.
- Public roads must be promptly cleaned if affected by material loss.
- Truckloads of construction materials or spoil must be covered to prevent dust or losses.
- Where public roads are to be used, an official 'construction route' is to be defined, avoiding housing as much as possible, and this route should be marked with road signs.

- Unsurfaced haul roads must be watered to suppress dust whenever appropriate during the dry season. □
Vehicles must not be washed at construction sites.

Community Facilities

- Consultation is required with neighbouring communities before the start of construction, to identify any notable features or issues of local concern.
- Features that are to be protected during construction (cemeteries, mature trees, wells, etc) should be marked with brightly coloured tape.
- Excavation works below ground level in the vicinity of settlements should be marked with posts and tapes for safety.
- Temporary bridges or diversions must be provided wherever existing footpaths, tracks or roads are to be cut by construction works.
- Temporary water supplies are to be provided where either an existing water source is to be interrupted by construction, or access to the existing supply is severed.

Health & Safety

- All employed construction workers must be given a medical examination (including sight and hearing tests) before being accepted for employment. This must be repeated annually. The results of these medical examinations must be kept by the contracting company.
- All employees must be given printed information on the health implications of their work and how to avoid problems. This should incorporate advice in the field of sexually transmitted diseases (STDs), including HIV / AIDS.
- All construction workers must be given H & S training.
- All construction workers must be provided with a set of appropriate personal protective clothing and equipment (e.g. hard hat, hard boots, leather gloves, ear defenders and dust mask). Workers are required to wear appropriate protective equipment before being allowed on active construction sites.
- A permit to work 'system is to be instituted for all work at hazardous locations, e.g. working over water or in boats.
- All excavations below ground level should be marked with posts and tape.
- Drinking water, toilet and washing facilities must be provided at each active site.
- Each active site must be equipped with a comprehensive First Aid kit and eyewash bottle.
- All construction vehicles must carry a fire extinguisher and first aid kit.
- All (legal) toxic or hazardous materials (e.g. water chlorination agents) must be stored in a locked, waterproof, ventilated enclosure.
- All compressed gas bottles must be stored, chained in the upright position, in a locked ventilated enclosure.
- International occupational health standards must be applied to all contractors 'workplaces. Contractors should consult the World Bank Environment, Health and Safety Guidelines.

ANNEX 12: GUIDELINES FOR OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT OF WORKERS, COMMUNITIES AND VISITORS DURING CONSTRUCTION WORKS

Health and safety of workers and the public should be designed into constructions, before and during and after the building phase. It is cheaper and easier to control risks in construction to workers as well as the public before work starts on site by proper planning, training, site induction, worker consultation and incorporating strict safety procedures in construction plans. The proposed project interventions will mostly involve small to medium scale construction sites. As such, extreme dangers posed by working in environments such as great heights, deep water and involving dangerous chemicals and radioactive material will not be present. Potential dangers associated with ESCAMP sites will include falling from moderate heights, vehicle accidents, falling into trenches, drowning, breathing dust and other air pollutants, back aches caused by handling heavy material, wildlife attacks, etc. and can be mitigated with following safety guidelines.

EA/ESMP for each site should mandatorily include a risk assessment as to what are the hazards involved in the work site, who might be harmed and how seriously, how likely this harm might happen and what actions are required to eliminate or reduce the risk and incorporate such measures in the ESMP and clearly set out in the tender documents. All sub-projects must observe health and safety regulations, hence during implementation it is important to check if these control measures are put in place and are meeting the legal requirement.

Further guidance can be found in the World Bank Group General EHS Guidelines. The following measures have been developed to fit the country context based on the General EHS Guidelines.

Training

- Ensure constructors carry out suitable training programs on occupational health and safety for workers prior to commencement of construction, especially with regard to working in wild territory.
- Ensure only experienced and well trained workers are used for the handling of machinery, equipment and material processing plants
- Ensure all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves, other workers or the public

Personal Protective Equipment

- Ensure appropriate safety equipment, tools and protective clothing are provided to workers and that safe working methods are applied. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored.
 - Any person who works or operates in an area where there is a risk of flying objects, such as splinters, should wear safety goggles at all time. These should be securely fitted to the face. Welders should protect the entire face from hot sparks and bright rays by using a welding mask.
 - Any person exposed to high levels of dust or hazardous gases (when working in tunnels) should wear respiratory protection in the form of disposal masks or respiratory masks which fit more snugly around the nose and mouth.
 - Any person working in an area where there is the risk of being struck on the head by a falling or flying object should wear a hard hat at all times. These should be well maintained in order to be fully effective, and any helmets or hard hats that are damaged or cracked should immediately be replaced.
 - All workers will be required to wear shoes or strong boots to prevent sharp objects from penetrating or crushing the foot. Those working in muddy conditions and in canals with polluted water should avoid hand/foot contact with water and should never wear slippers.
 - Road workers should wear reflective vests to avoid being hit by moving vehicular traffic.

Site Delineation and Warning Signs

- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime (for those sites outside PAs).
- Ensure dangerous warning signs are raised to inform public of particular dangers and to keep the public away from such hazards, such as warning for bathing when working on river sites and irrigation works.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

Equipment safety

- Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if the equipment malfunctions. Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured. Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems.

Material management

- Ensure easily flammable materials are not be stored in construction site and that they are transported out of project site

Emergency Procedures

- Ensure an emergency aid service is in place in the work zone.
- Ensure all site staff is properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble for a head count. This information must be conveyed to Employees by the site manager on the first occasion a worker visits the site.

Construction camps

- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control of transmission of infectious diseases.
- Ensure that adequate warning is provided on issues of poaching and wildlife attacks

Information management

- Develop and establish contractor's own procedure for receiving, documenting and addressing complaints that is easily accessible, culturally appropriate and understandable to affected communities.
- Provide advance notice to local communities by way of information boards about the schedule of construction activities.

Worker consultation

- Consulting the workforce on health and safety measures is not only a legal requirement, it is an effective way to ensure that workers are committed to health and safety procedures and improvements. Employees should be consulted on health and safety measures and before the introduction of new technology or products.

ANNEX 13: OCCUPATIONAL HEALTH AND SAFETY PLAN FOR SOLAR PV INSTALLATION AND BESS SUBPROJECTS AND GRID UPGRADATION WORKS

While the Solar PV and BESS industry has a good safety record to date, workers not properly prepared or trained to work with hazards such as electricity, or working at heights, working in ceiling spaces, or with energy storage (batteries), place themselves at risk of serious injury or death.

In order to prioritize worker Health and Safety appropriate safety procedures and training in place before the start of each job and to create a workplace where anyone can raise a workplace safety issue or speak up if they have a safety concern.

The following steps should be practiced ensuring adequate safety at minimum.

- Ensure only fully licensed electricians who have been inducted into an installer's safety program will be undertaking licensed work on installation.
- Participate in the risk assessment of possible hazards at the start of each sub-project specific installation especially when working at heights, working in ceiling spaces and installing and commissioning energy storage (battery) systems.
- For any high-risk activities (e.g. working on or near exposed live parts) use a *Safe Work Method Statement* that has been developed in consultation with the workers and is easily understood and followed and translated in to Local Languages.

Qualifications and Licensing

Workers should only carry out tasks that they are qualified and competent to undertake.

All electrical work should be undertaken by an appropriately licensed and competent person.

The installation and maintenance of PV systems (including both grid and non-grid connected systems) and associated wiring systems which operate at a voltage greater than extra low voltage (exceeding 50 V a.c or 120 V ripple-free d.c) will be classified as electrical work. Thus, PV solar may only be installed and maintained by an appropriate electrical license holder.

The electrical risk associated with making incorrect connections, such as with panel-to-panel connectors, may result in serious shock or injury, or significant property damage.

A person without an electrical work license is authorized to locate, mount or fix in place electrical equipment, including PV arrays, but cannot make or terminate electrical connections to the equipment or install supply conductors that will connect the equipment to a supply of electricity.

Working at heights and near electricity presents major risks to workers on roofs and in ceiling spaces.

Before starting any work electricity to the property at the main switchboard should be turned off , turn off and isolated. Take steps to prevent the electricity from being turned back on while work is in progress via establishment of pre warning signage, safety tags and lock outs.

The risk of a fall from heights can be minimized by having fall prevention controls in place-workers should work with edge protection or harnesss fixed at all times when working in heights, especially during Solar PV installation.

During floating Solar PV installation workers should be equipped with life jackets at all times.

To prevent a person falling any distance, or where this is not practicable, use controls that arrest a person's fall such a catch platform, which will assist in preventing or minimizing the risk of death or injury. The World Bank Groups General Environmental Health and Safety Guidelines present

You should always let someone know that you will be entering a ceiling and maintain contact with them until the work completed.

Complete a pre-work risk assessment of the roof cavity by looking around the ceiling space to identify any other hazards that may pose risks such as excessive heat, lack of ventilation, lack of lighting, dangerous vermin, sharp objects or asbestos-containing materials.

Even with the power off, avoid contact with electrical cables and equipment as some cables may still be live, such as consumer service lines and solar PV systems which have DC supply cables.

Any damaged electrical cables or equipment you identify will need to be repaired by a licensed electrical contractor. Your risk assessment may also indicate that these supplies need to be isolated and steps taken to guard against accidental re-energization.

BESS Energy storage

Battery cells used in BESS systems have the potential to deliver a severe electrical shock when interconnected as battery banks, reaching hazardous voltage levels. There may also be systems that will also be 230/240 V a.c rated parts or other components such as energy regulators and inverters that have hazardous voltages.

All personnel involved in BESS system installation should ensure competency for electrical works and use safe work practices that comply with legislation, wiring rules and other relevant standards, and follow the manufacturer’s guidelines and instructions.

This best practice information should be passed on to operators in order to ensure that during routine operation and maintenance, they can continue to keep the system safe and be able to shut it down safely when needed. Installation should include all safety provisions outlined via design, including provisions for fire hazard management.

Different battery technologies and chemistries have different performance capabilities, and therefore, different requirements for installation, operation and maintenance. Comprehensive knowledge and awareness of the chosen technology’s associated hazards and know how to safely handle (including transporting), install and operate the system. Hazards can result from overheating, over-charging or emissions from hazardous chemicals.

As international Best Practice: **A list of operational and installation hazards associated with battery systems is available in the Clean Energy Council’s Battery Installation Guidelines for Accredited Installers (see section 6).**

www.solaraccreditation.com.au/installers/compliance-and-standards/accreditationguidelines.html.

Guidance can also be found at

www.worksafe.qld.gov.au/injury-prevention-safety/electricity/installing-battery-energy-storage-systems-bess.

Guidance Matrix for controlling high-risk hazards associated with solar PV and BESS systems

Hazard	Pathway of harm	Impact	Control recommendations
Working at heights	<ul style="list-style-type: none"> Falling from roof top Falling from ladder Falling through ceiling space 	<ul style="list-style-type: none"> Trauma Broken bones Death 	Eliminate: Install ground mounted solar systems
			Engineer: Install scaffolding around roof top with stair access. Roofer’s kit, guard rails.
			PPE: Use fall restraint techniques
Working in ceiling spaces	<ul style="list-style-type: none"> Contact with energized conductors Exposure to poor air quality such as fiberglass, coal dust, lead dust and other harmful substances 	<ul style="list-style-type: none"> Electric shocks, electrocution Respiratory disease Cancer Mesothelioma, asbestosis 	Eliminate: Install ground mounted solar systems avoiding the need to work in a ceiling space
			Isolate: Turn off all electricity to the property at the main switchboard and take steps to prevent the electricity from being turned back on while work is in progress*

	<ul style="list-style-type: none"> Exposure to loose-fill asbestos Exposure to extreme heat Falling, trips Vermin, snakes, spiders and insects 	<ul style="list-style-type: none"> Exhaustion, fatigue, heat stress Trauma, broken bones Stings, bites and disease Death Skin irritation, rash, increased mucus production and watery eyes 	<p>PPE: Wearing appropriate, well maintained and correctly-fitted personal protective equipment when working in dusty ceiling spaces, including:</p> <ul style="list-style-type: none"> a respirator a head covering and goggles, to avoid eye irritation long-sleeved, loose-fitting clothing and gloves
Working with and installing electrical equipment	<ul style="list-style-type: none"> Contact with energized conductors Accidental short circuit 	<ul style="list-style-type: none"> Electric Shocks, electrocution Arc flash, burns Death 	<p>Isolate: Lockout Tagout. Test for deenergized (DEAD) Do not work energized</p>
			<p>Admin: Current LVR/CPR training</p> <p>PPE: Wear arc rated neck to wrist to ankle clothing with a minimum ATPV of 4cal^{m2}.</p> <p>Wear protective glasses and gloves</p>
Working outdoors	<ul style="list-style-type: none"> Exposure to the sun 	<ul style="list-style-type: none"> Sun burn, skin cancer Exhaustion, fatigue, heat stress 	<p>Eliminate: Reorganizing work schedules where possible so that outdoor tasks are done before 10 am and after 3 pm</p>
			<p>Substitute: Rotating tasks that involve direct sun exposure</p> <p>Increasing amount of shade available – use gazebos</p>
			<p>PPE: Slip on clothing, slop on SPF 30+ sunscreen, slap on a hat, slide on sunglasses.</p> <p>Drink plenty of water</p>
Work involves, or is likely to involve, disturbing asbestos	<ul style="list-style-type: none"> Inhalation of asbestos fibers 	<ul style="list-style-type: none"> Mesothelioma, asbestosis or cancer 	<p>Eliminate: Do not proceed with job until asbestos-containing material removed by licence contractors</p>
			<p>Substitute: Replace asbestos switchboard with new upgraded switchboard. Follow safe working procedures</p>

ANNEX 14: MINIMAL PROVISIONS TO BE INCLUDED IN CONTRACT DOCUMENTS

Unless the WBGs Standard Bidding Documents, that already contain ESHS provisions are used at the minimum the following provisions shall be included in all contract documents for any physical works that include construction and/or rehabilitation.

Implementation of environmental and social impacts mitigation measures and monitoring

General Conditions

The Contractor shall provide adequate measures to avoid, reduce or off-set any environmental and/or social impacts during the construction period due construction activities or any other related activities. The Contractor shall implement the Environment and Social Management Plan (ESMP) attached with the Bidding Documents. The remedial actions shall comply and be acceptable to Engineer and other project monitoring agencies.

The Contractor shall be responsible to ensure all construction material are sourced from approved sites or licensed commercial vendors. All key environmental parameters such as vibration and noise shall not exceed the limitation imposed by the Environmental Protection agency.

1. Applicable Laws, Regulations and Policies covering the proposed project

Following national laws and regulations will be applicable for this project.

- Environment Protection and Preservation Act (Law No. 4/93)
- Regulation on Environmental Liabilities (Regulation No. 2011/R-9)
- Environmental Impact Assessment Regulation, 2007
- By law, Cutting Down, Uprooting, Digging Out and Export of Trees and Palms from one island to another (Regulation No. 493)
- Regulation on Sand and Aggregate Mining
- Regulation on Coral Mining (1990)
- Building Act and Building Code
- Land Use Planning and Management and Traditional Rights to Land

In addition to national laws and regulations, the project should comply with World Bank Operational Policies.

2. Controlling environmental impacts

The Contractor shall be responsible to maintain and monitor the impacts to the environment to ensure the construction and related works are harmless to the environment. In order maintain the activities in accordance with EMAP, the Contractor shall be asked to quote the required rate in the Bill of Quantity.

The Contractor shall submit methodology and frequency of remedial activities for the approval of Engineer, as per the construction plan addressing the following, but not limited to:

- (a) Identification of construction material extracting sites and disposal sites and related approvals from authorities and/or time-based plan to obtain the approvals;
- (b) Measures to avoid and/or control the occurrence of environmental impacts;
- (c) Measures to provide positive environmental offsets to unavoidable environmental impacts;
- (d) Measures to implement environmental enhancements;

(e) Site specific environmental management techniques and processes for all construction activities which are important for the quality of the environment in respect to permanent and/or temporary works including specific measures on safety;

(f) Locational details of important elements such as temporary dust and noise barriers, portable amnesties, truck, plant and material storage, access locations, provision of site hoarding, etc.; and

(g) Identification of the role, responsibility, authority, accountability and reporting of personnel relevant to compliance with the ESMP

If the Contractor fails to adhere to the ESMP to a level acceptable to the Engineer or other monitoring the Engineer shall be temporarily suspend the work until such time proper mitigation measures are implemented.

If any of the defects are not remedied by the Contractor within the time given by the Engineer, the

Engineer shall consider the contractor's work is non-compliance towards environmental safeguards and necessary remedial action shall be undertaken by the Engineer through a third party. Further the cost of the third party and 12% (twelve percent) for supervision charges shall be deducted from the Contractors Interim Payment that has non-compliance towards environmental safeguards. Any additional cost or time incurred due to above shall be at contractors' expense and shall not be subjected to extension of time or claim.

The contractor shall be responsible for cleaning up and disposing of all waste materials and rehabilitating (landscaping) all construction sites and work areas so that these can be returned as close as possible to their previous use. This includes the stabilization and landscaping of all of the construction sites. Any borrow pits that were operated by the contractor are to be reshaped and closed. Any contaminated soil must be removed from fuel and oil storage areas. All construction debris is to be removed. Payment will be withheld from the contractor until all of the sites are satisfactorily cleaned, all spoils removed and the sites satisfactorily rehabilitated. The final payment will be released only after confirmation by the Environmental and Social Specialist that the above mentioned tasks have been completed satisfactorily by the Contractor

Measurement and Payment

The measurement will be based on weekly assessment of all activities given as per the construction plan and related ESMP.

	Proper access provided for workers and surrounding community?				
	<i>Trenches Excavation and Shoring:</i>				
	Materials are stored at least two feet from trench?				
	Proper number of workers for each operation?				
5	Job Information/Administrative:				
	First aid kit stocked?				
	First aid kit available?				
	Work areas properly demarcated				
	Work areas properly barricaded?				
6	Housekeeping:				
	Work area neat?				
	Protected from projecting nail points (removed/bent over)?				
	Waste containers provided?				
	Waste containers used?				
7	General:				
	Toilet facilities available?				
	Toilet facilities maintained?				
	Drinking water available?				
	Visitor hard hats available?				
	Visitor hard hats used?				
	Record Maintained at Site level:				
	Unsafe Acts or Practices Observed:				
	Comments:				
	Signature: _____ Date: _____				

ANNEX 16: FORMAT FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

Objective and Scope of Preparation of Environmental and Social Management and Monitoring Plan

In order to ensure short and long term environmental impacts that would arise due to improvement and rehabilitation work (to be described in the first section based on the sub-project/activity), an ESMP/ ESMP will need to be developed as per the scope presented below and in accordance with the EAMF of the Project. The project should be reviewed and used as the basis for baseline information. Field level verification should be conducted prior to the preparation of the ESMP/ ESMPs:

- *Identification of impacts and description of mitigation measures:* Firstly, Impacts arising out of the project activities need to be clearly identified. Secondly, feasible and cost effective measures to minimize impacts to acceptable levels should be specified with reference to each impact identified. Further, it should provide details on the conditions under which the mitigatory measure should be implemented (ex; routine or in the event of contingencies) The ESMP/ ESMP also should distinguish between type of solution proposed (structural & non-structural) and the phase in which it should become operable (design, construction and/or operational).
- *Enhancement plans:* Positive impacts or opportunities arising out of the project need to be identified during the preparation of the check list and Environmental Assessment process where applicable. Some of these opportunities can be further developed to draw environmental and social benefits to the local area. The ESMP/ ESMP should identify such opportunities and develop a plan to systematically harness any such benefit.
- *Monitoring programme:* In order to ensure that the proposed mitigatory measures have the intended results and complies with national standards and donor requirements, an environmental performance monitoring programme should be included in the ESMP/ ESMP. The monitoring programme should give details of the following;
 - Monitoring indicators to be measured for evaluating the performance of each mitigatory measure (for example national standards, engineering structures, extent of area replanted, etc.).
 - Monitoring mechanisms and methodologies
 - Monitoring frequency
 - Monitoring locations
- *Institutional arrangements:* Institutions/parties responsible for implementing mitigatory measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional co-ordination should be identified as often monitoring tends to involve more than one institution.
- *Implementing schedules:* Timing, frequency and duration of mitigation measures with links to overall implementation schedule of the project should be specified.
- *Reporting procedures:* Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigatory measures and monitoring itself should be specified. Guidelines on the type of information wanted and the presentation of feedback information should also be highlighted.
- *Cost estimates and sources of funds:* Implementation of mitigatory measures mentioned in the ESMP/ESMP will involve an initial investment cost as well as recurrent costs. The ESMP/ESMP should include costs estimates for each measure and also identify sources of funding.
- *Contract clauses:* This is an important section of the ESMP/ ESMP that would ensure recommendations carried in the ESMP/ ESMP will be translated into action on the ground. Contract documents will need to be incorporated with clauses directly linked to the implementation of mitigatory measures. Mechanisms such as linking the payment schedules to implementation of the said clauses could be explored and implemented, as appropriate.

The format to present the ESMP/ ESMP in a matrix is provided below:

Activity	Environmental Impact	Social Impact	Proposed Mitigatory Action	Location	Frequency of Implementation/ Application	Implementation Responsibility	Monitoring Responsibility	Monitoring Frequency	Implementation Progress
Pre-Construction Phase									
Construction Phase									
Demobilization Phase									
Operational Phase									

Important to note the following when using this tESMPlate:

The ESMP/ESMP that will be prepared should have all sections in place, except the last column on Implementation Progress

What go in as the ESMP/ ESMP to the bid and contract documents of construction contractor is the sections highlighted in blue, as Implementation Progress is not relevant at the time of bidding and Operational responsibilities would lie with the council.

Any activity that may be identified as the responsibility of design engineers should not be part of the ESMP/ ESMP that goes into the bid and contract documents of construction contractors

Important to note: The consultant is responsible to ensure the EAMF requirements are taken into consideration in the designing of infrastructure.

The ESMP/ ESMP Presentation

The ESMP/ ESMP should follow the same sequence as the tasks described above including the ESMP matrix provided above.

Consultant Qualifications if ESMPs are to be prepared by external Consultants

The design consultant team should include an expert with at least 5-10 years of experience preparing environmental management and monitoring plans for infrastructure construction, improvement and rehabilitation, costing of mitigation measures and preparing contractor clauses necessary to capture ESMP/ ESMP implementation needs.

Reporting and feedback schedule

All submissions related to the assignment should be submitted to the Project Management Unit, as hard copies and electronically. The duration of the consultancy will be determined by the PMU. During the final submission of the ESMP/ ESMP report, if changes requested during the draft report stage have not been incorporated in a satisfactory manner to the client and the World Bank, the consultant will be required to work further on the document until it is considered satisfactory.

ANNEX 17: GENERIC MONITORING PLAN FOR ENVIRONMENTAL AND SOCIAL PARAMETERS FOR CONSTRUCTION PHASE OF SUBPROJECTS

Phase	What parameter is to be monitored? (Action Steps Should be consistent with the respective ESMPs)	Where is the parameter to be monitored?	How is the parameter to be monitored? / type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional Responsibility	Monitoring oversight
						Install	Operate		
Construction Material Sourcing									
a) Stone, sand, gravel and clay borrow pit	a) possession of official approval or valid operating license	a) stone, gravel and clay borrow pit	a) Inspection	a) before work begins		a) NA	a) NA	a) Contractor	Construction Supervising Engineer and Environmental Officer
Transport of Construction Material									
a) Crushed stone	a) truck load covered or wetted	a) Main and local road; job site	a) Inspection	a) unannounced inspections during work	a)-c) safety requirements and enable as	a) NA	a) minimal	a) Contractor	Construction Supervising Engineer and Environmental Officer
b) Sand, gravel, clay	b) truck load covered or wetted	b) Main and local road; job site	b) Inspection	b) unannounced inspections during work	little disruption to traffic as it is possible	b) NA	b) minimal	b) Contractor	Construction Supervising Engineer and Environmental Officer
c) Traffic management	c) routes selected; following a traffic	c) Main and local road; job site	c) Inspection	c) unannounced inspections during work		c) NA	c) minimal	c) Contractor	Construction Supervising Engineer and Environmental Officer

Phase	What parameter is to be monitored? (Action Steps Should be consistent with the respective ESMPs)	Where is the parameter to be monitored?	How is the parameter to be monitored? / type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional Responsibility	Monitoring oversight
						Install	Operate		
	management plan								
During Construction Phase									
a) Noise	a) Overall level of noise that is transmitted in the immediate environment	a) job site; nearest homes	a) sound monitoring smart phone application/ sound monitoring device	a) At the beginning of works, on complain	a) assure compliance of performance with environment,	a) NA	a) NA	a) Contractor	Environmental Officer
b) Emissions, Particulate matter and Dust	b) air pollution (flying particles, pollutants in the air and oxides of C, S, N, ozone and similar.)	b) at and near job site	b) laboratory with necessary equipment of the licensed organization (NBRO)	b) during material delivery and construction; on complain	health and safety requirements and enable as little disruption to traffic as it is possible	b) NA	b) NA	b) Contractor	Environmental Officer
c) Vibrations	c) limited time of activities	c) job site	c) observation, /Vibration metering device	c) unannounced inspections during work and on complain		c) NA	c) NA	c) Contractor	Environmental Officer

Phase	What parameter is to be monitored? (Action Steps Should be consistent with the respective ESMPs)	Where is the parameter to be monitored?	How is the parameter to be monitored? / type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional Responsibility	Monitoring oversight
						Install	Operate		
<i>d) Traffic disruption during construction activity</i>	d) existence of traffic management plan; traffic patterns	d) main and local road; job site	d) traffic police	d) unannounced inspections during work and on complain		d) NA	d) NA	d) Contractor	Construction Supervising Engineer and Environmental Officer
<i>a) Reduced access due to project activities</i>	a) Provided alternative access	c) Job site	b) Observation	a) During construction		a) NA	a) minimal	a) Contractor	Construction Supervising Engineer and Environmental Officer
<i>b) Vehicle and pedestrian safety</i>	b) Visibility and appropriateness	d) At and near job site	c) Observation	b) During construction		b) NA	b) minimal	b) Contractor	Construction Supervising Engineer and Environmental Officer
<i>c) Water and soil pollution from improper material storage, management and usage building and auxiliary materials</i>	c) water and soil quality (suspended solids, oils, organic solids, heavy metals, pH value, conductivity, constant physical and chemical parameters)	e) runoff from site, material storage areas; wash down areas of equipment	d) observation; laboratory with necessary equipment of the licensed organization	a) Twice depending on the construction lifetime b) On complain or in case of accident situation		c) NA	c) NA	c) Contractor	Environmental Inspector

Phase	What parameter is to be monitored? (Action Steps Should be consistent with the respective ESMPs)	Where is the parameter to be monitored?	How is the parameter to be monitored? / type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional Responsibility	Monitoring oversight
						Install	Operate		
<i>a) Potential contamination of soil and water from improper maintenance and fuelling of equipment</i>	a) Water and soil quality (suspended solids, oils, fuel, lubricants, organic compounds, heavy metals, pH value, conductivity); procedures of work	<i>h) Job site; equipment maintenance facilities</i>	b) Observation; laboratory with necessary equipment of the licensed organization	a) Twice depending on the construction lifetime b) On complain or in case of accident situation		a) NA	a) NA	a) Contractor	Environmental Inspector
<i>h) Labour Health and Safety</i>	i) protective equipment (glasses, masks, helmets, boots, etc); ii) Condition of worker camps	i) Job site/Worker camps	b) Observation	a) Unannounced inspections during work		a) NA	a) minimal	a) Contractor	PHI, Construction Supervising Engineer and Environmental Officer

ANNEX 18: TERMS OF REFERENCE FOR RECRUITMENT OF CONTRACTOR ENVIRONMENTAL SAFEGUARD OFFICER

To be Included in bidding documents with respective ESMP.

The contractor through an appointment of dedicated / qualified environmental safeguard officer shall be responsible in implementation of ESMP requirement by

- a) Maintaining up-to-date records on actions taken by the contractor with regards to implementation of ESMP recommendations.
- b) Timely (weekly) submission of reports, information and data to the Project Management Unit (PMU) /Implementation Agency Environmental Specialist, through Supervision consultant (SC).
- c) Participating in the meetings conveyed by the Engineer and
- d) Any other assistance requested by the Engineer.

The Environmental Safeguard Officer will be the primary focal point of contact for the assistance with all environmental and social issues during the pre-construction and construction phases. He/ She shall be responsible for ensuring the implementation of Environment and Social Management Plan. The appointed officer should be available on the site fulltime basis during the project period. In addition, Environmental Safeguard Officer should prepare an Environmental Action Plan in line with Environment Management Plan and submit to the Engineer along with construction method statements.

The Environmental Safeguard Officer will promptly investigate and review environmental related complaints and implement the appropriate corrective actions to arrest or mitigate the cause of the complaints as specified in the Environmental Management Framework of CRESMPA. A register of all complaints is to be passed to the Engineer within 24 hrs they are received, with the action taken by the Safeguard Officer on complains thereof. In addition, Safeguard Officer required to perform following tasks as well;

1. Participation for the periodic Grievance Redress Committee Meetings at Village Level, Implementation Agency Level and PMU Level
2. Coordinate and liaise with Implementing Agency and PMU
3. Support and coordinate with PMU Environmental and Social Safeguard team in carrying out the monitoring assessments such as baseline surveys, progress review, mid-term review, etc
4. Take actions to mainstream project activities during the period
5. Identify the potential environment and social safeguards issues in accordance provided EA/ ESMP/ EMF/

Qualifications required

Environmental Safeguard Officer preferably possessing a Bachelor Degree with minimum of 2 years experiences in the relevant field or minimum of five (5) years of experiences in the similar capacity. Preferably, experience in specific project related works is required. It is essential to have English language ability (speaking) and Computer Knowledge of MS Office.

Technical Support to Developing Offshore Floating Solar PV in the Maldives

1. Background

Maldives is an island archipelago comprising of 1,192 coral islands grouped into 26 atolls, spread across roughly 115,300 square kilometres of Indian Ocean. The dispersed nature of the islands and high reliance on imported diesel for electricity production has posed challenges in delivering secure electricity service at an affordable rate to the citizens. Increasing amount of Government’s spending on subsidies to the electricity sector has caused an extra strain to the government’s budget.

Large scale adaptation of renewable energy technologies such as solar PV is an effective approach to address the challenges associated with conventional power generation methods. Supportive policies and programs have been made to effect to achieve the ambitious renewable energy goals of the country. The National Strategic Action Plan (2019-2023) (SAP) set targets to increase the share of renewable energy by 20% compared to 2018 levels. Furthermore, enhancing national energy security through diversification of sources of energy production and expansion of energy are underlying policies of the SAP.

To support the ambition of the Government of the Maldives, the World Bank is preparing the Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) project. The project will support private sector Independent Power Producers (IPPs) of solar PV on rooftops, ground and lagoons by offering risk mitigation solutions. Furthermore, the project will also finance battery energy storage systems (BESS) and grid modernization to enhance the grid capacity for integration of variable renewable energy to be generated from the renewable energy IPPs. As the first step to mobilize investment under the project, the Government of the Maldives has launched an invitation for prequalification for Installation of 21 MW grid-tied solar PV system under Design, Build, Finance, Own, Operate, and Transfer Basis, including 10 MW of offshore floating solar PV to be located on the three proposed lagoons in Addu City.

2. Objective

The World Bank seeks to hire a consulting firm (the “Consultant”) to provide technical support to developing offshore floating solar PV (FPV) in the Maldives. In particular, the output of the task, including the selection of the locations and the detailed assessment on technical, financial, environmental and social aspects of the FPV systems will be included in the request for proposal (RfP), scheduled to be launched by June 2020. The provision of detailed information on the proposed sites is expected to effectively reduce risks facing prospective private sector bidders and positively impact on the tariff bid. The Consultant will work closely with the World Bank, the Ministry of Environment of the Maldives and FENAKA, the offtaker utility of the FPV systems, throughout the duration of the task.

3. Scope of Work

Task 1: Identify potential FPV locations

The Consultant will identify all potential sites for FPVs. A list of all sites will be developed including but not limited to the currently proposed three sites. Based on the assessment, the Consultant will validate if the currently proposed sites are the most optimal choice. The detailed task will include the following:

- Identify locations that are potentially suitable for FPV development
- Develop an initial screening checklist for site prioritization, taking into account:
 - Solar irradiation
 - Interconnection to the grid

- Wind, water depth, current, wave, tidal and other relevant ocean characteristics
- Environmental assessment requirements
- Potential environmental and social impact
- A suitable size of FPV installed capacity on each site
- Permits and licenses required for each site
- Other relevant factors
- Conduct a preliminary screening on the identified sites using the checklist and propose prioritization among the sites
- Validate whether the currently proposed three sites are the most optimal, or some other sites can be considered on a higher priority, based on the preliminary assessment
- Finalize the selection of the sites to be included in the final bidding package, in consultation with the Client (expecting up to three sites for about 10 MW)

Task 2: Conduct detailed assessment on the selected sites

Offshore FPV systems should be adequately designed to resist a harsh operating environment including high humidity and water salinity, to withstand buoyancy, and to adjust water level fluctuations caused by low/high tides, winds and waves autonomously while maintaining optimal geographical position in order to optimize solar resource, and ensure reliable uninterrupted power supplied to the island grid. Ultimately detailed technical design of FPV will be done by private sector bidders. However, given that there is only limited experience in offshore FPV across the world, providing detailed assessment on the proposed sites in the bidding package would significantly reduce risks faced by the potential bidders and encourage participation, expecting to result in a better bid outcome. The Consultant will:

- Propose in the technical proposal a list of detailed assessments deemed necessary for the purpose, which may include but not limited to:
 - Hydrography and Hydrodynamic survey (data should be taken in both monsoons and monsoon transition period):
 - tidal range and tidal currents
 - wave climate (wave height, wave direction, wave period)
 - wave induced currents
 - wind induced seasonal currents
 - Marine water quality covering at least the following parameters: Temperature, pH, Salinity, Turbidity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Total Petroleum Hydrocarbon (TPH), nitrates, nitrites and ammonia.
 - Bathymetry and geotechnical survey
 - Benthic cover, fish census assessment and plankton assessments at the immediate footprint and from the adjacent reef
 - Modelling to determine light reaching the benthic zone
 - Grid interconnection and integration analysis
- Determine the required detailed assessments in consultation with the Client
- Conduct the agreed detailed assessments on the selected sites
- Produce bankable reports on each assessment to be included as part of the bidding package

Task 3: Analyse and recommend technical options for mooring systems and floating structures

This task is to inform the Client of technical options available in the market for mooring systems and floating structures and their feasibility in the context of the Maldives. The Consultant will:

- List technical options available in the market for mooring systems and floating structures
- Compare strengths and weaknesses of each option, including benchmark cost. These would need to factor in installation, O&M, PV panel mounting and packing density to allow for optimal space usage, environmental impacts, associated technical risks, and any other factors that may be of importance.
- Assess each option against the conditions of the selected sites, based on the detailed assessment under Task 2
- Shortlist the most recommendable option for mooring systems and floating structures.

- These would need to consider, for all options, details of the possible installation methods, O&M requirements, and well as end of life disposal methods, assessment of risks associated with each options in terms of impacts reliable supply of power from the floating PV system.
- Preliminarily estimate CAPEX, OPEX, yield and LCOE for each site based on Task 2 and 3 results.
- Produce a report on the analysis and recommendation for the benefit of the Client, covering all the works specified in this task.

Task 4: Assess preliminary potential environmental and social impact of the FPV systems

IFC Performance Standards will be applied to the FPV systems. In accordance with the Environmental and Social Management Framework (ESMF) in preparation by the Ministry of Environment of the Maldives, the responsibility of preparing the Environmental and Social Impact Assessment (ESIA) and the Environmental and Social Management Plan (ESMP) lies with the winning bidder. The purpose of this exercise is to provide in the bidding package more detailed information on potential environmental and social impacts of the FPV systems on the selected sites. It would help reduce risk and uncertainty on the environmental and social impacts and ease the preparation of ESIA and ESMP after the selection of the winning bidder. The Consultant will:

- Collect information from primary and secondary sources that are relevant to understanding the environmental and social baseline of the project area
- Conduct preliminary assessment on potential environmental and social impacts of the FPV system, building on the Environmental and Social Screening Report (ESSR) prepared by the Client, in compliance with the World Bank’s relevant guidelines and the draft Environmental and Social Management Framework (ESMF) developed by the Ministry of Environment
- Assess potential positive and adverse environmental and social impacts of the establishment and performance of the FPV facilities on the selected sites. In this regard, the following aspects need to be investigated:
 - Investigate impacts related to light penetration on photobiotic marine organisms
 - Investigate any impacts on nearshore hydrographic processes
 - Potential disturbances to commercial activities located nearby
 - Restrictions on access to land/sea or use of marine resources (if any)
 - Impacts on community safety
 - Public perception on visual impacts
- Identify (and where applicable, quantify) and suggest mitigation measures and management plans of the environmental and social impacts anticipated,
- Conduct consultation with key stakeholders, including local community, council, vulnerable groups and other stakeholders as relevant in discussion with the Client
- Produce a report on environmental and social baseline and potential impacts to be included in the bidding package as a reference for prospective bidders
- Review ESMF and ESIA requirements and suggest any additional requirements that need to be incorporated into the environmental & social management systems that are relevant to the project.

Task 5: Develop technical requirements and performance standards for the bidding package

The Consultant will develop minimum technical requirements and performance standards to be included in the bidding package. Since offshore FPV systems have limited experience and are expected to face harsh challenges during construction/operation, to ensure high quality bids the RfP package will include certain technical requirements and performance standards required for such a high quality FPV systems, while detailed technical design is left to prospective private sector bidders. The Consultant will:

- Develop & identify minimum technical requirements and safety standards, to sustain FPV systems under the identified conditions of the selected sites, on key technical components including but not limited to:
 - Solar PV modules and BOS
 - Floating structures
 - Cables and connectors
 - Components of substations including transformers and switchgear
 - Mooring systems
 - Operation and maintenance (O&M)

- Identify applicable international standards from a structural and civil design perspective for the design and installation of FPV system and material requirements specific to the environmental condition of site
- Develop performance standards taking into account minimum technical requirements on the key technical components identified above.
- Yield assessments considering actual site conditions and system design, and performance benchmarking for the system (CUF, PR)
- Develop a manual for monitoring the said performance standards that can be followed by GoM/utilities for long-term monitoring of the components of the system.

Task 6: Provide technical support in tendering FPV

- Support the Client in finalizing key technical sections of the bidding package
- Identify and reach out potential bidders that are globally or regionally competent to advertise the tendering
- Provide technical support to the Ministry of Environment, for instances including pre-bid meetings, Q&As with potential bidders and bid evaluation, in handling technical questions and requests throughout the tendering process
- Any other technical support that might be requested related to this task

Task 7: Support deployment of long-term site specific data collection mechanism

Consultant is expected to assist GoM to initiate site specific data collection as such had not been done so far in Maldives. The site specific data would allow long-term data collection up until the bidding as well as prior to the PPA signing which would allow close to 1 years of data collection. Such is expected to give developer some opportunity to fine-tune design. The consultant will be required to:

- Suggest the site specific parameters that are critical for measurement based on the overall assessments that have been carried out under this assignment.
- Propose most suitable measuring devices and assist in deployment, data collection & processing of the data for site selected.
- Complication of datasets to be made available to key stakeholders and for bidders and developers.
- Provide on the job training for relevant key persons to allow GoM to continue measurements beyond the life of this assignment.

4. Deliverables and Timeline

Expected Skill Set and Team Composition

- A Project Manager with an extensive experience of working in Asia on the design, planning and implementation of solar PV projects, with a minimum experience of 15 years. Some experience in executing/advising on FPV and assisting IPP tendering would be required.
- A technical expert with an extensive experience in solar PV, FPV and marine-environment electric systems for at least 12 years and experience in leading at least 2 FPV projects.
- An Environment and Social Expert with an extensive experience of working on water bodies in Asia, with a minimum experience of 10 years.
- A Financial Expert with an extensive experience of working on solar projects and FPV, conducting financial analysis of such projects, and analyzing affordability of IPPs to utilities, with a minimum experience of 10 years. In depth experience in structuring and reaching financial close in renewable energy transactions is considered a plus.
- A team of surveyors and analysts.

ANNEX 20: ENVIRONMENTAL SAFEGUARDS PREPARATORY TASKS TRACKING SHEET

ENVIRONMENT AND SOCIAL PREPARATORY TASKS FOR SUB-PROJECTS STATUS TRACKING SHEET

#	IMPLEMENTATION SCHEDULE (PACKAGE #)	Name and Description of Sub-project	Safeguards Instrument (Indicate via use of tick mark)			CLEARANCES RECEIVED (EPA, Other Agency)		Date received by WB	Date Clearance/conditional clearance provided by WB	Tentative Date for Tender Commencement	Date safeguards instrument sent to procurement team.	ESHS Clauses in Contract (Indicate via use of tick mark)			Status as at (Date sheet is updated)	Status Related Comments
			Environmental Screening Report	ESIA	ESMP	INST	DATE					E&S Document Included in Bid Docs	ESHS Clauses in Contract	BOQ Includes adequate costing for ESMP implementation		
Phase I																
Component 1																
Comp 1.1																
Comp 1.2																
Comp 1.3																
Component 2																
Comp 2.1																

Phase 2																

ANNEX 21: GENERIC SESSION PLAN FOR PROJECT IMPLEMENTATION AGENCY STAFF TRAINING ON ESMF AND ENVIRONMENTAL AND SOCIAL INSTRUMENT IMPLEMENTATION, MONITORING AND REPORTING.

Topic: Environmental and Social Stewardship via ESF Implementation within the NAME of PROJECT

Objective: To introduce the project staff to the World Bank’s ESF and Environmental and Social Management procedures set forth in the Environmental Management Framework of the project, assist them in implementing environmental safeguards within the project and understand their function, roles and responsibilities in implementation, monitoring and reporting, while gaining an overall

Duration: 1 Day

Target Group: Project Mangers, Technical Specialists, Environmental and Social Specialists, Environmental and Social Officers, Procurement Specialists based in PMU, Project IAs

Training Material: A Cloud Drive link with the Soft Copies of all Relevant Training Material (Session Presentations, ESMF, Guiding Documents (Screening Formats, Copies of example ESMPs, project safeguards instruments, etc.), and other resource material.

No	Subject	Purpose	Time	Session Structure	Materials	Aids	Potential Resource Person
1.1	Introduction to ESF Requirements and procedure within the project	To introduce the WB ESF and ESSs, the activities set forth in the ESMF and procedures of implementation, monitoring and reporting within the project	1.5hr	Brain storming, Lecture	Copy of the ESF, ESMF Guideline, copies of Screening Formats,	Laptop Multimedia Projector File with Training Material for whole day	

No	Subject	Purpose	Time	Session Structure	Materials	Aids	Potential Resource Person
1.2	Identification of Environmental impacts and deducing Mitigatory Methods	To facilitate understanding on what environmental impacts can arise from project interventions and understand the nature of technical mitigation measures that can assist in curtailing these	1 hr	Brain storming, Lecture, Group work	A Copy of a well completed Screening Form and ESMP as an example. Copies of Specifications for subprojects	Laptop, Multimedia projector, Flip charts & Pens	
1.3	Specific roles and Responsibilities in implementation and monitoring	To assist the members present to understand the roles and responsibilities of their designation. What is expected from them and how they can do the work assigned in the best manner.	1hr	Lecture, Discussion	A Sheet describing the roles and responsibilities of each individual of project administrative structure.	Laptop, Multimedia projector, Flip charts & Pens	
1.4	Group Activity (Details Below)	To assess the understanding post the session	2hr	Group Activity followed by a discussion	Copy of the Case study, A Blank screening form and ESMP	Flip charts & Pens	

Group Activity for the End of Session- 1hr (30 minutes for Group Activity and 30 Minutes for Presentation and Discussion)

Present the groups with copies of an example of a project specific subproject or project related scenario. Once the team has reviewing the case study and the copies of the Screening Form and ESMPs, they should discuss and note down and present on the following areas. The Design of the intervention should be presented well with details of the surrounding area and the rational etc.

- Conduct a Screening of the Subproject with the Screening Form as an aid and deduce what sort of clearances is required and what sort of environmental assessments will be required. Based on this indicate where the project should proceed as is environmentally cleared.
- Identify the Environmental Impacts of the project and their severity based on its scope and design, and propose mitigatory mechanisms for these if they can be mitigated
- Identify who will be responsible for the safeguard activities from within the project administrative structure

The points formulated during the discussion should then be presented group wise and discussed with the team. The Trainer should provide technical assistance to the teams where required to direct the discussion accordingly and share experiences from within the program.

Date

NAME OF MINISTRY/IMPLEMENTING
AGENCY

NOTICE OF DISCLOSURE FOR PUBLIC COMMENTS OF THE
NAME OF INSTRUMENT
FOR THE PROJECT NAME

The above-mentioned *Name of Instrument* has been prepared by the *Name of Ministry/Implementing Agency* for the World Bank Funded *Name of Project*. The document will be available for inspection by the public at the following locations between *XX am* and *XX pm* for a period of 30 days from the date of the advertisement (except Weekends & Public Holidays).

Locations: (PLEASE LIST RELEVANT LOCATIONS BELOW)

1. Example: Island Council, Atoll Name
2. Website: www.disclosureadvert.com
3. -
4. -
5. -

1 INTRODUCTION

This document is based on available information on the existing environment condition of the sites proposed for solar installation as part of phase-3 of Accelerating Sustainable Private Investment in Renewable Energy (ASPIRE) project. All data are attained from existing published literature and data collected from the field on 13th and 14th July 2019. This included visits to all the sites, mapping of the sites and meeting with Addu city council on 14th July 2019. There are six primary sites selected based on the consultation with Addu City council and three secondary sites. Secondary sites are to be utilized if any reason one of the primary sites could not be utilized as a result of unforeseen circumstance. Of the six primary sites, 03 sites are located on land and 03 sites on the lagoon. Hence 03 floating solar locations and 03 on land locations. All secondary sites are located on land. All land locations will require canopy structures and will be used for multi-purpose. Figure-1 below illustrates the project locations.



Figure 1 Primary (yellow) and Secondary (red) Solar installation Locations Addu City (ASPIRE)

Firstly, a general description of the environmental and socioeconomic condition of Addu is described. Secondly, the specific description of each of the selected sites are presented.

1.1 GENERAL ENVIRONMENTAL AND SOCIOECONOMIC CONDITIONS, ADDU CITY

1.1.1 Geography

Addu atoll consists of a total of 24 natural islands of various sizes lie on a heart shaped coral rim. The islands on the western side of the Atoll have been linked by a 14km man-made causeway that links the islands of Hithadhoo, Maradhoo, Maradhoo Feydhoo, Feydhoo and Gan (Figure 2). On the eastern rim of the atoll, lie the islands of Hulhudhoo and Meedhoo and the tourist resorts Herathera and Shangri-la's Villingilli Resort & Spa. At the Southern tip of the Atoll is Gan International Airport (Figure 2). The atoll possesses four channels that lead into the lagoon.



Figure 2 Map of Addu City

Addu is home to three environmentally significant protected areas, making up the Addu Nature Park. The Nature Park is comprised of one of the biggest wetland areas in the Maldives Eydhigali Kilhi with its many migratory and resident bird species, Koathey with rich history and folklore, a large well preserved coral reef rich in diversity off Koathey, Bedhi- a bay area, with mangroves and crabs, an year round Manta point off Kandihera- Maakandu channel and British Loyalty shipwreck – one of the if not the best shipwreck dive spot in the country (Figure 3).



Figure 3 Protected Areas of Addu

None, of the proposed sites under ASPIRE fall under the boundary of the protected Area.

1.1.2 Risk of Cyclones

Addu is the southern most atoll of the Maldives. Modelling studies indicate that southern atolls of Maldives are less exposed extreme whether events when compared to northern atolls. In this regard, modelling data indicate that risk of cyclones does not exist in southern most atolls of Maldives. Data from period 1877 to 2014 indicate that there were 21 cyclonic disturbances within 500km radius of Maldives and none of it passed through the southern most atolls (Figure 2) (UNDP, 2006) . Hence, cyclonic wind hazard risk in the Maldives decreases from north to south (Figure 3) (UNDP, 2006). As can be seen from Figure 3 Addu falls in region 1, which has been characterized as a location which is not affected by any cyclonic activity. Thus, the project is located at a site with low risk of extreme whether events.

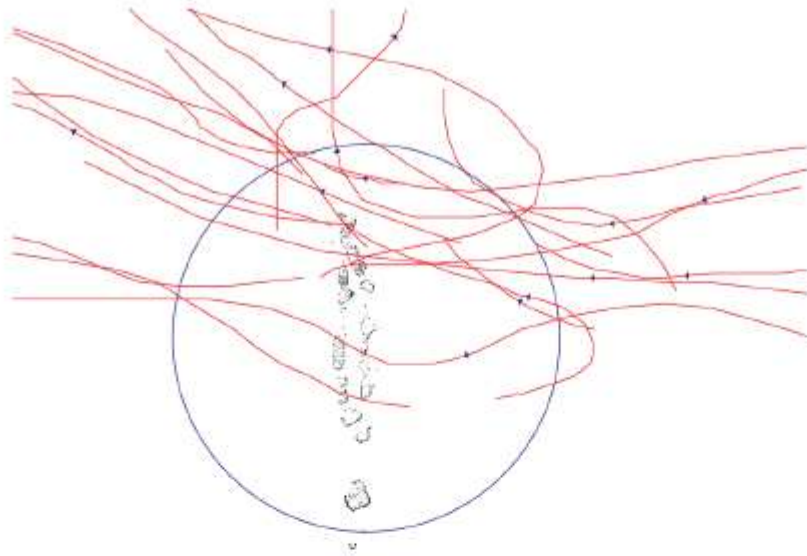


Figure 4 Tracks of Cyclones that passed through as scan radius of 500 km

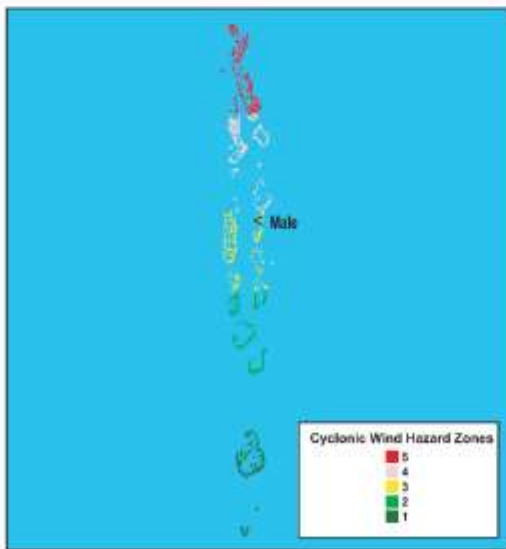


Figure 5 Cyclonic Wind Hazard Map Maldives

1.1.3 Rainfall

In terms of rainfall, southern atolls of Maldives generally receive more rainfall than northern atolls. Southern atolls receive on average 2,280 mm per year of rainfall while northern atolls receive on average 1,790 mm per year of rainfall (MEC, 2004). Data taken from the meteorological station in Gan, Addu, indicates that mean annual rainfall in Gan is 2,299.3 mm (MEC, 2004). Figure 4 show mean monthly rainfall in Gan (Shaig, 2018).

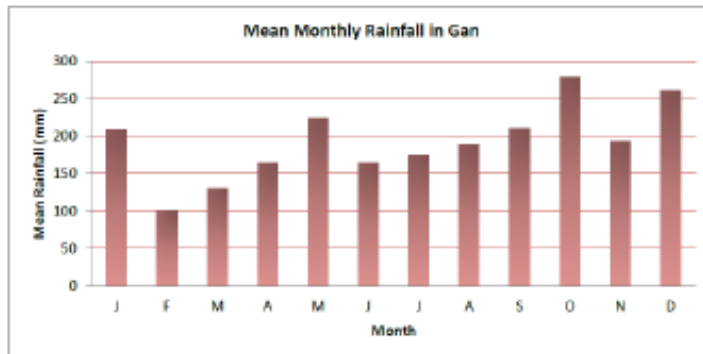


Figure 6 Mean monthly Rainfall in Gan

1.1.4 Tides

Addu is home to one of three Tidal monitoring stations in Maldives. Tide floods into Addu Atoll lagoon through Villigili Kandu on the southeastern periphery of the atoll and Koda Kandu on the north periphery of the atoll only. While, the flow through Gan Kandu on the southern tip of the atoll and Maa Kandu on the north periphery of the atoll is out from the atoll lagoon. The tide ebbs from the atoll lagoon through all four channels. Tides in Addu has been classified as mixed, dominantly a diurnal tide. The tidal range in Addu has been estimated at 1.09m.

1.1.5 Socioeconomic Environment

As of 2019, the resident population of Addu City is predicted to be 25,970, of which 15,343 are males and 10,627 are females. Addu is known to have unique dialect and historically the British established military bases in Gan and Koatthey Area of Hithadhoo.

The main economic activity in Addu like in other parts of the Maldives are tourism and fisheries. With 03 Tourist resorts currently under operation and 04th under construction and a number of guest houses under

operation tourism is expanding rapidly in the city. Moreover, the commencement of direct flights from Srilanka to Gan recently, has had the effect of boosting tourism in the city. Hithadhoo and Maradhoo are seen as the main fishing islands of the city.

In terms of services there are a number of primary and secondary schools and one high school in Addu. Moreover, Maldives National University (MNU) and number of private colleges have campuses in Addu.

A tertiary hospital is set to be opened in Addu this year, hence health care in Addu is in a better position than in most parts of the country. Moreover, water and sewerage network construction is underway in all parts of the city. Fish factories, water bottling plants and other such manufacturing industries are also located in Addu. Overall Addu is an epicenter of economic activities.

2 PRIMARY SITES

2.1 SITE 1: MARADHOO HARBOUR AREA

2.1.1 General Description of the site

The proposed site is located west of Maradhoo Harbour. The area allocated for floating solar in this location is 11,690 m² (Figure 7).



Figure 7 Maradhoo harbour floating site

2.1.2 Environmental and Socioeconomic Aspects

1. Depth: 1 to 2m at MSL (Shaig, 2018).
2. Wave activity: Swell waves in Maldives are typically associated with southern Indian ocean storm activity. Studies indicate that these waves predominantly come from south-west to southerly direction. In open ocean these waves typically have wave periods of 14 to 20 seconds with a maximum height of 03 meters. As the proposed site at maradhoo is in the lagoonward side, the site is predominantly protected from swell wave activity. Despite this some diffracted and refracted swell waves from the Gan channel could impact the area during certain times of the year. According to the council the area experiences flooding as a result of south west monsoon swells during spring tide. During the day of the field visit, which was during spring tide swell activity could be observed and flooding occurred the day after the field visit. Figure 8 shows the predicted wave condition around the project site (Shaig, 2018).

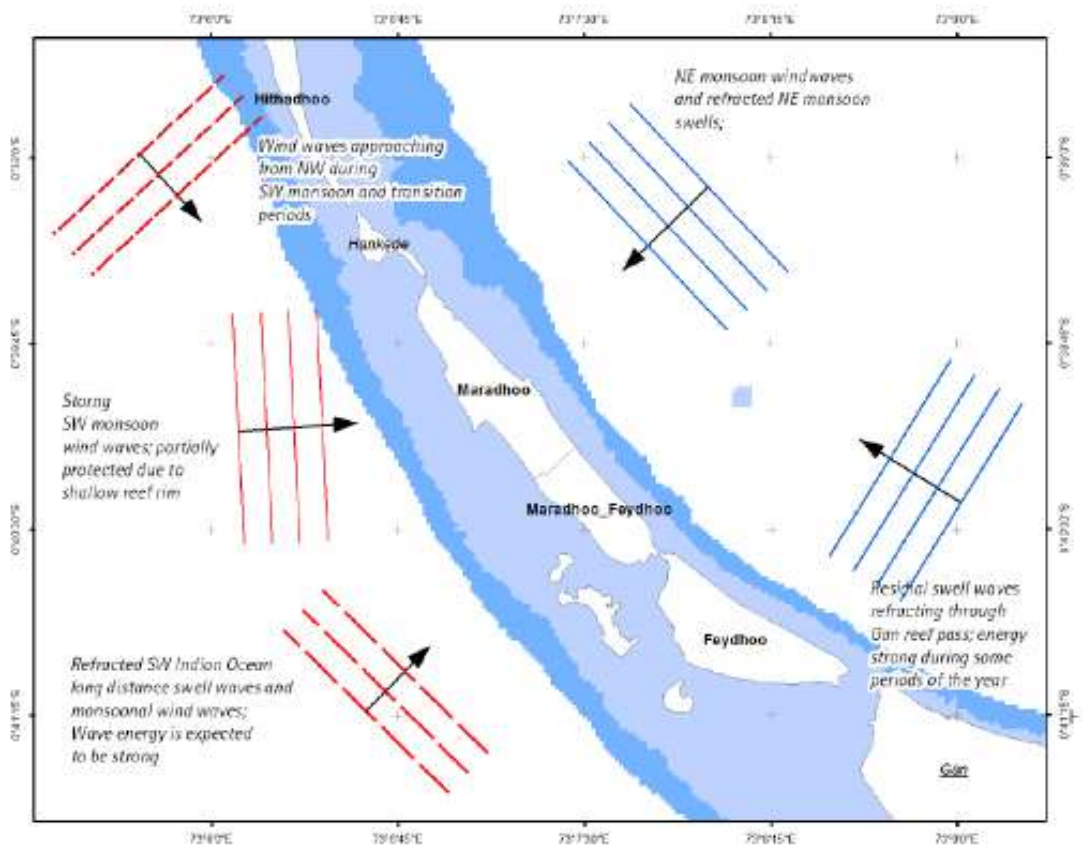


Figure 8 Predicted Wave Activity at Project Site

3. Currents: Currents can be a result of tides, wind or waves. Predominant of these in the Maldives is wind-induced seasonal currents. The currents generally flow westward during the north-east monsoon and flow eastwards during the south west monsoon. On the spot currents at the site

taken on 7th August 2018 show north, north easterly flows of 0.06 m/s and 0.014 m/s respectively. Long term current measurements during the both monsoons and during monsoon transition period needs to be undertaken to accurately understand the detailed current activity at the site.

4. Lagoon bottom: The site was photographed using a GoPro camera. The lagoon bottom of the site comprised of few coral patches, however predominantly the site consists of sandy bottom (Figure 9). Closer to the shore than the proposed site a seagrass bed could be observed. Turtle grass (*Thalassia hemprichii*) is the dominant seagrass found in this location (Shaig, 2018). Seagrass acts as a habitat for small fish, sharks, rays and other marine life. And sea turtles often graze seagrass beds. During the site visit a green sea turtle (*Chelonia mydas*) was observed. As can be seen from Figure 7, the floating platforms are placed to avoid the coral patches close to the reef and the seagrass close to the shore. Experience of small-scale floating solar installation in the Maldives indicate that the floating platforms can act as fish aggregation sites, thus ecologically such platforms can have positive impacts as well on marine life.



Figure 9 General Condition of the site

5. Socioeconomic Aspects: There is no planned additional reclamation proposed to the site. Even in future if reclamation occurs it will be closer to the shore, hence the project will not affect any such activities. With the expansion project of the harbour ongoing, further expansion in the near future is unlikely.

2.2 SITE 2: RAF SITE, HITHADHOO

2.2.1 General Description of the site

The proposed site is located in the Hithadhoo Port Area, locally known as the Royal Airforce Force (RAF) Area, as this is the location where a RAF station was located when the British had an Airforce base in Gan, during 1950s through till mid 1970. This site is south of the Hithadhoo Port, the only commercial port in the south of Maldives. This is by far the largest site selected for solar installation in Addu, with 8,2755 m² of lagoon space allocated for the purpose.



Figure 10 RAF floating solar site

2.2.2 Environmental and Socioeconomic Aspects

1. Depth: 2 to 3 m at MSL (Zahid, 2016).
2. Wave activity: Swell waves in Maldives are typically associated with southern Indian ocean storm activity. Studies indicate that these waves predominantly come from south-west to southerly direction. In open ocean these waves typically have wave periods of 14 to 20 seconds with a

maximum height of 03 meters. As the proposed site at RAF site is in the eastern lagoonward side, the site is predominantly protected from swell wave activity. Furthermore detailed disaster risk assessment undertaken in Hithadhoo indicate that even seaward western coast opposite the project location receive moderate to low energy waves (Figure 11). However, this site can also experience defracted and refracted swell waves coming from the Gan channel. However since further away from the channel than the Maradhoo site, the impact is predicted to be less than the Maradhoo site.

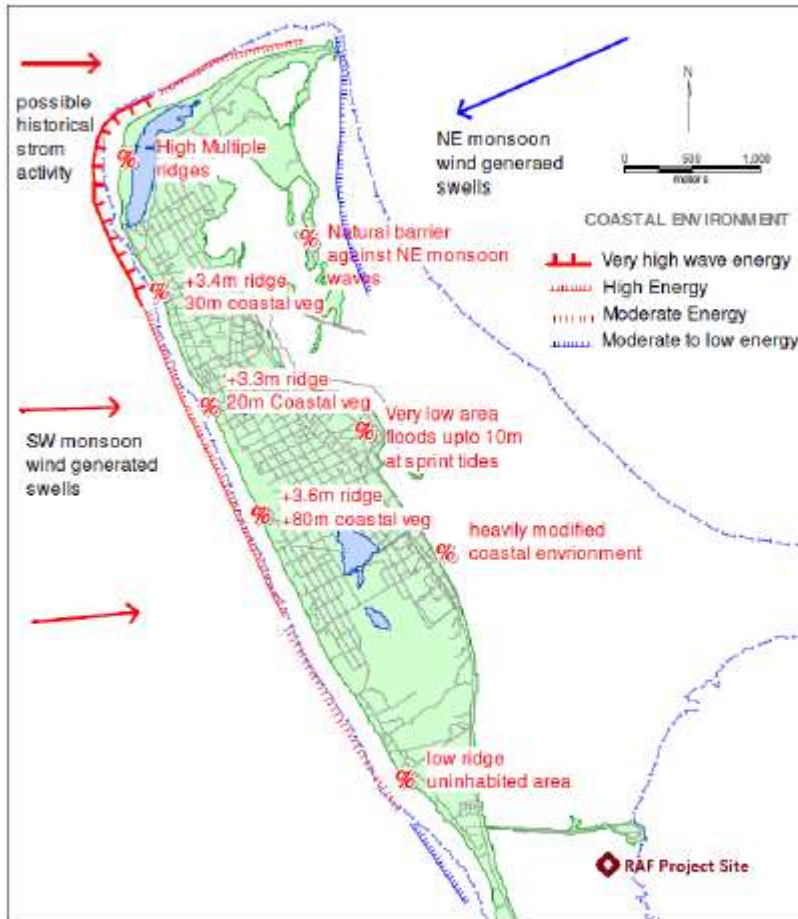


Figure 11 Predicted wave activity at the project site

Currents: Currents can be a result of tides, wind or waves. Predominant of these in the Maldives is wind-induced seasonal currents. The currents generally flow westward during the north-east monsoon and flow eastwards during the south west monsoon. Spot current measurements at the site during August 2016 indicate that the currents were flowing north easterly direction at 0.06m/s (Zahid, 2016). Long term current measurements during the both monsoons and during

monsoon transition period needs to be undertaken to accurately understand the detailed current activity at the site.

4. **Lagoon Bottom:** The lagoon bottom at the site consists of predominantly sand (Figure 12) (Zahid, 2016). Like the Maradhoo site this site also has a seagrass bed closer to shore and few coral patches closer to the reef, however the location is selected such that these are very much avoided (Figure 10). As highlighted previously floating solar platforms act as fish aggregation sites thus can have positive impacts on the environment in this regard.



Figure 12 Lagoon Bottom at the proposed site

5. **Socioeconomic Aspects:** This site was provided by the council as an ideal site for floating solar installation. The site has the advantage of being close to the powerhouse. Moreover, it is located in an industrial zone with the new proposed waste management centre, police training academy and the port in close proximity. In terms of future planned developments, the council plans to reclaim the area as shown in site map (Figure 10). The placement of the floating platform is such that, space for such reclamation is allocated (Figure 10).

2.3 SITE 3: HULHUMEEDHOO HARBOUR LOCATION

2.3.1 General Description of the site

Located Southeast of the Harbour, this location is sheltered by the main harbour of Hulhumeedhoo (Figure 13). Lagoon space of 21601 m² is acquired for the purpose of solar installation.

HulhudhooMeedhoo Harbour Floating Solar (ASPIRE Site)



Figure 13 HulhudhooMeedhoo Floating Solar Site

2.3.2 Environmental and Socioeconomic Aspects

1. Depth: 0 to 1 m at MSL (Zahir, 2010).
2. Wave activity: Swell waves in Maldives are typically associated with southern Indian ocean storm activity. Studies indicate that these waves predominantly come from south-west to southerly direction. In open ocean these waves typically have wave periods of 14 to 20 seconds with a maximum height of 03 meters. As the hulhudhoo harbour location is eastern rim of the atoll swell waves coming from south-west are unlikely to impact this location. Moreover, as can be seen from Figure 13 the site is sheltered by the reclaimed land of the harbour, hence the site is well protected from wave activity.
3. Currents: Currents can be a result of tides, wind or waves. Predominant of these in the Maldives is wind-induced seasonal currents. The currents generally flow westward during the north-east monsoon and flow eastwards during the south west monsoon. Spot current measurements are not available at this site. Long term current measurements during the both monsoons and during monsoon transition period needs to be undertaken to accurately understand the detailed current activity at the site.

4. Lagoon Bottom: The lagoon bottom at this site consist of a seagrass bed. Surveys undertaken in 2010, prior to harbour being developed in this area, indicate that the site consists of predominantly Turtle grass (*Thalassia hemprichii*) (Figure 14) (Zahir, 2010). Seagrass beds harbour producers (seagrasses, gastropods, rays and sharks), grazers (urchins), suspension feeders (clams and tube worms), detritus feeders (clams and worms), carnivores, (gastropods, rays and sharks), other fish, turtles and dugongs. Eventhough, seagrass beds are important ecological habitats, this area of hulhumeedhoo harbour is already very much modified, by the harbour development activities and reclamation activities undertaken. Moreover, as highlighted below, further reclamation is planned for this location. Hence regardless of the project the seagrass bed of this location is unlikely to survive long term.



Figure 14 Lagoon Bottom at the proposed site

5. Socioeconomic Aspects: The council suggested that the seagrass bed at this location is earmarked for reclamation. However, they are willing to leave 2 ha without reclamation as shown in figure for solar panel installation.

2.4 SITE 3: HITHADHOO STADIUM

2.4.1 General Description of the site

Parking Areas of the main stadium in Addu, the hithadhoo stadium has been allocated for ASPIRE project. A total area of 5252 m² is designated for solar installation. Parking Areas are designated to the east of stadium and either side of the main viewing stand (Figure 15).

Hithadhoo Stadium (ASPIRE Site)



Figure 15 Hithadhoo Stadium site

2.4.2 Environmental and Socioeconomic Aspects

1. Environment Condition: There are three sites proposed by the council one on the eastern side of the stadium and two sites in the western site (Figure 15). Some vegetation needs to be removed for the purpose. In this regard a total of 6 palms and 19 trees could be found in the eastern parking site (Figure 15, 16). As for the site on the north-western site, only one tree falls in the exact footprint (Figure 15, 17). It maybe possible to undertake the project by removing only this tree, based on shading assessments. As for the south-western site, again only one tree falls on the footprint, thus removing just this tree might be sufficient. It is important that all trees and palms removed for the purpose of the project are replanted elsewhere in the city.



Figure 16 Stadium east (right) and west side (left)

2. Socio-economic Aspects: The council proposed to use the proposed sites as parking area for the stadium. Thus, the only design condition is that cars should be able to park underneath the structure.

2.5 SITE 4: HITHADHOO STAGE

2.5.1 General Description of the site

Hithadhoo Stage area is the main stage area where outdoor events are held. The council plans to develop the area as an outdoor cinema. And area of 5804 m² is allocated from this site.

Hithadhoo Stage Area (ASPIRE Site)



Figure 17 Hithadhoo stage area solar site

2.5.2 Environmental and Socioeconomic Aspects

1. Environment Condition: As can be seen from Figure 17, no trees are found within the footprint of the proposed structure. Considering the distance from the tree line to the east and west significant shading is also not expected.
2. Socio-economic Aspects: The council proposes to develop this area as an outdoor cinema. Hence it should be of a nice design and should be of appropriate height so as not to restrict the view of anyone.

2.6 SITE 5: HITHADHOO HABOUR

2.6.1 General Description of the site

This site is parallel to Hithadhoo harbour. This is the main harbour of Hithadhoo and hence the harbour area can be quiet busy (Figure 18). The council wants to develop the area as a Sunday market site, hence a canopy structure is quiet compatible. A total area of 5575 m² are allocated at this site.

Hithadhoo Harbour (ASPIRE Site)



Figure 18 Hithadhoo harbour site

2.6.2 Environmental and Socioeconomic Aspects

1. Environment Condition: Two locations are proposed the north western site and the south eastern site (Figure 18). For the south-eastern site it is reclaimed land and no significant vegetation could be found here. However, for the north-western site, a total of 41 trees and palms needs to be removed (Figure 18). In this site predominantly beefwood trees could be found which is not a native trees species. It is important that all trees and palms removed for the purpose of the project to be replanted elsewhere in the city.
2. Socioeconomic Aspects: The council proposes to use the harbour area as a Sunday Market, where local produce are sold. Thus, any design of the canopy structure should take this into account. Again, it is the councils requirement the place should be aesthetically pleasing.

2.7 SITE 6: FEYDHOO HABOUR AREA

2.7.1 General Description of the site

This site is in the reclaimed land west of the feydhoo harbour. Thus, this is barren land at the moment. An area of 10269 m² is allocated at this site.

Feydhoo Harbour (ASPIRE Site)



Figure 19 Feydhoo haboure reclaimed land

2.7.2 Environmental and Socioeconomic Aspects

1. Environment Condition: The site is located west of the Feydhoo Harbour location. This is a reclaimed site thus not much environmental impacts are envisioned.
2. Socioeconomic Aspects: The council proposes to build this area such that the area could be used for some-kind of recreational area where the community members use for resting etc. Thus, any design should not compromise this requirement of the council.

3 SECONDARY (BACK-UP) SITES

The back-up secondary sites identified by the council are to be utilized if primary sites could not be used for some unforeseen circumstance. All these sites are on land. Moreover, the Moolekede area in Hithadhoo and Maradhoo Harbour area are in reclaimed land, thus not much impacts are envisioned. The area in Hulhumeedhoo is the former dump site for waste of the island thus some level of clearing of the site will be required prior to undertaking project activities.

4 CONCLUSION

This report is a rapid social and environmental assessment of the sites selected for Solar PV installation in Addu through ASPIRE project. These sites have been identified by the council and Memorandum of Understanding (MoU) has been signed with the council on 29th July 2019 confirming these sites. If this project is realized this will be the biggest solar PV installation project in Maldives. It is planned to install a minimum of 10 MW of PV through this phase of ASPIRE. The sites identified by the council if used to the maximum exceeds over and beyond this capacity.

5 REFERENCES

Shaig, A. (2018). Environmental Impact Assessment for the proposed harbour development project at Maradhoo Island, Addu City. Male', Maldives: Commerce Development and Environment Pvt Ltd.

United Nations Development Program (UNDP) (2006). Developing a disaster risk profile for Maldives. Male', Maldives: UNDP Maldives.

Zahir, H. (2010). Environmental Impact Assessment harbour development works, Hulhumeedhoo, Addu City. Male', Maldives: Land and Marine Environment Resource Group Pvt Ltd.

Zahid, A. (2016). Environmental Impact Assessment for the proposed Police Academy Development Project, Addu City. Male', Maldives: Sandcays Pvt Ltd.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

MEMORANDUM OF UNDERSTANDING

between

MINISTRY OF ENVIRONMENT

and

For commitment on mutual cooperation and support for the successful implementation of Accelerating
Renewable Energy Integration and Sustainable Energy (ARISE) Project

REF NUMBER:

Dated: [.] 2019

THIS MEMORANDUM OF UNDERSTANDING (the “MoU”) is made on [.]

BETWEEN:

MINISTRY OF ENVIRONMENT of the Government of Republic of Maldives, having its office at Green Building, Handhuvaree Hingun, Maafannu, Male', 20392 in the Republic of Maldives (hereinafter referred to as “ME”).

And:

[.], having its office at _____, [.] , Republic of Maldives (hereinafter referred to as the “**Council**”).

(Collectively hereafter referred as “**Parties**”)

WHEREAS;

- A. ME is desirous of executing a Memorandum of Understanding for commitment on mutual cooperation and support between Government Agencies, State Owned Enterprises and such other stakeholders necessary for the successful execution of Project(s) (as defined hereunder) carried out by or in connection with ME on behalf of the Government of Maldives (GoM), for the successful implementation of National Government Policies related to Energy; and
- B. GoM, represented by ME with the support of STRATEGIC CLIMATE FUND and the INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA) has initiated a project in the Maldives titled Accelerating Renewable Energy Integration and Sustainable Energy (herein referred to as “the Project” or ARISE) project, whereby private investors are invited to develop solar Photovoltaic (PV) systems on identified Site(s); and
- C. For the implementation of the Project, ME and the Council has mutually identified the Site(s) to develop solar PV system in accordance with Project Framework Documents (as defined hereunder);
- D. ME and the Council desire to execute this MoU for mutual support and cooperation in the successful implementation of the Project.

NOW THEREFORE, the Parties agree as follows;

1. Unless the context otherwise requires, in this MoU the following terms shall carry the meanings as set forth below;
 - 1.1 “Applicable Law” means any and all local policies, statutes, laws, regulations, ordinances, rules, rulings, judgements, orders, decrees, Authorizations, licenses or other governmental requirements or restrictions or any interpretation or administration of any of the forgoing, in effect at the time of entering into this MoU or shall come in to force in the future, in the jurisdiction of Republic of Maldives.
 - 1.2 “Authorizations” means permits, approvals or licenses required for the execution of the Project(s).
 - 1.3 “Donor” means International Development Association of World Bank.
 - 1.4 “GoM” means Government of Maldives constituted under the Constitution of Maldives and shall include all the ministries, departments, authorities, agencies and persons thereto.
 - 1.5 “Government Agencies” means Ministry of Environment, Maldives Energy Authority, other government ministries, departments, State Owned Enterprises, statutory bodies and regulatory bodies with any jurisdiction over the implementation of the Project(s) and involved in the provision of Energy, and protection of the Environment under Applicable Law in the territory of the Republic of Maldives.
 - 1.6 “GRM” means the Grievance Redress Mechanism prepared as may be agreed between the Parties for the purpose of resolving social issues or grievances arising out of or in connection with the Project Framework Documents.
 - 1.7 “Investor(s)” means local and international private parties procured by GoM through ME or Ministry of Finance, to execute the Project.
 - 1.8 “ME” means Ministry of Environment and shall include the Maldives Energy Authority administered under ME and other departments, authorities, agencies, representatives and persons thereto.
 - 1.9 “Project” means ARISE, and any phase or sub-projects thereof.
 - 1.10 “Project Framework Documents” means all bid documents, letters of tender, Agreements, and all such other documents and communications related to the Project.
 - 1.11 “Site(s)” means the roof-top(s) and/or the terraces of the building(s) and such other public spaces mutually identified in [.] to be used for the purpose of Project. The locations, areas and dimensions are more fully described in the ANNEXURE hereto.
 - 1.12 “Site Agreement(s)” means any such legal agreements executed to provide a valid and binding leasehold interest in, or an easement, right-of-way, license, or other right in favor of the Investor to use the Site(s) in order to develop the Project.

2. Parties recognize that the successful implementation of the Project is a collective responsibility of GoM and the parties to the Project Framework Documents, and the Parties further acknowledge that ensuring the necessary Site(s) for Investor(s) is critical for the successful implementation of the Project, and to that end;
 - 2.1 the Council hereby undertakes to;
 - 2.1.1 enter in to Site Agreement(s) with the Investor(s) in order to secure the Site(s) for the implementation of the Project, under the terms and conditions agreeable to the Parties; and
 - 2.1.2 utilize any fees acquired through the Site Agreement(s) for the benefit of the Hinnavaru Island community, as maybe agreed between the Parties;

- 2.1.3 provide necessary support in facilitating adequate resolution of issues or disputes arising out of or in connection with the Site Agreement(s) and in the maintenance of Site(s), in accordance with the provisions of Project Framework Documents and GRM; and

- 2.1.3 fully comply with the provisions of the Site Agreement(s), and carry out such actions, without any undue delay, as maybe required by ME or any other party to the Project Framework Documents to enable such parties and GoM to comply with the Project Framework Documents in the performance of their obligations thereunder; and

- 2.1.4 fully cooperate with ME, the Investor(s) and such other parties to the Project Framework Documents where necessary, upon any reasonable request by such party in the performance of their obligations under the Project Framework Documents; and

- 2.1.5 keep ME informed of any and all communications related to, or which shall have an impact on the Project, exchanged between the Council and the Donor, Investor(s), Government Agency, any other party to the Project Framework Documents, or any other third parties; and

- 2.1.6 disclose to ME such other information related to the Project, without delay, upon any reasonable requests made by ME from time to time; and

- 2.1.7 carry out such actions on its part to enable the parties to the Project Framework Documents to obtain any and all Authorizations required for the execution of the Project under the said Documents.

2.2 ME hereby undertakes to;

- 2.2.1 provide necessary support in facilitating adequate resolution of issues or disputes arising out of or in connection with the Site Agreement(s) and in the maintenance of Site(s), in accordance with the provisions of the Site Agreement(s), the GRM and other Project Framework Agreements; and

- 2.2.2 ensure that no costs arising out of or in connection with the Project shall be borne by the Council, during the subsistence of the Site Agreement(s).

3 This MoU shall be effective from the date above mentioned and shall continue in full force unless terminated by either Party upon providing reasonable written notice to the effect or upon determination of the Site Agreement(s), as specified therein.

- 4 The Parties shall appoint a person(s) as a focal point in their organization for the implementation of this MoU and shall inform one another of such appointment.

- 5 All communications pursuant to this MoU, unless otherwise agreed, shall be exchanged in writing and delivered by person or via Government E-letter Management System (GEMS), email or legible facsimile transmission to the addresses set forth below, or to such other addresses, email or telefax numbers either Party duly inform in writing from time to time.

For ME

Name: Mr. Ajwad Musthafa
Designation: Permanent Secretary
Address: Green Building,
Handhuvaree Hingun,
Maafannu, Male', 20392, Republic of Maldives
Email: ps.unit@environment.gov.mv
Fax: +960 3018301

For the Council

Name:
Designation:
Address:
Email:
Fax:

- 6 Any amendments to this MoU shall be in writing and as may be agreed between the Parties. The Parties may under mutual agreement include additional Site(s) to the ANNEXURE I hereunder from time to time through an Addendum to this MoU. The Parties shall ensure that any amendment shall not adversely impact the implementation of the Project.

- 7 Any issues or disputes arising out of, relating to, or in connection with this MoU shall be resolved through amicable negotiations among executives or management of the Parties appointed by the Parties for the purpose.
- 8 Parties hereby agree that it is their intention that this MoU shall be executed and delivered in good faith between the Parties and to the best interests of GoM and that if, either Party believes that the other Party is operating in breach of this MoU, or to the detriment of the interests of GoM, the Parties will use their best efforts to agree on such action as may be necessary to amicably remedy such breach or actions.
- 9 The Parties agree that they will hold in confidence the provisions of this MoU, all information, documentation etc., which comes to their knowledge in the course of implementing this MoU (the “Confidential Information”).
- 10 The Parties agree not to disclose any Confidential Information without the other Party’s prior written consent provided that the Confidential Information may be disclosed to any governmental or regulatory authority requiring such disclosure under law.
- 11 The Parties agree not to publicize at any time, including making public announcements or press statements or issuing press releases of any kind or release any information related to or about this MoU without the other Party’s prior written consent.
- 12 This MoU shall be governed by and construed in accordance with the laws of Republic of Maldives.

IN WITNESS THEREOF, the parties hereto, acting through their duly authorized representatives have caused this Memorandum of Understanding to be signed in [.]on the [.] day of [.]

For and on behalf of ME

In the Presence of:

Name: Dr. Hussain Rasheed Hassan

Name:

Designation: Minister of Environment

ID Card Number:

Date: [.]

Signature & Seal

Signature

For and on behalf of the Council

In the Presence of:

Name:

Name:

Designation:

ID Card Number:

Date: [.]

Signature & Seal

Signature

ANNEXURE

Selection of the Site(s) listed below are subject to the necessary technical assessments.

ANNEX 25: MINUTES OF CONSULTATION MEETING

Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) Project

Environment and Social Management Framework (ESMF), Stakeholder Engagement Plan (SEP) and Labour Management Procedure (LMP)

Session Minutes

Date: February 20, 2020

Time: 1000-1200

Venue: 3rd Floor, Asaree Maalam, SHE Building

Meeting Attendees attached.

1. INTRODUCTION

The permanent secretary of Ministry of Environment (ME), Mr. Ajwad Musthafa kicked off by welcoming all officials to the ESMF session of ARISE and thanked everyone on behalf of the Ministry and Minister for their support towards the implementation of the project. He further informed of the announcement of 21MW Solar PV installation for pre-qualification in January 30, 2020.

2. AGENDA BRIEF

The Environmental and Social Safeguards Specialist of the project, Mr. Hamdhaan briefed the attendees on the agenda:

- Introductory video on ARISE
- ESMF, SEP and LMP explanatory video
- Q&A and feedback session

3. INTRODUCTORY VIDEO ON ARISE

The video comprised of explanations on the components of the project and its structure.

The Project Manager, Maumoon Khalid further highlighted the following:

- The project is in the formulation stage, however the 21MW sub-project was published through advance procurement under ASPIRE project.
- The financial structure of ARISE is yet to be finalised and consultations and discussions are ongoing regarding the matter.
- Introduction of Project team.

Legal Specialist of the project, Hassan Shiyam Mohamed informed that more atolls are to be included in the second sub project, which currently includes Laamu atoll and Lh. Naifaru.

4. ARISE ESMF EXPLANATORY VIDEO.

The video included details on the new framework and the following were covered:

- Explanation on the World Bank environmental and social standards that were relevant to the Project.
- Details of ESMF, including responsible parties for implementation and key impacts identified
- Labour management procedure details, including information relevant for direct and contracted workers

- Stakeholder engagement plan details including those who will be consulted and how vulnerable groups will be consulted.
- Grievance redress mechanism details

Hamdhaan highlighted the following

- Consultations and social surveys to be conducted in collaboration with Councils.
- Major monitoring works to be conducted with FENAKA and STELCO
- Training to be provided to the relevant staff of FENAKA, STELCO and Councils.

Shiyam stated that scope of the project is relatively large and the World Bank requires the project to be implemented with the engagement of stakeholders as much as possible. It is a requirement of WB to share the information on frameworks and standards as such with the stakeholders and to incorporate their feedback.

5. Q&A AND FEEDBACK

Thinadhoo Council, GDH. Thinadhoo

Ibrahim Riyaz, Vice President.

- There are a very limited number of technical staff in the islands. The council aspires to increase and build capacity of the employees in the islands in the technical area.
- The council inquired regarding the benefit of the project to the island community. More specifically on whether the electricity bill of individual households will be reduced. In addition, how the project plans to demonstrate the benefit of the project to the public.

ME response:

- As the Solar PV is installed through private sector investments, the WB provides guarantees. The investor will be installing and maintaining the installation for 15-20 years under IPP model. This will reduce the load to STELCO and FENAKA concerning maintenance and operation. The large scale of the project will enable the utility to purchase electricity at a lower price than diesel generation. This will ultimately reduce the fuel subsidies, which costs the government billions. The project is aimed to support the policies of the government, reduce the expenditure spent on fuel subsidies, ultimately benefiting the whole nation.
- Under component 4, capacity building is included where programs and trainings will be provided to utilities and more importance will be given to the employees of the selected islands. The WB also stresses on this matter.
- The current sites identified were selected with the consultations from the councils and will be utilised in multipurpose manner that will benefit the community.

Fonadhoo Council, L. Fonadhoo

Fathimath Zaeema, Director

- Council expressed enthusiasm towards the project and inquired regarding the date of commencement of the project in Laamu Atoll.

ME response provided:

- The project has not been launched officially and the formulations works are ongoing. However, the subproject 1 has been published and the preliminary works required for the second subproject is underway. Before the bidding process can be started, further research and assessments are required. The project expects to start working on the bid document of the second subproject in Mid-2020 and published roughly around December 2020.

Addu City Council, Seenu Atoll

Abdulla Sodig, Mayor

Mayor appreciated the initiative of the project and thanked the ministry on behalf of the council. Highlighting the existence of extensive electricity problems in the country, he made the following points.

- The impacts on the electricity bill with the project. This is a main question from the community.
- Highlighted that the maintenance of the 1.6MW installed under POISED project is poor.
- 300kw has been installed in individual households and the City is aspiring to install 500kw by the end 2020.
- Highlighted that the peak load of Addu is 8MW. ARISE project is installing 11 MW and FENAKA has planned to implement a diesel generation project. Mayor inquired how the two projects would be implemented simultaneously.
- Currently FENAKA lacks the mechanisms to monitor the cloud effect and there has been several occasions where the power has been interrupted due to cloudy environment.
- Mayor inquired whether proper research has been conducted as the most recent EIA of FENAKA indicated that grid upgradation was not necessary.
- Whether uninterrupted electricity provision would be guaranteed.

Response from:

FENAKA Corporation

Abdulla Nashith, Director, Technical Services and Green Energy Department

- Both projects from FENAKA and the Ministry requires to be streamlined and requires extensive research and consultations, which is ongoing.
- The growth rate of Addu City over the 15 years indicate that 18MW will be the peak demand of the City. As Solar PV is an intermittent source of electricity, FENAKA has a 20 MW diesel plant project planned for the City.
- Under the ARISE project, battery storage systems are also to be installed. Without the battery system, the cloud effect would cause a negative impact on the electricity provision.
- Assured that adaptable and integrated mechanisms will be implemented.

Ministry of Environment

Ahmed Ali, Director General, Energy Department

- The government currently spends 1 billion MVR for fuel subsidizing which has maintained the provision of electricity to the country at a sustained rate. This amount of subsidy is expected to be reduced with the large-scale solar PV installations around the country.
 - Though the peak load of Addu is 8MW, the current grid system is old and since the loss is high, the feeder requires curtailing as the grid does not contain the capacity. With solar PV installations, the electricity will be generated for 5 hours roughly from the 24 hours of the day. Therefore, as backup, grid upgradation and well-functioning powerhouses needs to be built in Addu as well as Laamu atoll in order to guarantee uninterrupted electricity provision.
 - The exact price of tariff cannot be determined now, however a reduction in the prices have been identified from the Phase and Phase 2 bids of ASPIRE.
-

State Electric Company

Hussain Ageel Hassan, Assistant Engineer

- Inquired regarding the buy down component of the project.
- Stated that if the battery is not installed simultaneously, there will be power interruption.

ME Response:

- The size of the battery for Addu City is not yet determined. The estimate is 11 MW hours.
 - The required commitments and funds has already been secured from WB and for confirmation, investment requirements from the government is yet to be established.
 - The 21MW project does not include a buy down component as the renewable energy rates globally is decreasing and the scale of the project will enable the investors to benefit economies of scale.
-

Maldives Civil Aviation Authority

Abdulla Mohamed, Director Airworthiness

- Inquired regarding the role of MCAA and airlines in the project.

ME Response:

- Included as a stakeholder as the Solar Sites selected in Kulhudhuffushi and Fuvahmulah is in airport boundary.
 - Glare assessments were conducted as per international best practice.
 - For site securing purpose, regional airport is engaged and MOU has been signed.
-

Kulhudhuffushi Council, HDH. Kulhudhuffushi

Ali Hashim, Vice President

- Highlighted that there has been no visible benefit of solar projects to the island community.

ME Response:

- According to the current schedule, Solar PV is expected to be installed and commissioned by December 2021.
 - All of the installed solar is connected to the network and distributed by the utilities. Due to the solar PV, the tariff rates are decreased for the utilities. For an example: 21 cents kW/h for ASPIRE Phase 1 and 10.90 cents kW/h for Phase 2. Compared to worldwide solar PV installations, 21 MW is still a relatively small scale installation and does not have the capability to enable price reduction in electricity bills of individuals. However, such projects enables the utilities to sustain the rates without increasing the price and has a gradual decrease on the billions spent on subsidizing. The main aim of the government through such projects is to reduce the losses caused by diesel generation and guarantee uninterrupted electricity provision.
 - Even though diesel generation plants projects are in the pipeline for islands, the renewable energy generated is prioritised to be utilised over the diesel-generated electricity.
-

Thinadhoo Council, GDH. Thinadhoo

Ibrahim Riyaz, Vice President.

- The council requested that the electricity generated from solar PV installation to be utilised for the island only and reduce the price of electricity bills of the island.

ME Response:

- Provision of electricity is a basic necessity. Hence, the government cannot apply different prices of electricity to different islands. It is a government policy to harmonize the electricity price for all islands. The cost of electricity production is lower in the capital city, Male', compared to other islands. Cross-subsidizing method is adopted to maintain the same price in all islands.
 - Under the Decentralisation Act, councils are conferred with more power and has the authority to decide on the utility provider; STELCO or FENAKA or private company. However, the electricity price requires approval from Maldives Energy Authority as the price needs to be consistent across the country.
-

Naifaru Council, LH. Naifaru

Mamnooh Easa, Council Member

- Inquired regarding the commencing date of the project in Naifaru Island and whether the project consists a component for net metering.

ME Response:

- Naifaru island is planned to be included in the second sub-project of ARISE and a survey trip is scheduled for the Island in the upcoming months.
-

Ministry of National Planning and Infrastructure












Fathimath Shaufa, Architect


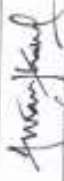







- Inquired regarding the opportunities for private sector to install Solar PV in their rooftops.
- Informed that the Planning ministry can establish a mechanism to identify whether the building holds the structural integrity required for Solar PV installation.

ME Response:

- Public spaces are prioritized over private as the space/site can be obtained for a cheaper price, which will reflect on the tariff rates. However, the project is exploring the options and suitable mechanisms for private parties.

Environment and Social Management Framework Session for ARISE Project Attendees

Institution	Official	Designation	Contact	Signature
Thinadhoo Council	Ibrahim Riyaz	Naib Raees	7829654	
Naifaru Council	Mamnooh Eesa	Council Member	9970066	
Kulhadhufushi Council	Ali Hashim	Naib Raees	9922992	
Fuvahmulah City Council	Mohamed Liraaru	Deputy Mayor	7981626	
Addu City Council	Abdulla Sodig	Mayor	7924030	
Eydhafushi Council	Tholal Abdul Raheem	Raees	9998110	
Fonadhoo Council	Fathimath Zaema	Director	7933131	
Gan Council	Ahmed Shaabeen	Naib Raees	7900194	
Maldives Civil Aviation Authority	Abdulla Mohamed	Director Airworthiness	9663399	
	Abdulla Rasheed	Director Air Transport	7744120	
Regional Airports	Saamee Ageel	Director General	7961111	
	Ahmed Munaz	Director	7786332	
STELCO	Mohamed Nizar Adam	S. Executive Director	7900935	
	<u>Hussain Ageel Hassan</u> Abdul Malik Tharfaed	<u>Assistant Engineer</u> General Manager	<u>7947419</u> <u>775866</u>	
	<u>Dr. Ali Anwar</u>	Deputy Managing Director	7944277	

FENAKA	Abdulla Nashith	Director, Technical Services & Green Energy Department	9993667	
	Ahmed Azleem	Director, Business Development Department	7776216	
Ministry of National Planning and Infrastructure	Aman Kalleel	Administrative Officer	7933030	
	Fathimath Shaufa	Architect	7786283	
Ministry of Finance	Zahidha Mahmoodeh MEMBER PARLIAMANT MEMBER NATIONAL ASSEMBLY MEMBER SENATE	Assistant Resource Mobilization Executive Debt Resource Mobilization Officer Debt Management Analyst	9943515-9990375 7561036-7668284	  
Ministry of Housing and Urban Development	Ahmed Hassaan	Assistant Architect	7923913	
	Ahmed Shameen	Assistant Engineer	7213120	
Hinnavaru Council	Mohamed Solih	Naib Raees	9163610	
BeLeaf Maldives				
Ecocare Maldives				
Bluepeace Maldives				
Maldives Energy Authority				

ANNEX 26: GRIEVANCE REDRESS MECHANISM

Tiers of Grievance Mechanism	Nodal Person for Contact	Contacts, Communication and Other Facilitation by Project	Timeframe to address grievance
<p>First Tier:</p> <p>Contractor (During Construction phase)</p> <p>Independent Power Producer (IPP) (for solar) / Electricity Service Provider (ESP) (for battery and grid) (During Operation Phase)</p>	<p>A person designated for the task need to be identified for the purpose by IPP and Electricity Service Provider.</p>	<ul style="list-style-type: none"> • In the ESP or IPP or Contractor offices and the project site there will be an Information Board providing details of the Grievance redress mechanism listing the names and contact telephones/emails. • Grievances can be registered by contacting the designated person through phone/email or by submitting a letter of complaint or by filling a Tier-1 complaint form. The Tier-1 form must be available online on the websites of the IPP or ESP or Contractor, Ministry of Environment (ME) and from the front office counters of the respective offices. (note PMU of ME should supply the form to respective parties). • For those who cannot properly write, a staff should assist in filling the complaint form and get it signed by the aggrieved party. • A formal receipt of the complaint should be provided to the aggrieved party. 	<p>14 working days</p>

		<ul style="list-style-type: none"> • The IPP/ESP/Contractor will screen the grievance to determine whether the grievance is related to ARISE project or not. • If it is related to the project the aggrieved party should be informed in writing (copied to ME) how the case will be processed as per this grievance redress mechanism. This should occur within 03 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event. • Alternatively, if it is not related to the project the aggrieved party should be informed that it is not related to the project in writing (copied to ME) and should inform how the case will be handled. This communication should occur within 03 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event. 	
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		<ul style="list-style-type: none"> • Where the grievance is related to the project, the IPP/ESP/Contractor should come up with a solution either by (i) discussing internally; (ii) joint problem solving with the aggrieved parties, ME and Island Council or; (iii) a combination of both options. • The IPP/ESP/Contractor should communicate the final decision in writing, in terms how the grievance was handled to the aggrieved party within 14 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event. • The aggrieved party must acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 10 days. • If no acknowledgement is submitted from the aggrieved party then the decision will be considered as accepted. • If the grievance is not resolved to the satisfaction of the aggrieved party within 14 	
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		working days of submission of the grievance to tier 1 then the aggrieved party may notify local council in writing, of the intention to move to tier 2.	
Second Tier: Local Council (Island or City Council or any other party which performs such a function)	Local Council will be the second point of contact. Designated contact persons should be established within the Council with a designated contact number.	<ul style="list-style-type: none"> • Where the aggrieved party is not happy with the outcome of the decision by the IPP/ESP/contractor or where the aggrieved party is of the view that the council is not capable of justly solve the issue or where the grievance is not resolved within 14 working days the grievance can be upgraded to tier 2. • In the council office and the project site there will be an Information Board providing details of the Grievance redress mechanism listing the names and contact telephones/emails. • Grievances can be registered by contacting the local council directed contact person(s) or by submitting a letter of complaint addressed to the Mayor or Council president or by filling a Tier 2 Complaint Form. The Tier-2 form must be available online on the websites of the Island Council, Ministry of Environment (ME) and from the front office counters of the respective offices. (note PMU of 	14 working days

		<p>ME should supply the form to respective parties).</p> <ul style="list-style-type: none"> • For those who cannot properly write, a staff should assist in filling the complaint form and get it signed by the aggrieved party. • A formal receipt of the complaint should be provided to the aggrieved party. • The aggrieved party must submit a copy of the decision from tier 1 and the letter submitted raising their disagreement to decision where the reason for upgrading to tier 2 is the disagreement with the decision from tier 1. • The aggrieved party must submit a copy of the grievance form submitted through tier 1 or the grievance letter submitted to council, where the reason for upgrading to tier 2 is due to lack of response from the IPP/ESP/Contractor. • The council must screen the grievance to determine if the issues and concerns raised in the complaint falls within the mandate of the project. • If it is related to the project council should inform the 	
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		<p>aggrieved party in writing (copied to ME) how the case will be processed as per this grievance redress mechanism. This should occur within 03 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event.</p> <ul style="list-style-type: none"> • Alternatively, if it is not related to the project the council should inform the aggrieved party that it is not related to the project in writing (copied to ME) and should inform how the case will be handled. This communication should occur within 03 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event. • Where the grievance is related to the project, the council should come up with a solution either by (i) discussing within the council; (ii) joint problem solving with the aggrieved parties, ME, ESP and the 	
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		<p>contractor/IPP or; (iii) a combination of both options.</p> <ul style="list-style-type: none"> • The council should communicate the final decision in writing, in terms how the grievance was handled to the aggrieved party within 14 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event. • The aggrieved party must acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 10 days. • If no acknowledgement is submitted from the aggrieved party then the decision will be considered as accepted. • If the grievance is not resolved to the satisfaction of the aggrieved party within 14 working days of submission of the grievance to tier 2 then the aggrieved party may notify ME, in writing, of the intention to move to tier 3. 	
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<p>Third Tier: Ministry of Environment and Energy</p>	<p>ME will forward the grievance to the Project Management Unit (PMU) of the Ministry. A dedicated number should be allocated to</p>	<ul style="list-style-type: none"> • Where the aggrieved party is not happy with the outcome of the decision by the council or where the aggrieved party is of the view that the council is not capable of justly solve the issue or where the grievance is not resolved within 14 working days the grievance can be upgraded to tier 3. • Grievances can be registered by contacting ME (directed to the contact person(s) or by submitting a letter of complaint addressed to the Minister of Environment or by filling a Tier 3 complaint form. • For those who cannot properly write, the ME staff will fill a complaint form and get it signed by the aggrieved party. • A formal receipt of the complaint should be provided to the aggrieved party. • The aggrieved party must submit a copy of the decision from the council and the letter submitted to council raising their disagreement to decision where the reason for upgrading tier 2 is the disagreement with the council decision. • The aggrieved party must submit a copy of the grievance 	<p>14 Working Days</p>
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		<p>form submitted to council or the grievance letter submitted to council, where the reason for upgrading to tier 2 is due to lack of response from the council.</p> <ul style="list-style-type: none"> • Ministry will forward all the grievances related to the project to the Project Management Unit. • PMU will screen the grievance to determine if it is related to the project. • If it is related to the project PMU should inform the aggrieved party in writing how the case will be processed as per this grievance redress mechanism. This should occur within 03 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event. • Alternatively, if it is not related to the project PMU should inform the aggrieved party that it is not related to the project in writing and should inform how the case will be handled. This communication should occur within 03 working days of 	
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		<p>receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the witness should declare their witness to this event.</p> <ul style="list-style-type: none"> • Where the grievance is related to the project, the PMU should come up with a solution either by (i) Discussing in the project steering committee; (ii) joint problem solving with the aggrieved parties, the council, Energy Service Provider and the contractor/IPP (iii) undertaking site visits and holding onsite discussions or; (iii) a combination of all these options. • The PMU will be responsible to ensure that there is no cost imposed on the aggrieved person, due to the grievance mechanism at the third tier. • ME should communicate the final decision in writing, in terms how the grievance was handled to the aggrieved party within 14 working days of receiving the complaint. If the aggrieved party is unable to read (for whatever reason) the issued letter should be read to the person in presence of a witness and the 	
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		<p>witness should declare their witness to this event.</p> <ul style="list-style-type: none">• The aggrieved party must acknowledge the receipt of decision and submit their agreement or disagreement with the decision within 10 days.• If no acknowledgement is submitted from the aggrieved party then the decision will be considered as accepted.	
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Introduction

1.1 Project Background

This Gender Action Plan (GAP) is developed for Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) Project funded by the World Bank and implemented by the Government of Maldives. On behalf of the government, the project is being implemented by Ministry of Environment. Implementation partners for the project are the Electricity Service Providers, which at the moment are Fenaka Corporation Limited and State Electric Company (STELCO). The project is comprised of the following key components:

Component 1: Solar PV risk mitigation (USD 36 million IDA Guarantee) – This component will provide risk mitigation packages to private sector Independent Power Producers (IPPs) to cover off taker risks. This component is expected to cover 36 MW of solar installation through a number of phases through various geographic localities across Maldives. The indicative plan involves installation of 11 MW ground mounted Solar PV in Addu City, Fuvahmulah City, GDh. Thinadhoo, B. Eydhafushi, Lh. Hinnavaru and HDh. Kulhudhufushi and installation of 10 MW floating solar in Addu city, which are currently in the prequalification stage. And installation 15 MW rooftop, floating and ground mounted structures in various locations across Maldives.

Component 2: Battery Energy Storage System (BESS) (USD 25 million CTF Loan) – This component will support deployment of BESS system in some islands to enable high penetration of solar PV. This addresses challenges posed of rapidly integrating variable energy to existing grids. The Component targets to support about 50 MWh of BESS in the selected grid systems, subject to market price trends.

Component 3: Grid Modernization for VRE integration (USD1 million IDA Credit, USD2 million CTF Loan and approx. USD10 million from other IFI co-financing) - This component will support grid upgrades and reinforcement to accommodate an increasing volume of renewable energy and BESS, especially for longer duration, in selected grid systems. The main scope will include strengthening network capacity, deploying supervisory control and data acquisition (SCADA) systems and optimizing interactions among renewable energy generation, BESS and existing conventional power plants.

Component 4: Technical Support (USD 3 million) – This component provides technical assistance on the following key areas:

Institutional Capacity Building (Utility, ME and other energy producers)

Pipeline Developments (Feasibility studies and other relevant studies)

Other Sustainable Energy Developments

Project management and implementation plan

1.2 Aims and Objective

Gender Action Plans for projects are developed to include clear targets, quotas, gender design features and quantifiable performance indicators to ensure women's participation and benefits. Often women are excluded and benefit invariably less from activities undertaken through various development initiatives and thus, specific actions are required to address this gap. Especially since ARISE project is undertaken for a traditionally male dominated sector, to have such a plan for this project is critical. It is essential that project interventions are planned in such a way to address this gap. This brief plan is developed to address such gaps.

This plan will first look into the context of Maldives in terms of gender relations. This will look into general trends of the society and specific trends in relation to energy sector. Following this brief review, gender gaps will be identified and activities that will be undertaken to address these gaps through the various components of the project determined through a gender action plan.

Legislation and Policy

Several legal mechanisms are in place in the Maldives to promote gender equality. This sub-section looks into such laws and policies.

2.1 Gender Equality Act (18/2016)

Employers are further mandated under the Gender Equality Act (18/2016), to ensure non-discrimination based on gender. The Act stipulates that all government offices and private businesses must take appropriate measures to achieve the following goals;

- Abolish gender based discrimination, including direct and indirect discrimination.
- Abolish all systemic discrimination caused through established systems with unequal practices.
- Promote equal opportunities for men and women.
- Promote notions and ideas of gender equality to eliminate undesired preconceptions against a certain gender.¹³

Providing equal opportunity under the Act includes, (a) eliminating weaknesses or difficulties caused by inequality between men and women, (b) reducing the negative effects of inequality between men and women, (c) facilitating the special needs of a particular gender to achieve ease of attainment of services, and (d) evaluating the degree of participation of each gender in public life and public services and take appropriate steps to balance such participation.¹⁴

Public and private sector employers are further mandated under the Act to;

¹³ Article 18, [18/2016]

¹⁴ Article 19, [18/2016]

Provide equal opportunity to men and women in the employment, training and advancement of position.

Provide equal wages to men and women who perform the same responsibilities at the same place of employment.

Men and women at the same place of employment with work adequately equal in value and weight shall be given equal wages, overtime compensation, benefits and allowances.

Employment opportunities shall not be offered or advertised to restrict a particular gender, except in circumstances the work is required to be undertaken by a particular gender.

Announcements and advertisements for work that is likely to attract more men than women must be designed to invite and not to exclude women.

Take all possible steps to eliminate obstructions to employment of women and to create conducive work environments for women.

Establish a complaints mechanism.¹⁵

2.2 Prevention of Sexual Harassment Act (16/2014)

Prevention of Sexual Harassment Act (16/2014) prohibits employers and employees from subjecting those who work under them or their co-workers to any extent any type of sexual harassment. Sexual Harassment is defined in the Act as, any sexual act committed against a person without their consent. A sexual act, for the purposes of the Act, is any action, whether physical, verbal or otherwise, which according to a reasonable person, suggests a sexual intent towards the victim. Any such act is to be proven on the balance of probability.¹⁶ It is the duty of the employer to take reasonable steps to ensure that the work environment is an environment that is free from sexual harassment and one in which such acts does not negatively affect the work of employees.¹⁷ Employers are obliged to establish policies to prevent sexual harassment and have such policies published,¹⁸

Every government office including the presidents' office, independent institutions, parliament, the courts and all work places with more than 30 employees must have, under the Act, a Sexual Harassment Prevention Committee, with the function, among other things, of hearing complaints, investigating potential acts of harassment and take proper action against perpetrators in accordance with the Employment Act.¹⁹ The Committee consists of 03 members out of which one must be female. The Committee can, depending on the gravity of the action, take disciplinary actions ranging from

¹⁵ Article 20, [18/2016]

¹⁶ Articles 2, 3 [16/2014]

¹⁷ Article 7, [16/2014]

¹⁸ Article 13, [16/2014]

¹⁹ Articles 17, 18, 19 [16/2014]

cautioning, suspension, demotion and dismissal.²⁰ Decisions must be taken within 60 days of receiving a complaint. Decisions of the Committee can be appealed at Employment Tribunal.²¹

2.3 Decentralization Act (24/2019)

The recently amended decentralization act has provisions to empower women. In this regard, 33% of those who are elected are seats reserved exclusively for women²². Moreover, the act now identifies Women's Development Committees (WDC) within the formal structure of the local government. WDC members are also elected through an electoral process together with the local council election, they are to be housed in the council and salary is given to WDC members²³. Furthermore, 5% of the grant money that council attains needs to be given to WDC.

Maldives Context

Cultural and religious norms dictate that role of women in society in the Maldives. In this regard, similar to many South Asian countries women are seen as the primary caretakers of the home and the men are seen as the primary providers. As per Household Income and Expenditure Survey (HIES) of 2016, women on average spend 06 hours a day in doing household chores while men spend on average only 03 hours (National Bureau of Statistics [NBS], 2016). Thus, the time available for women for other activities within the public sphere is very much limited. In this regard, public forums and public meetings are often dictated by men. Moreover, women are often underrepresented in political sphere, for example in the parliamentary election of 2019 only 35 of the 395 candidates competing were women. Only 04 of the elected 87 constituents are women in the sitting 19th parliament. This number is less than 18th parliament which had 05 female representatives. As highlighted above, the amendment to decentralization act to reserve 33% of the seats for women are a welcome change.

Due to this cultural norm, another aspect where women are represented less than men are in formal employment. As per Household Income and Expenditure Survey (HIES) of 2016 the Female Labour Force Participation Rate (FLPR) in the Maldives is 42.2% while for males the rate is 75.1% (NBS, 2016). This is lower than the global average of 47.67%, however better than most of the South Asian neighbors (Figure 1). In this regard, only Bhutan and Afghanistan has higher FLPR than the Maldives (Figure 1).

²⁰ Article 22, [16/2014]

²¹ Article 26, [16/2014]

²² Article 56-5, [24/2019]

²³ Article 56-6, [24/2019]

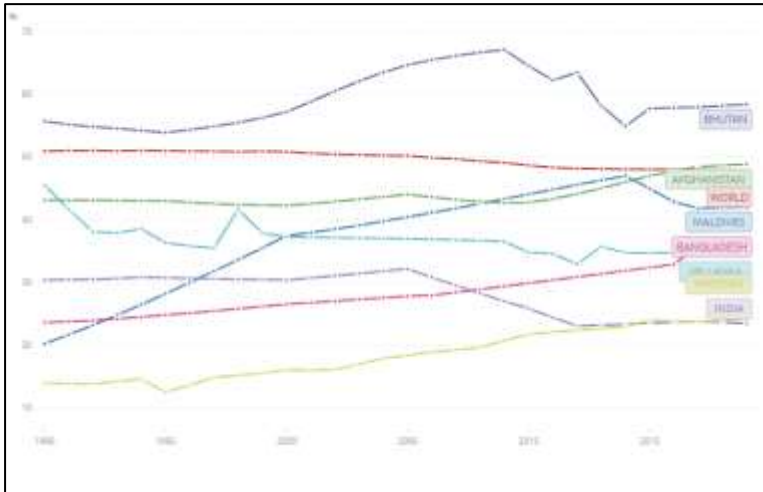


Figure 1 FLRP rates in South Asia and world average

The percentage of earners from employment activities for all age groups is higher for men except for 15 to 20 age group (NBS, 2016) (figure 2).

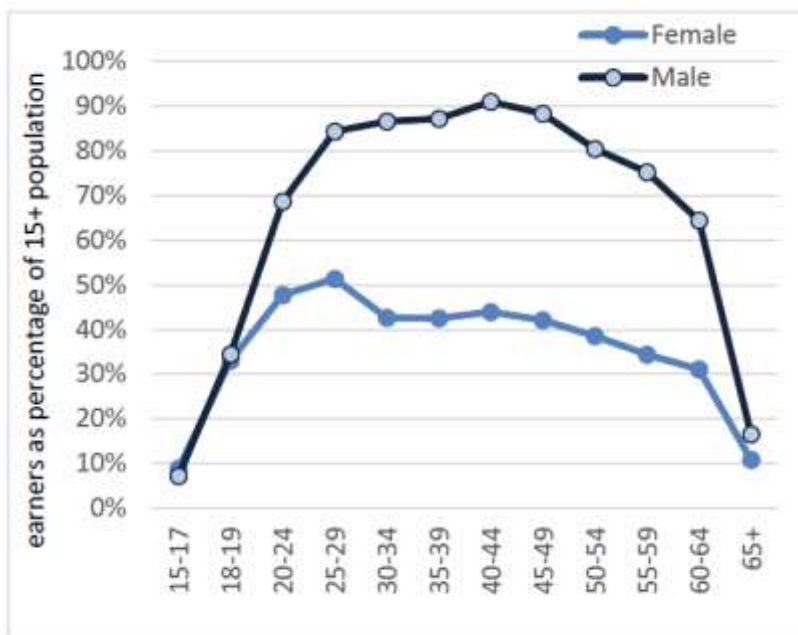


Figure 2 Earners 15 year and above population from employment related income by age and sex

As highlighted previously the main reason for lack of participation of women in employment is due to them being the primary care takers at home. For instance, HIES suggest that 49% of women did not seek employment as they are the primary care takers at home (NBS, 2016).

In terms of type of employment, women are usually concentrated in traditional stereotypical employment sectors like teaching, nursing and administrative jobs. Very few are involved in other fields. For example, according to 2014 census for energy sector, only 12 percent of those who are employed are females. Of these very few are involved in technical fields.

This is very much evident, from the recent data attained from the two utility companies. In this regard, FENAKA and STELCO combined have only 12 women working in technical fields (Table 1). Most are involved in administrative roles and few in management positions.

Table 1 Classification of employees by type and Gender (source: Stelco & Fenaka HR)

Type of Employee	Male	Female
FENAKA		
Non-Technical	952	896
Technical	1571	8
STELCO		
Non-Technical	246	166
Technical	618	4

Another issue that women face in Maldives is sexual harassment. UNFPA suggests that 96% of women face street harassment (UNFPA, 2018). Moreover, a study undertaken in 2016 which surveyed harassment in some government institutions in Male’, showed that 31.7% of respondents have heard about an incident involving sexual harassment in workplace (Ibrahim, 2016).

Consultations

Based on the literature review a draft gender action plan was prepared and consultations were undertaken with the electricity service providers (STELCO and Fenaka) and NGOs working for women’s rights. Input from these parties were used to finalize the gender action plan. This section provides a summary of the outcomes of the discussions held with these parties.

Figure 3 Consultations with NGOs, Stelco and Fenaka



4.1 Electricity Service Providers

The consultative meeting was held on 27th February 2020 at 13:00 hours. Two participants from each STELCO and Fenaka participated in the meeting (Annex 1). From the project management unit, Environment and Social Safeguards Specialist and Communications Specialist participated in this consultation meeting.

A brief summary of the ARISE project was provided to the participants including a brief description of the four components of the project. Initial ideas on GAP were also shared with the participants.

Following the introduction both STELCO and Fenaka highlighted activities that are currently undertaken by both companies to address the gender gap in the energy sector. Both companies highlighted that they have undertaken a number of activities through the GCF Project “Supporting Vulnerable Communities in Maldives to Manage Climate Change Induced Water Shortages” implemented by the Ministry of Environment and through Women in Power Sector Professional Network in South Asia [WePOWER] network whose secretariat at the moment is The World Bank’s South Asia Gender and Energy Facility (SAGE).

In this regard both companies have finalized the Terms of Reference for Gender Focal Point and are in the process of assigning an employee for the position. Moreover, Fenaka have undertaken a preliminary gender scan of the company and is in the process of undertaking a more comprehensive gender scan. Fenaka shared plans to undertake Stem outreach programs for female students in primary, secondary and higher secondary schools. STELCO highlighted that they have started a certificate 03 in electrician course targeted for women in association with Technical and Vocational Education and Training Authority (TVET). The program started in 09th February 2020 and have 20 enrolled participants. Fenaka shared plans to undertake a similar activity. It was also highlighted the importance of undertaking such trainings in some islands rather than in Male’. Moreover, both companies highlighted plans to provide higher education scholarships targeted exclusively to women.

In terms of ideas on how the project can contribute, it was highlighted that the project could contribute to the ongoing activities planned by both companies. It was suggested to undertake career talk story telling exercises to female students to show them role models and to encourage those with interest to pursue this career path. Suggestion was to focus these talks on those who are completing primary and are in the process of selecting a stream for studies.

In addition, it was highlighted that if certain percentage of trainings that was given through the project is reserved for women it will contribute to the overall goals that both companies are aiming to achieve. In this regard, the 30% target that was suggested in the draft GAP was seen by both companies as an acceptable number based on current situation.

A further suggestion that was made is to include mentoring opportunities for female students and staff alike through the IPPs which undertake solar PV installation.

It was also discussed to reserve a majority percentage for women from the Environmental and Social Officers (ESOs) identified from the company staff in each island who will be involved in providing safeguards support.

Following the meeting Fenaka provided a draft plan that was shared with WePOWER which included more activities that were planned to be undertaken by the company. Which included having flexible working hours to women involved in technical shift duty positions, workshops on sexual harassment and workplace harassment and on the job training given to women hired to undertake technical works.

4.2 Women's Rights NGOs

The consultative meeting was held on 03rd March 2020 at 13:00 hours. Of the 10 NGOs that were invited 03 NGOs participated in this meeting. The participating NGOs include Women in Tech Maldives, Maldives Youth Network and Hope for Women. Annex 2 provides the list of participants and their details. From the project management unit, Environment and Social Safeguards Specialist and Communications Specialist participated in this consultation meeting.

A brief summary of the ARISE project was provided to the participants including a brief description of the four components of the project. Initial ideas on GAP were also shared with the participants. The floor was then opened for participant comments and feedback.

It was highlighted that for women it is very difficult to work in some fields, especially in fields that have shift duty commitments, like in many technical fields. Lack of flexibility in working hours was identified as one of the primary reasons why women do not pursue careers in such fields. Another reason identified was harassment that women experience in the work environment. Furthermore, it was highlighted that even though many women study technical fields, even after studies they are often restricted to administrative desk jobs due to this lack of flexibility in working hours.

In terms of raising awareness on energy efficiency it was highlighted that most awareness sessions focus on what to do rather than focusing on why they are doing it. For long term sustenance it is important to include this aspect in the awareness sessions undertaken through the project.

The importance of using different media and methods to reach different age groups were also highlighted. In this regard, it was suggested that audio visuals maybe more effective for younger generation while simple door to door talks will be more effective for older women.

In addition to WDC it was highlighted that NGOs in many islands are more active, hence perhaps involve NGOs and student groups as well in awareness raising activities and other activities that are undertaken in the islands.

In terms of career talks, it was identified rather than exclusively relying on women in Male' who are in technical fields, it will be more beneficial and more relatable if women in the islands who are in technical fields are utilized. The NGOs offered help in identifying such women in the project islands and suggested that they will provide the contacts.

The participating NGOs also expressed interest in collaborating with the project in undertaking activities in various islands.

Gender Gaps and Gender Action Plan

5.1 Gender Gaps

Based on the discussions in sections 3 and 4 above several Gender Gaps can be identified which are applicable to the project. This includes:

Lack of women in energy sector

Lack of participation of women in public sphere

Lack of access to trainings in technical fields

Harassment of women in workplace

The project activities under the four components will be planned in such a way to address these gaps. As the two implementing partners of STELCO and Fenaka already have clear ideas and comprehensive plans, rather than reinventing the wheel, the project will aim to provide support in achieving the targets that are set by both companies. Thus, both implementation partners will play a key role in implementation of this plan.

5.2 Details of the Plan

Activity	Gaps	Component of the project	Other Related Project Instruments	Locations	Project Interventions	Indicator	Implementation Parties
Career talks on Women in Energy	1 and 3	No specific Component	-	All project locations	<p>In each project island or city undertake career talks targeted to secondary school children. Use female engineers, ideally from the selected islands to provide inspiration.</p> <p>Women in Engineering career talks showed through various social and mainstream media including video and feature reports</p> <p>Information sessions undertaken by STELCO and FENAKA to school leavers highlighting gender positive initiatives and policies implemented by the companies</p>	At least 65% of the females enrolled in secondary schools of the project regions	STELCO, Fenaka, PMU and NGOs

Undertake Certificate level 3 in electrician course for women in at least one of the project implemented islands	1 and 3	Component 4	-	One project implemented location	Undertake this training through Component 4	Train at least 30 individuals	STELCO, Fenaka and PMU
Involve women in trainings undertaken by the project under component 4	1 and 3	Component 4	-	All project locations	In various trainings undertaken under component 4 involve women	At least 30% of those who are trained by the project should be women	STELCO, Fenaka and PMU
Majority of ESOs identified in islands being women	3	Components 1,2 &3	Environment and Social Management Framework (ESMF)	All project locations	Preference given to women when training and identifying ESOs from project implemented islands	At least 65% of ESOs being women	STELCO, Fenaka and PMU
Involvement of women in consultations and awareness activities undertaken by the project	2	Components 1,2 & 3	Stakeholder Engagement Plan (SEP)	All project locations	Undertaken consultations regarding project targeted to women. In this regard household surveys targeted for women will be undertaken Consultative meetings will be held with Womens NGOs and other community NGOs within the project islands.	At least 50% of those involved in consultative and awareness activities should be women	STELCO, Fenaka and PMU

					Train WDCs and NGOs in each island to undertake targeted awareness to women of the community.		
Mechanisms in place to report workplace sexual harassment	4	Component 1,2 and 3	Labour Management Procedure (LMP)	All project locations	Ensure access to mechanisms to report workplace sexual harassment for direct project workers and other workers	Ensure that mechanisms are in place for IPP, PMU, STELCO and Fenaka	STELCO, Fenaka, ME and IPP

References

Ibrahim, F. F. (2016). *Sexual Harrassment in Government Offices, a knowledge, attitude and practices survey for staff working in Male'*. Male' Maldives; Maldives National University.

UNFPA (2018). *Maldivian Women Say #METoo*. retrieved from: <https://maldives.unfpa.org/en/news/maldivian-women-say-metoo>




The World Bank (2018). *Environmental and Social Framework*. Washington DC: International Bank for Reconstruction and / The World Bank.

Webler, T. (1995). "Right" discourse in citizen participation: An evaluation yardstick. In O. Renn, T. Webler, & P. M. Wiedemann (Eds.), *Fairness and competence in citizen participation: Evaluating models for environmental discourse* (pp. 35-87). Dordrecht, Netherlands: Kluwer Academic.

Annex 1: Participant list Consultation with STELCO and Fenaka

Meeting: FRISE meeting regarding GAR with officials
 Date: 24-02-2026
 Time: 13:05




MEETING ATTENDANCE

No.	Name	Designation	Office	Email	Phone No.	Signature
01	Hesrwa Alitya	Deputy Director -Radar	FENAKA	hesrwa.alitya@ Radar.com.mv	9771221	
02	Mariyam Hana	Deputy Director Business Development	Fenaka	mariyam.hana@fenaka. com.mv	9771221	
03	Ammath Alham	Asst. Manager	STELCO	amath.alham@stelco. com.mv	9180009	
04	Sameetha Moshkoda	Ass. Manager HR	STELCO	sameetha.moshkoda@stelco. com.mv	7608899	
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Annex 2: Participants of Meeting with NGOs

Meeting: Meeting with the women Ncos regarding ARIS E project
 Date: 2nd March 2025
 Time: 13:00

MEETING ATTENDANCE

	Name	Designation	Office	Email	Phone No.	Signature
01	Hindia Ali	V. President	Womennir Teh MV	vicepresident@womennirtehmv.org	7890903	
02	Shahzad Ahmed	representative	Mahdiz Yashir Khan	Shahza.2708@gmail.com	7686779	
03	Saida Hassan	Executive Coordinator	hope for women	hopeforwomen.org/mv	7798391	
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