MINISTRY OF HEALTH
Republic of Maldives

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

MALDIVES COVID-19 EMERGENCY RESPONSE AND HEALTH SYSTEMS PREPAREDNESS PROJECT

MAY 2020

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LIST OF ABBREVIATIONS

BESS: Battery Energy Storage Systems

CEDAW: The Convention on the Elimination of all Forms of Discrimination Against Women

CERC: Contingency Emergency Response Component

CRC: Childs Rights Protection Act

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

ESS: Environmental and Social Safeguards Specialist or Environment and Social Standard

EPPA: Environmental Protection and Preservation Act of Maldives

FAO: Food and Agriculture Organization of the United Nations

GAP: Gender Action Plan

GBV: Gender Based Violence

GoM: Government of Maldives

HCF: Healthcare Facility

HCWMP: Healthcare Waste Management Plan

HF: Healthcare Facility

HPA: Health Protection Agency

HW: Hazardous Waste

IC: Island Council or Infection Control

ICHWMP: Infection Control and Healthcare Waste Management Plan

IDA: International Development Association

IEE: Initial Environmental Examination

IFC: International Finance Corporation

IFI: international Financial Institutions

LGA: Local Government Authority

LMP: Labor Management Procedure

ME: Ministry of Environment

MIGA: Multilateral Investment Guarantee Agency

MOF: Ministry of Finance

MOH: Ministry of Health

NDMA: National Disaster Management Authority

NEOC: National Emergency Operations Centre

O&M: Operations and Maintenance

PA: Protected Area

PAD: Project Appraisal Document

PMU: Project Management Unit

RE: Renewable Energy

SEP: Stakeholder Engagement Plan

STO: State Trading Organization

WAMCO: Waste Management Corporation Ltd.

WBG: World Bank Group

WB: World Bank

WMPCD: Waste Management and Pollution Control Department of Ministry of Environment

EXECUTIVE SUMMARY

This Environmental and Social Management Framework (ESMF) is developed for the Maldives COVID-19 Emergency Response and Health Preparedness Project. The project is funded by the World Bank and implemented by Government of Maldives (GoM). The Ministry of Health (MoH) will be the primary implementing agency of the GoM. The objectives of ESMF is to provide a framework for environmental and social management of the Project, giving details of potential environmental and social issues, providing clear procedures and methodologies for social and environmental planning, assessment, review, approval and monitoring of subprojects to be financed under the Project.

The proposed project development objective is to respond to and mitigate the threat posed by COVID-19 and strengthen national systems for public health preparedness in the Maldives. The project encompasses of 4 components:

1. Emergency Response for COVID-19 Prevention: procurement of essential protective equipment and other essential items to protect healthcare workers and patients; risk communication, community engagement and behavior change, including social distancing measures and associated mitigation strategies.
2. Emergency Health System Capacity Strengthening for COVID-19 Case Management: Strengthening the centralized and decentralized health system capabilities for disease surveillance, case management and infection prevention and control (IPC).
3. Implementation Management and Monitoring and Evaluation: Strengthening of public structures for the coordination and management of the project, including central and local (decentralized) arrangements for coordination of activities, financial management, procurement and social and environmental management.
4. Contingent Emergency Response Component: This zero-dollar component is being added to ensure additional flexibility in response to the current and any potential other emergency that might occur during the lifetime of this project.

The project applies the World Bank's Environmental and Social Framework (ESF) with the following standards being applicable to this project: 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 8: Cultural Heritage; ESS 10: Stakeholder Engagement and Information Disclosure.

The major areas of environmental and social risks associated with the project are:

- (i) occupational health and safety issues related to testing and handling of supplies, including their safe management and handling by laboratory technicians and medical crews;
- (ii) community health and safety issues related to the handling, transportation and disposal of health care waste/associated emissions and waste generation;
- (iii) marginalized and vulnerable social groups' (e.g., women, elderly, people with disabilities, migrants, etc.) lack of access to facilities and services, which could undermine the objectives of the project;
- (iv) increased risks relating to GBV, child abuse, etc., while in quarantine and self-isolation;
- (v) absence of dignified treatment of patients and their families in health care facilities, isolation units and quarantine facilities;
- (vi) increase in social tensions over possible risks of contamination as well as widespread disruptions related to the COVID-19 pandemic;
- (vii) elite capture of goods and services provided under the project;
- (viii) improper labor management, including of healthcare workers associated with the Project

The project will ensure that project associated risks are mitigated during each stage of operation. Accordingly, this ESMF includes a generic Environmental and Social Management Plan (ESMP) that identifies potential impacts associated with the project at planning and design stage, construction stage, operational stage and decommissioning stage and provides appropriate mitigation measures with the identification of corresponding agencies responsible for the implementation of each mitigation measure proposed. The ESMF also lays out the steps that needs to be followed when attaining approval for various activities that are undertaken through the project.

All subprojects will require environmental and social screening, the aim of which is to exclude certain high risk activities, identify potential environmental and social issues, classify the environmental and social risks and apply the appropriate mitigation measures. ESMPs will need to be prepared for all expansion, rehabilitation and upgrading of Healthcare Facilities (HCFs) during the subproject design stage and included in bidding documents, to be costed for accordingly, and will be part and parcel of contract documents. Activities outlined 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. In addition to this, each HCF rehabilitation financed by the project and associated with project interventions will be required to prepare and implement an Infection Control and Healthcare Waste Management Plan (ICHCWMP). A generic ICHCWMP is included in the ESMF.

Since the project is designed to respond to a national health emergency, environmental assessment under the nation Environmental Impact Assessment Regulations will be exempt for all its subprojects.

The following ESF instrument will be subject to prior review and clearance by the World Bank environmental and social specialists assigned to the project.

- All Environmental and Social Screening Reports
- All ESMPs prepared for project interventions
- All ICHCWMs prepared for HCFs under project financing
- All TORs for any Technical Assessments or Studies undertaken in the project lifetime.
- All TORs and subsequent ESIAs, and ESMPs, if these instruments are identified as requirements as per National Regulatory requirements.

Only cleared environment and social instruments can be included in bidding documents and other procurement instruments, while no work will be permitted to commence on project sites without due clearance of the respective ESF instrument.

The ESMF also covers details of the standalone Labor Management Procedures, Stakeholder Engagement and Grievance Redress and Information Disclosure procedures applicable to the project. These documents are however prepared as separate documents under the project.

The implementing unit will be the Administrative Division within the MOH. The Environmental Specialist and Social Specialist at the PMU will be responsible for the implementation of all steps presented in the ESCP, ESMF IHCWMP, LMP and SEP of the project. Specifically, they will be responsible for carrying out the environmental and social screening, facilitating preparation of environmental and social instruments, such as ESMPs, health care facility level HCWMPs, requesting 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 conducting all relevant trainings. As implementing partners, each HCF will assign a focal point for ESMF implementation who will closely coordinate with the PMU throughout the preparation and implementation of the procurement process, including conducting supervision during operation. Additionally, the HPA and EPA will work closely with the PMU, providing timely clearance and guidance on technical requirements for respective instruments and assessments by issuing specific TORs, conducting timely review and clearance of documents and ensuring that the needs for operational monitoring are well incorporated into the project.

The ESMF also identifies capacity development requirements, including training given to project staff by the World Bank and training provided for the Implementing Agencies on how to monitor and report on environmental and social requirements by the E&S Specialists.

1 CHAPTER 1:INTRODUCTION TO THE MALDIVES COVID-19 EMERGENCY RESPONSE AND HEALTH SYSTEMS PREPAREDNESS PROJECT

1.1 INTRODUCTION

As of March 16, 2020, the Maldives has already reported 13 confirmed cases of the novel coronavirus COVID-19, mostly among tourists. Three people are hospitalized with another 20 people quarantined in Villivaru and 12 in isolation at Farukolhufushi. With a high population density in Male and tourists from all over the world, it is crucial to effectively prevent, control and respond to public health emergencies in a timely manner. The government has been proactive in its COVID-19 response and has increasingly been implementing travel restrictions. Measures have been taken by the Government of the Maldives relating to the entry of passengers and crew with a travel history to Mainland China, Iran, the South Korean regions of North Gyeongsang Province and South Gyeongsang Province, Italy, Bangladesh, Spain, Ile-de-France and Grand Est Regions of France, Bavaria, North Rhine Westphalia and Baden-Wuerttemberg regions of Germany, to minimize the risk of spread of COVID-19 in the Maldives. Furthermore, travel between inhabited islands and resorts have been banned, and hotel check-ins are not permitted in Greater Male (Vilingili, Male and Hulhumale). These measures are in place for two weeks and will be subject to review. A national public health emergency was declared on March 12, 2020. Most recently, some measures of social distancing have been put in place, including temporary closures of parks, schools and cinemas.

Maldives is very vulnerable to a more widespread outbreak with severe economic consequences due to its economic dependence on the tourism sector. Travel restrictions – imposed by outbound countries and Maldives as well—to contain the global outbreak are already having a broad impact on Maldives economy. In 2019, Maldives received 1.7 million tourists. Announced restrictions on tourist flows, as of March 15, account for roughly 40 percent of total arrivals. Real growth for the Maldives has been revised downwards to -4.7 percent for 2020 from a forecast of +5.5 percent in January 2020. Furthermore, the decline in tourist arrivals is expected to sharply reduce revenue collection since most tax and non-tax revenue originate directly or indirectly from tourism (Airport Service Charge, Airport Development Fee, green tax, rent from resorts, tourism GST, business profit tax, import duties). Additional social distancing measures, while aimed at controlling the outbreak, are expected to further slowdown aggregate demand. The severity of the impact will depend on the speed at which the outbreak is contained across the globe and in Maldives, and the time it takes for tourism flows to return to normalcy.

1.2 PROJECT DESCRIPTION

1.2.1 PROJECT DEVELOPMENT OBJECTIVE

The proposed project development objective is to respond to and mitigate the threat posed by COVID-19 and strengthen national systems for public health preparedness in the Maldives.

The PDO will be achieved through the implementation of activities that support further prevention of COVID-19 transmission combined with activities that strengthen the health system's capacity for disease management. Both approaches are essential to the immediate response and will serve the dual purpose of simultaneously strengthening the health system beyond the current crisis for the medium term. The financing amount for project is US$7.3 million IDA (US$5.3 million from the World Bank's COVID-19 Fast-Track Facility and US$2.0 million from IDA). The project duration is expected to be 3 years. The project encompasses of 4 components:

1. Emergency Response for COVID-19 Prevention: procurement of essential protective equipment and other essential items to protect healthcare workers and patients; risk

communication, community engagement and behavior change, including social distancing measures and associated mitigation strategies.

2. Emergency Health System Capacity Strengthening for COVID-19 Case Management: Strengthening the centralized and decentralized health system capabilities for disease surveillance, case management and infection prevention and control (IPC).
3. Implementation Management and Monitoring and Evaluation: Strengthening of public structures for the coordination and management of the project, including central and local (decentralized) arrangements for coordination of activities, financial management, procurement and social and environmental management.
4. Contingent Emergency Response Component: This zero-dollar component is being added to ensure additional flexibility in response to the current and any potential other emergency that might occur during the lifetime of this project.

1.2.2 DETAILS OF PROJECT COMPONENTS

Component 1: Emergency Response for COVID-19 Prevention (Indicative US$3.0 million from COVID-19 FTF). The aim of this component is to prevent the disease taking hold in the country for as long as is reasonably possible and slow the spread in the country. This will be achieved through providing immediate support to:

- Procurement of essential protective equipment and other essential items in support of Pilar 8 of the CPRP. While the government has already secured some PPE and supplies, more is needed. This component will enable Maldives to procure essential protective equipment, diagnostics and other essential items. The enhanced supply of these critical items is a key part of preventing the spread of COV-19.
- Risk communication, community engagement and behavior change. Given the stage of epidemic that Maldives is in, the most powerful approach to slow the spread is through social distancing. Enhancing implementation of social distancing measures such as schools, restaurant, religious institution, and café closures will have substantial positive impact. In addition, reducing large social gatherings such as weddings will be beneficial to slowing the spread of disease. This sub-component will support Pillar 2 of the CPRP (Risk Communication and Community Engagement) with a comprehensive SBCC strategy, including the promotion of behaviors to complement social distancing (e.g. personal hygiene promotion, including promoting handwashing and hygiene, and distribution and use of masks, along with increased awareness and promotion of community participation in slowing the spread of the pandemic) and with a special emphasis on Male where the population density is so high that transmission is much more quickly to spread. Community mobilization will take place through credible and effective institutions and methods to ensure that information reaches not only the national level but also the local population. School closures will have implications for the education sector at large, and this component will support measures to mitigate these effects as well as other effects of long-term social distancing.

Component 2: Emergency Health System Capacity Strengthening for COVID-19 Case Management (Indicative US$2.3 million from COVID-19 FTF and US$1.8 million from IDA). The aim of this component is to provide the best care possible for people who become ill, support hospitals to maintain essential services despite a surge in demand and ensure ongoing support for people ill in the community to minimize the overall impact of the disease on society, public services and on the economy.

- Laboratory and diagnostic capacity. This Component supports Pillar 5 for the will fortification of disease detection capacities through strengthened laboratory and diagnostic systems to ensure prompt case finding and local containment. Enhanced detection capacities will be supported through updated training to health workers and other frontline stakeholders and strengthened laboratory capacities. Laboratory capacity to diagnose COVID-19 at both national and atoll levels will be strengthened, including increased volume of testing kits and expansion of special panel kits; expansion of testing capacity to two regional hospitals; training for laboratory technicians; enhanced transportation of samples established; and certification of safety cabinets.

- Containment and treatment efforts. Assistance will be provided to the health care system for local containment through the establishment of local isolation units in hospitals and the establishment of quarantine and isolation facilities in other existing spaces (e.g. hotels, former hospitals, etc.). This component will also support intensified contact tracing of known cases. Given the country's aging population and rising burden of non-communicable diseases, there may be high numbers of people requiring intensive care if they become infected with COVID-19. Thus, treatment capacity needs to be further strengthened to prepare for a potential surge in cases. This component will finance the expansion of intensive care unit (ICU) capacity, including the establishment of additional ICUE beds and the necessary equipment and supplies to make them functional. Detailed guidelines and SOPs have already been developed by the government. However, training on implementation of these guidelines and SOPs will be provided to frontline health workers, hotel and resort staff, airport personnel and other frontline stakeholders. These containment efforts are a core element of Pillar 7 of the CPRP (Case Management).

Component 3: Implementation Management and Monitoring and Evaluation (Indicative US$0.2 million from IDA). Support for the strengthening of public structures for the coordination and management of the project would be provided, including within the PMU and possible local (decentralized) arrangements as appropriate for coordination of activities, financial management and procurement. This component would also support monitoring and evaluation of prevention and preparedness, building capacity for clinical and public health research, and joint learning across and within countries. Collection use and processing (including transfers to third parties) of any personal data collected under this Project will be done in accordance with best practice ensuring legitimate, appropriate and proportionate treatment of such data.

Component 4: Contingent Emergency Response Component (CERC) (US$0 million). In the event of an Eligible Crisis or Emergency, the project will contribute to providing immediate and effective response to said crisis or emergency. The allocation to this component is to minimize time spent on a reallocation of funds from programmed activities. The unused amount can be reallocated to other components if the CERC component is not triggered a year prior to project closing.

1.3 ENVIRONMENTAL AND SOCIAL RISKS ASSOCIATED WITH THE PROJECT

The project will have positive environmental and social impacts, insofar as it would improve COVID-19 surveillance, monitoring and containment in the country. The environmental risks are considered Substantial because of the current uncertainty around project locations and specific activities, occupational health and safety and medical waste management. The main environmental risks are: (i) the occupational health and safety issues related to testing and handling of supplies and if they are not safely managed by laboratory technicians and medical crews; and (ii) medical waste management and community health and safety issues related to the handling, transportation and disposal of health care waste/associated emissions and waste generation due to small scale construction works. Wastes that may be generated from labs, quarantine facilities and screening posts to be supported by the COVID-19 readiness and response could include liquid contaminated waste (e.g. blood, other body fluids and contaminated fluid) and infected materials (water used, lab solutions and reagents, syringes, bed sheets, majority of waste from labs and quarantine and isolation centers, etc.) which requires special handling and awareness, as it may pose an infection risk to health care workers who come in contact with the waste. It is also important to ensure that sharps are properly disposed of.

Given that the Maldives has limited experience in managing highly infectious medical wastes such as COVID-19, the project will require that appropriate precautionary measures are planned and implemented. To mitigate the above-mentioned risks the Ministry of Health (MoH) has prepared this Environmental and Social Management Framework (ESMF) which is in line with WHO standards on

COVID-19 response. This ESMF also include a generic Health Care Waste Management Plan (HCWMP) (Annex 10). As the Maldives has very limited capacity for the management and final disposal of solid waste, the HCWMP has included specific protocols and measures to ensure co-mingling of waste does not occur with municipal solid waste streams. In order to augment final disposal capacity for health care waste the Ministry of Environment in collaboration with the Ministry of Health has also commenced a rapid response to ensure that autoclaves are operational and additional units procured and other equipment such as PPE are adequately available for emergency response operations.

Social risks under the project are also considered ‘substantial’ with main concerns relating to: the challenges marginalized and vulnerable social groups (e.g., women, elderly, people with disabilities, migrants, etc.) might face in accessing facilities and services, which could undermine the objectives of the project; insufficient accommodation and servicing requirements in quarantine facilities, including increased risks relating to GBV, child abuse, etc., while in quarantine and self-isolation; absence of dignified treatment of patients and their families in health care facilities, isolation units and quarantine facilities; increase in social tensions over possible risks of contamination as well as widespread disruptions related to the COVID-19 pandemic; elite capture of goods and services provided under the project; risks associated with labor management, occupational health and safety, including of healthcare workers associated with the Project.

In particular, burdens of unpaid care work fall on women and girls during crises as well as social distancing; yet, women have less access to information around how to provide care and support. Similarly, other vulnerable groups such as the elderly, poor, people with disabilities, migrant workers, households in remote islands/atolls, do not benefit equally from public awareness campaigns, etc., even whilst some of them are more at risk to contracting the virus. Similarly, some vulnerable groups (especially the elderly, people with disabilities or those with pre-existing medical conditions) may be severely affected by COVID-19, and may need additional support to access treatment. There are also increased risks for GBV and child abuse when women and children are under quarantine and self-isolation. Prevention of sexual exploitation and abuse and sexual harassment, ensuring minimum accommodation and servicing requirements in health care facilities and quarantine and isolation centers/units, effective handling of quarantining interventions including dignified treatment of patients and their families; attention to specific, culturally determined concerns of vulnerable groups, are issues that will require close attention while managing the social risks of the project.

The widespread disruptions related to the COVID-19 pandemic is also likely to trigger social tensions over number of issues. First, there are concerns relating to the spread of disease, risk of contamination and inadequate waste management, especially in neighborhoods and areas close to health care centers, quarantine facilities and isolation units. Social tensions could arise as a result of competition over limited medical supplies, elite capture of goods and services provided under the project, frustration with containment measures, stigmatization of some social groups, to name a few coupled with disruption to livelihoods, employment, price inflation of basic goods, etc. Further, there have been tensions arising between people from the Greater Malé Region and those from other islands living in Malé, particularly in regard to rent and access to healthcare, schooling, and other facilities should they decide to move back to their islands. This issue is particularly critical for those who migrated to Malé for generations and do not have anywhere to go back to.

Since the project involves construction/civil works, issues relating to effective labor management will also be key under the project, especially since the workforce may comprise workers form international, national, regional and local labor markets, and there may also be regular flow of parties entering and exiting the sites while providing support services (e.g., catering, cleaning services, material and supply deliveries, etc.). Further, the health and safety of staff working in the health care facilities, quarantine centers, etc., including medical personnel, will be key risk associated with the project from a labor management as well as infection prevention and control perspective.

1.4 OBJECTIVE OF ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

Projects and Programs financed with World Bank's resources need to comply with the Environmental and Social Framework (ESF)for Investment Project Financing as well as the environmental and social legislation of the GOM. Since details of sites and specific locations of the project are not known 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 are funded by the project and apply the information to site specific environmental and social assessments, as and when they are identified.

This *Environmental and Social Management Framework* (ESMF) is prepared to assist the Government of Maldives in developing environmental and social (E&S) instruments in response to COVID-19 pandamic following national regulations and the World Bank's Environmental and Social Framework (ESF). This ESMF includes templates for the preparation of *Environmental and Social Management Plans (ESMP)* and *Infection Control and Waste Management Plan (ICWMP)*. The former aims to provide an overarching action plan for the management of environmental, social, health and safety (ESHS) issues associated with the construction and operation of healthcare facilities in response to COVID-19. The latter focuses on proper infection control and healthcare waste management practices during operation of healthcare facilities. The ICWMP is considered part of the ESMP. Other E&S instruments as required by the ESF, such as Stakeholder Engagement Plan (SEP), Labor Management Procedure (LMP), Resettlement Policy Framework (RPF), if relevant, shall be appropriately summarized or referenced in the ESMPs. The type of E&S instruments and their timings of development and implementation are defined in the project Environmental and Social Commitment Plan (ESCP). These instruments will be made available for public review and comment in appropriate locations in the Maldives and in World Bank's external website 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 the prevailing national environmental legislation in the Maldives and where applicable 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

1.4.1 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 under the Project. The key due diligence principles are as follows:

Principle 1: Review and Categorization. All project 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, 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 Environmental and Social Standards (ESSs), and Environmental Health and Safety (EHS) Guidelines, as well as policies and standards of the GoM and international best practice. The Assessment will establish the project's overall compliance with, or justified deviation from, the respective World Bank's ESSs, 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. For all project interventions that are associated with HCWM, Health Care Waste Management Plans (HCWMPs) will be developed and will outline as per WHO guidelines and international best practice the provisions that need to be undertaken in order to ensure the sound management of HCW associated with the emergency response to COVID 19 and in the long term.

Principle 5: Consultation and Disclosure. The Project will engage with stakeholders throughout the project cycle, commencing such engagement as early as possible in the project development process and in a timeframe that enables meaningful consultations with stakeholders on project design. The project will provide stakeholders with timely, relevant, understandable and accessible information, and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination and intimidation. Accordingly, the Project has prepared a 'Stakeholder Engagement Plan (SEP)' describing the methods of engagement with stakeholders throughout the life cycle of the project, distinguishing between project-affected parties, other interested parties and vulnerable groups, including the range and timing of information to be communicated to them as well as the type of information to be sought from them.

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. In accordance with the World Bank's ESF, the Project will have a project level GRM accessible to all stakeholders and beneficiaries as described in the SEP, and a GRM for workers as described in the LMP.

Principle 7: Monitoring and Reporting. All ESMPs and HCWMPs will be monitored based on the monitoring schedule identified in the respective document 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 SALIENT ENVIRONMENTAL AND SOCIAL CONDITIONS AND HEALTH CARE WASTE MANAGEMENT IN THE MALDIVES

2.1 INTRODUCTION TO THE MALDIVES

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 km^2, 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 Km^2, with islands varying in size from 0.5 km^2 to 5.0 km^2. 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 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.

Generic physical characteristics across the atolls, including topographic, geographic and climatic conditions across the atolls do not vary greatly. 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.

A detailed outlined of the Salient Environmental and Social characteristics of the Maldives is presented in Annex 2

.

2.2 STATUS OF COVID-19 IN THE MALDIVES AS AT THE 20TH OF APRIL 2020

2.2.1 OVERVIEW

Similar to several other countries in the world, Maldives is also being heavily impacted by the COVID19 pandemic. Initially the growth was slow, limited only to tourist resort. Preventive measures were taken even at the very early stages. State of public emergency was announced on 12th March 2020 and will continue till 30th of April 2020. The resorts where cases were confirmed were put into total lockdown with the resort staff and tourist alike for 14 days, while confirmed cases were immediately transferred to isolation facilities and critical patients given appropriate care in hospitals. As an additional precautionary measure, schools and government offices were closed, social gatherings restricted, and the public advised to stay at home. However, during the past week, COVID19 has turned into a community spread, with several cases and clusters from Male' being identified, among which are both locals and expatriate workers of Bangladeshi and Indian nationality. As a result of this the Male' area has been completely locked down till 30th April 2020, while restriction of movement outside Male' will remain effective until further notice, including ban on travels between islands, any public gathering, visiting other households, etc. At present, there are 83 confirmed cases comprised of 38 locals and 45 foreigners with 65 cases still remaining active, while a number of new cases gets identified each day. The following figures give a preview of the current situation and the corresponding chart provides an overview of the actions taken by the Government of Maldives in response to the pandemic.

Latest Updates

21 /04/2020 — 14:30

16
New Case — Last 24 Hours

83 Confirmed | 38 Locals | 45 Foreigners

16
Recovered

65 Total active | 2 Active cases out of country

1286
Total in quarantine

138
Total in isolation

0
Deaths

Lab Testing Results

83	4041	259	4383
Positive	Negative	Pending	Total

#StayHome #StaySafe #SaveLives

Ministry of Health
Republic of Maldives

Figure 1 Updates as of 21 April 2020 14:30 hrs.

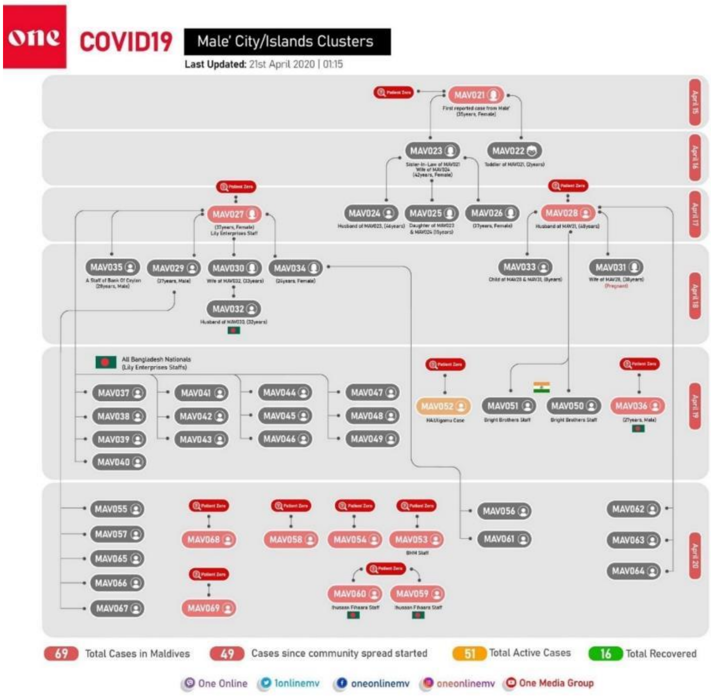


Figure 2 COVID19 clusters up to 20th April 2020

Table 1 COVID19 response from GoM

Date	**May 1, 2020 (AM)**
Country	Maldives
COVID-19 stats	Number of confirmed cases 468 (+188 since May 1 AM) Number of cases recovered 17 (+0 since May 1 AM) Number of deaths 1 (+0 since May 1 AM) Number of active cases 450 (+188 since May 1 AM, 2 out of country) Number of suspected cases in quarantine facilities 1,195 Number of cases in isolation facilities 320 Number of tests completed 7,384
COVID-19 update	• 17 Maldivians and 171 foreigners tested positive including: o 137 Bangladeshi, 32 Indians and 2 Nepalese, mostly from congested living quarters identified by active surveillance. • 11 Maldivians repatriated from Russia on April 30. 11 Maldivians scheduled to be repatriated from Indonesia on May 1. • Nationalities of cases and locations of key facilities and cases (up to MAV0468) are provided below.
Risk alert level (1 to 4)	Public health emergency declared on March 12 has been extended until May 30. • National: Level 2 🟡 • Malé city: Level 4 🔴 • Cured Island Resort & Spa: Monitoring status lifted after 8 weeks since the first COVID-19 case in the country was identified in this resort.
Government response	• COVID-19 cases in Farukolhufushi are being relocated to Bandos Island in Kaafu Atoll due to technical issues. New cases from Malé area to be isolated there. Farukolhufushi isolation facility to be reconstructed. • Quarantine facilities to be/have been established in the North and South of Maldives. • Cases from Narudhoo Island in Shaviyani Atoll to be isolated in Hideaway Beach Resort in Haa Alif Atoll. This follows the NEOC TAG recommendation to place cases in a facility from the same region. • 5,000 test kits, 5,000 masks, 500 sets of PPE and 15 non-invasive ventilators have arrived from Thailand and Singapore. • 262 households/apartments/shops are under monitoring status in Greater Malé area. • 15 islands and 3 boats in monitoring status. • Lockdown in Greater Malé area remains effective up to May 14. • Government offices remain closed until May 14. • Restrictions of movements outside Greater Malé area remains effective until further notice. (ban on travels between islands, any public gathering, visiting other households, etc.). • Services of cafés, restaurants and public transport suspended. • Prayers congregations suspended nationwide until May 14.
WB support	• No major update.
Other DPs	• No major update.
Travel restriction	• On-arrival visa suspended for all foreign nationals since March 27. Individuals with special permissions are exempt from suspension. • Maldivians returning to Maldives are placed under 14-day quarantine.

Date	**May 1, 2020 (AM)**
Response information	• Vaccination services in Malé to resume on May 3 at Dhamana Veshi Health Centre. • STO Pharmacy provides online portal to refill prescription at https://sto.mv/online/prescriptions. • IGMH online clinic provides services 9am-12/1pm on Mon/Wed/Sat. Covered departments include obstetrics/gynecology, psychiatry, neurology, cardiology, general surgery, oncology, internal medicine, pulmonology, nephrology and pediatrics. (hotline 3335335). Emergency service available 24/7 as usual. Face-to-face consultations for pregnant women to be facilitated as needed. • ADK outreach services suspended until further notice (online consultations available). • Hotline: 1676 (available 24/7). Maldivian Red Crescent hotline for psychosocial support: 1425 (8pm-12am). • Covid-19 clinics in Greater Malé area: ○ Flu clinic @ Senahiya Military Hospital, Malé: for Maldivians with flu-like symptoms (open daily 9am-10pm) ○ Flue clinic @ behind the Malé Hiyaa 2 apartment, Malé: for Maldivians and expatriates with flu-like symptoms (open daily 10am-6pm ← 9am-4pm during Ramadan) ○ Flu clinic @ next to the Maldives Autism Centre, Hulhumalé: for Maldivians and expatriates with flu-like symptoms (open Sat-Thu 10am-10pm; Fri 2pm-10pm) ○ Flu clinic @ Vilimalé (run by IGMH): eligible pop'n not specified (open 10am-6pm) ○ Online flu clinic @ ADK Hospital: eligible pop'n not specified (appointment +960 3313553) NB: A total of 26 flu clinics in service nationwide.

2.2.2 ISOLATION AND QUARANTINE FACILITIES

As a response to the global COVID19 pandemic and to prepare for a potential exponential growth in number of positive cases in case of a widespread community outbreak, a number of isolation and quarantine facilities are established or on the verge of completion throughout the country. Isolation facilities are used to treat COVID19 patients or people with symptoms while quarantine facilities are used to contain people without symptoms but with travel history or potential contact with a COVID19 patient.

Majority of the existing isolation and quarantine facilities are confined to the Greater Male' Region, owing to one third of the population of the entire country residing in the Greater Male' Regional. The table below provides details of existing isolation facilities and their corresponding locations.

Table 2 Existing Isolation Facilities in Maldives

#	Facility Name	Location	Capacity / Setting	Purpose
1	Farukolhufushi	Close to Hulhumale' Phase 2	50 beds – in ward layout	Used to contain positive and suspected cases. Moderate level of treatment is provided.
2	Dharumavantha Hospital 11th Floor	Male'	ICU beds	Used to treat the most critical COVID19 cases requiring immediate medical attention.
3	Tree Top Hospital	Hulhumale'	200 isolation beds of which 100-150 are ICU beds.	Used to treat the most critical COVID19 cases requiring immediate medical attention.

4	Hulhule Island Hotel (HIH)	Velana International Airport	Hotel setting. 113 of the hotel rooms are used as isolation beds.	For isolation and treatment of mild cases. Doctors and medical personal are present to provide basic care and monitoring.

Samples taken from patients and suspected cases contained in these facilities are collected and sent to IGMH for laboratory analysis.

In addition to the forgoing, an additional full-fledged isolation facility is currently being developed beside Treetop Hospital for isolation and treatment purpose, which would have 300 isolation / ICU beds in ward layout, coupled with a service building with kitchen, laundry and waste management facilities, and an accommodation block for employees. Laboratory testing facilities will also be developed in the Hulhumale' Medical Facility, which is on the verge of completion.

Works for establishment of 5 (Sh. Atoll 1 facility, B. Atoll 1 facility, L. Atoll 1 facility, GA. Atoll 1 facility, Addu 1 facility) regional isolation facilities within atolls are currently being carried out swiftly, and each of these facilities would have a section for general medical treatments and a separate section specifically allocated for COVID-19 (each facility with 30 isolation and treatment bed, and 20 ICU beds). These regional isolation facilities are developed in allocated existing hospitals by changing layouts and workflow as mentioned above. Also, provision for sample testing and laboratory works will be made available in these facilities. Additionally, autoclaves (with shredder) will be kept at each of these regional facilities. These facilities are to be all completed within 15-20 days. Moreover 2 holding facilities will be established in HA. Ihavandhoo and Fuvahmulah each with 3 bedded ICUs as well. Patients suspected for COVID-19 within these regions are to be treated in these regional facilities once and if an exponential growth is identified, otherwise, patients will be transferred to Male' facilities.

Presently, more than 1000 beds are established or allocated for quarantine purpose, which are primarily operated in resorts at or close to the Greater Male' Region. Following table provides details of existing quarantine facilities and their corresponding locations.

Table 3 Existing Quarantine Facilities in Maldives

#	Facility Name	Location	Geographic Coordinates
1	Biyaadhoo Island Resort	South Male' Atoll	3.9222° N, 73.4563° E
2	Vilivaru Island Resort	South Male' Atoll	3.9187° N, 73.4517° E
3	Fun Island Resort	South Male' Atoll	3.8593° N, 73.4565° E
4	Olhuveli Beach	South Male' Atoll	3.8511° N, 73.4553° E
5	Embudu Village	South Male' Atoll	4.0840° N, 73.5122° E
6	Eriyadu Island Resort	North Male' Atoll	4.5427° N, 73.4056° E
7	Malahini Kudabandos	North Male' Atoll	4.2641° N, 73.5000° E
8	Holiday Island Resort	South Ari Atoll	3.4751° N, 72.8252° E
9	Velidhu Island Resort	North Ari Atoll	4.1948° N, 72.8181° E
10	Dhiggiri	Vaavu Atoll	3.6451° N, 73.4874° E
11	Royal Island Resort	Baa Atoll	5.1629° N, 73.0531° E
12	Furaveri Island Resort	Raa Atoll	5.4401° N, 72.9085° E

Out of the 12 quarantine facilities, 5 are located in South Male' Atoll, 2 in North Male' Atoll, 1 in South Ari Atoll, 1 in North Ari Atoll, 1 in Baa Atoll and 1 in Raa Atoll.

2.2.3 FLU CLINICS

The government has established 4 flu clinics within the Greater Male’ Region exclusively targeted for COVID19 consultations. The clinic located at Senahiya Military Hospital in Male' is designated for individuals with symptoms of the virus like fever, cough, sore throat and breathing difficulties. This clinic is exclusive to Maldivian nationals only and opens every day from 09:00 to 22:00. The second facility located near the Sinamale' apartment complexes is for both foreign and Maldivian nationals exhibiting symptoms of the virus, where services are provided daily from 10:00 to 22:00 every day. A third flu clinic is operated in Hulhumale’ located next to the Autism Centre and is targeted for both foreign and Maldivian nations. This clinic is open on Saturday – Thursday from 10:00- 22:00 and on Friday from 14:00 -22:00. Additionally, a fourth flu clinic was recently opened in Villimale’ to treat and test patients with flu and coronavirus like symptoms. Services are provided daily from 10:00 to 18:00 at this clinic.

2.3 THE HELATH SECTOR AND HEALTH CARE WASTE MANAGEMENT

2.3.1 NATURE OF HEALTH CARE FACILITIES IN THE MALDIVES

The most advanced healthcare services in the Maldives are provided through the tertiary hospitals located in the Greater Male’ Region, namely Indira Gandhi Memorial Hospital (IGMH), Dharumavantha Hospital, Hulhumale’ Hospital and Villimale’ Hospital (a branch of IGMH) operated by the Government of Maldives and the Addu Equatorial Hospital located in Addu Atoll, as well as privately operated ADK Hospital and Treetop Hospital. Furthermore, general and specialist consultations, laboratory investigations and certain medical treatments are provided through the Senahiya Military Hospital located in the capital city of Male’. Even though Senahiya is a hospital built specifically for MNDF officers and their families, the hospital has been providing services to the general public and has been recently upgraded by introducing a general ward and an operation theater. Regional hospitals and atoll hospitals, located in atoll capitals provide curative services with major specialties including obstetric, medical and surgical for both routine and emergencies supported by laboratory and radiological investigations. Small scale health centers located on islands offer general medical services and preventive and health promotion services. At present, none of the health facilities in the Maldives have an exceptionally good waste management system. In many institutes, the collection and segregation are present, but comingling of waste can occur during final disposal. The country has endorsed the National Health-care Waste Management Policy in 2016, however implementation of the policy has been slow. There is currently no mechanism to treat segregated health care waste as overall environmentally sound final disposal facilities have not been established fully anywhere in the Maldives, so therefore health care waste is either autoclaved in the two larger tertiary hospitals mainly, prior to disposal, or in the smaller atoll hospitals and health centers where it is burned in small scale contained burners or openly burned. Medical waste is administered and managed by the Health Protection Agency. The Maldives Environmental Protection Agency and Waste Management Department of the Ministry of Environment are responsible for regulation of the final disposal process in line with the guidance provided in the Waste Incineration Guidelines, 2016, in order to mitigate and avoid adverse environmental hazards.

The Health sector in Maldives is relatively small in scale compared to those in South Asia and Maldivians typically tend to seek health care mostly from international sources. However, over the last 5 year there has been a boom in the domestic health sector, especially in the Greater Male Region where much of the population arises. There are mainly two different health-care providers that are generating health-care waste: public and private. The health system consists of hospitals (tertiary, regional, atoll, private, specialized), health centers and private health clinics.

At present, a total of 193 healthcare facilities exists in Maldives, graded according to their capacity and the level of complexity of services being provided. The most advanced healthcare services such as a variety of specialist consultations, clinical therapy services, diagnostic services, blood transfusion services, medical stores, pharmacies and sterile supplies are available from Tertiary Hospitals. Tertiary

Hospitals are located in Male' City, namely IGMH, Dharumavantha Hospital, Hulhumale' Hospital, ADK and Treetop Hospital, of which the former 3 are government hospital and the later 2 private establishments and The Addu Equatorial Hospital is a Tertiary Facility located in the South most Atoll of Addu and managed by the GoM. This is followed by Secondary Hospitals, further classified into grade 1, grade 2 and grade 3 hospitals of which grade 3 is the most advanced. Secondary hospitals are mainly regional and atoll level hospitals operated in the suburbs. There are 19 secondary hospitals in the Maldives. In addition to this, at the minimum, each inhabited island of the Maldives has a health center, which provides basic and emergency healthcare services such as general consultations and first-aid services. A total of 164 primary healthcare facilities are operated in the country. Table 10 below shows a snapshot of the country's healthcare facilities and their corresponding grades. Annex 3 provides link to grading criteria of HFs used by MoH.

Table 4 HFs in Maldives

Hospitals in Male' Region	
Tertiary Hospitals	6
Other Hospitals	2
	8
Secondary Hospitals in Atolls	
Hospital Gr 3	5
Hospital Gr 2	6
Hospital Gr 1	8
	19
Health Centers in Islands	
Gr 4	6
Gr 3	46
Gr 2	46
Gr 1	66
	164
Urban HFs	
	3
Total HFs in Maldives	
Grand Total	193

2.3.2 HEALTH CARE WASTE MANAGEMENT IN THE MALDIVES

In Maldives, the health care waste management is a critical issue due to lack of infrastructure for management of these waste generated in health care facilities either on-site or off-site in municipal solid waste management sites. The majority of hospitals openly burn their medical waste or in some cases use handmade burners. Few hospitals treat waste by autoclaving before disposal and the majority still burn waste in open areas. There is a need for development of infrastructure and provision of funds for sound management of health care waste in the Maldives. Furthermore, there is a requirement for proper monitoring and evaluation system to be established.

In order to address aforementioned needs, the Government of Maldives has formulated National Health Care Waste Management Policy and Strategic Plan 2016 -2021.

The main objectives of the National Health Care Waste Management Policy include the following;

- To manage health care waste through healthcare waste management policies and strategies
- To integrate health care waste with the national waste policy and strategy.
- To minimize the quantities and risks associated with health care waste.
- To protect health of patients, health workers, and public from hazards related to health care waste.

- To protect the environment from the hazardous materials of health care waste.
- To promote economically sustainable practices for healthcare waste management
- To promote the proper management of healthcare waste by institute training programs and raising awareness of health workers, patients and public.
- To ensure the proper management of healthcare waste through availability and accessibility of required tools and equipment.
- To adopt healthcare waste management practices which support the international treaties such as Stockholm Convention on Persistent Organic Pollutants and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal.

The National Health Care Waste Management Strategic Plan 2016-2021 was formulated in 2016 and it aim to achieve the following objectives;

- Strategic Priority 1
    - Review and revise existing legal documents
    - Strengthen policy and regulatory structures for health care waste management;
- Strategic Priority 2
    - Develop national training packages on health care waste management;
    - Implementation of developed Health Care Waste Management training programs;
    - Increase advocacy awareness for behavioral change;
    - Promote Research, new technologies and innovative methods for sound management of Health Care Waste;
- Strategic Priority 3
    - Assessment of the current waste management situation
    - Set up of an integrated system in a pilot Atoll health care waste management planning
    - Promote green procurement and minimizing waste
    - Improvement of Infectious Waste and Sharp Waste Management
- Strategic Priority 4
    - Assessment of current monitoring situation
    - Strengthen reporting, monitoring, and evaluation mechanism on HCWM
    - Regular monitoring and evaluation of the health care waste management
    - System and performance of the equipment
- Strategic Priority 5
    - Establish sustainable sources of funding
    - Budget completion

All the major hospitals have waste storage facilities, separate for MSW and infectious waste, while in the smaller HFs operated in atoll capitals and inhabited islands, three bin systems are used to segregated waste into general, biomedical and sharps waste. All the major hospitals use autoclaves with shredders to disinfect biomedical and sharps waste, which is packed in double bags and stored in the respective storage areas of these hospitals, which then gets collected by WAMCO, loaded into a special vehicle and taken to either Hulhumale' Phase 2 or Thilafushi for final disposal (incineration or closed contained burning).

According to WASH assessment data of HPA (a research done in 2018), some of the secondary hospitals and smaller health centers also have autoclaves and uses this technique to disinfect biomedical and sharps waste prior to final disposal within the facility. The most common final disposal technique used is open burning (either in protected lined pits or openly within the facility), followed by on-site incineration and burring in protected lined pits within the premise of the facilities. Some of these facilities use proper incinerators i.e. double chambered incinerators that achieves a temperature of 850 C – 1000 C in the second chamber, while in other facilities the incinerators used do not reach the required optimum temperature. The data also show that in very few facilities (3 to be precise), disinfected autoclaved waste enters the MSW stream. Figure 11 shows the percentage of HFs with and without autoclaves and figure 12 depicts the final disposal methods being practiced.

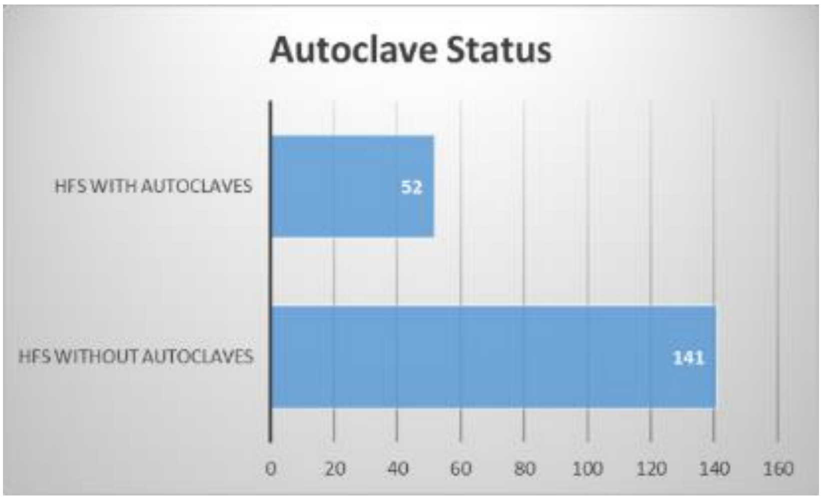


Figure 3 HFs with and without autoclaves (including major hospitals)

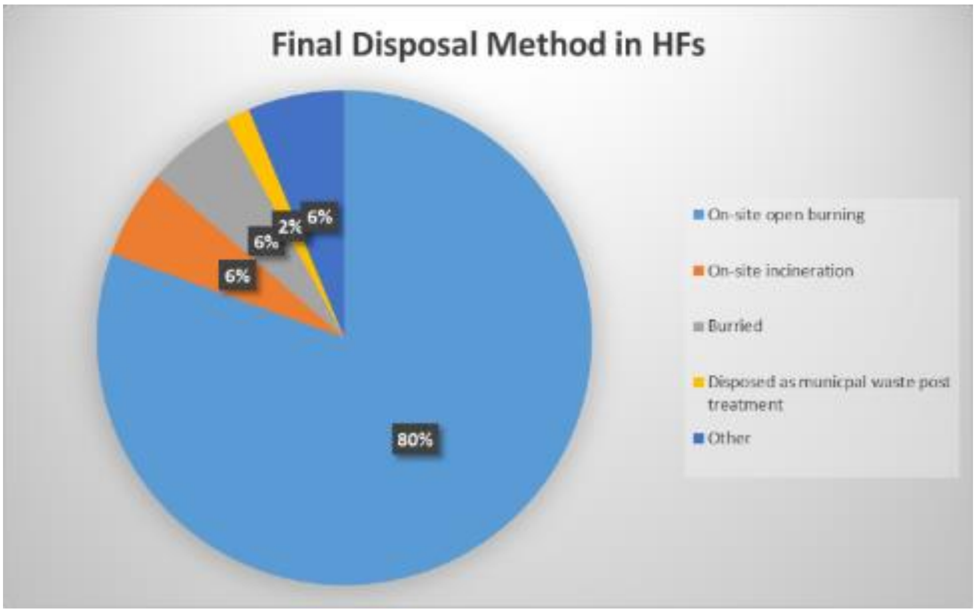


Figure 4 Final disposal methods commonly used in HFs (excluding major hospitals)

2.3.3 FINAL DISPOSAL OPTIONS FOR HAZARDOUS WASTE AVAILABLE IN THE COUNTRY

In general, Maldives has limited options for managing hazardous waste. Although most of the Island Waste Management Centers (IWMC) have designated specific areas for intermediary storage of hazardous waste (ventilated enclosed areas with sealed floors and roofs), the final treatment and disposal is still a prevailing issue in the country, owing to lack of any recycling facilities that can safely dispose waste such as used batteries, asbestos, lead, mercury and used electrical goods (e-waste). The most prominent type of Hazardous Waste identified in the Maldives are expected to be engine oil, solvents, paint, boat coatings and worn out lead batters.

The two major Regional Waste Management Facilities (RWMFs) operated at present are Vandhoo RWMF located in Raa Atoll and Thilafushi RWMF in Male' Atoll. Vandhoo is used as a final disposal destination for municipal solid waste (MSW) generated in Zone 2, a catchment of 45 islands clustered into 4 atolls (Noonu, Raa, Baa and Lhaviyani atoll). This facility has a 35 ton per day capacity incinerator that was recently upgraded into a Waste to Energy (WtE) plant, a baling facility, an ash disposal landfill, a leachate collection pond, power house, RO plant and waste processing and storage sheds. The plant is not yet brought back to operating conditions after its conversion to WtE, owing to an issue with a faulty part, which is expected to be resolved soon. Despite the foregoing limitation, the facility has been operational since mid-2019 with MSW being regularly collected from the IWMCs within the catchment and intermediary storage and baling at the facility continuing. It is important to note that, Vandhoo is not designed to cater for hazardous waste, however, some provisions have been made such as the inclusion of an 8000-liter used oil collecting tank. Further expansion works are planned with funding secured for creating additional storage spaces, rehabilitation of leachate collection ponds and the ash landfill, while discussions are ongoing with various funding agencies to expand its capacity even further to include provisions for recycling and chemical waste management.

Thilafushi has been used to cater for the waste management needs of Male’ region ever since 1992. It was originally a lagoon (6km away from the capital city of Male’) which was used to dump waste and as a result has turned into an island with a land area of 10 hectares, which is being used for waste management and industrial purposes. Until very recently, unconventional practices involving open burning and open landfilling techniques were employed in Thilafushi to manage waste. However, the Ministry of Environment (ME) plans to completely cease open burning of waste in this year (2020). To facilitate this a large compactor has been brought to the facility to enable large scale compressing of waste, which could be then stored for longer periods, and 4 incinerators with a processing capacity of 300-800 kg of waste per hour has been acquired, installed and operated. Additionally, works are on-going to convert Thilafushi into a full-fledged RWMF capable of processing, treating and disposing residual MSW and Construction and Demolition (C&D) waste coming from Zone 3, which is comprised of 32 islands grouped into 4 atolls namely Kaafu (Male’ atoll), Alif Alif, Alif Dhaalu and Vaavu atolls. The main components of this project are installation of two 250 ton per day capacity WtE plant and a baling facility with ancillary facilities, such as ash disposal landfills, intermediary storage spaces, bottom ash processing facility (brick making and road development) and C&D waste processing plant. A complete solution for hazardous waste is not offered through this project, however, storage of hazardous waste will be facilitated.

Taking the forgoing into account, it is evident that neither Vandhoo nor Thilafushi is fully geared to offer a complete solution for hazardous waste and further developments need to come into the loop to facilitate a complete solution to deal with the concerned stream of waste. In terms of waste generated from healthcare facilities, only general waste goes into the MSW stream, while infectious waste and sharps are managed separately, in most cases within the premise of the facility itself either through incineration, burning in a pit or burring in lined pits. This is the common practice utilized in all the HFs in Maldives, except the major hospitals in Greater Male’ Region, where WAMCO collects autoclaved disinfected waste and incinerates in Thilafushi (presently done in Hulhumale’ Phase 2, but will be diverted back to Thilafushi fairly soon). All the major hospitals have waste storage facilities, separate for MSW and infectious waste, while in the smaller HFs three bin systems are adopted to segregated waste into general, biomedical and sharps waste. Therefore, at preset, proper disposal of ash is the most prominent environmental concern in final disposal of HCW, for which the RWMFs in Vandhoo (once landfill has been rehabilitated) and Thiliafushi (once fully developed) can be used to service this need of the respective catchment areas, subject to it being packed and transported across the sea in a safe manner. However, further studies and augmentation of the landfills might be required before implementing it, as the designs of the landfills originally have not taken HCW ash into consideration.

2.4 COVID-19 RELATED OPERATIONS ON HCWM AND WASH

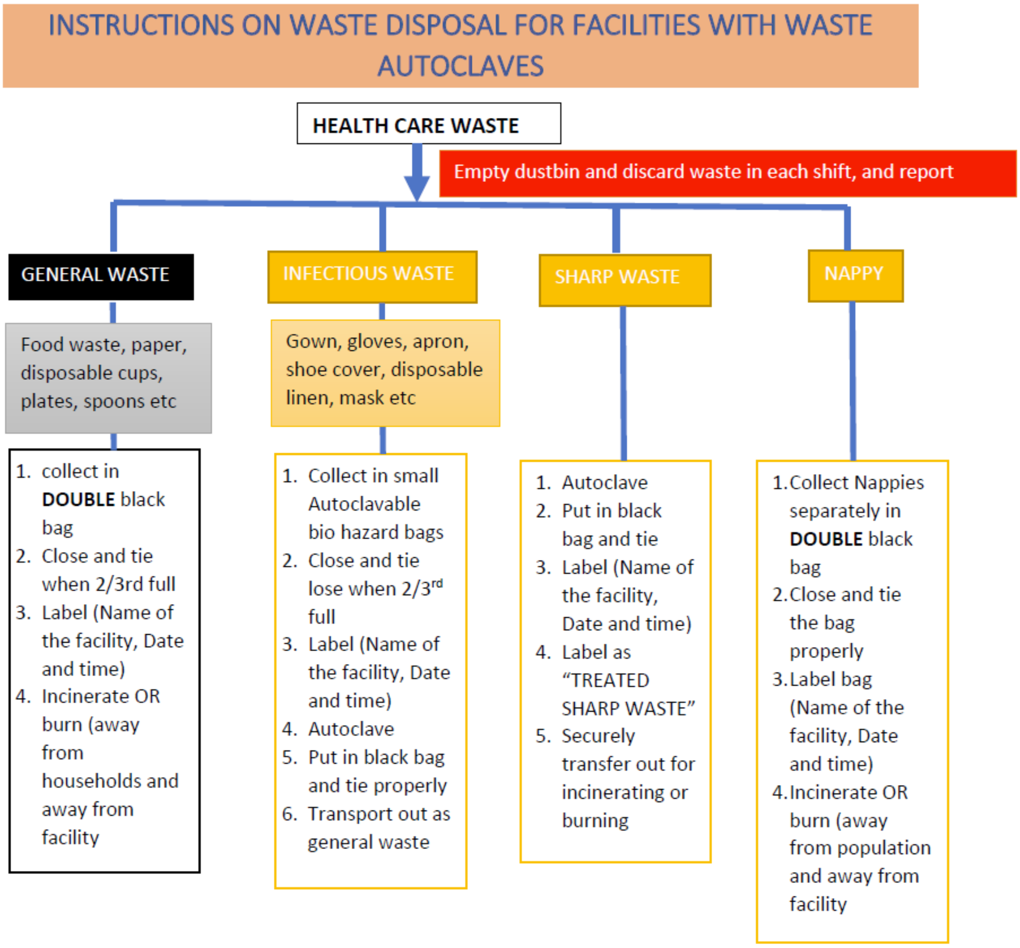
According to WHO, all healthcare waste generated during the care of COVID19 patients are considered as infectious and must be collected safely in designated containers and bags, treated, and then safely disposed of or treated, or both, preferably on-site. If waste is moved off-site, it is critical to understand where and how it will be treated and destroyed (WHO)

In line with the forgoing requirement from the WHO, HPA has developed Standard Operating Procedures (SOPs) that give ample guidance with respect to waste management in isolation and quarantine facilities. These guidelines lay procedures for waste segregation, disinfection methods (autoclave or chemical) and final disposal options (incinerate or open burn). According to MoH and HPA, their SOPs have been approved and endorsed by the WHO. Further guidance has been provided on general waste management operations within the Greater Male' Region, considering the fact that during a wide community spread proper handling of waste is paramount to contain the disease as well as safeguard the wellbeing of waste workers and their families. For further details refer to the web links of SOPs provided in Annex 3.

Infectious waste produced from both quarantine and isolation facilities are segregated into the following 4 categories:

1. General Waste: food waste, paper, disposable cups, plates, spoons etc.
2. Infectious Waste: Used gown, gloves, apron, shoe cover, disposable linen, mask, swabs from test kits etc.
3. Sharps Waste: Used or unused sharps
4. Nappy

In facilities where autoclaves are available, infectious waste is autoclaved prior to burning, while in facilities without autoclaves, chemical disinfection is being practiced using 1:9 bleach solution as a pretreatment. Figure 13 and 14 gives a preview of how waste is being segregated, treated and disposed at present in facilities with and without autoclaves.



INSTRUCTIONS ON WASTE DISPOSAL FOR FACILITIES WITH WASTE AUTOCLAVES

HEALTH CARE WASTE

Empty dustbin and discard waste in each shift, and report

GENERAL WASTE

Food waste, paper, disposable cups, plates, spoons etc

1. collect in **DOUBLE** black bag
2. Close and tie when 2/3rd full
3. Label (Name of the facility, Date and time)
4. Incinerate OR burn (away from households and away from facility

INFECTIOUS WASTE

Gown, gloves, apron, shoe cover, disposable linen, mask etc

1. Collect in small Autoclavable bio hazard bags
2. Close and tie lose when 2/3rd full
3. Label (Name of the facility, Date and time)
4. Autoclave
5. Put in black bag and tie properly
6. Transport out as general waste

SHARP WASTE

1. Autoclave
2. Put in black bag and tie
3. Label (Name of the facility, Date and time)
4. Label as "TREATED SHARP WASTE"
5. Securely transfer out for incinerating or burning

NAPPY

1. Collect Nappies separately in **DOUBLE** black bag
2. Close and tie the bag properly
3. Label bag (Name of the facility, Date and time)
4. Incinerate OR burn (away from population and away from facility

Figure 5 Waste Disposal procedures at facilities with autoclaves

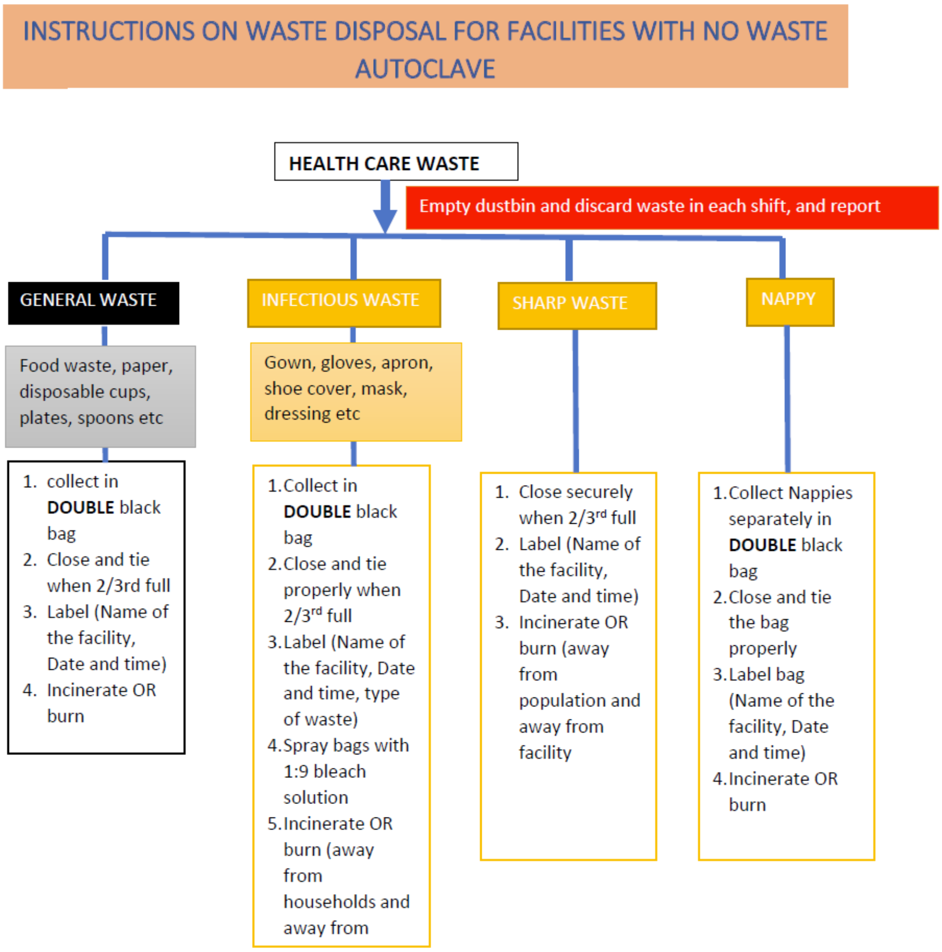


Figure 6 waste disposal procedures at facilities without autoclaves

Although, all the waste produced by patients or suspected cases being treated in isolation facilities are regarded as highly infectious, non-infectious general waste are also expected to be produced in quarantine facilities to some extent, owing to such facilities being used to contain people without symptoms but with travel history or potential contact with a COVID19 patient. In such facilities, general infectious waste will be produced if a person develops symptoms or tests positive while in quarantine. It is important to note that majority of quarantine facilities are operated in resorts, where completely isolated rooms are used to contain people, enabling collection of non-infectious and infectious waste entirely separate from each stream. Each room (in quarantine facilities) or bed side (in isolation facilities) is provided with a foot operated lidded bin, where waste is collected in double bags. Tags are attached to indicate the room number / area of waste collection, type of waste, date and time of closure of the bag, which is then disinfected using bleach solution and carried in separately designated vehicles for further treatment and or final disposal. In all the facilities, on-site final disposal method, either by incinerating or burning in an open barrel (refer to SOPs for further details) is being practiced.

All existing isolation facilities have 100 L autoclaves with shredders (refer to Annex 4 for specifications), while provisions have been made to acquire such autoclaves for all future facilities including the ones currently under construction and planned facilities in atolls. In the existing isolation facilities, all operated in the Greater Male' Region (specific locations are Male', Velaana International Airport, Hulhumale' and Farukolhufushi), which are all accessible through land, pretreated waste are collected from storage areas within these facilities by WAMCO staff and transferred to a special vehicle of WAMCO, which is then taken to their site in Hulhumale' phase 2 for final disposal using a locally manufactured closed contained burner (as shown in figure 16). Furthermore, pretreated disinfected waste generated from flu clinics and rapid response team (which mostly includes used PPEs and potentially swabs used to collect samples) are also collected and disposed by WAMCO in the aforementioned way. It is important to note that WAMCO only collects pretreated disinfected waste from these facilities and clinics. Although a contained burner is presently being used, which does not have flu gas treatment, but is allowed by WHO in emergency situations, depending on the outspread, WAMCO plans to use one of the Inciner8-700 incinerators installed in Thilafushi (the regional waste management facility island for Zone 3), which has been brought back to operating condition recently, to incinerate pretreated infectious waste. This incinerator is a double chambered incinerator with a processing capacity of 300 – 800kg per hour, achieves a temperature of 850C in the second chamber, burns with a residence time of 2 seconds and has a venturi scrubber installed in the second chamber for flu gas cleaning and is adequate to dispose all types of medical waste, except cytotoxic waste, which requires a higher burning temperature. Furthermore, WAMCO plans to install and use an Addfield MP200 Medical Incinerator, that they have received from Hulhumale' Hospital, in Thilafushi or Hulhumale' Phase 2 within the next couple of days, also to be used for COVID19 waste management or final disposal. This incinerator achieves the required temperature to incinerate cytotoxic waste. The specifications of the aforementioned two incinerators and their compliance to WHO requirements are depicted in Table 11.

Table 5 Specifications of Incinerators indented to be used for COVID19 works

	Inciner 8 – 700G	**Meets WHO / WB Min Requirement**	**MP200 Medical incinerator by Addfield**	**Meets WHO / WB Min Requirement**
EQUIPMENT SPECIFICATIONS				
Size / Capacity	Dimensions (l, w, h): 6.04m x 1.91m x 5.75m Combustion Chamber Volume: 6.75m3 Burn Rate: 300-800kg per hour	Yes	Dimensions (l, w, h): 2.835m x 1.150m x 1.950m Combustion Chamber Volume: 0.57m3 Burn Rate: 50-75kg per hour	Yes
Type of Material	6mm thick metal. All chambers are lined with high grade refractory concrete rated to 1600°C.	Yes	Pre-Fabricated 8mm & 10mm robust mild steel casing, seam welded and suitably stiffened/ braced where necessary. Primary and secondary chamber lining thickness 220mm rated up-to 1650°C. Multi-layered refractory lining using fire bricks and insulation bricks	Yes
Suitable Applications	• Industrial waste applications (including RDF) • Wood waste • Mining/exploration/refugee camp waste • Oil and gas industry waste applications • Household waste • Oily filters & rags • Plastics • Some medical waste streams	N/A	Clinical Waste Treated Waste Anatomical Waste Cytotoxic & Cytostatic Waste Offensive/Hygiene Waste Medicinal Waste Domestic (municipal) Waste	N/A
Temperatures at Primary Chamber	Chamber designed for maximum air flow and circulation which in turn improves efficiency and total burn time.		-	
Temperatures at Secondary Chamber	850°C	Yes	1100°C	Yes

	Inciner 8 – 700G	**Meets WHO / WB Min Requirement**	**MP200 Medical incinerator by Addfield**	**Meets WHO / WB Min Requirement**
Residence Times / Airflows	2 sec	Yes	2 sec	Yes
Controls and Monitoring	Temperature Control is present. 3 Zone Thermocouple allow independent control of primary and secondary temperatures via the control panel. Kill switches are position all around the machine to allow instant shutdown by operator in an emergency.	Yes	Addfield Intelligent Controller with a touch screen HMI interface, and independent burner control switches. It gives access to live temperature readings for the primary and secondary chambers and remaining burn time. Temperature control and burner control air fans are present at the chambers. For more detailed information refer to the attached data sheet.	Yes
Pollution Control	Venturi Scrubber is present (verified by WAMCO's Engineer who undertook the recent repair works). It uses a combination of vortex technology and high-pressure water misting to remove harmful elements from the exhaust gases. A venturi scrubber is designed to effectively use the energy from the inlet gas stream to atomize the liquid being used to scrub the gas stream. This type of technology is a part of the group of air pollution controls collectively referred to as wet scrubbers.	Yes	Note: Venturi flu gas cleaning system is present under the additional operational equipment of the data sheet. Need to Verify if it is present.	Yes
Types of Chamber Doors	Door size is 4580 x 1500mm. Top loading mechanism is used.	N/A	Door size is 675 x 550mm. Front facing door is used for loading. Lightweight resilient refractory fibre insulation door with a tight seal.	N/A
Fuel Consumption	40 - 50 ltrs per hour	N/A	Not Specified	N/A
Fuel Type	Light Oil, Diesel, Kerosene, Gas, LPG	N/A	Diesel, LPG, N-Gas	N/A
Maximum Sound Output	230V / 110V	Yes	220 - 250v	Yes
Maximum Electricity Consumption	0.115kW	N/A	390kW (Thermal Capacity)	N/A
Main by products	Ash, flue gas and heat. Top loading design provides liquid retention making this incinerator ideal for incineration of many different waste streams.	N/A	Ash, flue gas and heat.	N/A
Ash Residue	Average ash residue is 3%. Floating Ash doors are present. Bottom ash discharger is used for cooling and removal of solid residue that accumulates on the grate.	N/A	Ash is required to be discharged through the loading door onto the supplied catcher tray prior to being loaded for the next burn.	N/A

Figure 7 STFT of WAMCO in operations

Figure 8 Burner used in HM Phase 2

The staff handling internal waste collection and management with in these facilities, as well as WAMCO staff involved in waste collection and final disposal operations of isolation facilities operated in Greater Male' Region, have been provided with appropriate PPEs and have been trained and guided on its use, as well as cleaning and disinfection procedures of equipment and vehicles used by them. The following PPEs must be used by all waste handlers involved in COVID19 operations:

- Gown
- Heavy duty rubber gloves

- Face shields or goggles
- Head cover
- Masks
- Gumboots

WAMCO has also prepared a business continuity plan (BCP), which defines waste management procedures on four different categories of risk levels and provides corresponding instructions to their operational staff. Subsequently, Special Task Force Teams are activated for COVID19 waste management at or above risk level 2 (moderate or yellow). The present condition is at high risk level, also referred as orange and risk level 3, which has trigged the following actions:

- Waste will be collected from two or more facilities
- Infectious waste must be provided after treatment (autoclave) in double bag packing.
- STF to collect waste from the facility and burn at the designated area at Hulhumale' phase 2 /Thilafushi.
- Wastes would not be collected from doorstep and must be taken to ground level and will be collected by dustbins every day.
- WAMCO will prepare and communicate a zone-specific block specific collection schedule.
- All wastes must be double bagged.

The following OHS actions are also triggered at level 3:

- Gloves must be provided to all staff involved in waste handling.
- Provision of hand sanitizing and hand washing facilities to all staff of WAMCO
- Surgical masks must be provided to all waste handling staff
- Regular health monitoring

For further details and procedures triggered in each risk level refer to the link of draft BCP provided in Annex 3.

2.4.1 GUIDELINES BEING USED IN THE MALDIVES

2.4.1.1 STANDARD OPERATING PRINCIPLES- MARCH 2020

In order to manage HCW during the emergency operations associated with the response to COVID-19 cases the HPA developed a set of Standard Operating Principles (SOPs) on Health Care Waste Management for COVID-19 which were exercised started from the 16th of March 2020 on Health Care Waste Management Facilities. The SOPs provided the minimal requisite guidance as per the context of the Maldives and International best practice on managing HCW in isolation and quarantine facilities with and without autoclaving facilities. As per the SOPs all health care waste produced during the care of COVID-19 patients must be considered as infectious waste and should be collected safely in designated containers and bags, treated and then safely disposed (WHO). As immediate actions, the facilities are required to train the staffs who are assigned in handling and disposal of waste management and on how to put and remove PPE. Ensure necessary PPE (Gown, gloves, face mask, goggles or face shield, gumboots) is provided to all staff and ensure staff wear PPE when handling and disposing waste according to the guideline. While the SOPs have been adequate in emergency response further detailed and step by step guidance is required in terms of management of HCW during the care of COVID 19 patients at health care facilities as well as in Quarantine centers in order to ensure more ardent management and guidance to staff. These SOPs are provided in Annex 3. Following provides a list of these SOPs and a corresponding short summary:

- SOP for Infectious Waste Management: Describes the types and nature of waste generally expected in isolation and quarantine facilities and gives procedures for its subsequent treatment (either through autoclaving or chemical disinfection) and final disposal for each category of waste. The document also provides directions for cleaning the waste bins, offsite transportation of HCW (which is exclusive to Male' Region), instructions for cleaning waste collection vehicles (applicable to both internal and external collection – Male Region only), as well as PPEs that has to be used while handling HCW including step by step guidance on how it should be worn.

- Environmental Management and Infection Control in a tourist resort establishment: Provides further guidance on how waste should be collected and handled in quarantine facilities operated in resorts. The documents include instructions on waste collection and labelling, disinfection procedures, storage procedures and gives further guidance on wash including disinfection of fabrics and walls of rooms etc.
- SOP on MSW Management: Provides guidance to WAMCO on how to collect, treat and dispose general municipal solid waste during the pandemic, specifically target for houses and apartment put under quarantine and monitoring.

2.4.2 WAMCO OPERATIONS ON GENERAL WASTE COLLECTION

Waste Management Cooperation (WAMCO) is a limited liability company fully owned and established by the Government of Maldives to provide municipal solid waste management services, which commenced its operations in September 2015 with a limited fleet servicing initially only for Male' City, but has expanded immensely since then. WAMCO is currently tasked with the operations of existing RWMFs including inter-island collection of residual MSW and subsequent transfer to the respective RWMFs, as well as intra island or household level collection of waste in major cities, namely, Male' City (Male', Villimale' and Hulhumale'), Fuvahmulah City, Hithadhoo – Addu City and Hulhudhoo Meedhoo – Addu City, a responsibility which is undertook by the Island Council in the rest of the inhabited islands.

For the purpose of household waste collection, Male' City is divided into 10 zones with a supervisor assigned for each zone. Waste is collected daily by uniformed staffs wearing basic PPEs, using specialized vehicles and equipment such as mobile compactors and containers that are properly labeled with their logo and contact information. Tablets with GPS tracking are provided to supervisors to enable online monitoring and tracking of waste collection operations. Call and Pickup Service (CAPS) services is provided for bulky and commercial waste.

A similar type of approach is being adopted in the cities of Addu and Fuvahmulah as well. For instance, in Addu City, household collection for each zone is provided 3 days per week using 6 compactor trucks, while commercial collection services are provided daily through 3 dump trucks. Likewise, Fuvahmulah city is divided into 8 wards with every household being attended 3 days a week. Four compactor vehicles and one dump truck operate in Fuvahmulah. However, in contrast to Male' City, online tracking and monitoring systems have not yet been established in these two cities.

WAMCO uses 2 medium sized landing crafts of 200-ton capacity each (Saafu 1 and Saafu 8) and 1 mini-landing craft of 50-ton capacity (Saafu 2) to collect waste from Zone 2 inhabited islands and subsequently transfer to Vandhoo RWMF. Likewise, 3 large landing crafts of size 400-ton each (Saafu 4, Saafu 5 and Saafu 6) and 1 medium sized landing craft of 200-ton capacity (Saafu 7) are used for the transfer operations of waste from Male' City to Thilafushi. In addition to this, certain types of resort waste are accepted at both the aforementioned facilities, which is being brought via own boats of the resorts. Efforts have been made recently to standardize resort waste brought to the RWMFs with WAMCO announcing that, starting from 1 March 2020, RWMFs operated by them will only accept resort waste packed according to their standards and brought in vessels registered in the EPA in compliance to the Waste Management Regulation. In addition to this, WAMCO uses manifest forms to facilitate tracking of waste from the source resort island till its transfer to the corresponding RWMF. Type and quantity of waste loaded to the vessels from resorts are recorded via these manifest forms, which gets verified from the respective RWMF during unloading. Web link of waste segregation standards for resort islands, including acceptable standards for transfer vessels and the ancillary manifest form used for tracking are provided in Annex 3. Similarly, during Zone-2 island collection, WAMCO ensures that the waste they receive from IWMCs operated by the Island Councils are packed according to their standards. Guidelines for types of waste accepted at R. Vandhoo RWMF is provided in Annex 5.

HCW from inhabited islands are not accepted at Vandhoo RWMF, as this is a type of waste that has to be managed within the premise of the HFs as per MoH and HPA's requirement. However, some types of HCW generated from resort islands operated in Zone-2 are accepted in this facility subject to it being disinfected and packed appropriately, as well as disinfected sharps waste being placed in puncture proof sharps boxes or containers (refer to the corresponding link provided in Annex 3). However, it is to be noted that the clinics in resorts function at a very basic level, where only in house consultations and first aid services are provided, while during a highly unlikely situation of a major case, the guest or the patient gets diverted to a tertiary hospital in Male’ City or a regional hospital close to the resort. Therefore, HCW is only generated at a very small scale from resorts.

2.4.3 GAPS IDENTIFIED THAT NEED TO BE SUPPORTED AND ALLIGNED WITH INTERNATIONAL BEST PRACTICE

Based on HCW management practices being employed in the Maldives, COVID-19 related waste management procedures being implemented, final disposal options available in the country and general MSW operations of WAMCO, it is evident that although good practices and procedures are in place which meet the WHO minimum standards, the COVID-19 operations as well as the overall HCWM system of the Maldives need further augmentations. For instance, although there are plans to use the incinerators in Thilafushi RWMF and install a further medical incinerator exclusively to deal with the final disposal of COVID-19 related HCW, the availability of specialized trained staff to ensure its safe operations is in question, while there are only limited options available for proper disposal of residual ash generated, which needs an intermediary storage solution to store ash till the respective landfills gets developed or augmented or a more comprehensive solution gets realised. Likewise, although all the COVID-19 isolation facilities including the planned facilities are or will be supplemented with 100L autoclaves with shredders to disinfect HCW generated from these facilities, only 27% of the HFs operated within the atolls have the required equipment to disinfect HCW (autoclaves). Similarly, although MoH has received and maintains a sufficient stock of PPEs reserve for healthcare professionals and rapid response teams involved in COVID19 works, in comparison, WAMCO has a fairly smaller stock of PPEs for the use of their special task force teams (currently less than a month’s stock). Taking such gaps in the system into account, the following activities are what the MOH is currently looking at implementing.

Immediate Activities (1 – 6 months).

- PPEs for Waste Management Staff: 6 months’ supply of stock of PPEs required for the Special Task Force Team’s operations of WAMCO as well as for staff involved in internal waste management of isolation and quarantine facilities.
- PPEs for COVID19 Healthcare Workers: 6 months’ supply of stock of PPEs required for healthcare professionals (doctors, nurses, attendants etc.) working in isolation and quarantine facilities and rapid response team.
- Installation of Medical Incinerator: technical assistance required for the installation and assembly of Addfield MP200 medical waste incinerator at Thilafushi RWMF and bringing it to operational condition, either through local or international expert technicians.
- Intermediary Storage of Ash: Establish suitable means for intermediary storage of residual HCW ash in Thilafushi RWMF. This could potentially involve construction of slabs and use of containers.
- Training of WAMCO staff: Increase capacity of WAMCO staff in the collection and incineration of disinfected HCW. Identifying operators for each incinerator intended to be used for final disposal of HCW and provided specific training on its operations.
- HWMPs for Major Hospitals: Ensure all major hospitals have HCWMPs in place and is implemented accordingly.
- Initiate Procurement for Autoclaves and Consumables: identify suitable suppliers, complete bidding process and awarding of contracts.

Medium Term Activities (6 – 12 months)

- Procurement of Autoclaves and Consumables: Supply and Delivery of Autoclaves with Shredder (including spare parts for 1 year) and consumables for all the HFs in the Maldives that do not have autoclaves. Provide training to one staff from each facility on its operations, troubleshooting and maintenance. Funding for this activity can be covered through MCEP for islands in Zone-2 and Zone 4&5. Refer to Annex 6 for size of autoclaves and list of consumables required for each HF.

Medium Term Activities (12 months and beyond)

- Enhancing Final Disposal of HCW: Evaluate options to ameliorate final disposal techniques currently used in HFs across the nation. This may include providing small medical waste incinerators to all the islands or deviate to an atoll based HCWM system, where by disinfected autoclaved waste is stored and being taken to the atoll or regional hospital for final disposal via incineration, as well as transporting residual ash for landfilling in respective RWMFs.
- Strengthening HCW storage and handling capacity of HFs: Develop HCWMPs in all HFs and facilitate its implementation.

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3 CHAPTER 3: ENVIRONMENTAL, HEALTHAND 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 those relating to protected areas, as well as occupational health and safety (OHS) measure and all labor laws for workers, EIA for all civil works, compensation for loss of land and the cutting down of trees, etc. 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 waster 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,.

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).

Since the current situation is abnormal and an emergency, EIAs will be exempt for all activities undertaken as a response to COVID19 pandemic (including infrastructure development works such as construction of isolation and quarantine facilities) under clause 22 of Schedule T of the second amendment to the EIA regulation, which states that "EIAs will not be required for activities undertaken in emergency situations to save lives, homes and properties of people".

In normal situations, the following features with regard to SWM facilities will warrant a full ESIA as per national regulations.

- Any waste management facilities designed to receive / process more than 10 tons of waste per day (as per amendment 2 to the EIA regulation).
- Any waste management facility with an incinerator of capacity of processing 10tons of waste per day.
- Hospitals of 50 bed capacity or more.

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 MVR 5000 15 days for review
2. For a review fee of MVR 10,000 10, days for review
3. For a review fee of MVR 20,000 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 needs 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 HEALTH CARE WASTE MANAGEMENT POLICIES AND REGULATIONS

3.2.1 POLICY FRAMEWORK FOR HCWM

The country has a National Health-Care Waste Management Policy (NHCWMP) which was developed in 2016. The policy identified that the current health-care waste management system in the facilities is not standardized and acknowledge that the implementation and monitoring of safe management is weak and has listed shortcomings that were to be addressed in country. The policy entails responsibilities of each authority such as the MoH, Ministry of Environment, Environment Protection Agency, Local Councils, etc. This policy document is to be revised every two years by the Ministry of Health. The policy is more like a guidance document that enlists various facets of good medical waste management.

The MoH and the HPA as per the policy remains the mandated agency to handle HCWM in the country. The policy outlines that the responsibility for the management of waste generate in public and private healthcare facilities/institutions and ensure it is soundly managed from generation to final disposal.

Various guidelines and policies have to be framed in accordance with this policy and these have been ongoing. These documents include the Health-care Waste Management Guideline and the National Implementation Strategy, including an implementation plan and a comprehensive set of safety operation procedures. These are yet to be developed in country.

The country, via assistance from the WHO developed a National Strategy on Health-care Waste Management (2016–2021. The purpose of this strategy is to enforce the “National Health-care Waste Management Policy” and the “National Health Master Plan” by establishing a countrywide integrated health-care waste management system (which is managed without adverse effects on human health and environment and is environmentally and economically sustainable). In addition to further strengthening the legal framework, the strategy also looks at training of personals, and raising public awareness as essential elements of successful health care waste management in the country. In addition, Health Service Act, Law 29/2015, Public Health Protection Act, law 7/2002, National Infectious Control Guideline in Health Facilities, 2008 and National Standards on Clinical Laboratories, 2013 are also set up to implement effective health care waste management practices in the health care facilities across the Atolls. The National Strategy on Health-care Waste Management in Maldives (2016–2021) prioritizes, its main objectives for the 5-year period are presented in Table 12.

Table 6 Objectives of NSHWM

Strategic Priority 1 Objectives	Strategic Priority 2 Objectives

• Review and revise existing legal documents • Strengthen policy and regulatory structures for HCWM	• Develop national training packages on health-care waste management • Implement developed HCWM training programmes • Increase advocacy awareness for behavioral change • Promote research, new technologies and innovative methods for sound management of • HCW
Strategic Priority 3 Objectives • Assess the current waste management situation. (*This objective has been completed already by the HPA*) • Set up an integrated system in a pilot Atoll • Initiate HCWM planning • Promote green procurement and minimizing waste • Improve infectious waste and sharps waste management • Improve pharmaceutical and chemical waste management	**Strategic Priority 4 Objectives** • Assess current monitoring situation • Strengthen reporting, monitoring and evaluation mechanism on HCWM • Provide regular monitoring and evaluation of the health-care waste management system • and performance of the equipment
Strategic Priority 5 Objectives • Establish sustainable sources of funding • Complete budget	

3.2.2 ISLAND LEVEL MANAGEMENT MANDATE

The Act on Decentralization of the Administrative Divisions of the Maldives, 2010 and the updated Act of 2020, provides for general waste management by local councils. Health-care waste management is not included in this document. Waste management regulations of island councils (this document provides for the basic methods of waste management; it does not provide in detail information regarding health-care waste management). Producers of health care and related waste retain primary responsibility for the safe collection, handling and disposal of the waste they generate. The Central Waste Administration of MOH will assist and facilitate health care waste producers to develop and implement operational policies, guidelines and standard operating procedures for health care and related wastes, including those waste, which cannot enter into the mainstream waste system so have to me managed within the premises of local health centers and hospitals.

3.2.3 OTHER RELEVANT REGULATIONS

3.2.3.1 PUBLIC HEALTH PROTECTION ACT, LAW 7/2012 (INCLUDES GENERAL WASTE MANAGEMENT)

The Public Health Protection Act was ratified in 2012. The Chapter 10 of Act include the guidance for management of Municipal solid waste and sewage. This Act requires the subsequent regulation to be formulated under this legislation to prescribed guidelines for management of municipal solid waste and sewerage generated in café, restaurants or recreational place. This Act prohibits dumping of any municipal solid waste to any public places including beach areas. This Act also prohibits dumping of waste to sea.

Furthermore, this Act prescribes punitive measures such as fine not more than 5000 Maldivian Ruffiyya for non-compliance.

3.2.3.2 MINIMUM STANDARDS ON HCWM, 2008

This document provides a seven-step guidance on management of HCWM. This document identifies three categories of Health Care Waste, namely General (non-risk) waste, including uncontaminated waste similar to domestic waste; infectious health-care waste and hazardous health-care waste. The seven-step prescribed by the standard include;

- Waste Minimization;
- Segregation and Containerization;
- Immediate Storage;
- Internal transport in the health facility;
- Centralized Storage
- Treatment
- External transport & final disposal

3.2.4 GREENING THE HEALTH-CARE SECTOR

The National Policy on Health Care Waste Management of 2016 developed with the WHO gives impetus on greening the health-care sector. The policy includes provisions to minimize the use of toxic, hazardous compounds such as poly vinyl chloride (PVC) and phasing out heavy metals such as mercury in the health-care sector as much as possible without compromising product performance. The policy also emphasizes on following the international green procurement rules. It states that all materials which are planned to be procured shall follow criteria that ensure that less toxic and less hazardous products are selected, without compromising product performance. The Ministry of Environment has been entrusted with the duty to develop the necessary regulatory tools for implementation of and compliance with best available technologies (BAT) and best environmental practices (BEP) for the treatment and disposal of waste from health facilities and to ensure the protection of human health and the environment. Furthermore, the Ministry of Environment, is working closely with relevant donor agencies to secure funding for sound management of chemicals and hazardous waste including health care waste. As a part of this initiative the MoH has proceed with subprojects for solar panel installations in HCFs and facilitated the installation of Autoclaves for sound HCW disinfection as well.

3.2.5 WASTE MANAGEMENT COMMITTEE

The HCW management guideline presented in the policy requires formation of the waste management committee at the hospital level. It should be recognized as an integral part of the organization and should have active members representing key departments of the hospital. The committee is required to periodically review and update the waste management plan and is responsible to monitor:

- Compliance to waste processing procedures
- Amount, types and sources of waste generated
- Disposal costs and savings
- Success of waste minimization activities
- Awareness and compliance
- Accidents/accidents related to waste handling

To implement this structure, working Group have been formed internally within the MoH from different dept/divisions and focal points have been allocated from all HCFs and trained on HCWM aspects. No hospitals have developed Health Care Waste Management Plans even though HCWM is part of their day to day regular operations it is not managed via a separate more detailed planning mechanism. As per the national actions taken these activities were planned for the current and future period but due to the Covid-19 Pandemic have stalled.

3.2.6 INTERNATIONAL TREATIES

Maldives has ratified the following international conventions which deals with management of hazardous waste. They include;

3.2.6.1 BASEL CONVENTION

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted on 22 March 1989 by the Conference of Plenipotentiaries in Basel, Switzerland, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic wastes imported from abroad.

The objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as “hazardous wastes” based on their origin and/or composition and their characteristics, as well as two types of wastes defined as “other wastes” - household waste and incinerator ash.

The main provisions of the convention include the following;

- the reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal;
- the restriction of transboundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management; and
- a regulatory system applying to cases where transboundary movements are permissible.

The National regulations particularly Waste Management Regulation 2013 conforms the provisions of the Basel Convention.

3.2.6.2 STOCKHOLM CONVENTION

The Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) was adopted in May 2001 with the objective of protecting human health and the environment from POPs.

The main chemicals which are controlled under the SC include

- Perfluorooctanoic acid (PFOA), its salts and PFOA related compounds - produced and used for surface treatment in a number of consumer products and in fire fighting foam
- Dicofol - pesticide
- Decabromdiphenyl ether – flame retardant mainly used in plastic
- Short-chain chlorinated paraffins (SCCPs) - lubricant, additive in sealants, paints, plastic and rubber
- Hexachlorobutadiene (HCBD) - e.g. solvent. Is being produced as a biproduct during some manufacturing.
- Polychlorinated naphthalenes (PCNs) - additive in plastic and rubber and as a lubricant (2015)
- Pentachlorphenol (PCP) - pesticide
- Hexabromocyclododecane (HBCDD) – flame retardant in insulation plastics, electronics and textiles
- Endosulfan – pesticide
- Hexabromodiphenyl ether and heptabromodiphenyl ether – flame retardant in insulation plastics
- Tetrabromodiphenyl ether and pentabromodiphenyl ether – flame retardant
- Chlordecone – previously used as a pesticide
- Hexabromobiphenyl (HBB) – previously used as a flame retardant
- Lindane – insecticide previously used for treatment against head lice and scabies

- Alpha and Beta hexachlorocyclohexane (HCH) – insecticides produced as unintentional by-product of lindane
- Pentachlorobenzene – flame retardant, produced unintentionally during certain combustion
- Perfluorooctane sulfonic acid (PFOS) – is still used in fire fighting foam and the metal industry
- Aldrin, Chlordane, Dichlorodiphenyltrichloroethane (DDT), Dieldrin, Endrin, Heptachlor, Mirex, Toxaphene, Polychlorinated biphenyls (PCB), Hexachlorobenzene (HCB), Polychlorinated dioxines (PCDD), Furans (PCDF)

Maldives elaborated the National Implementation Plan (NIP) in 2017 as per the requirement under Article 7 of the SC. The National Regulations conforms to the provisions of the SC.

3.3 ENVIRONMENTAL HEALTH AND SAFETY GUIDELINES FOR HCWM IN THE MALDIVES

3.3.1 ENVIRONMENTAL STANDARDS ASSOCIATED TO HCWM

It is over the last decade or so that the Maldives has progressed in developing national environmental standards in order to maintain a clean and healthy environment. Among these the following regulations and guidelines set forth the environmental standards that are pertinent to the Solid Waste Management (SWM) sector. The Waste Management Regulation (WMR) 2013, sets forth the minimum standards to be maintained during waste management operations. The regulation is implemented by Environmental Protection Agency (EPA) which holds the overall responsibility of ensuring that the standards are met by the operator and individual/operator that partake in SWM within the country. The WMR defines standards for waste collection, transfer, treatment, storage, waste site management, landfills and managing hazardous waste. HCW while classified as hazardous waste however is managed by the MoH and needs to meet the required standards on management stipulated in the WMR. The EPA holds the mandate to monitor associated activities and take action as per the WMR. HPA attains responsibility in monitoring of HCW.

The EPA has also developed Waste Incineration Guidelines (WIGs), published in 2016, which are intended to facilitate the construction and operation of waste incinerators safely and to mitigate the adverse environmental and health impacts that may arise during the set up and operational cycle. The WIGs present the minimal standards to be maintained and precautions to be undertaken during waste incineration. However, the standards presented in the WMR and the WIGs are considered as the minimum requirements applicable to the sectoral context as per the overarching regulation. While the WIGs stipulate the minimum standards to be maintained in order to limit emission values for plants incinerating waste, the country as a whole has not yet developed a comprehensive framework and standards for managing air emissions. Air quality is monitored by the EPA relative to the Ambient Air Quality Standards of the United States Environmental Protection Agency, which has been recognized as the international best practice.

As typical SWM activities lead to the production of waste water, the National Waste Water Standards also hold applicability within the sector including for Health facilities that generate waste water. The following sections present a brief snapshot of each of the existing environmental guidelines and relevant standards currently applied in the Maldives. The outline is based on information shared by the Ministry of Environment and Energy in the form of both official and unofficial translations of the regulatory instruments and information available on the EPA public domain.

3.3.2 WMR 2013: STANDARDS GOVERNING WASTE MANAGEMENT

Annex-A of the WMR present the minimum standards to be maintained in waste management. It outlines a set of practices to be followed and maintained during the collection, land and sea transport of waste, waste treatment, storage and the management of waste disposal centers and hazardous waste. The standards on collection outline practices to be maintained with regard to the waste categories domestic, commercial, waste generated in resorts, construction and demolition waste and agricultural waste. It also stipulated the occupational health and safety standards that need to be maintained by individuals partaking in waste management activities throughout the management stream. The standards do not make any specific reference to any specific international standards or best practices. The Standards do not include specific guidance on leachate and emission management during solid waste operations. The EPA is the main designated body for the implementation of the WMR.

3.3.3 WASTE INCINERATION GUIDELINES 2016

The main objective of the Waste Incineration Guidelines (WIGs) is to limit and where possible prevent negative impacts on the environment that are caused due to incinerator operations, predominantly pollution by emissions into air, soil, surface and groundwater, and the resulting risks to human health, from the combustion of waste using incinerators. The WIGs are applicable to all categories of waste incinerators and aim to assist those who partake in the construction and operation of waste incinerators, to achieve the most practical health and environmental outcomes while ensuring a sound final disposal mechanism for solid waste. The WIG outlines standards that need to be maintained and precautionary measures to be undertaken during waste incineration. It also stipulates measures to mitigate and avoid adverse environmental impacts with regard to the incineration of medical waste and hazardous waste, covering collection, storage and transport in addition to incinerator operations.

The WIGs detail out criteria for site selection to be followed when planning the establishment of waste incineration facilities with the aim of ensuring that the site does not pose any hazard to the surrounding environment and the local community. It sets forth measures on ensuring sound emission control, such as standard practices on segregation of incinerator feed, establishments of buffer zones and metrics for establishments of smoke stacks. It also outlines emission levels to be maintained during operation as well as monitoring and control systems. As per the WIGs, emission should be continuously measure and recorded. At minimal, parameters such as Opacity, Oxygen Carbon monoxide, Hydrogen chloride and Temperature are required parameters. The WIGs also require that facilities have contingency plans developed for events such as accidental spills and discharges, failure of air filter systems, incidents or fire and natural hazards and disasters. The permissible air emission levels to be maintained are at the same level to the European Union standards for the outlined parameters.

In terms of handling of waste, other than medical and hazardous waste, the WIGs do not give specific guidance or standards, instead they endorse the use of the WMR and the National Waste Water Quality Guidelines for management of waste water.

3.3.4 NATIONAL WASTE WATER QUALITY GUIDELINES 2007

The National Wastewater Quality Guidelines (NWWQGs) were developed in 2007 and the designated authority mandated to administer the guidelines is the Maldives Water and Sanitation Authority (MWSA). Covering both domestic and industrial wastewater, the main purpose of the guideline is to provide clear technical guidance to individuals, organizations, license holders, government and regulators in order to manage waste water effluents in addition to following international best practice in terms of cleaner operations and production. The guidelines deal with domestic wastewater quality for discharge into deep sea and provide the maximum concentration of listed components that have to be complied with at all times including coliform, pH and suspended solid levels. The NWWQGs also provides maximum concentration levels for domestic and industrial wastewater combined but does not specifically provide guidance on dealing with industrial effluents or leachates of any kind. The country does not have set standards for ground water quality.

Typically, wastewater discharges from SWM operations fall under the categorization of industrial effluent and leachate, for which the NWWQGs do not present specific standards. The NWWQGs also stipulate that the guidelines are generic and conservative, the standards state that in the event the capacity of the receiving environment to deal with additional waste water, has been exceeded or when the activity generating the waste water is envisioned to produce waste water at extreme lower or higher levels than the standards set in the NWWQGs, an Environmental Impact Assessment (EIA) is required and need to be completed by accredited Assessors approved by MWSA. In addition, the producer has to prove to government that best international Clean Production protocols are followed. Based on the recommendations of the EIA report and proof of Clean Production practice, MWSA will issue site specific guidelines for the discharge of waste waters. No exemptions to the Guidelines will be allowed without site specific guidelines to that effect. Monitoring plans are mandatory for all waste water generators as per the guidelines.

3.4 KEY INSTITUTIONS INVOLVED WITH MANAGING HEALTH CARE WASTE AND OVERALL SOLID WASTE MANAGEMENT

3.4.1 MINISTRY OF HEALTH

The Ministry of Health is the key institution responsible for policy making and regulating the health care services in the Maldives. Health Protection Agency (HPA) which is under the umbrella of Ministry of Health implement the Public Health Act of Maldives. HPA formulates guidance for health care service providers in the country on HCWM.

The Quality Assurance and Regulations Division is responsible for quality assurance of the health care centers across the country. They ensure the provision of required infrastructure for health care waste management in the health care centers of the country in consultation and collaboration with the HPA.

3.4.2 ROLE OF THE HEALTH PROTECTION AGENCY

Health Protection Agency (HPA) is a semi-autonomous agency formulated under the provisions of Public Health Act (Law no. 4/2012). HPA conduct many public health programs including vector surveillance and control, tobacco control and non-communicable diseases.

They are mandated with provision of guidance for health care waste management in the country. Environmental and Occupational Health Division of HPA is responsible for providing guidance for health care service providers on management of HCW. They also conduct awareness programs for health care service providers across the country on management of different categories of HCW.

3.4.3 ROLE OF MINISTRY OF ENVIRONMENT AND ENERGY

The Project will be carried out under the auspices of the Ministry of Environment and Energy, which was established by the President under the powers granted to him by the Constitution of the Republic of Maldives. The Environmental Protection Agency (EPA) is an independent regulatory organization affiliated to the Ministry of Environment and Energy and operates under the guidance of a governing board. The EPA would be the body responsible for overseeing most of the project activities, particularly in relation to impacts on the environment.

3.4.4 MANDATE OF THE ENVIRONMENTAL PROTECTION AGENCY

The mandate of the EPA is as follows.

1. Planning and administering the protection of places and living species that are designated to be protected according to the provisions of the Environment Act
2. Drawing up the guidelines and standards of the Environmental Impact Assessment that is required before the implementation of any project that may have an impact on the environment of the Maldives.
3. Carrying out all tasks related to the implementation of the Maldives Environment Act.
4. Implementing the Environmental Impact Assessment Regulation.
5. Carrying out the conservation processes deemed necessary based on data gathered regarding the erosion of islands due to natural or human activity.
6. Drawing up the guidelines and standards for environmentally safe procedures for waste management, and monitoring to ensure that these guidelines and standards are met by those carrying out waste management.

7. Introducing a system of valuation of the environment in order to recoup any loss to the environment, and implementing this activity.
8. Implementing the regulations set by the Ministry for the protection of the island environment, and monitoring adherence to the regulations and legislation developed for the protection of the environment by government and private parties, and providing advice to relevant government organizations on these issues.
9. Issuing licenses for water and sanitation services, and the management of solid waste and sewerage, and to ensure that parties issued such licenses comply with the terms of the licenses.
10. Drawing up guidelines, regulations and standards for the management of solid waste and sewerage, and ensuring that providers of water services follow these standards.
11. Setting the standards for fee-charging by private providers of water services and providers of solid waste and sewerage disposal or destruction, issuing permits for such charges, checking on the submissions of the users of such services, and taking action to protect the interests of both sides.
12. Carrying out scientific research and experiments, developing a knowledge base in this area, and disseminating this data to those who require it.
13. Researching the changes to the beaches of islands and the causes of beach erosion, and providing advice to solve these issues.
14. Obtaining data on the formation and changes to the islands of the Maldives through the use of satellite imagery and aerial photography, obtaining the data needed for the geographic information system, and providing for the dissemination of this data.
15. Identifying the impacts of land reclamation, harbor development and reef blasting, researching ways of carrying out such activity in an environment-friendly manner, and providing the data and experience gained to relevant organizations.
16. Conducting research and experiments on the environmental pollution in the Maldives, and providing data and professional advice.
17. Conducting research on the taxonomy and habitats of living organisms, and providing data and sharing the experiences with relevant organizations.
18. Conducting research and experiments regarding environmentally friendly biotechnology and biosafety, and providing data and professional advice
19. Conducting research and experiments regarding the implementation and monitoring of various projects on energy, developing a knowledge base in this area and disseminating this data to those who require it. (xx) Planning, administering and monitoring issues relating to the physical oceanography of the Maldives.
20. Monitoring the gases, smoke and particulates in the atmosphere, gathering and monitoring data on these issues, and making it available to relevant parties.
21. Conducting scientific research into the available sources of potable water in the Maldives, monitoring such data, and making it available to relevant parties.
22. Conducting research to identify natural sources of energy in the Exclusive Economic Zone (EEZ) of the Maldives.
23. Accumulating the environmental data required for the planning of development projects, developing a knowledge base in this area, and disseminating this data to those who require it.

3.4.5 INSTITUTIONS WITH RESPONSIBILITIES FOR SOLID WASTE MANAGEMENT

Responsibilities for Solid Waste Management are divided across several institutions across various ministries and levels of government. In ascending order of hierarchy, the key institutions with responsibility for solid waste management are;

Island Councils are responsible for the collection, treatment, and disposal of waste from households. This remains largely true, except for the cities of Male and Addu, where in 2015 the government through parliament took back responsibility for Waste Management from Male City Council and Addu City Council and placed it with the Waste Management Department (WMD) of Ministry of Environment and Energy where it remains today. Specifically, ICs manage the operations of their Island Waste Management Centers (IWMCs) and prepare their Island Waste Management Plans (IWMPs) with support of the WMD and in coordination with the Atoll Councils. They will ensure their IWMP are fully implemented including operating the IWMCs once established and carry out the waste management service on their islands.

Island councils are empowered to make regulations, with advice from Local Government Authority (LGA) in various areas, including SWM services. The LGA is also responsible for building capacity of the Islands councils on various issues which are in their domain, including SWM

Under the Government's current Waste Management Policy, a Regional Waste Management Center (RWMC) is created in each zone/region, to serve as a final treatment and disposal facility for the waste that the Island Waste Management Centers (IWMC) have collected from their communities.

Out of a planned six RWMC country wide only one has been created in the North, specifically in Zone II.

Atoll Councils have a limited function to coordinate the activities and plans of their respective island councils with the Waste Management Department of the MEE.

Waste Management Corporation (WAMCO) is responsible for operating the RWMCs created in each zone.

Environment Protection Agency (EPA) provides regulatory oversight of the solid waste management sector and operations in line with its mandate. The EPA is as an autonomous agency with its own oversight governing board but with a dotted reporting line to the Minister of MEE, who approves the EPA's budget and is accountable to Parliament for it.

However, the Tourism Regulation of 2013, regulates the waste generated at the country's resorts and places regulatory responsibility on the Ministry of Tourism. Therefore, the EPA has no authority to regulate the waste on resort islands. The EPA's authority with respect to waste generated on resorts begins only when the waste has left the resort islands. Construction, demolition and hazardous waste are generally the responsibility of the producer, while, medical waste is administered, managed and operated by the Health Protection Agency. But, all forms of waste are regulated by the EPA, except for resort waste as stated earlier.

Waste Management and Pollution Control Department, Ministry of Environment, headed by a Director General, under the ministry, directly responsible for national waste policy and coordination. WAMCO has been reinvigorated recently with a fresh induction of key officials. Currently, WAMCO has been contracted by the WMPCD to manage waste in Male'. It also is responsible for managing the Thilafushi site where the waste from Greater Male' area and the resorts is being transported for final disposal.

Other Agencies: All land is the Maldives is owned by the Government with Ministry of Fisheries and Agriculture (MoFA) owning all uninhabited islands – potential sites for processing and disposal of wastes. Ministry of Housing and Urban Development or Ministry of National Planning and Infrastructure (MoHUD is responsible for allocating land on inhabited islands on recommendation of the Island councils for various purposes, including SWM. MoHUD also owns Thilafushi Corporation who control the island of Thilafushi which is the only official location where large-scale handling, processing, and disposal of solid waste is undertaken.

3.5 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.

3.5.1 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.

3.5.2 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.

3.5.3 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.

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.

3.5.4 GENDER AND VULNERABILITY

Promoting and protecting the rights of vulnerable groups have been among the most important In recent years, the GoM has emphasized promoting and protecting the rights of vulnerable groups as one of its important objectives but there are gaps when compared to international instruments and agreements. The

2008 Constitution bans discrimination on grounds of sex except as prescribed by the Islamic Sharia laws. 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.

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.

In terms of political participation, Maldivian women have had the constitutional right to vote since 1932, and have had enjoyed rights to 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 GoM 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.

Besides women, the Child Rights Protection Act (19/2019) was ratified on 20 November 2019, which incidentally also marks the 30th anniversary of the Convention on the Rights of the Child (CRC). The Act replaced the Child Rights Protection Act of 1991, further enhancing the child protection systems currently in place. Some key points in the ratification are that it prohibits marrying any child below the age of 18 and prohibits child labour. The Act promotes core values reflected in CRC, including best interests of the child, right of life, child participation and non-discrimination. The Act also highlights the roles and responsibilities of parents and the State to ensure child protection in the country, including through principles of decentralization, prevention and deterrence. It identifies vulnerable groups of children and provides frameworks to ensure their protection while criminalizing certain acts such as grooming and failure to report incidents of harm to a child. Vulnerable groups are also protected via the Social Protection Act (2/2014), which is aimed at reducing the socioeconomic inequalities, ensuring equal access to resources and protecting and aiding the most vulnerable to access basic necessities. Under this Act, the State provides financial assistance to several socioeconomically disadvantaged groups such as single parents, foster parents, food subsidy for those living below the national poverty line, and persons with disabilities.

Another key vulnerable group in the Maldives is the migrant worker community. The rights of migrant workers are set out in several national laws and international commitments. Information on laws and policies governing migrants in the Maldives are presented in Section 3.7.8.

3.5.5 HUMAN RIGHTS POLICY

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 Human Rights Commission Act (Act No. 6/2006) paved the way for the establishment of the Human Rights Commission as an independent legal entity mandated to protect, promote and sustain human rights in the Maldives, and to assist NGOs. 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.

The Human Rights Commission is tasked with inquiring, investigating and resolving grievances relating to the infringement of human rights or negligence in taking appropriate measures to prevent infringement of human rights within the means of the Human Rights Commission Act. The Commission also advices the State in formulation of relevant laws, regulation and policies regarding the promotion of human rights, help identify violations of human rights in existing laws, regulations and policies, partake in the formulation of international human rights conventions, conduct research, and work towards increasing public awareness on human rights to promote a high regard for human rights amongst the population.

In addition to the Human Rights Commission Act, there are several regulations and policies in place to enhance and promote human rights in the country. The Chapter 2 of the 2008 Maldivian Constitution outlines the various fundamental rights and freedoms available to the citizens of the Maldives including, but not limited to, freedom from restraint, right to life, economic and social rights, right to vote and run for public office, freedom of expression, freedom of acquiring and imparting knowledge, right to work and right to education. The Right to Information Act (Act No. 1/2014) was enacted on 12th January 2014, which ensures access to information as fundamental human right for every citizen. The Act outlines the nature of rights available to citizens in accessing information and works to promote government accountability and transparency.

The National Human Rights Framework published in 2016, outlines 14 key focus areas for the promotion, protection and fulfilment of human rights in the country, especially for vulnerable groups. These areas include the right to education, right to health, right to adequate standard of living, right to special protection, right to gender equality, right to safe and healthy environment, right to work and rights of workers, right to development, right to participate in cultural life, right to life, liberty and security, right to access to justice and to fair and impartial trial, right to freedom of expression, association and assembly, right to nationality, movement and civic participation and the promotion of a culture of human rights.

Furthermore, the Maldives has several commitments to international agreements on human rights such as the Convention on the Elimination of all forms of Racial Discrimination, Convention on the Rights of the Child, Convention on the Elimination of all forms of Discrimination Against Women, Convention Against Torture, International Convenant on Economic, Social and Cultural Rights, International Convenant on Civil and Political Rights, and the Convention on the Rights of Persons with Disabilities.

3.5.6 DISABILITY ACT

The Disability Act boosted the protection and rights afforded to persons with disabilities. Now, persons with disabilities have access to financial assistance provided by the government amounting to MVR 2000 per month, there are regulations on minimum standards and identification of persons with disabilities, and room for affirmative action including access to gainful employment. It was constituted to promote inclusivity and access to a regular life, protect the rights and safety of, direct government policies in relation to and ensure equal opportunities without any form of discrimination for persons with disabilities.

The Act came into effect on 8th July 2010. The Act allowed the legal formation of a Disability Council to direct policies and govern various aspects of protection and empowerment of persons with disabilities. It also includes provisions for enabling access for persons with disabilities to information on their rights and relevant laws, rules and regulations. Moreover, the Act prohibits any discrimination in property rights, inheritance and the ability to conduct financial transactions based on disability. All persons with disabilities have a legal right under this Act and should be enabled access to a regular life, public spaces, transport, information or any other goods and services available to the public. Persons with disabilities possess the same rights to employment and educational opportunities as anyone else. Employers are required to ensure a safe and enabling work environment for persons with disabilities, provide relevant information to all employees and refrain from discriminations in giving promotions, salary increments, etc. based on a disability. The state should provide equal opportunities for primary, secondary and tertiary education and training. In doing so, necessary learning equipment, devices and methods must be provided such as Braille, and audio books amongst others. Special education teachers should be available where required, as well as an enabling environment to maximize efficient learning.

In terms of access to healthcare facilities, no discrimination should take place in service. Any persons with disability possess all rights to confidentiality and consent available to all. The Act mandates the state to establish mechanisms for early diagnosis of disabilities, to create awareness, and provide training and relevant information to families and communities. The Act emphasizes on provision of mandatory healthcare for persons with disabilities to be made available as close to their locality as possible. This includes but is not limited to treatments like physiotherapy, occupational therapy, speech therapy and behavioural therapy. There is also a clause in the Act on providing special provisions for persons with disabilities during pandemics, and natural and man-made disasters, and that the Disability Council must be consulted in developing emergency response plans during crises.

Further, the development of the National Mental Health Policy 2015-2025 marks a milestone in mental health awareness and treatment in the Maldives. The objectives of this policy include creating a robust governance structure for mental health with adequate financing for implementation of strategies, developing a comprehensive, responsive, quality network of community-based mental health services which are integrated to the general health services, preventing mental disorders and promoting mental health across the life course in collaboration with other relevant stakeholder sectors, and promoting advocacy for better mental health and human rights of people with mental disorders at all levels of society and enshrine this in legislation, policies and plans.

Mental disorders contribute to significant morbidity and disability in the Maldives with mortality relating to suicide and increasingly relevant public health concerns. Mental disorders affect individuals and their families and impact significantly on productivity, leading to poverty and hardship. Mental health and wellbeing are linked to broader social issues such as domestic violence, child abuse, family disruption, educational failure, substance use, unemployment and poverty. These issues have important implications for the prevention of mental disorders and conversely, addressing mental health is important to tackling these broad social issues.

The National Mental Health Policy reflects the international best practice and human rights policy guidelines and conforms to the articles of international conventions such as the Convention on the Rights of Child and Convention on the Rights of Persons with Disabilities. It also aligns itself with other related policies including School Health Policy, Domestic Violence Policy, Child Protection Policy, and Disability Policy. Furthermore, the National Mental Health Policy is in line with existing related Maldivian legislations such as Human Rights Acts, Child Protection Act, Domestic Violence Prevention Act, Disability Act, Social Protection Act and Drug Act.

3.5.7 SOCIAL ISSUES HEALTH POLICY

Enacted on the 7th September 2015, the main purpose of the Health Service Act was to introduce a strong mechanism to guide health service delivery and ensure quality and sustainability of health services. The Act outlines the roles and responsibilities of medical professionals, medical service providers and the sustainable use of medical facilities, equipment and machinery. It also emphasizes on ensuring safety and quality, protecting patient and employee rights and strengthening the overall monitoring capacities of the health industry.

The Act targets both public and private service providers and aims to guarantee safe and affordable access to quality healthcare for all across the Maldives. As such, the Act states that there must be at minimum a health centre in every inhabited island and an acceptable medical facility available in all tourist resorts and industrial islands. It also outlines the need for sustainable procurement of medical devices, equipment, machinery and medical consumables to all public hospitals and medical centers. All service providers are required to register with the responsible Ministry and obtain a license to operate. The Act also highlights some provisions on protecting the rights of those seeking medical services, including but not limited to clauses on information disclosure, maintaining confidentiality and consent. In contrast, it also includes provisions for the protection of medical professionals and whistleblowers. The Act clearly states that no discrimination based on ethnicity, nationality, race, gender, age, disability, political stance, economic status, family status, locality, amongst others, must take place in the delivery of health services.

In addition to the Health Service Act, there are several other regulations and guidelines in the health sector. In 2014, the Hygiene Regulation for Food Establishments was enacted, of which the main purpose is to ensure the quality and hygiene of food establishments and products. This regulation not only covers food establishments such as cafés and restaurants but includes the production and delivery of food in care centres for children, elderly, people with disabilities and other vulnerable groups. Additionally, it covers various charity organizations operating in the food industry.

The universal health insurance scheme was implemented in January 2012 following the enactment of the National Social Health Insurance Act in December 2011, which provided a legal framework for establishing a universal health care financing scheme for all citizens. The Act formally mandates the National Social Protection Agency (NSPA) to oversee the administration of the National Social Health Insurance Scheme. In 2012, "Madhana" was replaced by a universal health insurance scheme named “Aasandha”, where the government paid its full contribution (premium) on behalf of all the citizens. There were some caps for key areas such as a limit of MVR l00, 000 (USD 6,485) for outpatient services. In 2014, the price ceilings under the scheme were removed, allowing unlimited coverage for all essential healthcare services. This scheme covers various branches of social security including healthcare, sickness and injuries.

The Maldives Medical Council, established in September 1999 by a Presidential Degree, is tasked with the regulation of medical practice in the country to maintain professional and ethical standards. It maintains a national register of medical practitioners, a list of basic, additional and higher medical qualifications recognized by the council, educational institutions recognized by the council, sets minimum experience and qualification required to practice medicine as a specialist, minimum criteria for recognition of medical courses and institutions and enforces a code of moral ethics.

3.5.8 OTHER SOCIAL LAWS

Legislation relating to human rights and labour is listed in **Table 13.**

Table 7 Social Legislation Summary

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

Year	Name	Details
	Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict	Ratified 29 December 2004
2005	*Optional Protocol to the International Covenant on Civil and Political Rights (OPICCPR)*	Ratified 19 September 2006
	International Covenant on Economic, Social and Cultural Rights (ICESCR)	Ratified 19 September 2006
	Optional Protocol to the Convention on the Elimination of All Forms of Discrimination Against Women	Ratified 13 March 2006
	Optional Protocol to the Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment	Accession 22 June 2006 (founding member)
2010	*The Convention on the Rights of Persons with Disability (CRPD)*	Ratified 1 April 2010
	Sexual Harassment Bill [under development]	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	*The President of Maldives Award for Human Resource Development in the Tourism Industry*	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)

3.6 STAKEHOLDER ENGAGEMENT AND PUBLIC CONSULTATIONS

There are number of legal requirements for stakeholder engagement highlighted in national laws and regulations. These are summarized below:

3.6.1 DECENTRALIZATION ACT

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.

3.6.2 RIGHT TO INFORMATION ACT (ACT NO: 1/2014)

Article 29 of the Constitution 2008 states that everyone has the freedom to acquire and impart knowledge, information and learning. Under Article 4 of Right to Information Act [1/2014], ratified on 17th January 2014, everyone who requests for information is entitled to the access of such information in accordance with the law. Article 07 of the law specifies the procedures for requesting for and disclosure of information from and by State institutes. Information must be disclosed within 21 days of request. An institution may extend the period for 14 more days, if the requested information is of (a) a large quantity, or (b) extensive research is required to collect and disclose the information, or (c) where the work needed to disclose such information would substantially hinder the normal operation of the State body. Information needed urgently to prevent a threat to life or freedom of a person must be disclosed within 48 hours at most. Upon failure to disclose the information within the periods stipulated, the law deems such requests have been denied.

As per article 22, the state is not required to disclose information which, if disclosed would amount to an offense under law, or information if disclosed could cause legal action against the government for breach of confidence or which could prevent the government from receiving similar information in the future. And State institutions could withhold information, which if disclosed could affect the government's ability to manage and administer the economy of the country and information if disclosed prematurely could have a negative impact on a person or a group of people. The state can further withhold information that harms the immunities of the courts and the parliament, information from a closed court hearing and information that reveal details related to a minor, and victims of sexual abuse.

The Act established an independent office of Information Commissioner who receives complaints, is empowered with ensuring compliance of the law, collecting information, conduct inspections, and investigations. Articles 11 and 42 of the act further obligates an Information Officer in every office to attend to requests and is mandated with submitting an annual report to the Information Commissioner.

3.6.3 ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS (REGULATION NO: 2012/R-27)

As per Article 11 of the EIA Regulations 2012, all relevant stakeholders should be invited to participate in the scoping phase of the EIA process. As per article 12, stakeholder and public consultation needs to be undertaken as part of the EIA process. During the EIA review stage, as per article 13 of the regulation, a public hearing could be undertaken for highly controversial projects.

4 CHAPTER 5: THE WORLD BANK’S ESF AND ASSESSMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS AND MITIGATION MEASURES

4.1 THE WORLD BANK’S ENVIRONEMNTAL 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 are 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 Borrower[1] 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

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[1] Republic of Maldives, Ministry of Environment

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).

Table 8 Screening for relevant ESS

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	X
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	√

A detailed outline of all the ESSs are presented in Annex X

4.2 WORLD BANK GROUP ESHS 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.

The **World Bank Group ESH Guidelines for Hazardous Waste** is also applicable and can be used for guidance on the management of infectious and other forms of health care waste which are categorized as hazardous in nature. These guidelines apply to projects that use, store, or handle any quantity of hazardous materials (Hazmats), defined as materials that represent a risk to human health, property, or the environment due to their physical or chemical characteristics. Hazmats can be classified according to the hazard as explosives; compressed gases, including toxic or flammable gases; flammable liquids; flammable solids; oxidizing substances; toxic materials; radioactive material; and corrosive substances. Guidance on the transport of hazardous materials is covered in Section 3 of the document. When a hazardous material is no longer usable for its original purpose and is intended for disposal, but still has hazardous properties, it is considered a hazardous waste (see Section 1.4 of the guide). This guidance is intended to be applied in conjunction with traditional occupational health and safety and emergency preparedness programs which are included in Section 2.0 on Occupational Health and Safety Management, and Section 3.7 on Emergency Preparedness and Response. Guidance on the Transport of Hazardous Materials is provided in Section 3.5.

The **World Bank Group EHS Guidelines for Health Care Facilities** is also applicable and can be used for guidance for the design and operation of HCFs. It includes information relevant to the management of EHS issues associated with health care facilities (HCF) which includes a diverse range of facilities and activities involving general hospitals and small inpatient primary care hospitals, as well as outpatient, assisted living, and hospice facilities. Ancillary facilities may include medical laboratories and research facilities, mortuary centers, and blood banks and collection services.

4.3 WHO GUIDELINES ON COVID-19

To help countries navigate through these challenges, the World Health Organization (WHO) has updated operational planning guidelines in balancing the demands of responding directly to COVID-19 while maintaining essential health service delivery and mitigating the risk of system collapse. This includes a set of targeted immediate actions that countries should consider at national, regional, and local level to reorganize and maintain access to high-quality essential health services for all. The WHO is maintaining a website specific to the COVID-19 pandemic with up-to-date country and technical guidance. As the situation remains fluid it is critical that those managing both the national response as well as specific health care facilities and programs keep abreast of guidance provided by the WHO and other international best practice. A summary of key relevant guidance and access links are presented in **Annex 16.**

4.4 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. Both the environment and social risks are rated as ‘Substantial’ by the World Bank as per the following rationale, in line with the World Bank’s Environmental and Social Policy and the ESF.

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

The project will have positive environmental and social impacts as it would improve COVID-19 surveillance, monitoring and containment. However, the project could also cause significant environmental, health and safety risks due to the dangerous nature of the pathogen and reagents and other materials to be used in the project-supported laboratories and quarantine facilities. The laboratories and relevant health facilities which will be used for COVID-19 diagnostic testing and isolation of patients can generate biological waste, chemical waste, and other hazardous byproducts. The laboratories to be supported by the project will process COVID-19 tests and will therefore have the potential to cause serious illness or potentially lethal harm to the laboratory staff and to the community, so effective administrative and containment controls will be put in place so minimize these risks. Environmentally and socially sound health facilities management will require adequate provisions for minimization of occupational health and safety risks, proper management of hazardous waste and sharps, use of appropriate disinfectants, proper quarantine procedure for COVID-19, appropriate chemical and infectious substance handling and transportation procedures, etc. In line with WHO Interim Guidance (February 12,2020) on “Laboratory Biosafety Guidance related to the novel coronavirus (2019-nCoV)”, COVID-19 diagnostic activities and non-propagative diagnostic laboratory work (e.g. sequencing) could be undertaken in BSL2 labs with appropriate care. Any virus propagative work (e.g. virus culture, isolation or neutralization assays) will need to be undertaken at a containment laboratory with inward directional airflow (BSL-3 level).

To mitigate these risks, the Ministry of Health (MoH) has prepared this Environmental and Social Management Framework (ESMF) and a Health Care Waste Management Plan (HCWMP). This will provide for the application of international best practices in COVID-19 diagnostic testing and handling of the medical supplies, disposing of the generated waste, and road safety. The ESMF also includes an exclusion list (refer Annex 30 – i.e. same exclusion list associated with CERC) for project activities that may not be undertaken unless the appropriate OHS capacity and infrastructure is in place (e.g., BSL3 level) and will include specific measures to complement any WHO standards and protocols of relevance. Until this updated ESMF has been approved, the Project will apply the existing ESMF and the HCWMP in conjunction with WHO standards on COVID-19 response. International best practice is outlined in the WHO “Operational Planning Guidelines to Support Country Preparedness and Response”, which should be followed in updating the documents. Further guidance is included in the WHO “Key considerations for repatriation and quarantine of travelers in relation to the outbreak of novel coronavirus 2019-nCoV” (February 11, 2020).

Obvious social risks related to this kind of an operation is that marginalized and vulnerable social groups, including foreign workers (e.g., those employed in the resorts, as domestic workers and construction workers), people with disabilities, those residing in remote islands, etc., are unable to access facilities and services designed to combat the disease, in a way that undermines the central objectives of the project. Further, social conflict arising out of spread of disease and inadequate waste management, especially amongst communities located around the isolation units and quarantine facilities; increase in vulnerability to SEA/SH and GBV related risks due to medical isolation of individuals; spread of infection among healthcare workers due to inadequate adherence to occupational health and safety standards, are risks associated with the project. To mitigate these risks MoH, in the ESCP, will commit to the provision of services and supplies based on the urgency of the need, in line with the latest data related to the prevalence of the cases and according to the readiness of the ESMF.

Beyond this, project implementation will also seek to ensure appropriate stakeholder engagement, proper awareness raising and timely information dissemination to: (i) avoid conflicts resulting from rumors; (ii) ensure equitable access to services for all who need it; and (iii) address issues resulting from people being kept in quarantine in HCFs supported by the project. The project can thereby rely on standards set out by WHO as well as international good practice to: (1) facilitate appropriate stakeholder engagement and outreach towards a differentiated audience (concerned citizens, suspected cases and patients, relatives, health care workers, women, elderly, foreign worker, etc.); and (2) promote the proper handling of quarantining interventions (including dignified treatment of patients; attention to specific, culturally determined concerns of vulnerable groups; and prevention of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) as well as minimum accommodation and servicing requirements in quarantine facilities and isolation units.

4.4.2 ESS 2 – LABOR AND WORKING CONDITIONS

Most activities supported by the project will be conducted by health workers, who in general are civil servants employed by Ministry of Health, and other frontline service providers (e.g., food supply, delivery and preparation; waste disposal; pharmacies; etc.). The key risk is contamination with COVID-19. The project will ensure the application of OHS measures as outlined in WHO guidelines which are captured in this updated ESMF. This encompasses procedures for entry into health care facilities, including minimizing visitors and undergoing strict checks before entering; procedures for protection of workers in relation to infection control precautions; provision of immediate and ongoing training on the procedures to all categories of workers, and post signage in all public spaces mandating hand hygiene and personal protective equipment (PPE); ensuring adequate supplies of PPE (particularly facemask, gowns, gloves, handwashing soap and sanitizer); and overall ensuring adequate OHS protections in accordance with General EHSGs and industry specific EHSGs and follow evolving international best practice in relation to protection from COVID-19. Also, the project will regularly integrate the latest guidance by WHO as it develops over time and experience addressing COVID-19 globally.

The project may outsource minor works to contractors, especially for the establishment of isolation units, refurbishment of health facilities. The envisaged works will thereby be of minor scale and thus pose limited risks, but workers need to have access to necessary PPE and hygienic facilities. Also, no large-scale labor influx is expected due to the same circumstance. In line with ESS2, prohibited is the use of forced labor or conscripted labor in the project, both for construction and operation of health care facilities. The use of child labor will also be forbidden in accordance with ESS2, i.e. due to the hazardous work situation, for any person under the age of 18. The project will also ensure a basic, responsive grievance mechanism to allow workers to quickly inform management of labor issues, such as a lack of PPE and unreasonable overtime via the Ministry of Health. These measures have been laid out in the standalone Labor Management Procedures (LMP) prepared for the Project.

4.4.3 ESS 3 – RESOURCE AND EFFICIENCY, POLLUTION PREVENTION AND MANAGEMENT

Medical wastes and chemical wastes (including water, reagents, infected materials, etc.) from the labs, quarantine, and screening posts to be supported (drugs, supplies and medical equipment) can have significant impact on environment and human health. Wastes that may be generated from medical facilities/ labs could include liquid contaminated waste, chemicals and other hazardous materials, and other waste from labs and quarantine and isolation centers including of sharps, used in diagnosis and treatment. Each beneficiary medical facility/lab, following the requirements of the ESMF and the HCWMP to be updated for the Project, WHO COVID-19 guidance documents, the World Bank Group Environmental Health and Safety Guidelines for Waste Management Facilities and other best international practices, will prepare and follow Health Care

Waste Management Plans (HCWMPs) for the HCFs to prevent or minimize such adverse impacts. The ESMF provides guidance related to management of HCWM and resource efficiency both via the detailed Generic ESMP and Generic ICHCWMP presented in Annex 8 through 10.

4.4.4 ESS 4 – COMMUNITY HEALTH AND SAFETY

In line with safety provisions in ESS2, it is equally important to ensure the safety of communities from infection with COVID-19. As noted above, medical wastes and general waste from the labs, health centers, and quarantine and isolation centers have a high potential of carrying micro-organisms that can infect the community at large if they are not properly disposed. There is a possibility for the infectious microorganism to be introduced into the environment if not well contained within the laboratory or due to accidents/ emergencies e.g. a fire response or natural phenomena event (e.g., seismic). The updated HCWMP therefore will describe:

- how project activities will be carried out in a safe manner with (low) incidences of accidents and incidents in line with Good International Industry Practice (WHO guidelines)
- measures in place to prevent or minimize the spread of infectious diseases.
- emergency preparedness measures.

Laboratories, quarantine and isolation centers, and screening posts, will thereby have to follow respective procedures with a focus on appropriate waste management of contaminated materials as well as protocols on the transport of samples and workers cleaning before leaving the workplace back into their communities. These provisions are outlined in this ESMF, HCWMP and noted in ESS1.

The operation of quarantine and isolation centers needs to be implemented in a way that both the wider public, as well as the quarantined patients are treated in line with international best practice as outlined in WHO guidelines referenced under ESS1.

In some instances, especially in quarantine facilities and isolation units, there may be risks of Gender Based Violence (GBV), in particular Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) risks. This ESMF includes a GBV risk assessment and preventive measures that will be taken, if found pertinent. The project will also promote the avoidance of SEA by relying on the WHO Code of Ethics and Professional Conduct for all workers in the quarantine facilities as well as the provision of gender-sensitive infrastructure such as segregated toilets and enough light in quarantine and isolation centers.

The project will also ensure via the above noted provisions, including stakeholder engagement, that quarantine and isolation centers and screening posts are operated effectively throughout the country, including in remote islands, without aggravating potential conflicts amongst neighboring communities and between different groups.

4.4.5 ESS5 LAND ACQUISITION, RESTRICTIONS ON LAND USE AND INVOLUNTARY RESETTLEMENT

This standard is currently considered Not Relevant. The project is not expected to support construction or rehabilitation works of any sizable extent. Should any such activities come to be included--for example, as part of the establishment of local isolation units or quarantine wings in hospitals--they will be undertaken in existing facilities and within established footprints. Activities that will result in the involuntary taking of land, relocation of households, loss of assets or access to assets that leads to loss of income sources or other means of livelihoods, and interference with households' use of land and livelihoods, will not be considered under the project.

4.4.6 ESS 6 - BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF 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 any potential activities situated in proximity to nature reserve, critical habitat or scenic sites. No major construction or rehabilitation activities are expected in this project and all works will be conducted within existing facilities. Hence, likely impacts of the project on natural resources and biodiversity are low and so this standard is considered Not Relevant.

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

4.4.7 ESS7 INDIGENOUS PEOPLES/SUB-SAHARAN AFRICAN HISTORICALLY UNDERSERVED TRADITIONAL LOCAL COMMUNITIES

This ESS is Not Relevant for this project. There is no evidence suggesting the presence of Indigenous Peoples/Sub-Saharan Historically Underserved Traditional Local Communities in the Maldives.

4.4.8 ESS 8 – CULTURAL HERITAGE

Project activities are highly unlikely to involve risks or impacts on tangible or intangible cultural heritage. Even so, the Standard is considered Relevant. While cultural heritage resources are relatively well documented on the inhabited Maldivian islands, there is no adequate documentation of such on uninhabited islands. The ESMF includes due diligence procedures in line with ESS8 to screen for risks and impacts on cultural heritage and include chance find procedures explained in Section 5.3.1.5 of the ESMF.

4.4.9 ESS9 FINANCIAL INTERMEDIARIES

Given the nature of the project, this standard is Not Relevant as there will not be any financial intermediaries that will be involved

4.4.10 ESS 10 – STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

The Project includes a standalone stakeholder engagement plan (SEP) and public outreach procedure that is based on meaningful consultation and disclosure of appropriate information, considering the specific challenges associated with combating COVID-19. Specifically, the SEP includes strategies that will be adopted during the entire project cycle to disclose information relating to the project to different groups of stakeholders, receive feedback from them, while also attending to the particular challenges with engaging marginalized and vulnerable social groups such as foreign workers, tourists and persons with disabilities, people in remote or inaccessible islands, etc. Further, as laid out in the SEP, people affected by or otherwise involved in project-supported activities, including different types of health care workers, will be provided with accessible and inclusive means to raise concerns or lodge complaints, via the Grievance Redress Mechanism (GRM). Beyond this, project implementation will also include a broad and well-articulated project communication strategy, which will not only help with the implementation of the community mobilization and behavioral change objectives of Component 1, but also help in a broader sense to clamp down on rumors about COVID-19, to ensure equitable access to services, and to counteract the isolation and uncertainty that comes from people being kept in quarantine.

4.5 ENVIRONMENTAL AND SOCIAL RISKS ASSOCIATED WITH PROJECT INTERVENTIONS.

4.5.1 ENVIRONMENT AND SOCIAL RISKS AND MITIGATION

The project will have positive environmental and social impacts, insofar as it would improve COVID-19 surveillance, monitoring and containment in the country. Both the environmental and social risks are considered ‘Substantial’ because of the current uncertainty around project locations and specific activities, occupational health and safety issues and the issue of medical waste management.

Further, given that the Maldives has limited experience in managing highly infectious medical wastes such as COVID-19, the project will require that appropriate precautionary measures are planned and implemented. The project will finance medium scale infrastructure works for the upgradation, expansion and rehabilitation of existing healthcare facilities in order to provided added capacity around the country. The project will also partake in systemic strengthening of COVID 19 response and the procurement including PPE and equipment for the management of HCW. These interventions are expected to take place on the property of existing facilities; therefore, they will be mostly contained activities and environmental issues (and impacts thereof) are not expected to cause significant environmental harm or social risks in terms of compromising community health and safety. The physical works envisaged are of small to medium scale and the associated environmental and social impacts are expected to be temporary, predictable, and easily mitigable.

The PMU will be primarily responsible for ensuring the environmental and social risks are mitigated at each stage of project operation.

The Generic ESMP presented in Annex 9 presents an in-depth overview of potential Environmental and Social issues associated with the project which are summarized in the section below.

4.5.2 PLANNING AND DESIGN STAGE

1. **Procurement of goods and supplies**. The Project will engage in the procurement of goods and supplies e.g. equipment such as ventilators or PPE or cleaning materials, etc., and the PMU will be responsible for ensuring that the required technical specifications are met as per WHO guidelines and GIIP. This will involve:

    a. Preparation of technical specifications on the PPE for healthcare workers and service staff (e.g., cleaners) according to WHO interim guidance on rational use of PPE for coronavirus disease 2019
    b. Distribution of goods or services on basis of need, while ensuring that the distribution systems is not compromised due to elite capture
    c. Measures to ensure that the disadvantaged and vulnerable groups have equal if not better access to these resources.
    d. Collection of samples, transport of samples and testing of the clinical specimens from patients will be performance in accordance with WHO interim guidance Laboratory testing for coronavirus disease 2019 (COVID-19) in suspected human cases.
    e. Tests will be performed in appropriately equipped laboratories (specimen handling for molecular testing requires BSL-2 or equivalent facilities) by staff trained in the relevant technical and safety procedures.
    f. Inclusion of the relevant specification, process and procedures in the site-specific ESMP based on the generic ESMP presented in Annex 9.

2. **Rehabilitation work at existing HCFs.** The PMU will screen each HCF for potential environmental and social risks per World Bank Group EHS Guidelines, WHO COVID-19 Guidelines[2], and the screening form contained in Annex 8. Screening will include:
    a. Determination of any needed design changes in the facility or its operation such as ICUs, isolation facilities, structural and equipment safety, universal access, nosocomial infection control, medical waste disposal, etc.;
    b. Identification of the scope of works expected (i.e. wards rehabilitated into ICUs, installation of box chambers, installation/augmentation of water supply and installation of sanitary stations, rehabilitation or installation of medical waste incinerators, etc.
    c. Incorporate universal access standards
    d. Determination that utilities (power, water, heat, etc.) are adequate for planned works;
    e. Identification of how such works might interfere with normal operation of the HCF;
    f. Determination if works are eligible for financing - for example, activities excluded from financing under the project include those requiring the acquisition of land or works conducted in wards or areas where patients are being treated where asbestos insulation or pipe lagging was

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[2] The World Bank ESF, including ESS 4, also contain relevant information. See https://www.worldbank.org/en/projects-operations/environmental-and-social-framework

used in original construction (a list of excluded activities is found in Annex 30);
   g. Determination as to whether external or additional security personnel are needed;
   h. Preparation of a site-specific ESMP based on the Generic ESMP presented in Annex 9.

3. **Medical waste management and disposal.** The PMU will screen each HCF's medical waste management and disposal practices to determine if they are in keeping with the World Bank Group's EHS Guidelines and current WHO Guidelines for COVID-19. The screening will be conducted based on the screening form found in Annex 8 and include:
   a. Identification of current methods of medical waste management and disposal at the HCF;
   b. Identification of any on-site facilities for disposal of medical waste including incinerators, pits for burning medical waste, pits for burial of medical waste, etc.;
   c. Identification of any off-site disposal of medical waste, including how material is gathered and stored, routes taken to the disposal facility, and disposal procedures;
   d. Review of protocols for dealing with medical waste specifically related to infectious diseases like COVID-19;
   e. Review of training procedures for healthcare workers and other relevant HCF employees for medical waste management and disposal;
   f. Preparation of an ICHCWMP, based on the Generic ICHCWMP contained in Annex 10, for the HCF.
4. **Protecting healthcare workers.** The PMU will conduct a review of the HCF's protocol's for protecting healthcare workers from infections disease based on current WHO Guidelines for COVID-19 and the Infection and Prevention Protocol contained in Annex 11. The review will include:
   a. Determination if training given to healthcare workers and other HCF employees is adequate;
   b. Determination if HCF staff are trained on how to deal with the remains of those who might die from COVID-19, including those conducting autopsies;
   c. Determination if adequate stores of PPE are available on-site; and
   d. Identification of supply lines for required PPE.

5. **Containment of COVID-19**. The PMU will also conduct a review of the HCF's protocol's for dealing with the general public based on current WHO Guidelines for COVID-19 and the Infection and Prevention Protocol contained in Annex 11. The review will include:
   a. Review of identification, testing, and treatment protocols for those exposed to or suspected of being infected with COVID-19 for groups of higher sensitivity or vulnerability like the elderly, those with preexisting conditions, heavy smokers, or the very young;
   b. Updating visiting rules and regulations for families and friends of patients;
   c. Briefing procedures for families and friends of COVID-19 patients on how the disease is spread and how to minimize that spread;
   d. Briefings available for the general public on COVID-19; and
   e. Ensuring those HCF employees and any outside personnel charged with handling remains of patients who have died from COVID-19 are familiar with WHO Guidelines.

6. **Communication Approaches and Strategy**. It is critical to communicate to the public what is known about COVID-19, what is unknown, what is being done, and actions to be taken on a regular basis. Further, getting feedback from stakeholders and using their grievances, suggestions, in design and implementation of project activities would also be important.
   a. Under Component 1, 'Risk communication, community engagement and behavior change,' information and communication activities prepared to increase the attention and commitment of government, private sector, and civil society, and to raise awareness, knowledge and understanding among the general population about the risk and potential impact of the pandemic and to develop multi-sectoral strategies to address the pandemic.
   b. As detailed in the SEP prepared separately, stakeholders will be consulted primarily by using online platform, to receive their feedback and suggestions on project design and preparation. Also, there will be GRM by which people can raise concerns, provide feedback, or make

complaints about project and any activities related to the project.

7. **Access to appropriate and timely medical services, hand hygiene and PPEs**. Considering the geographic location and remoteness of majority of rural villages the timely medical assistance and availability of personal protective equipment is important. The HCFs will conduct a review the HCF's protocol's for securing quick access to appropriate and timely medical services based on current WHO Guidelines for COVID-19. The review will include:
    a. Number of ambulance teams and equipment available to cover distance locations and timelines of medical services to be reached;
    b. The location of ICUs to be selected based on existing services and expanding geographical access to health care services in order to ensure equitable access to highly specialist care across the country;
    c. Pain medications, antibiotics and other routine medicines needed for the ICUs;
    d. Staff at all ICUs are trained in COVID-19 care and infection prevention, as well as longer-term capacity building in critical care provision;
    e. Emergency referral mechanism in rural areas to access timely medical services;
    f. Determination if adequate stores of hand sanitizes and PPE are available in rural areas; and
    g. Identification of supply lines for required PPE.

4.5.3 CONSTRUCTION STAGE

1. **Construction work at existing HCFs.** The PMU will ensure that all rehabilitation work done under the project will be carried out in compliance with a site-specific ESMP prepared based on the Generic ESMP presented in Annex 9 and the Template presented in Annex 12. The PMU will also ensure that the site-specific ESMP will be included in any works or supervision contracts entered into for a specific HCF. The site-specific ESMP will include:
    a. Environmental risks and issues such as resource efficiency and material supply;
    b. Construction related solid wastes, wastewater, noise, dust and emission management;
    c. Hazardous materials management;
    d. Occupational Health and Safety (OHS) issues;
    e. Labor influx, security personnel management, GBV/SEA risks, gender issue; and
    f. Labor and working conditions.

2. **Issues specific to labor and working conditions.** The PMU will require the contractor to adhere to standards relating to:
    a. Labor management and working conditions as laid out in the 'Labor Management Procedure' prepared under the project, including in relation to periods of sickness and quarantine
    b. Labor issues to be incorporated in the ESMP, as mentioned above.
    c. Arrangements for employment and accommodation of workers to be engaged in project activities, and issues relating to working conditions

3. **Stakeholder Engagement and Grievance Mechanism.**
    a. Continued engagement with stakeholders on construction-related activities to be undertaken
    b. Information dissemination/awareness in the communities in the vicinity of the HCFs, including measures taken to ensure community health and safety, prevent the spread of infection, and contingency plan in case of an outbreak
    c. Awareness about and access to grievance redress mechanism that will among others, address grievances relating to labor influx as well as those relating GBV/Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH)

4.5.4 OPERATIONAL STAGE

1. **Medical management and disposal**. The PMU and HCF will ensure the following:
    a. Each HCF is operated in accordance with the ICWMP prepared for the project;
    b. Waste segregation, packaging, collection, storage disposal, and transport is conducted in

compliance with the facility specific ICHCWMP and WHO COVID-19 Guidelines;
        i. Onsite waste management and disposal will be reviewed regularly and training on protocols contained in the ICWMP conducted on a weekly basis;
        ii. The PMU will audit any off-site waste disposal required on a monthly basis and institute any remedial measures required to ensure compliance; and
    c. Waste generation, minimization, reuse and recycling are practiced where practical in the COVID-19 context.

2. **Protecting healthcare workers**. The PMU and HCF will ensure the following:
    a. Regular delivery and proper storage of goods, including samples, pharmaceuticals, disinfectant, reagents, other hazardous materials, PPEs, etc.;
    b. Ensure protocols for regular disinfection of public rooms, wards, ICUs, equipment, tools, and waste are in place and followed;
    c. Ensure handwashing and other sanitary stations are always supplied with clean water, soap, and disinfectant;
    d. Ensure equipment such as autoclaves are in working order; and
    e. Provide regular testing to healthcare workers routinely in contact with COVID-19 patients. *(Additional measures are laid out in the Labor Management Procedure prepared under the Project)*

3. **Containment of COVID-19.** The PMU and HCF will ensure the following:
    a. Quarantine procedures for COVID-19 patients are maintained;
    b. When practical, COVID-19 patients are given access to phone or other means of contact with family and friends to lessen the isolation of quarantine;
    c. The public is regularly updated on the situation and reminded of protocols to prevent the spread of COVID-19; and
    d. Members of the general public (family and friends) who have been exposed to confirmed COVID-19 patients are tested when practical.

4. **Stakeholder Engagement and Grievance Mechanism.**
    a. Continued engagement with stakeholders on the operation of HCF and other project related activities as per the SEP
    b. Information dissemination/awareness as per the 'Risk Communication, Community engagement and Behavior Change' sub-component of Component 1 of the project
    c. Awareness about and access to grievance redress mechanism that will among others, address grievances relating to labor influx as well as those relating GBV/Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH)

4.5.5 DECOMMISSIONING STAGE

If any temporary HCFs or medical waste management facilities were established under the project, they will be decommissioned after the end of the outbreak is declared in accordance with regular decommissioning procedures and international best practice. Annex 9 presents guidance on due mitigation measures which will be covered under the sub-project specific ESMPs that would be developed.

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

5.1 ENVIRONMENTAL AND SOCIAL PROCESSING STEPS

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

1. Step 1: Screening potential E&S issues of a subproject and classifying its risk levels as per eligibility.
2. Step 2: Conducting E&S Assessment and Developing subproject-specific E&S instruments: Procedures and Guidance
    a. Procedures for sub-projects that involve physical interventions and construction work
        i. Design Considerations when designing HCFs for COVID-19 Response
        ii. Preparation of Environmental and Social Management Plans for all expansion, rehabilitation and upgradation sub-projects.
        iii. Guidance for E and S due diligence during installation of Solar Cells and BESS Systems in HCFs
        iv. Environmental and Social Management via Bid Documents
        v. Management of PCR Chance Finds.
        vi. Environmental and Social Monitoring During Construction
    b. Guidance on Managing E&S Impacts and Infection Control in HCFs during operations on COVID-19 Response.
    c. Incorporating E&S aspect during Procurement of Equipment and Works for HCFs for COVID-19 response.
    d. Procedural Guidance for Preparation of HCF Specific Infection Control and Health Care Waste Management Plans
    e. Procedures for Managing E and S impacts via Technical Assistance subprojects
    f. Management of Occupational Health and Safety (Cross refer to LMP)
    g. Management of COVID-19 Response Related Laboratory Operations.
    h. Management of E and S during CERC Component Implementation
3. Step 3: Consultation and disclosure of the E&S instruments;
4. Step 4: Review and approval of the E&S instruments
5. Step 5: Implementation and Compliance Monitoring and Reporting

5.2 SCREENING POTENTIAL E&S ISSUES OF A SUBPROJECT AND CLASSIFYING ITS RISK LEVELS

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.

All activities undertaken by the project will be screened using the form found in Annex 8 and the list of negative activities presented under Annex 30 in order to exclude certain risky activities, identify potential environmental and social issues, and classify the environmental and social risks. Copies of each of these screening forms will be kept at the PMU and individual HCFs. The PMU's quarterly report to the World Bank will include copies of each screening undertaken during the subject quarter. The PMUs Environmental Specialist and Social Specialists (E&S Specialists) will assist the MoH and HPA in conducting the screening and ensure the screening forms are submitted as a compilation to the World Bank's Environmental and Social Specialists where guidance is required in the identification of instruments and finalization of screening outcomes.

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 in Annex 13.

All subprojects that involve construction will require Environmental Screening to be conducted.

5.3 ASSESSING AND DEVELOPING SUBPROJECT-SPECIFIC E&S INSTRUMENTS: PROCEDURES AND GUIDANCE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS (ESMPS) [3]

5.3.1.1 DESIGN CONSIDERATIONS WHEN DESIGNING HCFS LOOKS AT THE KEY REQUIREMENTS IN TERMS OF DESIGN CHANGES NEEDED

Design considerations when designing HCFs looks at the key requirements in terms of design changes needed, location of HCFs and sites for project associated work such as the establishment of quarantine centers and isolation units within existing HCFS. The guidance provided in Annex 9 looks at the incorporation of Environmental Design recommendations that will assist facilities to ensure continuous supply of power, ventilation and WASH infrastructure that will be essential for continuous operation of the HCFs, isolation units and quarantine centers. Annex 9 also provides guidance that will be used on requisite measures for functional layout and engineering control for nosocomial infection, considerations for differentiated treatment for groups of higher sensitivity or vulnerable (potentially the elderly, those with preexisting conditions, or the very young) and considerations for those with disabilities, taking into consideration the principle of universal access as and when appropriate, that can easily be incorporated in to the design of HCFs in terms of upgradation, expansion and rehabilitation.

5.3.1.2 PREPARATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS (ESMPS) FOR ALL EXPANSION, REHABILITATION AND UPGRADATION SUB-PROJECTS IN HCFS.

All 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. 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. 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.

The template for ESMPs is provided in Annex 12. 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, guidance on minimal provisions to be included in contracts in line with the respective ESMPs is presented in Annex 27 and Annex 28 for contractor personnel selection).

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;

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[3] Environmental and social instruments will be subject to updating based on updated guidance by WHO on COVID-19 and any applicable requirements under the relevant ESSs, the EHSGs, and other relevant Good International Industry Practice (GIIP) and relevant WHO guidelines satisfactory to the WB.

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 9, 12 and 19 and 29 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 and where possible Island Councils and communities will be consulted, if needed even remotely. 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. The procedures that will be followed during the preparation and finalization of ESMPs are laid out in the SEP prepared under the Project.

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 under the project and resulting 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. If the HCF undertakes the works on its own, the ESMP will remain applicable for the activities being undertaken.

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 9. This generic ESMP covered all project stages, from design to construction to operation of HCFs to potential decommissioning or demolition of HCFs build as part of COVID-19 response activities.

HCFs will be responsible for the implementation of processes outlined in the Operational ESMPs which will be also developed for the facility as per the guidance provided in Annex 9 and the template presented in Annex 12. This guidance has will be laid out in the ESMP in line with the operation of the HCF to ensure sound Infection Control and management of activities in the long term.

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.

If the Environmental and Social Screening identifies that the project to be financed would require further assessment in line with national regulations- guidance on the EIA process is presented in the following Annexes 13, 14 and 15. As per the current scenario, since the project is designed to respond to a national health emergency, environmental assessment under the nation Environmental Impact Assessment Regulation of the Maldives will be exempt for all its subprojects. Screening will also not be required.

5.3.1.3 GUIDANCE FOR E AND S DUE DILIGENCE DURING INSTALLATION OF SOLAR CELLS AND BESS SYSTEMS IN HCFS

The project may also finance the purchase and installation of Roof top Solar PV Cells and BESS Systems for existing HCFs to ensure a continuous supply of power is available. Once identified via screening all such subprojects will be guided via a specific ESMP which be developed in line with the guidance presented in Annex 17 for the installation works.

To ensure a proper life cycle management of the Solar PV Cells and 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 18 on Standard Guidance on Safety Considerations to be Included in the Implementation of Battery Energy Storage System (BESS) Subprojects as per International Best Practice.

As Installation of Roof top Solar PV Cells and BESS systems pose specific OHS risks the guidance provided in Annex 17 on managing such risks should be referenced and used when preparing ESMPs.

The minimal standards presented here should be adhered too during deployment of BESS subprojects. During the preparation of tendering, different options on O&M arrangement will be explored to ensure that Roof top Solar PV and BESS functions as intended and that the utilities are equipped with sufficient O&M capacity over a long run. In addition, during operation of the systems the following will be taken into consideration.

Key Environmental Management Procedures		
Impact	**Mitigation Measures**	**Responsible Party**
Management of Impacts from Design Poor Considerations		
Safety Hazards from hazardous material found in Solar cells and BESS Systems and operational risks due to inadequate safety	• Ensure all contractual documents include all the necessary safety provisions for the systems and all ancillary safety measures, such as fire safety are included. Refer Annex 18 for further guidance on minimal safety requirements for BESS	HCF Management, MOH, MEE, EPA
Operational Impacts During Operation of Solar PV Systems and		
Cleaning of solar panel lading to the wastage of water Generation of wastewater	• 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 wastewater to be properly channelized through drains and stored in settling tank.	HCF

Key Environmental Management Procedures		
Impact	**Mitigation Measures**	**Responsible Party**
	• 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	
Land contamination Water Contamination Health Hazards due to random disposal of Battery wastes and E-Waste during operational and maintenance works.	• 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 18.	HCF
Safety, Injury and sickness of workers during operations	• The Contractor has to follow all the safety precaution during operations as stipulated in Annex 17 and 18. • 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. • All relevant safety signage as per industry practice, including fire hazard safety signage should be installed in sites.	HCF

5.3.1.4 ENVIRONMENTAL AND SOCIAL MANAGEMENT VIA BID DOCUMENTS

ESMPs will 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 outlined in the ESMPs will be implemented by the respective investors/contractors implementing the subproject and monitored accordingly by the PMU during the construction phase. If the HCF undertakes the works on its own, the ESMP will remain applicable for the activities being undertaken. It is important to ensure the environmental and social specifications and ESMP are included in the bid documents prior to commencement of the bidding process for subprojects where the World Bank's 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 and social 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 and social officer(s) will be responsible for this step.

5.3.1.5 MANAGEMENT OF PCR CHANCE FINDS.

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.

5.3.1.6 ENVIRONMENTAL AND SOCIAL MONITORING DURING CONSTRUCTION

Monitoring is the continuous and systematic collection of data in order to assess whether the environmental and social objectives of the project have been achieved. Good practice demands that procedures for monitoring the environmental and social performance of proposed projects are incorporated in all relevant environmental and social management instruments. Monitoring provides information on the occurrence of impacts, helps identify how well mitigation measures are working, and where better mitigation may be needed. Each respective E&S instrument prepared will require a monitoring program to be included for the respective activities. The monitoring plan will identify what information will be collected, how, where and how often, and indicate at what level of effect there will be a need for further mitigation. How environmental and social 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 sschedule, covers the timing, frequency and duration of monitoring are specified in an implementation schedule, and linked to the overall sub project schedule;
- Cost eestimates 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 **Annex 19.**

5.3.2 PROCEDURAL GUIDANCE FOR PREPARATION OF HCF SPECIFIC INFECTION CONTROL AND HEALTH CARE WASTE MANAGEMENT PLANS

Each HCF financed via the project and associated with project interventions will be required to prepare and implement an ICHCWMP, based on the sample found in Annex 10. The preparation of facility specific ICHCWMPs will be guided via the Generic ICHCWM plan for Covid-19 related HCFs, presented in Annex 10 that has been prepared in line with the regulatory and country context of the Maldives and in line with WHO and World Bank guidance and other International Best Practice on the sector. Until such time the ICHCWMPs are prepared and full adherence will be maintained to the following national documents:

- Standard Operating Practices (SOPs) Developed by the HPA and MOH and endorsed by the WHO Maldives.
- Water, sanitation, hygiene, and waste management for the COVID-19 virus Interim guidance issues on 19 March 2020 by WHO.
- Management of Infectious Waste: SOP for Infectious Waste Management issues in March 2020 by the HPA and MOH of the Maldives.
- Management of Municipal Solid Waste: SOP for Management of MSW issued in April 2020 by HPA and MOH of the Maldives.
- Management of existing quarantine facilities- Guideline for Environmental Management and infection control in tourist resort establishments.

The following timelines will be maintained in the preparation of IC-HCWMPs for each facility upon ESMF clearance by the World Bank. All plans will be subject to the review and clearance of the World Bank.

- For all HCFs treating positive Covid-19 patients- within 2 weeks
- For all Quarantine centers in operation-within 1 month
- For all flue clinics in operation- within 1 month
- For all HCFs and quarantine centers designated to support covid-19 response in the medium and long term- within 3 months.

Specific guidance on the following key areas on Infection Control are presented in the Generic ESMP which covers HCF operations and need to be included as part of the ICHCWMP as well.

- Steps to be taken during patient care in HCFs and Quarantine centers
- HCF operation - considerations for differentiated treatment for groups of higher sensitivity or vulnerable (potentially the elderly, those with preexisting conditions, or the very young)
- HCF operation - considerations for those with disabilities, taking into consideration the principle of universal access as and when appropriate;
- Ensuring the rights of Health workers during COVID-19 Response in HCFs
- Basic roles and responsibilities of HCWs when working in HCFs
- Additional measure when Managing Exposed HCWs to COVID 19
- Laboratory Operations
- Collection, handling and movement of specimens, samples, reagents, medical equipment, and infection materials.
- Management of Health Care Waste Management
- Management Contaminated Laundry in HCFs
- Management and Cleaning of contaminated Mattresses and Pillows
- Management of Special Beds such as Airflow and special ICU beds used by patients
- Cleaning and Infection control of equipment and utensils used in the care of Covid-19 patients.
- Cleaning of Carpeting and Cloth Furnishings in HCFs that can be contaminate
- Avoiding exposure and contamination from blood spills and bodily fluids during HCF operations and patient care.
- Cleaning and Disinfecting Measures for Environmental Surfaces in Patient-Care Areas

- General cleaning of other areas in HCF as a whole.
- WASH Management

5.3.3 INCORPORATING E&S ASPECT DURING PROCUREMENT OF EQUIPMENT AND WORKS FOR HCFS FOR COVID-19 RESPONSE.

The project will enable Maldives to procure essential protective equipment, diagnostics and other essential items. The enhanced supply of these critical items is a key part of preventing the spread of COVID-19.

For Works Contracts:

Before launching the procurement process for the relevant activities and thereafter ensure that contractors and supervising firms comply with the ESHS specifications in their contracts through their involvement in the respective Project activities for all works contracts.

Incorporate the relevant aspects of this ESCP, including, inter alia, any environmental and social management plans or other instruments, ESS2 requirements, and any other required ESHS measures, into the ESHS specifications of the procurement documents and contracts with contractors and supervising firms. Thereafter ensure that the contractors and supervising firms comply with the ESHS specifications of their respective contracts.

For All Equipment Procurements:

Procurement of goods (purchase of testing kits, medical equipment such as oxygen suppliers, etc.) and consultancy activities for public communications and outreach around COVID-19 can be initiated as soon as the project is approved as these activities have very limited potential to lead to major environmental and social risks and will be screened independently.

All contract documents for these procurements will ensure cradle to cradle provisions for any hazardous substances, technical support and training for operation and associated safety provisions and upon procurement.

All goods and equipment will be subject to best practice in line with use and waste management where disposal post use is associated.

5.3.4 PROCEDURES FOR MANAGING E AND S IMPACTS VIA TECHNICAL ASSISTANCE SUBPROJECTS

All ToRs pertaining to any studies to be undertaken as technical assistance during the project period 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 into the studies. All ToRs will be subject to World Bank Clearance.

5.3.5 MANAGEMENT OF OCCUPATIONAL HEALTH AND SAFETY

While the Health Sector in the Maldives has a good safety record to date for HCWs, workers not properly prepared or trained to work under the conditions of the COVID-19 pandemic. Hence, these workers are susceptible to a variety of risks. As detailed out in the Labor Management Procedure for the Project, measures will be put in place for protecting workers from exposure to the virus that causes Covid-19 on the type of work being performed and exposure risk, including potential for interaction with people with suspected or confirmed COVID-19 and contamination of the work environment. Employers will adapt infection control strategies based on a thorough hazard assessment, using appropriate combinations of engineering and administrative controls, safe work practices, and personal protective equipment (PPE) to prevent worker exposures. Guidance on specific protocols to be adopted by HCFs during the Covid-19 response is presented in the Annexes of this ESMF.

General Guidance for All Workers, including HCF workers, waste handlers, contractors and laborers and employers, including the PMU and MOH and HPA staff are as follows. For all workers, regardless of specific exposure risks, it is always a good practice the following:

- Frequently wash your hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand rub with at least 60% alcohol. Always wash hands that are visibly soiled.

- Avoid touching your eyes, nose, or mouth with unwashed hands.
- Practice good respiratory etiquette, including covering coughs and sneezes.
- Avoid close contact with people who are sick.
- Stay home if sick.
- Recognize personal risk factors. According to the WHO, certain people, including older adults and those with underlying conditions such as heart or lung disease or diabetes, are at higher risk for developing more serious complications from COVID-19.

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 trained and/or licensed personnel are involved in COVID-19 response activities.
- Participate in the risk assessment of possible hazards at the start of each sub-project in line with the Environmental and Social Screening and use the ESMP to deduce and outline specific requisite measures in terms of ensuring OHS during implementation of the specific subproject.
- All ICHCWMPs need to include, as per Annex 10 adequate provisions on OHS relevant to the operations involved.
- HCFs are required to ensure adequate supply of PPEs and other measures to ensure safe working conditions for all staff.
- 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 into Local Languages.
- All provisions outlined in the LMP presented in Chapter 7 should be adhered to.

In order to ensure the protecting healthcare workers. The PMU and MOH will ensure the following, in addition to the measures specifically identified in the LMP and Annex 9:

    - Regular delivery and proper storage of goods, including samples, pharmaceuticals, disinfectant, reagents, other hazardous materials, PPEs, etc.;
    - Ensure protocols for regular disinfection of public rooms, wards, ICUs, equipment, tools, and waste are in place and followed;
    - Ensure handwashing and other sanitary stations are always supplied with clean water, soap, and disinfectant;
    - Ensure equipment such as autoclaves are in working order; and
    - Provide regular testing to healthcare workers routinely in contact with COVID-19 patients.

5.3.6 MANAGING COVID-19 RESPONSE RELATED LABORATORY OPERATIONS

The laboratories and relevant health facilities which will be used for COVID-19 diagnostic testing and isolation of patients can generate biological waste, chemical waste, and other hazardous byproducts that will be managed as per the HCF specific ICHCWMP that will be developed. The laboratories to be supported by the project will process COVID-19 and will therefore have the potential to cause serious illness or potentially lethal harm to the laboratory staff and to the community, so effective administrative and containment controls will be put in place so minimize these risks. Environmentally and socially sound health facilities management will require adequate provisions for minimization of occupational health and safety risks, proper management of hazardous waste and sharps, use of appropriate disinfectants, proper quarantine procedure for COVID-19, appropriate chemical and infectious substance handling and transportation procedures, etc. In line with WHO Interim Guidance (February 12,2020) on “Laboratory Biosafety Guidance related to the novel coronavirus (2019-nCoV)”, COVID-19 diagnostic activities and non-propagative diagnostic laboratory work (e.g. sequencing) could be undertaken in BSL2 labs with appropriate care. Any virus propagative work (e.g. virus culture, isolation or neutralization assays) will need to be undertaken at a containment laboratory with inward directional airflow (BSL-3 level). In addition, all specific measures presented for infection control and HCF operations in the ESMP presented in this ESMF, Generic ICHCWMP presented in Annex 10 and Standard Laboratory Operating Procedures presented in Annex 26 will be adopted and implemented.

5.3.7 MANAGEMENT OF E & S DURING CERC COMPONENT IMPLEMENTATION

Component 4 of the project is a Contingent Emergency Response Component (CERC). The project ESMF will be updated as soon as the scope of contingency component becomes better defined during project implementation. In addition, a CERC operations Manuel will be prepared during project implementation to govern the operation of the component, this document will be aligned with the ESMF at the time of preparation and include provisions to ensure environmental and social due diligence in line with the requirements of the ESF. A list of typical positive and negative activities associated with CERC implementation is presented in Annex 30 of this ESMF as per the World Bank's template for CERC Operational Manuals.

5.4 HEALTH CARE WASTE MANAGEMENT PLANNING IN THE LONG TERM

The Generic IC-HCWMP presented in Annex 10 and the template for preparation of IC-HCWMPs presented in Annex 20 and guidance provided in this ESMF can also be used post the immediate COVID-19 response phase by HCFs to develop detailed facility specific plans to streamline and strengthen Infection Control operations as well as Health care waste management activities in line with international best practice.

5.5 CONSULATION AND DISCLOSURE OF E&S INSTRUMENTS

Disclosure of relevant project information will help affected communities understand the risks, impacts and opportunities of the Project. As described in the SEP, the PMU will publicly disclose the ESMF and all environmental and social assessment documentation, the management program and action plan(s) for public review and comment in appropriate locations, including the MoH's website (both in Divehi and English). The website will also enable the community an opportunity to provide comment electronically. All additional procedures as stipulated in the Stakeholder Engagement Plan (SEP) of this Project will be followed.

5.6 REVIEW AND APPROVAL OF E&S INSTRUMENTS

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 project. Only cleared environment and social 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
- All ESMPs prepared for project interventions
- All ICHCWMs prepared for HCFs under project financing
- All TORs for any Technical Assessments or Studies undertaken in the project lifetime.
- All TORs and subsequent ESIAs, and ESMPs, if these instruments are identified as requirements as per National Regulatory requirements.

Upon project commencement the Environmental and Social Specialists 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 21.** 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.

5.7 COMPLIANCE MONITORING AND REPORTING

Supervision of final ESMPs and implementation of ICHCWMPs 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 and social supervision plan will be developed aiming to ensure the successful implementation of an ESMF across the project and will be shared with the World Bank. The environment and social team based in the PMU will be responsible for overall monitoring of the ESMF implementation up to the project closure and transfer for management to the designated authority.

Compliance monitoring comprises of on-site inspection of the construction activities to verify that measures identified in the ESMPs 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.

For ICHCWMPs, the specific plans will include procedures and criteria for monitoring of implementation the HPA and MOH will be responsible for overall monitoring of compliance of all plans prepared and present via the PMU a quarterly update of the status of plan implementation. This report will be prepared as a summary report covering all HCFs associated with the project.

A standard Environmental and Social Compliance Monitoring Checklist for Project Activities is presented in **Annex 22**. In addition, the Special Monitoring Checklist for Ensuring Safe Conditions for Workers and Public, presented in **Annex 23** should be attached to the main monitoring update presented in Annex 19. For all project ESMPs in implementation Annex 19 and Annex 23 must be combined and maintained through intervention commencement in the field to implementation completion. Compliance monitoring reports will be submitted to the World Bank on a quarterly basis from the commencement of the contract.

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.

5.8 QUARANTINE FACILITY MANAGEMENT

When setting up and operating quarantine facilities in the Maldives, a combination of the documents issued by the local authorities as well as the guidance provided in the ESMF through the Generic ESMP provided in Annex 9 and the IC-HWMP provided in Annex 10 should be used. HPA's handbook for Quarantine Facility Management in context of COVID19 gives ample guidance on how to set up and operate a Quarantine Facilities, which covers the following:

- Appropriate measures in a quarantine facility
- Space requirements for the facility
- Human Resource Requirement
- Training of staffs
- Minimum infection prevention and control measures
- Personal Protective Equipment
- Procedures to follow at the airport, during travel to the facility and on arrival at the facility
- Admission Procedures and assigning to rooms
- Sample collection and testing
- Monitoring of the client
- Discharge Procedures

- Cleaning and Disinfection Procedures.
- Laundry facilities
- Waste Management within the facility

Handbook for Quarantine Facility Management in context of COVID19 can be downloaded from the following link.

https://covid19.health.gov.mv/wp-content/uploads/2020/04/Handbook-COVID-19-QUARANTINE-2020.pdf

6 STAKEHOLDER ENGAGEMENT, GRIEVANCE REDRESS AND INFORMATION DISCLOSURE

6.1 STAKEHOLDER ENGAGEMENT PLAN

Since the Project is being prepared under the World Bank's Environment and Social Framework (ESF), as per the Environmental and Social Standard ESS 10 on "Stakeholder Engagement and Information Disclosure", the implementing agencies is required to provide stakeholders with timely, relevant, understandable and accessible information and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination and intimidation. Accordingly, a standalone Stakeholder Engagement Plan (SEP) has been prepared that defines a program for stakeholder engagement, including public information disclosure and consultation, throughout the entire project cycle. Specifically, the SEP outlines the ways in which the project team will communicate with stakeholders and includes a mechanism by which people can raise concerns, provide feedback, or make complaints about project and any activities related to the project. Additional measures are also included to ensure that the vulnerable groups outlined above will have the chance to participate and benefit from project activities.

6.2 GRIEVANCE MECHANISM

Grievance Redress Mechanism (GRM) will be established under the Project at the Administrative Division level of the MoH. The SEP explains in detail the mechanism in place, including the structure of the GRM, intake channels for grievances (including submission of anonymous complaints), procedures for resolution of grievances, appeal process, mechanism for informing the complainant, etc., that will be put in place to ensure timely, effective and efficient resolution of complaints and grievances that satisfies all parties involved. The project GRM will also receive project-related complaints concerning gender-based violence, including sexual harassment and sexual abuse and exploitation.

6.3 CONSULTATIONS AND INFORMATION DISCLOSURE

As detailed out in the SEP and consistent with the requirements for stakeholder engagement and taking into account COVID-19 related quarantine and lockdown measures, consultations will be carried out in the form of household-outreach through SMS, telephone calls, audiovisuals or pictures instead of text, etc. Further, project-specific information (e.g., ESMF, SEP, LMP, site-specific ESMPs), will be disclosed in MoH website as well as World Bank's external website, and will also be available at the individual HCFs, where relevant.

7 CHAPTER 8: INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION OF THE PROJECT

7.1 OVERALL PROJECT INSTITUTIONAL ARRANGEMENTS

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

7.1.1 IMPLEMENTATION ARRANGEMENTS

The implementing PMU will be the Administrative Division who will work with all relevant divisions within the MOH. The PMU will have overall responsibility for project implementation and oversight of the project activities. The PMU will be responsible for all procurements, trainings and capacity building activities supported by the project. In addition, for certain activities at the community level, the government may partner with Maldivian Red Crescent who have wider local presence to support implementation. The PMU be established within the Division to ensure effective and efficient implementation of these urgent activities. Composition of the PMU will include a Project Director, Project Coordinator/EOC Liaison, Procurement Specialist, Financial Management Specialist, Environmental Safeguards (biomedical waste management) Specialist, Social Safeguards Specialist and an M&E Specialist.

Given that MoH and its Administrative Division have no previous experience in Bank financed projects, an interim arrangement to support project implementation has been put in place. Staff have been seconded from three existing World Bank-financed project PMUs to quickly ensure sufficient capacity and experience implementing World Bank-financed projects: (1) Public Financial Management Systems Strengthening project (P145317) in the Ministry of Finance for procurement and financial management support; (2) Enhancing Employability and Resilience of Youth project (MEERY) (P163818) for social support; and (3) Maldives Clean Environment project (P160739) and the Maldives Urban Resilience and Disaster Project (MURDP) for environmental support. Additional staff will be recruited to support financial management, procurement, and social and environmental management during project implementation.

A Project Steering Committee will be established comprised of members of the Emergency Operations Centre (EOC: MoH/HPA/NDMA). It was specifically established for COVID-19 response on March 3, 2020. The EOC will ensure multi-sectoral coordination and emergency response oversight over the management of the COVID-19 response. As such, it will provide oversight and guidance for the implementation of project activities, including those relating to environment and social management.

7.1.2 PROJECT MANAGEMENT UNIT

- The PMU's main role will be to ensure operational compliance as per the World Bank polices 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 and social management, monitoring and evaluation, civil works design review and contract management, as well as support staff.
- 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*)

7.1.3 INSTITUTIONAL ARRANGEMENT FOR IMPLEMENTATION OF THE ESMF

The PMU to be established within the MOH 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 Specialist and Social Specialist at the PMU; will be responsible for the implementation of all steps presented in the ESCP, ESMF, IHCWMP, LMP and SEP of the project. Carrying out rapid environmental and social screening, the facilitation of the preparation of environmental and social instruments, such as ESMPs, health care facility level HCWMPs, 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 conducting all 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 may outsource detail studies or activities (e.g., public awareness, risk communication, etc.) to consultants/agencies and manage them where needed. The PMU's E&S specialists will be responsible for ensuring the delivery of such outsourced tasks. He/she will also 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 communicating with HCF teams and the HPA and also take the lead in organizing ESMF related training programs to facilitate good implementation of E&S due diligence and practice.

Role of Managers and Staff of HCFs: All HCFs, as implementing partners, will coordinate with the PMU throughout the preparation and implementation of the procurement process, including conducting supervision during works and will assign from each HCF a focal point for ESMF implementation. HCFs are responsible to ensure that all guidelines in line with managing COVID-19 response and WHO guidance is adequately implemented. In most cases, HCF teams are 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 ICHCWMs are implemented. These aspects will be highlighted in the handover agreement made with HCF Managers. Moreover, as implementation partners HCF Managers becomes important parties in steering committee and technical committee of the project. HCF Management will be responsible for providing information to the PMU on preparing operational ESMPs and take the lead in preparing ICHCWMPs. They will also ensure sound implementation of ESMPs during the construction stage via completing monitoring and reporting.

Role of the HPA and EPA; the HPA and EPA will work closely with the PMU, providing timely clearance and guidance on technical requirements for respective instruments and assessments by issuing specific TORs, conducting timely review of 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 health care waste management and environmental management respectively, once the sub-projects go in to the operational phase the HPA and EPA has the responsibility for conducting inspections to ensure that all subprojects that receive clearance from them are implemented and are operated as per the applicable guidelines, national standards and ESMPs and ICHCWMPs prepared. The PMU E&S team will liaise closely with the HPA and EPA, who will have a supporting role in implementation as well as the sustainability of project outcomes.

7.1.4 ROLES AND RESPONSIBILITIES OF WORLD BANK

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

- Undertake prior review of a sample screening reports, ESMPs, ICHCWMPs, SEP, LMP and other relevant documentation of all project interventions.

- Ensure regular missions to review overall E&S 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.

7.2 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 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 PPE equipment and worker codes of conduct must be conducted. Where contractors do not have existing environmental and social staffs, the PMUs Environment and Social Specialist and team and the implementing agencies 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 into the project modality.

Table 9 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	Completed within the 1st 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 and reporting- (including refresher)- Training for Trainers Modality	PMU Staff	World Bank Environmental and Social Specialists and team	2 programs at minimum
ESMF and ESF Implementation Training: to cover world bank environmental and social management procedures, instrument preparation and monitoring during project implementation and	HPA, HCFs, EPA and other IAs as relevant.	PMU ESSS and Team	3 programs

Training Program	Target Audience	Conducted By	Minimum Number to be conducted over project period
reporting- (including refresher)			
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.
COVID-19 Specific Training Covering Topics Such as • COVID-19 Infection Prevention and Control Recommendations • Laboratory biosafety guidance related to the COVID-19 • Specimen collection and shipment • Standard precautions for COVID-19 patients • Risk communication and community engagement • WHO guidelines on quarantine including case management • • Infectious waste management procedures and HCWM within COVID-19 care facilities.	To all HCWs, MOH and HPA teams	Via external resource persons such as the WHO	Every year during project implementation.
HCF level Staff Training-In order to ensure good implementation once the ICHCWMP is developed or where time permits during the development phase itself HCF managers.	HCF medical staff producing the waste (doctors, nurses and lab technicians), waste workers and waste handlers and teams involved in final disposal should be trained. Nurses and waste handlers are key personnel to instill a	Via external resource persons such as the WHO	As outlined in the respective ICHCWMP for the HCF.

Training Program	Target Audience	Conducted By	Minimum Number to be conducted over project period
	disciplined approach in the day-to-day management of wastes.		

7.3 ROUGH COST ESTIMATES OF SAFEGUARDS INSTRUMENTS

It is difficult to provide accurate cost estimates for the preparation of E&S instruments due to the dynamic nature of the consultancy market within the Maldives as well as the context of project implementation under the COVID-19 related lock down. Drawing from the project experience of other projects financed by the World Bank in the Maldives and current indicative costs the following table provides a rough estimation of costs for E&S 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. 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 and where possible the internal teams will work on document preparation with World Bank guidance.

Table 10 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 11 Indicative Costs for staff remuneration

Staff	Indicative Salary (Monthly)
Environmental Specialist	US$ 1500 at Minimum (MVR 22,770)
Social Specialist	US$ 1500 at Minimum (MVR 22,770)

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 HPA and MOH. The indicative costs for domestic travels required for the project is summarized in the table below.

Table 12 Indicative travel cost for implementation of ESMF

Island with facility	Atoll	No. of Trips	No. of Pax	Sea Transport (MVR)	Per Diem (MVR)	Total (MVR)
Biyaadhoo Island Resort	South Male' Atoll	2	5	4,500	7,500	16,500
Vilivaru Island Resort	South Male' Atoll	2	5	4,500	7,500	16,500
Fun Island Resort	South Male' Atoll	2	5	4,500	7,500	16,500
Olhuveli Beach	South Male' Atoll	2	5	4,500	7,500	16,500
Embudu Village	South Male' Atoll	2	5	4,500	7,500	16,500
Eriyadu Island Resort	North Male' Atoll	2	5	5,500	7,500	18,500
Malahini Kudabandos	North Male' Atoll	2	5	5,500	7,500	18,500
Holiday Island Resort	South Ari Atoll	2	5	9,000	7,500	25,500
Velidhu Island Resort	North Ari Atoll	2	5	8,000	7,500	23,500
Dhiggiri	Vaavu Atoll	2	5	12,000	7,500	31,500
Royal Island Resort	Baa Atoll	2	5	10,000	7,500	27,500
Furaveri Island Resort	Raa Atoll	2	5	12,000	7,500	31,500
TOTAL		**24**	**60**	**169,000**	**90,000**	**240,500**

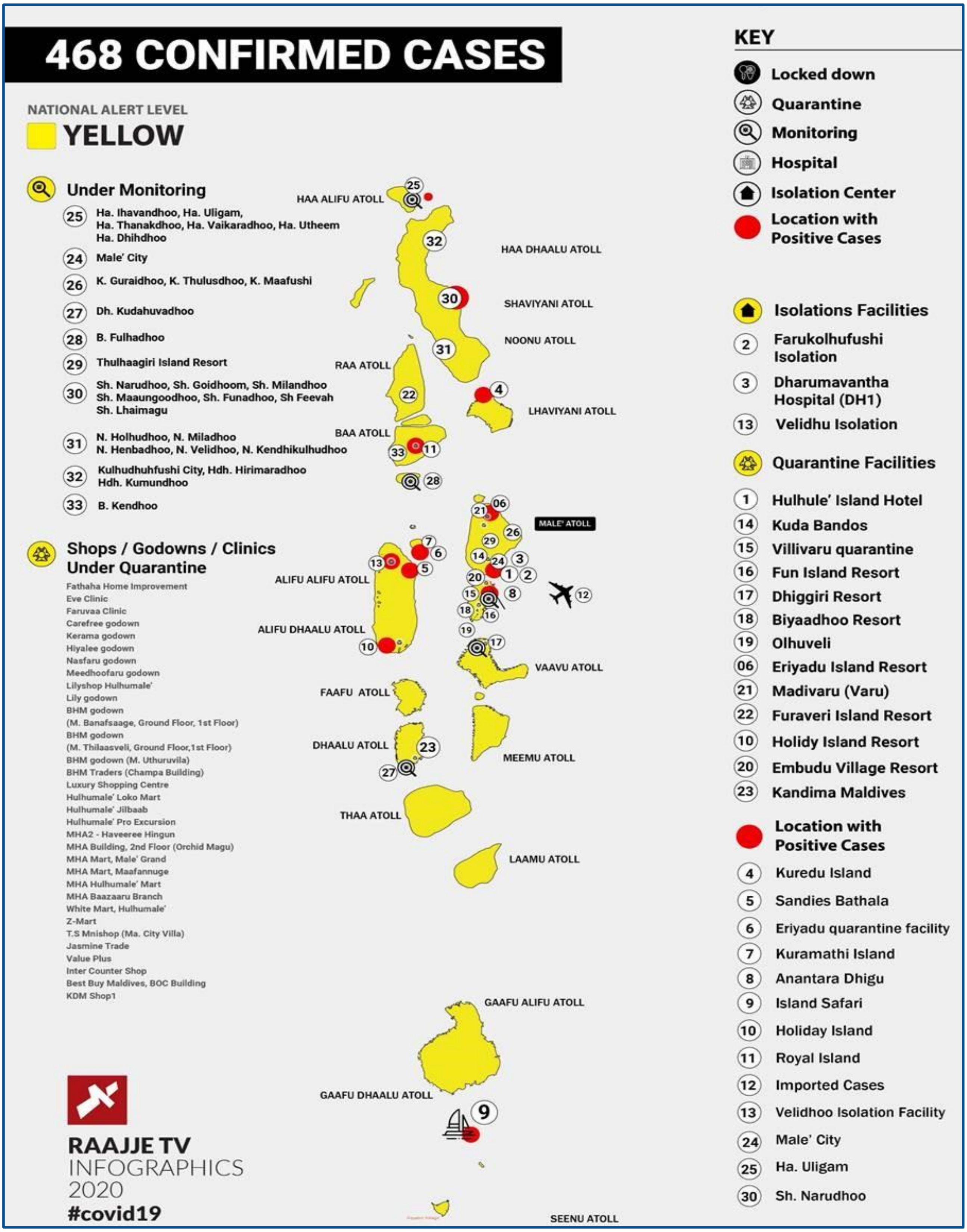
In addition to this, other costs like material printing, making videos for various awareness activities planned, consultations and information sessions need to be factored in, these costs are summarized in the table below.

Table 13 Other Costs

Activity	Cost (MVR)
Material Printing and Designing	75,000
Video/Visual Aid	75,000
TOTAL	**390,000**

ANNEXES

ANNEX 1: MAP OF MALDIVES AND PROJECT FOCUS AREAS



ANNEX 2: ENVIRONMENTAL AND SOCIAL BASELINE OF THE MALDIVES

SALIENT ENVIRONMENTAL AND SOCIAL FEASTURED OF THE MALDIVES AND

GEOGRAPHY AND GEOLOGY

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 Kulhudhuhfushi.

The coral atolls of the Maldives are formed upon minor elevations on the Chagos-Lacadive 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.

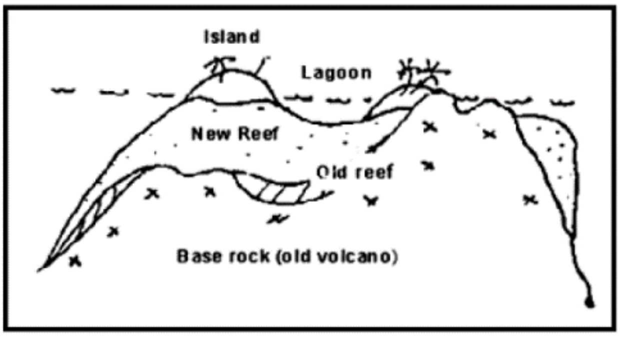
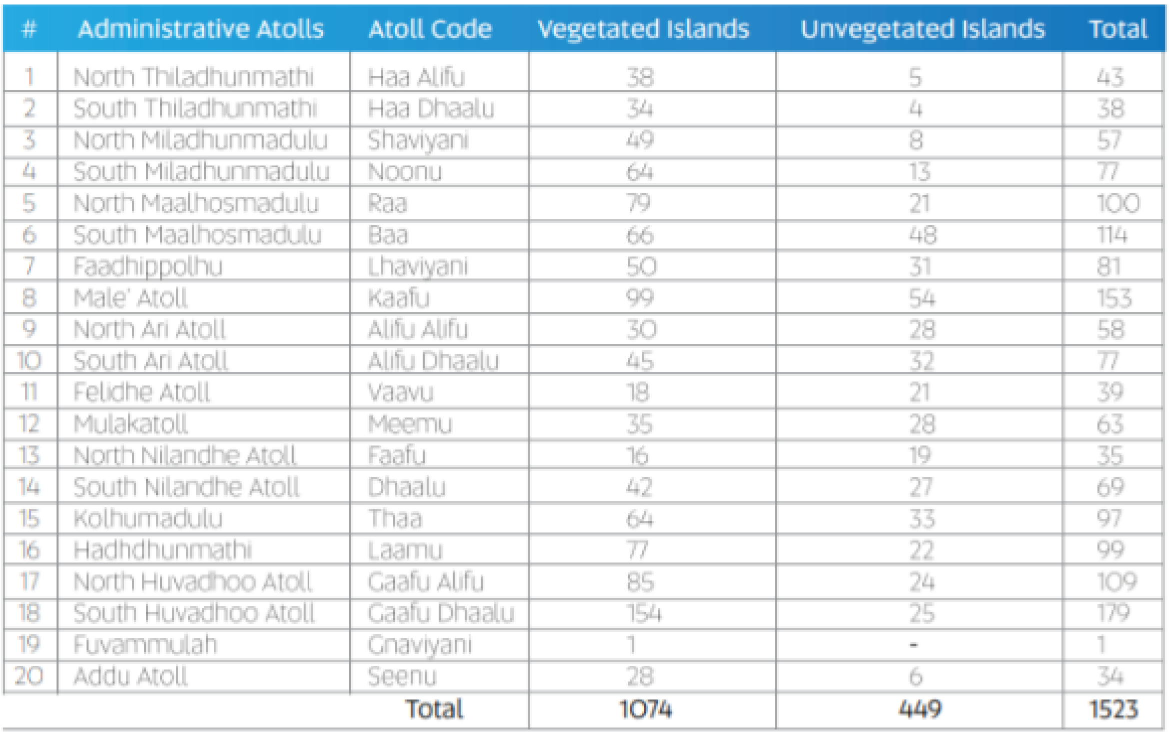


Figure 9 Profile of an Atoll and Lagoon

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 14 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	Hadhdhunmathi	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.

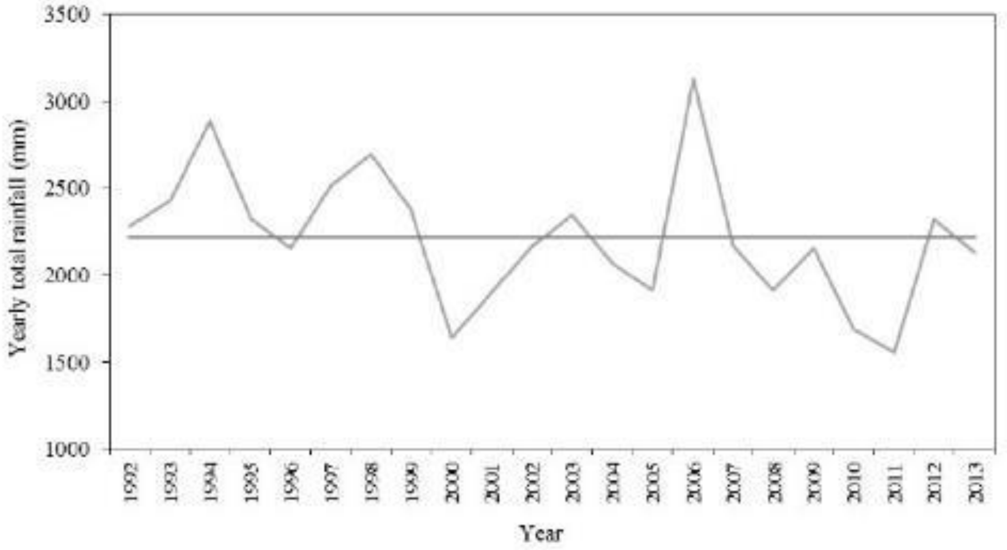
SOILS

The soils in the islands of the Maldives are geologically young. They consist of substantial quantities of the un-weathered 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.

GENERAL CLIMATIC CONDITIONS

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.



Yearly total rainfall data for the period 1992-2013 (the dark grey line shows the yearly mean rainfall for the 22 years).

Figure 10 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.

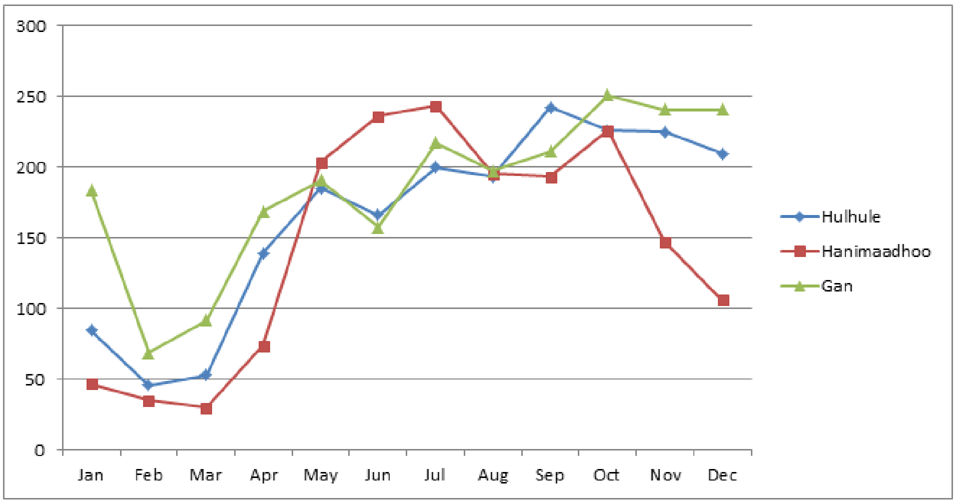


Figure 11 Rainfall distribution over Maldives (Source: Maldives Meteorological Service, Data since 2000)

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).

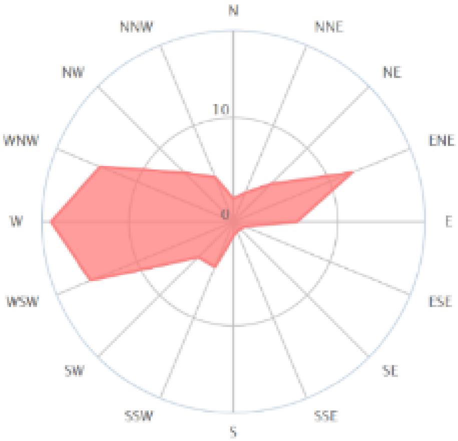
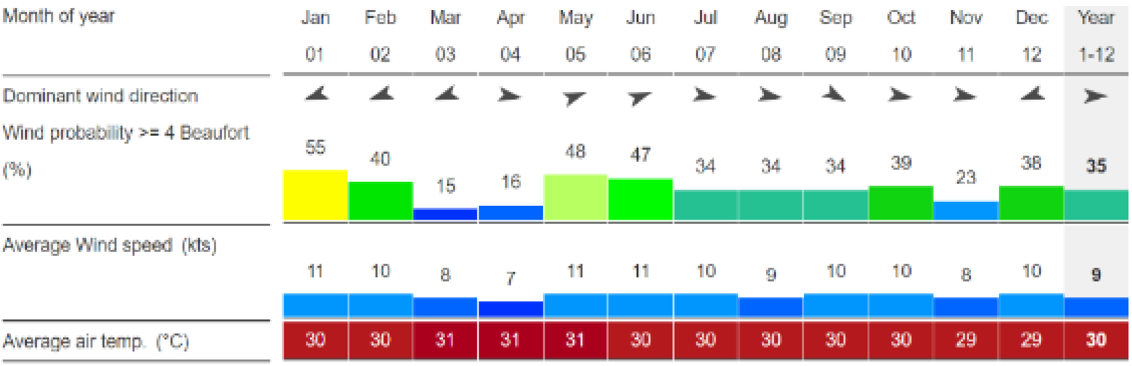


Figure 12 Windrose Diagram based on Data from Hulhule (data from 2002 to 2017)

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 15 Summary of general wind conditions in Malé region



Month of year	Jan 01	Feb 02	Mar 03	Apr 04	May 05	Jun 06	Jul 07	Aug 08	Sep 09	Oct 10	Nov 11	Dec 12	Year 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**

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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.

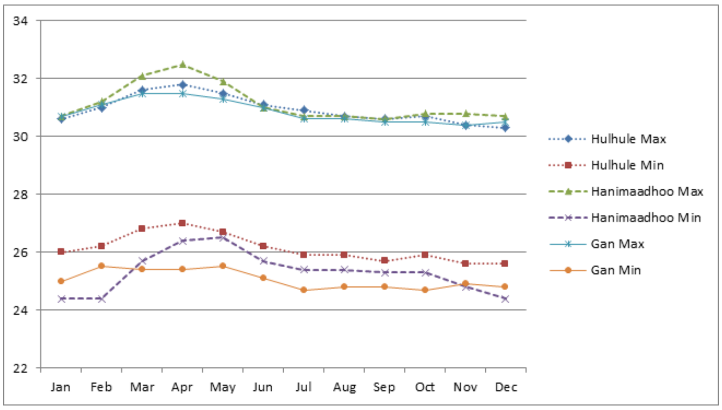


Figure 13 Average maximum and minimum temperature by month (source: Maldives Meteorological Service, Data since 2000)

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).

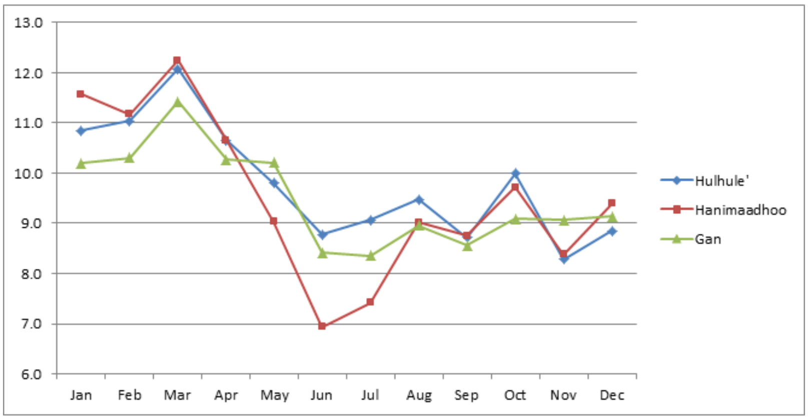


Figure 14 Average Sunshine by month (Source: Maldives Meteorological Service, Data since 2000)

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).

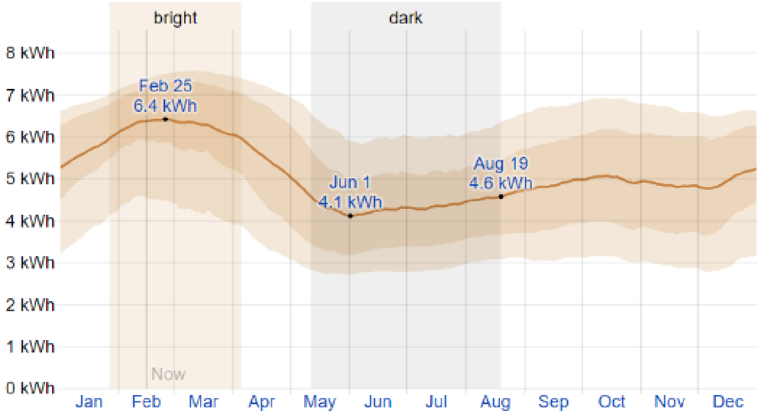


Figure 15 The average daily shortwave solar energy reaching the ground per square meter (orange line), with 25th to 75th and 10th to 90th percentile bands (Source: weatherspark.com, Data from 1980 to 2017).

HYDROGRAPHY

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 also 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.

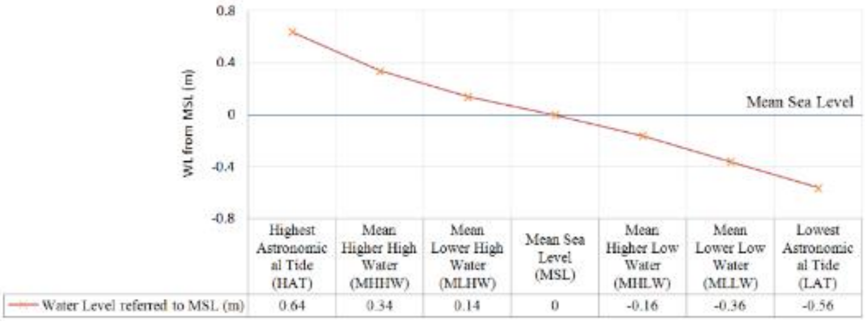


Figure 16 Astronomical tidal variation in the Maldives

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.

WAVES

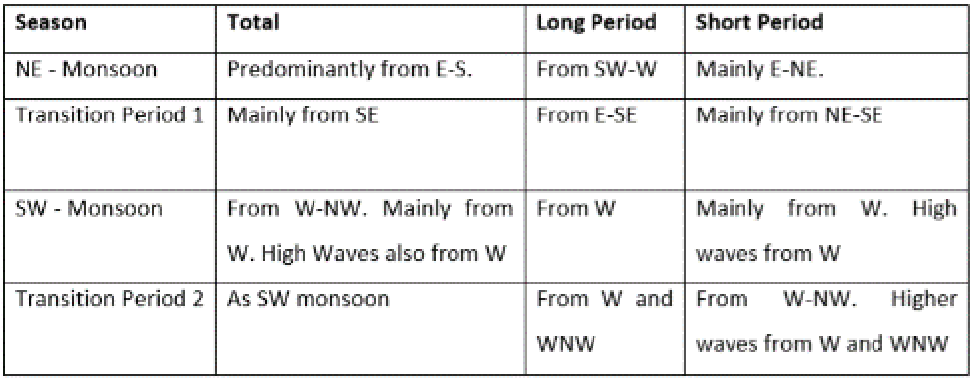
Wave energy is important for sediment movement and settlement, and it is also a crucial factor controlling coral growth and reef development. Waves have been attributed to the diversity and the abundance of coral and algal species. These aspects have implications for the type and perhaps the supply of 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 16 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

BIOLOGICAL ENVIRONMENT

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. A list of protected areas in the Maldives is presented in Annex A.

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 km^2 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 Kulhudhuhfushi 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.

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 versicolar;* the snake skin, *Riopa albopunktata*; 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 S*terna sumatrana, S. albifrons, S. anaethetus, S. dauglli, S. bergi, S. bengalensis, and S. fuscata, S. saunders*i; others include two species of noddies, *Anous stolidus and A. tenuirostri*s, 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).*

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 know 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 form 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.

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 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 storms 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.

POPULATION AND HOUSING CONDITIONS

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 17 Total population by sex

Population	Both Sexes	Male	Female
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)

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.

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.

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 18 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

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.

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 stands as 65,201 per km2 (population density of Male' exclude Hulhumale' and Villinmale').

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.

SOCIAL-ECONOMIC CONDITIONS

STRUCTURE OF THE ECONOMY

The Maldivian economy observed rapid expansion over the years, experiencing an average economic growth of 6.9% in 2018 (Asian Development Bank, 2019). The gross domestic product (GDP) per capita rose from just $200 in 1978 to $11,890 in 2018. The breakdown of the contributions to the GDP by sector in 2018 was as follows. The largest percentage was contributed by the tourism sector (19.9%), followed by transport (11.6%), government administration (11%), communication (11%), construction (8.9%), real estate (8%), wholesale and retail trade (4%), manufacturing (4%), education (4%), and several other relatively small sectors (World Bank, 2019). Average inflation also fell from 2.8% to only –0.1% in 2018 (Asian Development Bank, 2019). Given the limited number of available resources, the Maldives is heavily dependent on the tourism sector, which is seen as both a strength and a challenge. The rapid economic growth and improved standard of living over the last several decades are largely a result of the quick expansion of the tourism industry. However, this also means that the Maldivian economy remains highly vulnerable to fluctuations in global social and economic conditions.

Despite enjoying rapid economic growth over the years, real GDP growth decelerated to an estimated 5.2% in 2019, mostly owing to the slowdown in construction and retail trade (World Bank, 2020). The COVID-19 outbreak has had a major impact on visitor arrivals, with a 14% decline in 2020 compared to the arrivals figure in February 2019, and a 95% drop in visitors from the People's Republic of China (PRC). This, in turn, is expected to severely affect the tourism sector, which directly and indirectly accounts for almost two-thirds of the GDP (Asian Development Bank, 2020). Revenues plummeted by approximately 23.4% in the first quarter of 2020 alone, whereas spending grew by 10.2%. Central government debt increased from 58.5% of GDP in 2018 to an estimated 61.8% in 2019. Economic growth is expected to further plunge in 2020 but bounce back strongly in 2021 as the tourism sector begins to recover (World Bank, 2020).

HEALTH, EDUCATION AND WELL-BEING IN THE MALDIVES

Alongside the robust growth, Maldives has also been providing high quality and affordable public services for its people which has led to notable health and education impacts with literacy rate approaching 100%, and life expectancy of over 78 years. Accordingly, the small island nation ranked 101 out of 189 countries and the second highest in South Asia, in the Human Development Index (HDI) for 2017 (World Bank, 2020).

In terms of healthcare, the Maldivian health services are currently delivered by a four-tier referral system comprising of island, atoll/regional and central level services. The Indira Gandhi Memorial Hospital in the capital city Male' serves as the tertiary referral hospital. In addition to a fully functional health center in each inhabited island, there are 6 regional and 14 atoll hospitals across the country. The national health insurance scheme (Aasandha) covers the cost of health expenditure (Ministry of Health, 2018).

There are several challenges facing the health sector. For one, the reliance on expatriate health professionals leads to high turnover and difficulties in quality assurance. It is estimated that 82% of physicians and 55% of nurses are foreign nationals (WHO, 2018). Managing logistics and supplies across the island health centers is also a challenge given the geographical isolation of the islands.

Despite the obstacles, the national health care system has achieved significant milestones over the years. Infant and child mortality rates fell steeply during the 1980s and 1990s. In recent years, child mortality rate has remained below 10 per 1000 livebirths and infant mortality rates has remained below 8 per 1000 livebirths according to the Maldives Health Profile published in 2016. Currently, almost all children are born at established health care facilities and all deliveries are assisted by skilled professionals. However, rising levels of obesity are triggering diabetes as well as high blood pressure in pregnant women, posing a risk for both mothers and children (Ministry of Health, 2016).

Likewise, the Maldivian education sector has also prospered over the last 50 years. From less than 15% gross enrolment in primary education 50 years ago, Maldives now has a near universal rate of primary school enrolment (UNICEF, 2018). However, this success is not reflected across the fields of secondary, higher secondary and higher education. In 2018, despite having over 200 schools, 4007 students enrolled in secondary education belonged to just 57 schools. This is approximately 78% of the total number of students who completed their GCE Ordinary Level, which was 5125 in 2018. Of these, only 35% move on to pursue GCE Advanced Level (National Bureau of Statistics, 2019a).

However, the Maldivian higher education sector has seen many positive developments in recent years, and a steady increase in the number of higher education providers to meet the rising demand. As of now, 2 Universities, 12 Colleges, 1 Polytechnic and 192 institutes have been registered under the Ministry of Higher Education and granted approval to deliver qualifications compliant with the Maldives National Qualifications Framework (MNQF) (Ministry of Higher Education, 2020).

The Free First-Degree Scheme, which allows students to study for a bachelor's degree free of charge at local Universities and Colleges, combined with loans and overseas scholarship opportunities, have increased the number of students pursuing higher education. In 2019 alone, more than 5000 students enrolled to study through the Free First-Degree Scheme. Additionally, greater emphasis has been put on developing alternative paths to higher education, particularly enhancing technical and vocational education and training.

LABOR MARKETS

The geographical vulnerability of the small island nation not only poses a threat to the communities, but to the economy as well. The geographical isolation of the islands means a dispersed population across many small islands which significantly limits opportunities for job creation and economic diversification. Combined with various inclusion issues, this has resulted in relatively elevated levels of youth unemployment (15.3%) and low rates of women participation in the workforce (World Bank, 2020).

Several aspects the country's recent development pattern pinpoint towards the imbalance between labor demand and supply. Public sector jobs are primarily in the civil service. However, as living standards continue to increase, the labor market has become more challenging for Maldivians in general. The rapid growth in low skilled jobs in the tourism and construction sector is not in line with the increasing educational attainment and expectations amongst the younger generations of workers, leading to a mismatch in skills supply and demand.

This has further highlighted the various challenges faced by the labor market. There is a need for greater inclusion and productive employment for youth, especially for those from the most vulnerable segments of the population or those who simply cannot rely on public sector jobs, whether it is due to the competitive nature of such jobs, or the lack of access to these jobs. This is particularly true for individuals who live away from the capital city Male', where such jobs are concentrated in. Additionally, the increasing reliance on foreign labor in key sectors such as tourism and construction, and the limited opportunities for women in these sectors are identified as major hurdles for the economic prosperity of the Maldives. According to the National Bureau of Statistics, the grand total of expatriates employed in Maldives was 114,981 (104,753 male and 10,228 female) in 2018 of which the majority were registered in the construction sector with 37.6% (43,264) expatriate employees, followed by the tourism sector with 21.2% (24,420) employees of which 15.2% were women (National Bureau of Statistics, 2019b).

With the tourism sector contributing directly to about one-fifth of total employment in the country in 2017, only 55 percent of the 34,500 jobs created were filled by Maldivian staff. The lack of participation in tourism jobs is particularly limited among Maldivian women, who account for only 7% of labor in the industry (World Bank, 2019).

Further, while public sector jobs account for approximately 40% of total employment, public-private wage differentials and other benefits associated with public employment often disincentivize job seekers from taking up private sector employment (World Bank, 2020). As a result, many Maldivian youths are discouraged workers who have effectively exited the labor force and are best characterized as not in employment, education, or training (NEETs). About 22% of working-age Maldivian youths fall into this category (World Bank, 2019).

POVERTY AND INEQUALITY

While there have been substantial developments in health, education, infrastructure and wellbeing over the years in the Maldives, not everyone has benefitted equally. Large disparities in welfare and socioeconomic outcomes across regions are of concern. Approximately 8.2% of the total population were living below the national poverty line of MVR 74 in 2016 (National Bureau of Statistics, 2016). Poverty rates and the level of inequalities seem to vary by region, with locals in southern atolls more likely to be affected by poverty. In 2016, the poverty ratio for the atolls was 12.8% in comparison to 1.7% in Malé. As of 2019, it is estimated that over 10,000 children are still living in poverty across the Maldives (UNICEF, 2020). Huge income gaps are also evident between the capital city Malé and the atolls. In the outer atolls, youth and children in particular, lack access to quality essential services which are often heavily concentrated around Malé city.

The drop-in tourism revenues due to the COVID-19 outbreak is expected to further affect employment and household earnings, especially in the outer regions where a large percentage of the population are employed in tourism related jobs. Furthermore, lower income households that depend on fisheries and agriculture are also adversely affected as exports tumble due to weak demand. In turn, the national poverty rate is likely to increase as households close to the poverty line are at risk of falling into poverty as a result of income loss. A larger impact is expected in the atolls, as there is greater dependence on fisheries and the poverty rate was already higher (World Bank, 2020).

GENDER AND VULNERABLE GROUPS

Maldives has made significant progress on gender equity and equality in recent years. This has been reflected in the country’s development indicators, such as high literacy rates for both men and women, and gender parity in enrolment and attainment in primary and secondary education. The literacy rates among the populated aged 15 years and older in 2016 were 98.11% for females and 97.3% for males. Gross enrolment ratio in primary education was just as promising, with a 98.09% GER for females and 96.2% GER for males in 2017 (UNESCO, 2020).The Maldives is committed to the principle of gender equality through numerous national and international commitments. Maldives also ratified the Convention on the Elimination of all forms of Discrimination Against Women in 1993, and has since made major strides in achieving the MDGs and the SDGs (UNDP, 2011). Nevertheless, the country still has a significant way to go in achieving gender equality and women’s empowerment, particularly in the areas of participation and leadership in public life.

The 2017 Gender Gap Report stated a 77% unemployment rate among young Maldivian women in comparison to 33% for young men. The overall female labor force participation remains low, at only 44.2%. There are several reasons for this large gap. For one, attitudinal and cultural factors relating to public perceptions on what is considered a ‘good’ job for young women, particularly in the tourism sector, prevents women from taking up employment opportunities other than of administrative nature. There is also negative stereotyping of working women, societal expectations that women should prioritize family life and household chores, the absence of strong female role models to engage and encourage young women to participate in formal labor workforce, lack of enabling and safe working environments for women and the growing gap in digital literacy between young women and men (UNDP, 2011).

Major work has also been done towards ensuring safety and the healthy development of children. While the country’s social protection systems place heavy emphasis on children, more needs to be done to reach every child. There is a lack of awareness on social protection and the benefits available to families, especially those struggling to secure opportunities for employment and education. There is an urgent need to further strengthen social protection systems and monitoring mechanisms to help decision makers address its shortfalls.

The disparities between the capital and the outer regions in service delivery and access to socioeconomic opportunities are further worsened for children living with disabilities. While the number of schools that provide special education, programs have increased with the implementation of an inclusive education policy in 2013, widespread social norms continue to create high barriers for disabled children. There is a public perception that those with a disability do not belong in a classroom that needs to be addressed (UNICEF, 2020). Additionally, vulnerable groups remain disadvantaged due to corruption, education, drugs, unemployment, lack of access to housing, gangs and extremism (UNDP, 2019).

Another vulnerable group in the Maldives is identified to be the vast number of expatriate workers. Expatriate workers represent roughly 25% of the Maldivian population and 80% of the workforce (Gossman, 2020). In 2017, the IOM report estimated 63,000 undocumented workers working in primarily tourism, construction, health and education sectors. Excessive recruitment fees, inaccurate information and misconceptions about working and living conditions, lack of pre-departure employment information, unlawful subcontracting of workers, unsafe working conditions, ineffective monitoring of recruitment and employment practices and weak sanctions for labor law violations put migrant workers at extreme risk (IOM, 2018). Further, in the current context of COVID-19, several migrants engage in miscellaneous tasks like cleaning, cooking, etc., from house to house, which they are unable to do so during this lockdown period. These migrants have absolutely no means of gaining an income and the governments' proposed severance packages do not include this large group that makes up the Maldivian population.

HOUSING

There was 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 labor quarters / staff quarters and other collective living quarters. These account for 4 percent of all households.

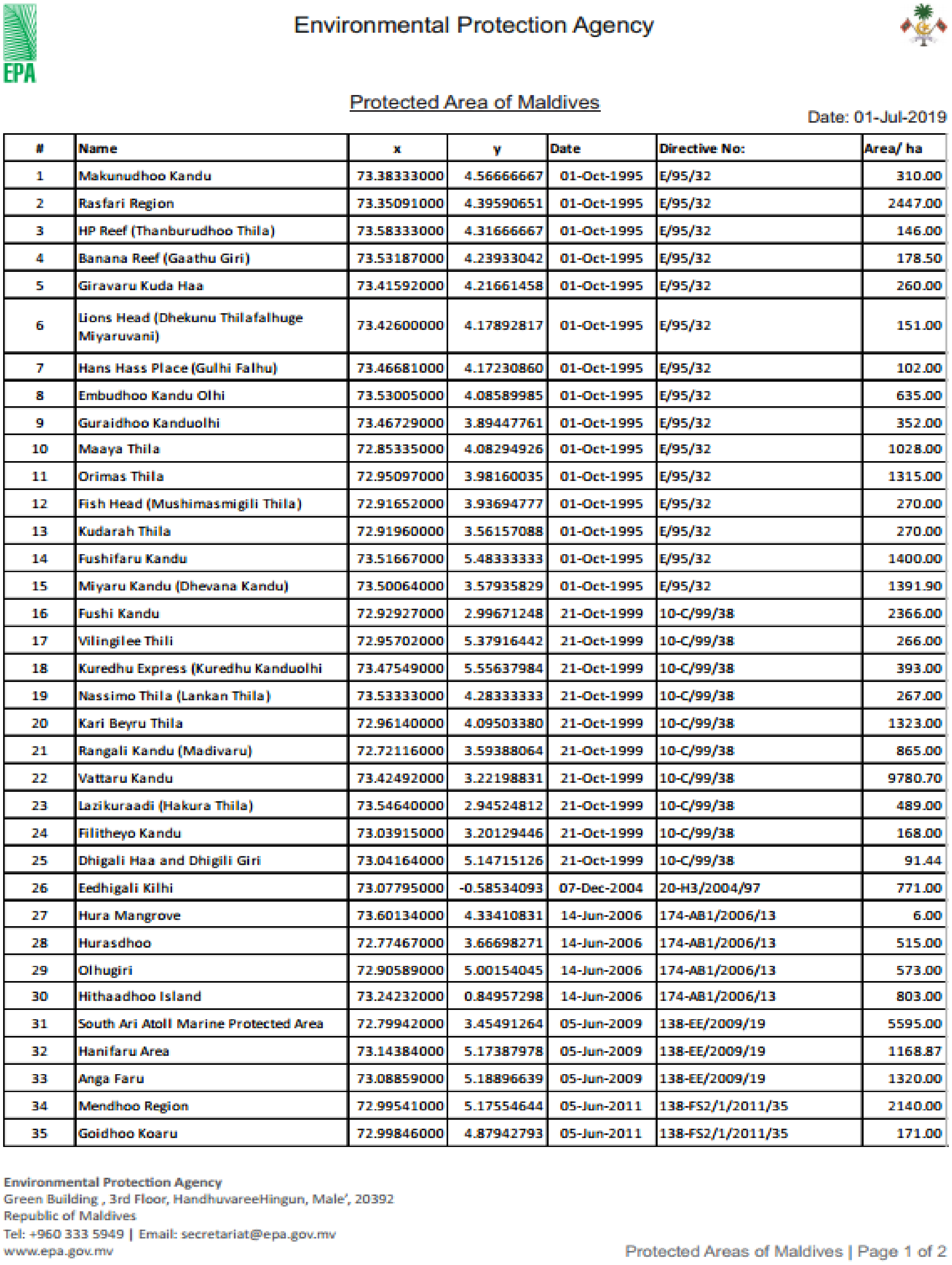
Table 19 Total Households by type of housing, by locality, 2014

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

Annex A: List of 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 Thilafalhuge 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 (Mushimasmigili 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	Vilingilee 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-FS2/1/2011/35	2140.00
35	Goidhoo Koaru	72.99846000	4.87942793	05-Jun-2011	138-FS2/1/2011/35	171.00

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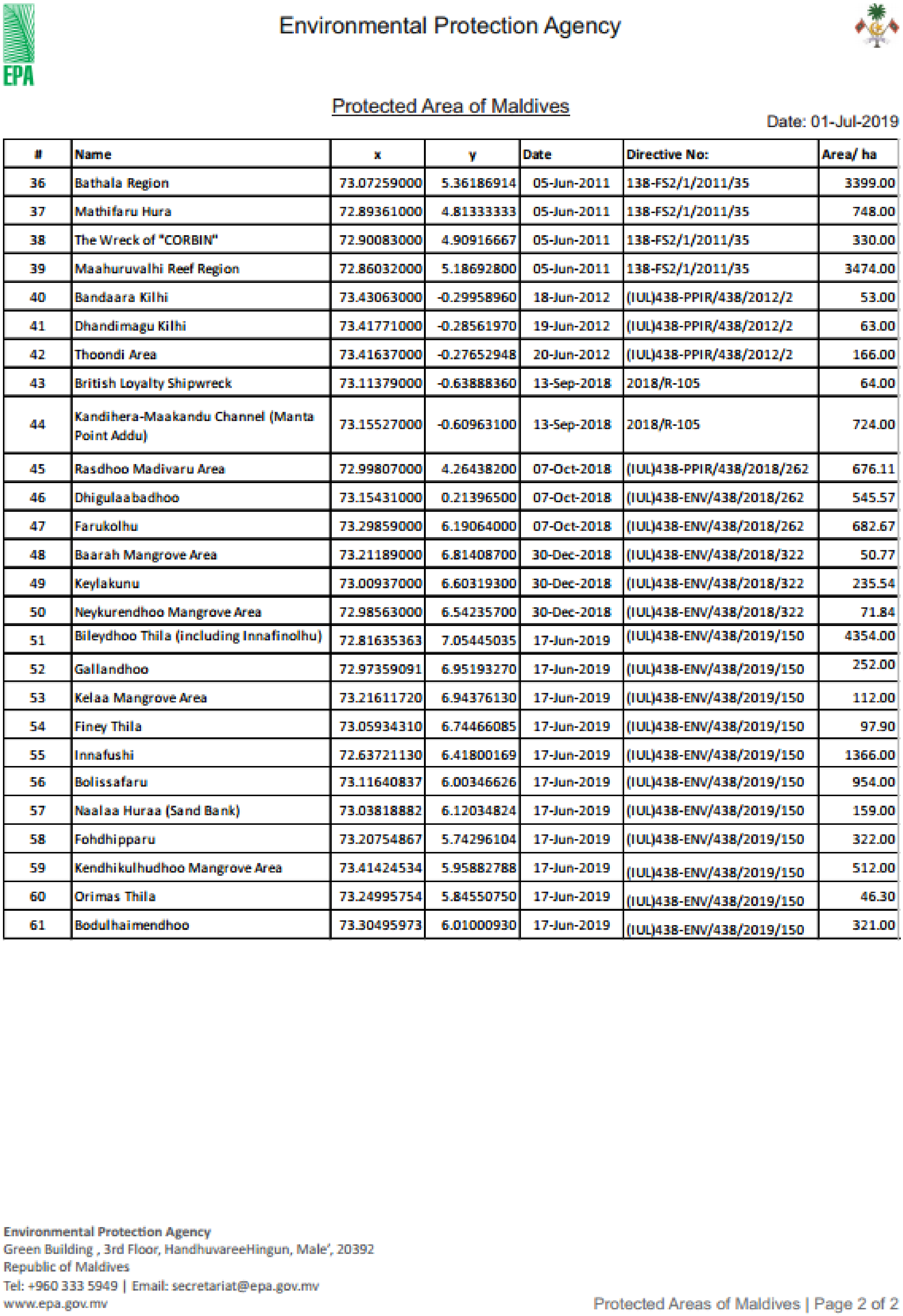
Protected Areas of Maldives | Page 1 of 2



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	Rasdhoo 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	Finey 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

Environmental Protection Agency
Green Building , 3rd Floor, HandhuvareeHingun, Male', 20392
Republic of Maldives
Tel: +960 333 5949 | Email: secretariat@epa.gov.mv
www.epa.gov.mv

Protected Areas of Maldives | Page 2 of 2

ANNEX 3: LINKS TO SOP'S OF HPA AND BCP AND RESORT WASTE SEGREGATION GUIDELINE OF WAMCO

1. Grading Criteria of HFs in the Maldives
   https://drive.google.com/file/d/1fXdWRckubSa5JvfeFHUAAajMfO0G8QPG/view?usp=sharing

2. HPA's Standard Operating Procedure (SOP) on COVID19
   - SOP for Healthcare Waste Management
     https://covid19.health.gov.mv/wp-content/uploads/2020/03/SOP-Health-Care-Waste-Management-for-COVID19-v2.pdd

   - Environmental Management in Quarantine Facilities
     https://covid19.health.gov.mv/wp-content/uploads/2020/03/SOP-On-Environmental-Management-and-Infection-Control-for-COVID-19-in-a-Tourist-Resort-Establishment-v2.pdf

   - SOP on Municipal Solid Waste Management
     https://covid19.health.gov.mv/wp-content/uploads/2020/03/SOP-ON-MUNICIPAL-WASTE-MANAGEMENT-FOR-COVID19-v2.pdf

   - Other SOPs on COVID19
     https://covid19.health.gov.mv/downloads/

3. Draft BCP of WAMCO
   https://drive.google.com/file/d/1VuJ5ZX79U5NHp31RGzicsrlFVBUcduOd/view?usp=sharing

4. Resort Waste Segregation Guideline of WAMCO

   http://wamco.com.mv/download/waste-segregation-standards_02-03-20.pdf

5. Standards for vessels that transport waste of WAMCO
   http://wamco.com.mv/download/vessel-guideline_english.pdf

6. Waste Manifest Form of WAMCO
   http://wamco.com.mv/download/manifest.pdf

ANNEX 4: SPECS OF 100L AUTOCLAVES WITH SHREDDERS

Biomedical Engineering Unit Regional
Atoll Health Services Division Ministry
of Health, Male', Republic of Maldives

Technical Specification for Equipment

Equipment: Waste Autoclave with shredder (100L)

1) Electrical Characteristics:

- Built in protections against over voltages and over current line conditions

2) Characteristics

- Must be an integrated system with sterilizer and shredder fully automatic.
- Capacity not less than 100L
- Sterilizer must be of class B
- Temperature controlled sterilization process at 134°C and/or 121°C
- Water booster pumps, compressor, steam generator must be integrated
- Door locking mechanism to prevent accidental door opening when chamber is pressurized or during cycle must be included.
- Clearly visible parameter displays (temp, pressure, cycle status, etc.)
- Connection to external water / drain supply should be unnecessary
- Must be able to process plastic or glass consumables, single use materials, PPE, contaminated sharps, hemodialysis waste, liquid bio hazardous waste, anatomical waste, etc.
- Shredder must be capable of reducing the waste up to 80% in volume or less.
- Must include all the standard accessories

3) Standards/Cortication and Safety:

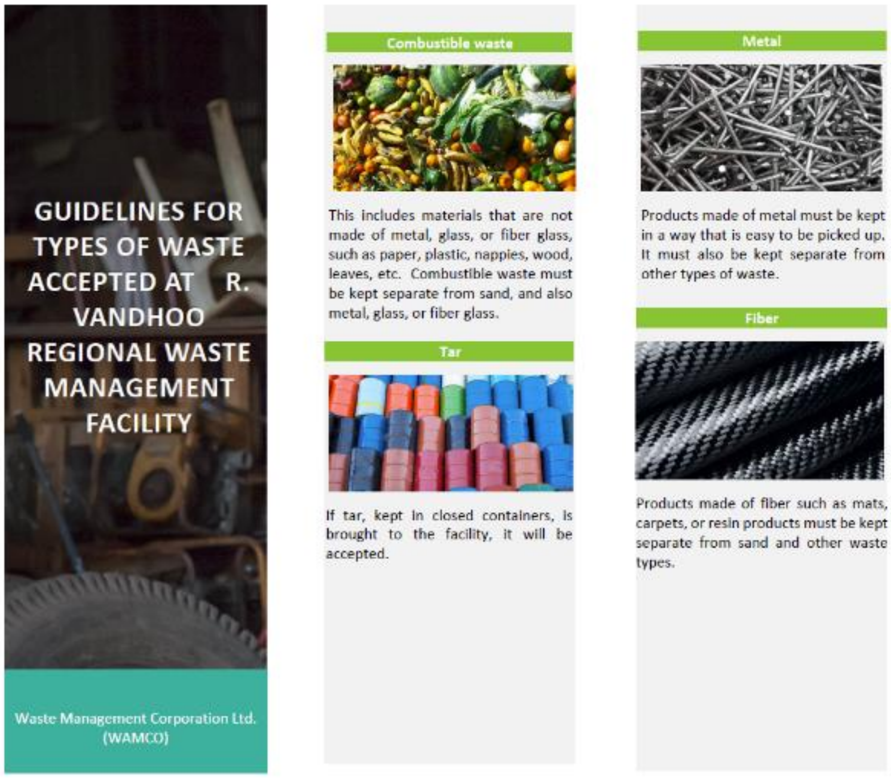
- Should be a CE / FDA Approved product and should have ISO standards.

4) Warranty, training and others:

- The unit and the accessories must be supplied with one year of warranty starting from the date of installation.
- Application training must be provided to the users.
- Manufacturer standard biomedical technical must be given to MoH Biomedical Engineers within one year of installation.
- User, technical and maintenance manual must be supplied in English language.
- List of important spares, accessories with their part numbers must be provided.
- List of any consumable (such as filters and gaskets) with their part numbers must be provided and the standard frequency of replacement must be provided.
- Contact details of both local supplier and manufacture for service and maintenance and must be provided.

Cost estimate: USD 45,300

ANNEX 5: GUIDELINES FOR TYPES OF WASTE ACCEPTED AT R. VANDHOO RWMF



GUIDELINES FOR TYPES OF WASTE ACCEPTED AT R. VANDHOO REGIONAL WASTE MANAGEMENT FACILITY

Waste Management Corporation Ltd. (WAMCO)

Combustible waste

This includes materials that are not made of metal, glass, or fiber glass, such as paper, plastic, nappies, wood, leaves, etc. Combustible waste must be kept separate from sand, and also metal, glass, or fiber glass.

Tar

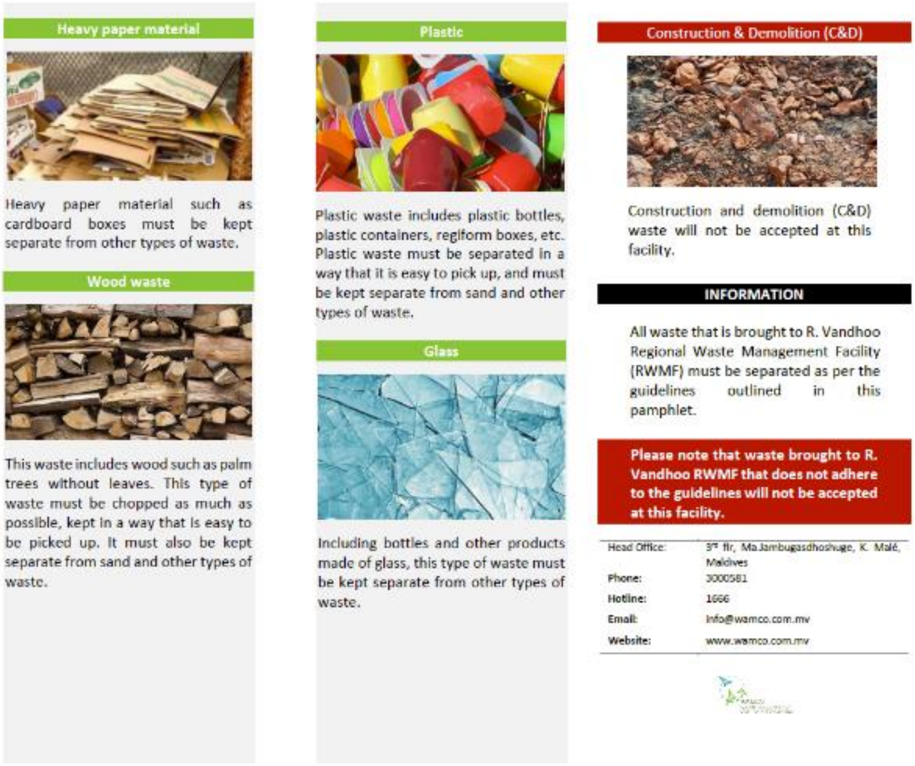
If tar, kept in closed containers, is brought to the facility, it will be accepted.

Metal

Products made of metal must be kept in a way that is easy to be picked up. It must also be kept separate from other types of waste.

Fiber

Products made of fiber such as mats, carpets, or resin products must be kept separate from sand and other waste types.



Heavy paper material

Heavy paper material such as cardboard boxes must be kept separate from other types of waste.

Wood waste

This waste includes wood such as palm trees without leaves. This type of waste must be chopped as much as possible, kept in a way that is easy to be picked up. It must also be kept separate from sand and other types of waste.

Plastic

Plastic waste includes plastic bottles, plastic containers, regiform boxes, etc. Plastic waste must be separated in a way that it is easy to pick up, and must be kept separate from sand and other types of waste.

Glass

Including bottles and other products made of glass, this type of waste must be kept separate from other types of waste.

Construction & Demolition (C&D)

Construction and demolition (C&D) waste will not be accepted at this facility.

INFORMATION

All waste that is brought to R. Vandhoo Regional Waste Management Facility (RWMF) must be separated as per the guidelines outlined in this pamphlet.

Please note that waste brought to R. Vandhoo RWMF that does not adhere to the guidelines will not be accepted at this facility.

Head Office:	3rd flr, Ma.Jambugasdhoshuge, K. Malé, Maldives
Phone:	3000581
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Website:	www.wamco.com.mv

ANNEX 6: AUTOCLAVE AND CONSUMABLE LIST FOR ZONE 4&5 HFS

MALDIVES CLEAN ENVIRONMENT PROJECT

MINISTRY OF ENVIRONMENT

Requirements of autoclaves and consumables for 3 months for Zone II, IV & V islands health facilities

#	Health Facility	Autoclave to be provided	chemical indicators	Bio hazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
	N. Atoll																
1	N. Manadhoo Hospital	100L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
2	N. Holhudhoo HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
3	N. Velidhoo HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
4	N. Kendikulhudhoo HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
5	N. Landhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
6	N. Henbadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
7	N. Miladhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
8	N. Kudafari HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
9	N. Lhohi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
10	N. Maafaru HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
11	N. Maalhendhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
12	N. Magoodhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150

#	Health Facility	Autoclave to be provided	chemical indicators	Biohazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
13	N. Fohdhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	R. Atoll																
14	R. Ungoofaaru Regional Hospital	200L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
15	R. Alifushi HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
16	R. Dhuvaafaru HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
17	R. Hulhudhuhfaaru HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
18	R. Inguraidhoo HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
19	R. Maduvari HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
20	R. Meedhoo HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
21	R. Innamaadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
22	R. Maakurath HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
23	R. Rasgetheemu HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
24	R. Rasmaadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150

#	Health Facility	Autoclave to be provided	chemical indicators	Bio hazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
25	R. Vaadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
26	R. Angolhitheemu HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
27	R. Fainu HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
28	R. Kinolhas HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	B. Atoll																
29	B. Eydhafushi Hospital	100L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
30	B. Thulhaadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
31	B. Dharavandhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
32	B. Hithaadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
33	B. Goidhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
34	B. Kendhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
35	B. Maalhos HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
36	B. Fehendhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150

#	Health Facility	Autoclave to be provided	chemical indicators	Biohazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
37	B. Fulhadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
38	B. Dhonfanu HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
39	B. Kamadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
40	B. Kihaadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
41	B. Kudarikilu HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	Lh. Atoll																
42	LH. Naifaru Hospital	100L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
43	Lh. Hinnavaru HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
44	Lh. Kurendhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
45	Lh. Olhuvelifushi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	M. Atoll																
46	M.Mulee Regional Hospital	200L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
47	M. Naalaafushi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150

#	Health Facility	Autoclave to be provided	chemical indicators	Bio hazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
48	M. Kolhufushi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
49	M. Mulaku HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
50	M. Dhiggaru HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
51	M. Madduvari HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
52	M. Raihmandhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
53	M. Veyvah HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	F. Atoll																
54	F. Atoll	100L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
55	F. Atoll hospital	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
56	F. Feali HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
57	F. Bilehdhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
58	F. Magoodhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
59	F. Dharaboodhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150

#	Health Facility	Autoclave to be provided	chemical indicators	Bio hazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
	DH. Atoll																
60	DH. Atoll Hospital	200L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
61	DH. Meedhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
62	DH. Bandidhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
63	DH. Hulhudheli HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
64	DH. Maaenboodhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
65	DH. Rinbidhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	Th. Atoll																
66	TH. Atoll Hospital	100L	1000	1500	10	10	10	10	25	25	2500	2500	50	20	20	300	300
67	TH. Vilufushi HC	100L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
68	TH. Thimarafushi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
69	TH. Guraidhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
70	TH. Hirilandhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150

#	Health Facility	Autoclave to be provided	chemical indicators	Bio hazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove , small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
71	TH. Kinbidhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
72	TH. Dhiyamigili HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
73	TH. Omadhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
74	TH. Madifushi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
75	TH. Gaadhihfushi HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
76	TH. Vandhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
77	TH. Kandoodhoo HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
78	TH. Buruni HC	60L	300	500	5	5	5	5	10	10	1000	1000	30	10	10	150	150
	L. Atoll																
79	L.Regional Hospital	Provided	1000	1500	Provided	Provided	Provided	Provided	25	25	2500	2500	50	Provided	Provided	Provided	Provided
80	L. Isdhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
81	L. Dhanbidhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
82	L. Maabaidhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided

#	Health Facility	Autoclave to be provided	chemical indicators	Bio hazard sticker 3x3 inch	Gum boot, size 36	Gum boot, size 37	Gum boot, size 38	Gum boot, size 39	Heavy duty rubber glove, small	Heavy Duty Rubber glove, medium	Steam autoclave Biohazard bag 40L (yellow)	Steam autoclave Biohazard bag 30L (yellow)	Foot operating bin, 30 L (Yellow)	Foot operating, wheeled dustbin 120L (yellow)	Foot operating wheeled dustbin 120L (black)	Sharp box paper, 5L (yellow)	Sharp box paper, 5L (yellow)
83	L. Mundoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
84	L. Fonadhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
85	L. Hithadhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
86	L. Kunahandhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
87	L. Maamendhoo HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided
88	L. Maavah HC	Provided	300	500	Provided	Provided	Provided	Provided	10	10	1000	1000	30	Provided	Provided	Provided	Provided

Type of Health Care Facility	Capacity	Qty	Remarks
Regional Hospital	200L	3	* Autoclaves delivered to Laamu Atoll islands
Hospital	100L	15	
Health Centres	60L	60	
	Total	**78**	

Consumables to be purchased for 3 months

#	Item	Requirement/qty per island	Total islands	Total Qty	Remarks
1	**Chemical Indicators**	1000	9	9,000	
		300	79	23,700	
2	**Bio hazard sticker 3x3 inch**				
	Hospitals	1500	9	13,500	
	Health Centers	500	79	39,500	
3	**Gum boot, size 36**				* Laamu excluded as the items been already provided by Ministry of Health
	Hospitals	10	8	80	
	Health Centers	5	70	350	
4	**Gum boot, size 37**				
	Hospitals	10	8	80	
	Health Centers	5	70	350	
5	**Gum boot, size 38**				
	Hospitals	10	8	80	
	Health Centers	5	70	350	
6	**Gum boot, size 39**				
	Hospitals	10	8	80	
	Health Centers	5	70	350	
7	**Heavy duty rubber glove, small**				
	Hospitals	25	9	225	
	Health Centers	10	79	790	
8	**Heavy Duty Rubber glove, medium**				

	Hospitals	25	9	225	
	Health Centers	10	79	790	
9	**Steam autoclave Biohazard bag40L (yellow)**				
	Hospitals	2500	9	22,500	
	Health Centers	1000	79	79,000	
10	**Steam autoclave Biohazard bag 30L (yellow)**				
	Hospitals	2500	9	22,500	
	Health Centers	1000	79	79,000	
11	**Foot operating bin, 30 L (Yellow)**				
	Hospitals	50	9	450	
	Health Centers	30	79	2370	
12	**Foot operating, wheeled dustbin 120L (yellow)**				* Laamu excluded as the items been already provided by Ministry of Health
	Hospitals	20	8	160	
	Health Centers	10	70	700	
13	**Foot operating wheeled dustbin 120L (black)**				
	Hospitals	20	8	160	
	Health Centers	10	70	700	
14	**Sharp box paper, 5L (yellow)**				
	Hospitals	300	8	2,400	
	Health Centers	150	70	10,500	
15	**Sharp box paper, 5L (yellow)**				
	Hospitals	300	8	2,400	
	Health Centers	150	70	10,500	
	Consumables for 3 months				
#	Item	Requirement/qty per island	Total islands	Total Qty	**Remarks**
1	Chemical Indicators	1000	9	9,000	
		300	79	23,700	
2	Bio hazard sticker 3x3 inch				
	Hospitals	1500	9	13,500	
	Health Centers	500	79	39,500	

3	Gum boot, size 36				* Laamu excluded as the items been already provided by Ministry of Health
	Hospitals	10	8	80	
	Health Centers	5	70	350	
4	Gum boot, size 37				
	Hospitals	10	8	80	
	Health Centers	5	70	350	
5	Gum boot, size 38				
	Hospitals	10	8	80	
	Health Centers	5	70	350	
6	Gum boot, size 39				
	Hospitals	10	8	80	
	Health Centers	5	70	350	
7	Heavy duty rubber glove, small				
	Hospitals	25	9	225	
	Health Centers	10	79	790	
8	Heavy Duty Rubber glove, medium				
	Hospitals	25	9	225	
	Health Centers	10	79	790	
9	**Steam autoclave Biohazard bag40L (yellow)**				
	Hospitals	2500	9	22,500	
	Health Centers	1000	79	79,000	
10	**Steam autoclave Biohazard bag 30L (yellow)**				
	Hospitals	2500	9	22,500	
	Health Centers	1000	79	79,000	
11	**Foot operating bin, 30 L (Yellow)**				
	Hospitals	50	9	450	
	Health Centers	30	79	2370	
12	**Foot operating, wheeled dustbin 120L (yellow)**				* Laamu excluded as the items been already provided by Ministry of Health
	Hospitals	20	8	160	
	Health Centers	10	70	700	

13	**Foot operating wheeled dustbin 120L (black)**				
	Hospitals	20	8	160	
	Health Centers	10	70	700	
14	**Sharp box paper, 5L (yellow)**				
	Hospitals	300	8	2,400	
	Health Centers	150	70	10,500	
15	**Sharp box paper, 5L (yellow)**				
	Hospitals	300	8	2,400	
	Health Centers	150	70	10,500	

ANNEX 7: SUMMARY OF HEALTH CARE FACILITIES IN THE MALDIVES AND HCWMP AND WASH.

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to day	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
HA	1	HA. Atoll Hospital Dhiddhoo	Primary Health Center	Grade 2	X	No Plan Done	✓	X	✓	✓							✓	Connected to sewer connection
	2	HA. Hoarafushi Health Centre	Primary Health Center	Grade 4	X	No Plan Done	✓	X				✓			Currently no data reported	✓	✓	Connected to sewer connection
	3	HA. Ihavandhoo Health Centre	Primary Health Center	Grade 3	Proposed Holding Facility (3 ICU beds)	No Plan Done	✓	X							Currently no data reported	✓	✓	Connected to sewer connection
	4	HA. Kelaa Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	5	HA. Baarah Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to Spectic Tank
	6	HA. Thuraakunu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓				✓			Currently no data reported	✓	✓	Connected to sewer connection
	7	HA. Uligamu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	8	HA. Molhadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	9	HA. Vashafaru Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	10	HA. Filladhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	11	HA. Maarandhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	12	HA. Thakandhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	13	HA. Muraidhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	14	HA. Utheemu Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
HDh	1	HDh. Kulhudhuffushi Regional Hospital	Secondary Hospital	Grade 3	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection
	2	HDh. Hanimaadhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓		✓			Currently no data reported	✓	✓	Connected to sewer connection
	3	HDh. Nolhivaram Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	4	HDh. Makunudhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	HDh. Neykurendhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	6	HDh. Vaikaradhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	7	HDh. Nolhivaranfaru Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	8	HDh. Kumundhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	9	HDh. Nellaidhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	10	HDh. Kurinbi Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	11	HDh. Hirimaradhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓		✓			Currently no data reported	✓	✓	Connected to Spectic Tank
	12	HDh. Naivaadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	13	HDh. Finey Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
Sh	1	Sh. Atoll Hospital Funadhoo	Secondary Hospital	Grade 2	Proposed Regional Isolation Facility	No Plan Done	✓	X	✓		✓				Currently no data reported	✓	✓	Connected to sewer connection
	2	Sh. Komandoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	Sh. Milandhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	Sh. Feydhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	5	Sh. Kanditheemu Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	6	Sh. Foakaidhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	7	Sh. Noomaraa Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	8	Sh. Goidhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	9	Sh. Feevah Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	10	Sh. Bilehfahi Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	11	Sh. Narudhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X						✓	Currently no data reported	✓	✓	Connected to Spectic Tank
	12	Sh. Marosho Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓		✓			Currently no data reported	✓	✓	Connected to Spectic Tank

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	13	Sh. Lhaimagu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	14	Sh. Maaungoodhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
N	1	N. Atoll Hospital Manadhoo	Secondary Hospital	Grade 2	X	No Plan Done	✓	X	✓	✓	✓				Currently no data reported	✓	✓	Connected to sewer connection
	2	N. Kendhikulhudhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	3	N. Holhudhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	N. Velidhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	5	N. Landhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X							Currently no data reported	✓	✓	Connected to sewer connection
	6	N. Maafaru Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X						✓	Currently no data reported	✓	✓	Connected to sewer connection
	7	N. Lhohi Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	8	N. Miladhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	9	N. Magoodhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	10	N. Henbadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	11	N. Kudafari Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	12	N. Maalhendhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	13	N. Fodhdhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
R	1	R. Ungoofaaru Regional Hospital	Secondary Hospital	Grade 3	X	No Plan Done	✓	✓	✓		✓				Currently no data reported	✓	✓	Connected to sewer connection
	2	R. Meedhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	R. Maduvvari Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	R. Hulhudhuffaaru Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	R. Alifushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	6	R. DhuvaafaruHealth Centre	Primary Health Center	Grade 4	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	7	R. Inguraidhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	8	R. Vaadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓				✓			Currently no data reported	✓	✓	Connected to sewer connection
	9	R. Rasgetheemu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	10	R. Maakurathu Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	11	R. Rasmaadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	12	R. Innamaadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	13	R. Fainu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	14	R. Kinolhas Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	15	R. Angolhitheemu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
B	1	B. Atoll Hospital Eydhafushi	Secondary Hospital	Grade 2	Proposed Regional Isolation Facility	No Plan Done	✓	X	✓		✓				Currently no data reported	✓	✓	Connected to sewer connection
	2	B. Dharavandhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	3	B. Thulhaadhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	B. Kendhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X							Currently no data reported	✓	✓	Connected to Spectic Tank
	5	B. Hithaadhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	6	B. Goidhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	7	B. Maalhos Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓			✓		Currently no data reported	✓	✓	Connected to Spectic Tank
	8	B. Kudarikilu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	9	B. Kamadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓		✓			Currently no data reported	✓	✓	Connected to Spectic Tank
	10	B. Dhonfanu Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection

Atoll		**Name of Hospital/Health Centre**	**Hospital/Health Center/Clinic**	**Grading until 2017**	**COVID19 Related Works**	**HCWM Plan**	**Level of**	**Disinfection Method**		**Final Disposal Method**					**Are any materials reused post treatment?**	**Staff trained on HCWM**	**Level of PPE usage in day to**	**Waste Water Management System in Place with treatment**
							Biomedic	**Autoclav**	**Chemical**	**On-site**	**On-site**	**Burried in**	**Disposed**	**Other**			**Marginally Satisfactory**	
	11	B. Kihaadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	12	B. Fehendhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓	✓				Currently no data reported	✓	✓	Connected to sewer connection
	13	B. Fulhadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓		✓			Currently no data reported	✓	✓	Connected to Spectic Tank
Lh	1	Lh. Atoll Hospital Naifaru	Secondary Hospital	Grade 2	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection
	2	Lh. Hinnavaru Health Centre	Primary Health Center	Grade 4	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	Lh. Kurendhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	4	Lh. Olhuvelifushi Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
K	1	Indhira Gandhi Memorial Hospital	Tertiary Hospital	Tertiary	Laboratory Testing of Samples	No Plan Done	✓	✓	✓					✓	Currently no data reported	✓	✓	Connected to sewer connection
	2	Hulhumale' Hospital	Tertiary Hospital	Tertiary	X	No Plan Done	✓	✓	✓		✓				Currently no data reported	✓	✓	Connected to sewer connection
	3	Villimale' Hospital	Branch of IGMH	Brach of IGMH	X	No Plan Done	✓	✓	✓						Currently no data reported	✓	✓	Connected to sewer connection
	4	Dharumavantha Hospital	Tertiary Hospital	Tertiary	Isolation Facility (ICU treatment)	No Plan Done	✓	✓	✓						Currently no data reported	✓		Connected to sewer connection
	5	ADK	Tertiary Hospital	Tertiary (Private)	Online Flu Clinic	No Plan Done	✓	✓	✓						Currently no data reported	✓		Connected to sewer connection
	6	Treetop	Tertiary Hospital	Tertiary (Private)	Isolation Facility (ICU treatment)	No Plan Done	✓	✓	✓						Currently no data reported	✓		
	7	Senahiya Military Hospital	Military Hospital	Military	Flu Clinic	No Plan Done	✓	✓	✓						Currently no data reported	✓		Connected to sewer connection
	8	K. Thulusdhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	9	K. Himmafushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	10	K. Maafushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓		✓			Currently no data reported	✓	✓	Connected to sewer connection
	11	K. Kaashidhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	12	K. Guraidhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to sewer connection
	13	K. Gaafaru Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	14	K. Dhiffushi Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X						✓	Currently no data reported	✓	✓	Connected to sewer connection
	15	K. Huraa Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	16	K. Gulhi Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	17	K. Male' Dhamanaveshi	Primary Health Center	-	X	No Plan Done	✓	X							Currently no data reported	✓	✓	Connected to sewer connection
AA	1	AA. Atoll Hospital Rasdhoo	Secondary Hospital	Grade 1	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection
	2	AA. Thoddoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	AA. Mathiveri Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X						✓	Currently no data reported	✓	✓	Connected to sewer connection
	4	AA. Ukulhas Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	AA. Bodufolhudhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	6	AA. Feridhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	7	AA. Maalhos Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	8	AA. Himandhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
Adh	1	Adh. Atoll Hospital Mahibadhoo	Secondary Hospital	Grade 1	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	2	Adh. Maamigili	Primary Health Center	Grade 4	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	3	Adh. Hangyaameedhoo	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	Adh. Omadhoo	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	Adh. Kunburudhoo	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	6	Adh. Mandhoo	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	7	Adh. Dhangethi	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	8	Adh. Dhigurah	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	9	Adh. Dhidhdhoo	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	10	Adh. Fenfushi	Primary Health Center	Grade 2	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
V	1	V. Atoll Hospital Felidhoo	Secondary Hospital	Grade 1	X	No Plan Done	✓	✓	✓						Currently no data reported	✓	✓	Connected to sewer connection
	2	V. Keyodhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	V. Fulidhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	V. Rakeedhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	5	V. Thinadhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
M	1	M. Muli Regional Hospital	Secondary Hospital	Grade 1	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection
	2	M. Mulaku Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	3	M. Dhiggaru Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	M. Kolhufushi Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	M. Maduvaree Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	6	M. Naalaafushi Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	7	M. Raiymandhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓		✓			Currently no data reported	✓	✓	Connected to Spectic Tank
	8	M. Veyvah Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓				✓			Currently no data reported	✓	✓	Connected to sewer connection
F	1	F. Atoll Hospital Nilandhoo	Secondary Hospital	Grade 1	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection
	2	F. Feeali Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	3	F. Bileydhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	F. Magoodhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	F. Dharanboodhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to Spectic Tank

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
Dh	1	Dh. Atoll Hospital kudahuvadhoo	Secondary Hospital	Grade 1	X	No Plan Done	✓	✓	✓					✓	Currently no data reported	✓	✓	Connected to sewer connection
	2	Dh. Meedhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓				✓	Currently no data reported	✓	✓	Connected to sewer connection
	3	Dh. Bandidhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓		✓				✓	Currently no data reported	✓	✓	Connected to sewer connection
	4	Dh. Rinbudhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	5	Dh. Hulhudheli Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓				✓	Currently no data reported	✓	✓	Connected to sewer connection
	6	Dh. Maaenboodhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓				✓	Currently no data reported	✓	✓	Connected to sewer connection
Th	1	Th. Atoll Hospital Veymandoo	Secondary Hospital	Grade 2	X	No Plan Done	✓	✓	✓	✓	✓				Currently no data reported	✓	✓	Connected to Spectic Tank
	2	Th. Vilufushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	Th. Guraidhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	Th. Hirilandhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	Th. Thimarafushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	6	Th. Madifushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	7	Th. Kinbidhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	8	Th. Buruni Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	9	Th. Dhiyamigili Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	10	Th. Kandoodhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	11	Th. Vandhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	12	Th. Gaadhifushi Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	13	Th. Omadhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to sewer connection
L	1	L. Gan Regional Hospital	Secondary Hospital	Grade 3	Proposed Regional Isolation Facility	No Plan Done	✓	✓	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection

Atoll	Name of Hospital/Health Centre		Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	2	L. Isdhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	3	L. Fonadhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	L. Maavah Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓						✓	Currently no data reported	✓	✓	Connected to Spectic Tank
	5	L. Maabaidhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to sewer connection
	6	L. Hithadhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to Spectic Tank
	7	L. Kunahandhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	8	L. Maamendhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to Spectic Tank
	9	L. Dhanbidhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓		✓					Currently no data reported	✓	✓	Connected to sewer connection
	10	L. Mundoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	✓							Currently no data reported	✓	✓	Connected to Spectic Tank
GA	1	GA. Atoll Hospital Villingili	Secondary Hospital	Grade 2	Proposed Regional Isolation Facility	No Plan Done	✓	✓	✓		✓				Currently no data reported	✓	✓	Connected to sewer connection
	2	GA. Dhaandhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	3	GA. Kolamaafushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓	✓				Currently no data reported	✓	✓	Connected to Spectic Tank
	4	GA. Dhevvadhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	5	GA. Gemanafushi Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	6	GA. Maamendhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	7	GA. Kondey Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X							Currently no data reported	✓	✓	Connected to sewer connection
	8	GA. Nilandhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	9	GA. Kandhuhulhudhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
Gdh	1	Dr. Abdhul Samad Memorial Hospital Thinadhoo	Secondary Hospital	Grade 3	X	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to sewer connection
	2	Gdh. Gadhdhoo Health Centre	Primary Health Center	Grade 4	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection

Atoll		Name of Hospital/Health Centre	Hospital/Health Center/Clinic	Grading until 2017	COVID19 Related Works	HCWM Plan	Level of	Disinfection Method		Final Disposal Method					Are any materials reused post treatment?	Staff trained on HCWM	Level of PPE usage in day to	Waste Water Management System in Place with treatment
							Biomedic	Autoclav	Chemical	On-site	On-site	Burried in	Disposed	Other			Marginally Satisfactory	
	3	Gdh. Faresmaathodhaa Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	4	Gdh. Madaveli Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X			✓				Currently no data reported	✓	✓	Connected to Spectic Tank
	5	Gdh. Rathafandhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	6	Gdh. Vaadhoo Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
	7	Gdh. Fiyoaree Health Centre	Primary Health Center	Grade 2	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	8	Gdh. Hoandedhoo Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to Spectic Tank
	9	Gdh. Nadellaa Health Centre	Primary Health Center	Grade 1	X	No Plan Done	✓	X		✓					Currently no data reported	✓	✓	Connected to sewer connection
Gn	1	Gn. Atoll Hospital Fuahmulaku	Secondary Hospital	Grade 2	Proposed Holding Facility (3 ICU beds)	No Plan Done	✓	X	✓	✓					Currently no data reported	✓	✓	Connected to Spectic Tank
S	1	S. Hithadhoo Regional Hospital	Secondary Hospital	Grade 3	Proposed Regional Isolation Facility	No Plan Done	✓	X	✓				✓		Currently no data reported	✓	✓	Connected to Spectic Tank
	2	S. Feydhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X					✓		Currently no data reported	✓	✓	Connected to sewer connection
	3	S. Maradhoo Health Centre	Primary Health Center	Grade 3	X	No Plan Done	✓	X		✓				✓	Currently no data reported	✓	✓	Connected to sewer connection
	4	S. Hulhumeedhoo Health Centre	Primary Health Center	Grade 4	X	No Plan Done	✓	✓			✓				Currently no data reported	✓	✓	Connected to sewer connection
	5	S. MaradhooFeydhoo Health Centre	Primary Health Center	-	X	No Plan Done	✓	X							Currently no data reported	✓	✓	Connected to Spectic Tank

ANNEX 8: SCREENING FORM FOR POTENTIAL ENVIRONMENTAL AND SOCIAL ISSUES

This form is to be used by the Project Management Unit (PMU) to screen for the potential environmental and social risks and impacts of a proposed subproject. It will help the PMU in identifying the relevant Environmental and Social Standards (ESS), establishing an appropriate E&S risk rating for these subprojects and specifying the type of environmental and social assessment required, including specific instruments/plans. Use of this form will allow the PMU to form an initial view of the potential risks and impacts of a subproject***. It is not a substitute for project-specific E&S assessments or specific mitigation plans.***

A note on *Considerations and Tools for E&S Screening and Risk Rating* is included in this Annex to assist the process.

Subproject Name	
Subproject Location	
Subproject Proponent	
Estimated Investment	
Start/Completion Date	

Questions	**Answer**		**ESS relevance**	**Due diligence / Actions**
	Yes	no		
Does the subproject involve civil works including new construction, expansion, upgrading or rehabilitation of healthcare facilities and/or waste management facilities?			ESS1	ESIA/ESMP, SEP
Does the subproject involve land acquisition and/or restrictions on land use?			ESS5	*Sub-project not eligible for support under this Project*
Does the subproject involve acquisition of assets for quarantine, isolation or medical treatment purposes?			ESS5	
Is the subproject associated with any external waste management facilities such as a sanitary landfill, incinerator, or wastewater treatment plant for healthcare waste disposal?			ESS3	ESIA/ESMP, SEP
Is there a sound regulatory framework and institutional capacity in place for healthcare facility infection control and healthcare waste management?			ESS1	ESIA/ESMP, SEP
Does the subproject have an adequate system in place (capacity, processes and management) to address waste?				
Does the subproject involve recruitment of workers including direct, contracted, primary supply, and/or community workers?			ESS2	LMP, SEP
Does the subproject have appropriate OHS procedures in place, and an adequate supply of PPE (where necessary)?				

Does the subproject have a GRM in place, to which all workers have access, designed to respond quickly and effectively?				
Does the subproject involve transboundary transportation (including, potentially infected specimens may be transported from healthcare facilities to testing laboratories, and transboundary) of specimen, samples, infectious and hazardous materials?			ESS3	ESIA/ESMP, SEP
Does the subproject involve use of security or military personnel during construction and/or operation of healthcare facilities and related activities?			ESS4	*Sub-project not eligible for support under this Project*
Is the subproject located within or in the vicinity of any ecologically sensitive areas?			ESS6	ESIA/ESMP, SEP
Are there any indigenous groups (meeting specified ESS7 criteria) present in the subproject area and are they likely to be affected by the proposed subproject negatively or positively?			ESS7	*Sub-project not eligible for support under this Project*
Is the subproject located within or in the vicinity of any known cultural heritage sites?			ESS8	ESIA/ESMP, SEP
Does the project area present considerable Gender-Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) risk?			ESS1	ESIA/ESMP, SEP
Is there any territorial dispute between two or more countries in the subproject and its ancillary aspects and related activities?			*OP7.60 Projects in Disputed Areas*	Governments concerned agree
Will the subproject and related activities involve the use or potential pollution of, or be located in international waterways[4]?			*OP7.50 Projects on International Waterways*	Notification (or exceptions)

Conclusions:

1. **Proposed Environmental and Social Risk Ratings (High, Substantial, Moderate or Low). Provide Justifications.**

2. **Proposed E&S Management Plans/ Instruments.**

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[4] International waterways include any river, canal, lake or similar body of water that forms a boundary between, or any river or surface water that flows through two or more states.

INFECTION CONTROL: CONSIDERATIONS AND TOOLS TO ASSIST IN E&S SCREENING AND RISK RATING:

In the context of global COVID-19 outbreak, many countries have adopted a containment strategy that includes extensive testing, quarantine, isolation and treatment either in a medical facility or at home.

A COVID-19 response project may include the following activities:

- construction of and/or operational support to medical laboratories, quarantine and isolation centers at multiple locations and in different forms, and infection treatment centers in existing healthcare facilities
- procurement and delivery of medical supplies, equipment and materials, such as reagents, chemicals, and Personal Protective Equipment (PPEs)
- transportation of potentially infected specimens from healthcare facilities to testing laboratories
- construction, expansion or enhancing healthcare waste and wastewater facilities
- training of medical workers and volunteers
- community engagement and communication

1. Screening E&S Risks of Medical laboratories

Many COVID-19 projects include capacity building and operational support to existing medical laboratories. It is important that such laboratories have in place procedures relevant to appropriate biosafety practices. WHO advises that non-propagative diagnostic work can be conducted in a Biosafety Level 2 (BSL-2) laboratory, while propagative work should be conducted at a BSL-3 laboratory. Patient specimens should be transported as Category B infectious substance (UN3373), while viral cultures or isolates should be transported as Category A "Infectious substance, affecting humans" (UN2814).The process for assessing the biosafety level of a medical laboratory (including management of the laboratory operations and the transportation of specimens) should consider both biosafety and general safety risks. OHS of workers in the laboratory and potential community exposure to the virus should be considered.

The following documents provide further guidance on screening of the E&S risks associated with a medical laboratory. They also provide information for assessing and managing the risks.

- WHO; Prioritized Laboratory Testing Strategy According to 4Cs Transmission Scenarios
- WHO Covid-19 Technical Guidance: Laboratory testing for 2019-nCoV in humans:
- WHO Laboratory Biosafety Manual, 3rd edition
- USCDC, EPA, DOT, *et al*; Managing Solid Waste Contaminated with a Category A Infectious Substance (August 2019)

2. Screening E&S Risks of Quarantine and Isolation Centers

According to WHO:

- **Quarantine** is the restriction of activities of or the separation of persons *who are not ill but who may have been exposed to* an infectious agent or disease, with the objective of monitoring their symptoms and ensuring the early detection of cases
- **Isolation** is the separation of *ill or infected persons* from others to prevent the spread of infection or contamination.

Many COVID-19 projects include construction, renovation and equipping of quarantine and isolation centers at Point of Entry (POE), in urban and in remote areas. There may also be circumstances where tents are used for quarantine or isolation. Public or private facilities such as a stadium or hotel may also be acquired for this purpose.

In screening for E&S risks associated with quarantine and isolation, the following may be considered:

- contextual risks such as conflicts and presence or influx of refugees, migrant labor etc
- construction and decommissioning related risks
- land or asset acquisition
- use of security personnel or military forces
- availability of minimum requirements of food, fuel, water, hygiene
- whether infection prevention and control, and monitoring of quarantined persons can be carried out effectively
- whether adequate systems are in place for waste and wastewater management

The following documents provide further guidance regarding quarantine of persons.

- WHO; Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19)
- WHO; Key considerations for repatriation and quarantine of travelers in relation to the outbreak of novel coronavirus 2019-nCoV
- WHO; Preparedness, prevention and control of coronavirus disease (COVID-19) for refugees and migrants in non-camp settings

3. SCREENING E&S RISKS OF TREATMENT CENTERS

WHO has published a manual that provides recommendations, technical guidance, standards and minimum requirements for setting up and operating severe acute respiratory infection (SARI) treatment centers in low- and middle-income countries and limited-resource settings, including the standards needed to repurpose an existing building into a SARI treatment center, and specifically for acute respiratory infections that have the potential for rapid spread and may cause epidemics or pandemics.

- WHO Severe Acute Respiratory Infections Treatment Centre
- WHO Covid-19 Technical Guidance: Infection prevention and control / WASH
- WBG EHS Guidelines for Healthcare Facilities

4. SCREENING E&S RISKS RELATING TO LABOR AND WORKING CONDITIONS

A COVID-19 project may include different types of workers. In addition to regular medical workers and laboratory workers who would normally be classified as direct workers, the project may include contracted workers to carry out construction and community workers (such as community health volunteers) to provide clinical support, contact tracing, and data collection, etc. The size of the workforce engaged could be considerable. Risks for such a workforce will range from occupational health and safety to types of contracts and terms and conditions of employment. Further details relevant to labor and working conditions for COVID-19 projects are discussed in the Labor Management Procedure prepared for the Project.

ANNEX 9: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR IMPLEMENTATION OF COVID-19 RESPONSE SUB-PROJECTS.

The following detailed Environmental and Social Management Plan (ESMP) has been developed in line with guidance provided in the following documents and presents best practice measures to be incorporated into the various stages of project implementation in order to ensure and mitigate associated environmental and social impacts of related to the following project activities:

- Expansion and upgradation work in existing HCFs to make room for isolation and quarantine facilities and ICU units as emergency response.
- Installation of prefabricated isolation units
- Establishment of new quarantine centers and small-scale infrastructure, such as waste storage areas, equipment storage areas.
- Operation of HCFs and quarantine facilities.

The Infection Control and Health Care Waste Management Plan presented in the ESMF is considered part of this ESMP.

The ESMP makes reference to pertaining E&S instruments as required by ESF, including the LMP.

The guidance documents presented below can be referred to for further in-depth details for design recommendations and detailed measures in terms of equipment selection and operational guidance for HCFs. Additional pictorial guidance presented in Annex 29 and specific guidance on Management of infection among labor in construction sites is presented in detail in Annex 32.

All relevant internal best practice guidelines issues by the World Health Organization (WHO) and national guidelines issued by the Health Protection Agency (HPA) and Ministry of Health (MoH) of the Maldives have been referred to in all respective sections in the ESMP itself.

Guidelines Used:

- Guidelines for Environmental Infection Control in Health-Care Facilities Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC) U.S. Department of Health and Human Services Centers for Disease Control and Prevention (CDC)-Updated: July 2019.
- Guidelines for Design and Construction of Hospital and Health Care Facilities- The American Institute of Architects Academy of Architecture for Health the Facility Guidelines Institute With assistance from the U.S. Department of Health and Human Services: 2018
    - *(Further guidance is available in the form of the Guidelines for Design and Construction of Residential Health, Care, and Support Facilities- 2018 and Guidelines for Design and Construction of Outpatient Facilitie-2018)*
- Infection prevention and control Infection prevention and control (IPC) practices in communities and health facilities, The World Health Organization: March 2020 Presented in Annex 11
- Safe management of wastes from health-care activities-Second edition. The World Health Organization: 2014
- Safe management of wastes from health-care activities A summary. The World Health Organization: 2017
- Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19) Interim guidance 27 February 2020
- Water, sanitation, hygiene, and waste management for the COVID-19 virus Interim guidance 19 March 2020
- Mainstreaming Environmental Management in the Health Care Sector Implementation Experience in India & A Toolkit for Managers-VOLUME I & II- The World Bank: 2012
- World Bank Group General Environmental Health and Safety Guidelines:2007
- World Bank Group Environmental, Health, and Safety Guidelines for Health Care Facilities: 2007

- Coronavirus disease (COVID-19) advice for the public, World Health Organization, https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public, Accessed on 20 April 2020
- World Bank Group, 'ESF/Safeguards Interim Note: COVID-19 Considerations in Construction/Civil Works Project,' April 7, 2020
- UNICEF — COVID-19 response: Considerations for Children and Adults with Disabilities, http://www.internationaldisabilityalliance.org/sites/default/files/covid-19_response_considerations_for_people_with_disabilities_190320.pdf, Accessed on 19 April 202

ESMP MATRIX COVERING THE DESIGN, CONSTRUCTION, OPERATION AND DECOMISSIONING PHASES OF HCFs

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
Design Stage						
1.	**Location of HCFs and sites for project associated works- Establishment of Quarantine centers and isolation units within existing HCFs**	▪ All upgradation work and indoor expansion and remodeling work associated with the establishment of Quarantine areas and ICUs will be limited to the footprint of existing HCFs. ▪ Consultations with relevant stakeholders, including local communities in the vicinity of these HCFs, will be organized to seek their feedback on the location of the HCFs, the quarantine facilities and isolation units. ▪ Civil works requiring expansion beyond the existing facility, involving new construction on a virgin site, or any form of land acquisition, will not be supported under the project.	At the site selection phase	No Associated Cost	MoH and HCF Management	PMU/MoH, EPA,IC
2.	**Incorporation of Environmental Design Recommendations**	▪ The engineering design of the project should take the following into consideration: ○ the connection of the building or infrastructure to the potable water system and the capacity of the existing water distribution network, or the need to establish a water supply system for the building (well, storage tank, desalination system or station, etc.); ○ the connection to the sewerage network and the need for capacity expansion for receiving collectors or the need for a wastewater treatment system for the building (septic tank, infiltration ditch); ○ the treatment of wastewater from cafeterias and restaurants before being discharged to the sewerage networks or the wastewater treatment system; ○ the adequate management of runoff and the facilities for its recollection and evacuation, having in mind the existing downstream systems;	During design preparation	Design Cost	MoH and HCF Management	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		○ the systems of recollection, storage and transportation of solid wastes generated in the building, incorporating the structures for separation and recycling; ○ appropriate access systems for pedestrians, cars and bicycles, and in city island local traffic. ○ appropriate access system for children and handicapped people, including ramps for wheelchairs and other requirements as per universal access norms; ○ the need to integrate building design with architectonic characteristics of the surrounding neighborhood; ○ avoiding the use of materials such as wood from unlicensed sources, lead-based paints, asbestos. ○ ensuring structural safety ○ clearly demarcating exit and entry ways and ensuring adequate light and ventilation via natural sources where possible, in the design.				
3.	**Functional layout and engineering control for nosocomial infection**	■ The following minimum design requirements should be taken into consideration during facility layout and design to ensure infection control. ○ Installation guidelines for sheetrock Management of water-related infections in HCFs can be reduced by taking special care of the water supply such as supplemental treatment of water with heat and/or chemicals. ▪ Ensure appropriate wastewater treatment infrastructure is built into the design or existing facilities are augmented to handle and additional load of waste water. ○ Location of sinks and dispensers for handwashing products and hand hygiene products ○ Types of faucets (e.g., aerated vs. non-aerated) ○ Air-handling systems engineered for optimal performance, easy maintenance, and repair ▪ Heating, Ventilation and air conditioning (HVAC) systems in health-care facilities should be designed to maintain the indoor air temperature and humidity control odors, remove contaminated air, facilitate air-handling requirements to protect susceptible patients and	During design preparation	Design Cost	MoH and HCF Management	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		minimize the risk for transmission of airborne pathogens from infected patients. ▪ Decreased performance of health-care facility HVAC systems, filter inefficiencies, improper installation, and poor maintenance can contribute to the spread of health care–associated airborne infections so the systems should be evaluated in existing HCWFs and augmented as required via design. ▪ Construction design and function considerations for environmental infection control are detailed in the guidance documents (as referred above). o Air Change per Hour (ACH) and pressure differentials to accommodate special patient-care areas o The design should incorporate adequate designated areas for the storage of health care waste management. ▪ Where required appropriate specific areas for establishment of autoclaves and other on-site disposal facilities well away from patient care areas. ▪ Location of fixed sharps containers ▪ Types of surface finishes (e.g., porous vs. non-porous) o Well-caulked walls with minimal seams o Location of adequate storage and supply areas o Appropriate location of medicine preparations areas (e.g., >3 ft. from a sink) o Appropriate location and type of ice machines and water dispensers (e.g., preferably ice dispensers rather than ice bins) o Appropriate materials for sinks and wall coverings o Appropriate traffic flow (e.g., no “dirty” movement through “clean” areas) o Isolation rooms with anterooms as appropriate o Appropriate flooring (e.g., seamless floors in dialysis units) o Sensible use carpeting (e.g., avoiding use of carpeting in special care areas or areas likely to become wet)* o Convenient location of soiled utility areas o Properly engineered areas for linen services and solid waste management				

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		○ Location of main generator to minimize the risk of system failure from flooding or another emergency				
4.	**Incorporation of Green Design**	▪ The architectural and engineering designs of projects should incorporate and reinforce the criteria of environmentally friendly buildings. ○ This should take place during the conceptualization stage and should include: ○ solar panels to satisfy totally or partially the electricity needs (as the project will finance potential installation of solar units and battery storage (BESS systems)- Annex 18 should be used as minimal guidance for works associated; ○ rainwater storage for the irrigation of gardens and green zones; ○ recycling of wastewater for irrigation; ○ separation of the potable water systems from irrigation systems; ○ maximizing natural light in order to minimize artificial light needs; ○ planting of native species in gardens and green areas; ○ natural ventilation systems, minimizing the necessities of air-conditioning where appropriate	During design preparation	Design Cost	MoH and HCF Management	PMU/MoH, EPA,IC
5.	**Application of principles of universal access in HCF design**	▪ Seek input from local community and other relevant stakeholders, including people with disabilities, women, and elders, Disabled People's Organizations (DPOs), etc., on the HCF design ▪ Incorporate principles of universal access for groups of higher sensitivity or vulnerable (potentially elderly, those with preexisting conditions, or the very young) ○ HCF to be built at ground level, where appropriate, or at least have one entrance ramp and level internal design ○ Chairs placed for use by people who cannot stand while transacting business. ○ Enough open space in the waiting areas for wheelchair users, luggage, etc. ○ Doors sufficiently wide for wheelchair users and people who assist patients. ○ Directional signage that is visible, easily understood and clearly marked, including with pictographs, for reception desk, bathrooms, doctor's offices, etc ○ Accessible, spacious toilets and dressing rooms	During design preparation	Design Cost	MoH and HCF Management	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		Universal design will be integrated into the procurement process by establishing procedures which mandate universal design concepts				
6.	**Design of facility should reflect specific treatment requirements, including triage, isolation or quarantine**	▪ The design set up and management of will take into account the advice provided by WHO guidance for Severe Acute Respiratory Infections Treatment Center. ▪ Hand washing facilities should be provided at the entrances to health care facilities in line with WHO Recommendations to Member States to Improve Hygiene Practices. ▪ Isolation rooms should be provided and used at medical facilities for patients with possible or confirmed COVID-19. ▪ Isolation rooms should: o be single rooms with attached bathrooms (or with a dedicated commode); o ideally be under negative pressure (neutral pressure may be used, but positive pressure rooms should be avoided) o be sited away from busy areas or close to vulnerable or high-risk patients, to minimize chances of infection spread; o have dedicated equipment (for example blood pressure machine, peak flow meter and stethoscope o have signs on doors to control entry to the room, with the door kept closed; o have an anteroom for staff to put on and take off PPE and to wash/decontaminate before and after providing treatment.	During design preparation	Design Cost	MoH and HCF Management	PMU/MoH, EPA,IC
7.	**Design to consider mortuary arrangements to ensure no impacts arise in relation to insufficient capacity or existing facilities and potential spread of infection.**	▪ Include adequate mortuary arrangements in the design ▪ See WHO Infection Prevention and Control for the safe management of a dead body in the context of COVID-19)	During design preparation	Design Cost	MoH and HCF Management	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
8.	**Environmental Management Plan (ESMP)**	▪ A site specific. ESMP and relevant guidelines will be included as a Special Condition in the Bid Document; and ESMP should be attached to contract to form part of the contract requirement. ▪ The ESMP will also be equally applicable to sub-contractors including nominated sub-contractors if any. The Contractor will be responsible for the compliance with the requirements of the ESMP. With the assistance of the "Engineer" on behalf of the Employer the Project Proponent (PP) will monitor the compliance of the ESMP by the Contractor. ▪ The bidders are advised to carefully consider the ESMP requirements during construction stage when preparing the bid and pricing the items of work. The prescriptions and clauses detailed in the ESMP are integral components of the specifications for relevant item of work unless separate items are included in the Bill of Quantities. Thus, separate payments will not be made in respect of compliance with the ESMP. ▪ The ESMP will be consulted with the relevant stakeholders, and disclosed to the general public ▪ In case the Contractor or the sub-contractor/s fails to implement the ESMP recommendations, the Engineer will inform them in writing. After informing in writing to the Contractor, the Engineer will take whatever actions it is deemed necessary to ensure that the ESMP is properly implemented. ▪ The Contractor through an Appointed Environmental Officer (AEO) shall assist the "Engineer" to conduct his duties as required in the ESMP implementation by; (a) maintaining up to date records on actions taken by the Contractor with regard to the implementation of ESMP recommendations (b) through timely submission of reports, information and data to the Employer through the Engineer, (c) via participating in the meetings conveyed by the Engineer or any relevant line agency and (d) any other assistance requested by the "Engineer".	Prior to contractor mobilization on the ground	Preparation cost incurred by MOH; implementation cost embedded in engineering cost of contractor. To be provided as a provisional sum and/or as part of the engineering cost	To be provided as a provisional sum and/or as part of the engineering cost	To be provided as a provisional sum and/or as part of the engineering cost
Pre-Construction/Site preparation phase						

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
9.	**Site Access Closure to avoid risk to public and HCWs from construction site.**	▪ All public access to the site via adequate fencing and signage which prohibit public access completely, in order to avoid risk to the public. ▪ The site entrance will include adequate signage indicating the details of the proposed subproject, implementing agencies etc as well as safety signage to keep public away. ▪ A fence shall be erected to cover the entire perimeter of the facility using cost effective fence materials consisting of chain link fence fabric, concrete post, etc. as specified in the Technical Specifications in order to ensure, animals and public are unable to access the site. o To avoid land disturbance and movement, the fence shall generally follow the contour of the ground. o Grading shall be performed where necessary to provide a neat appearance	Prior to commencing works on site	Engineering Cost	Contractor	PMU/MoH, EPA,IC
10.	**Material Sourcing leading to an impact on Natural Resource supplies cumulatively.**	▪ The contractor is required to ensure that all construction materials, including gravel, sand, earth as well as other quarry material for construction is sourced from licensed sources as construction material is internationally sourced in the Maldives. ▪ Sourcing of any material from protected areas and/or designated natural areas, such as earth is strictly prohibited. ▪ The contractor is required to ensure all material is sources as per import laws of the Maldives.	Prior to commencing works on site	Engineering Cost	Contractor	PMU/MoH, EPA,IC
11.	**Work Site Management to ensure minimal accidents on site.**	▪ The contractor will be required to identify an area onsite to store construction materials and equipment which should be approved by the engineer and demarcated for material storage as per the site plan. ▪ Parking, repairing vehicles, machinery and equipment shall be done stationed only at the work site and/or in any other designated areas by the engineer. ▪ The contractor should provide instruction and advice should be given to drivers and operators (both companies owned and hired) to park vehicles and store equipment at this designated area.	Prior to commencing works on site and During construction	Engineering Cost	Contractor	PMU/MoH, EPA,IC
12.	**Potential capacity of spread of infection due to introduction of workers to island communities. Specifically, workers**	▪ Where possible all attempts must be taken to use labor already present in the islands. ▪ In addition, the following measures in reference to the LMP must be undertaken to mitigate and manage these potential impacts.	Prior to commencing works on site	Engineering Cost	Contractor	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
	coming from infected areas, infected workers may lead to co-workers becoming infected and on islands there is the high risk of introducing infection into community/general public	○ Consider ways to minimize/control movement in and out of construction areas/site. ○ If workers are accommodated on site require them to minimize contact with people outside the construction area/site or prohibit them from leaving the area/site for the duration of their contract ○ Implement procedures to confirm workers are fit for work before they start work, paying special to workers with underlying health issues or who may be otherwise at risk ○ Check and record temperatures of workers and other people entering the construction area/site or require self-reporting prior to or on entering ○ Provide daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures. ○ Require workers to self-monitor for possible symptoms (fever, cough) and to report to their supervisor if they have symptoms or are feeling unwell ○ Prevent a worker from an affected area or who has been in contact with an infected person from entering the construction area/site for 14 days ▪ Preventing a sick worker from entering the construction area/site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days				
13.	**Labor Camps and managing impacts associated with labor and communities**	▪ Due to safety and public health issues prevalent at the site, it should be assessed if labor camps may be established on site from the relevant Island Councils. ▪ Resting facilities and the site office will be located closer to the site entrance and away from the waste mound. ▪ Separate resting and sanitary facilities for both men and women laborers. ▪ In terms of labor camps, the following measures will be adhered to, where relevant: ○ The location, layout and basic facility provision of labor camps to be set up will be submitted to the Engineer prior to establishment. ○ The establishment of labor camps 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.	Prior to commencing works on site and During construction	Engineering Cost	Contractor	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ All temporary accommodation will be established and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. ▪ The sewage system for the camp, if not available, will be planned and implemented with concurrence from the Local Public Health Officer (PHI) and Island Council.				
14.	**Labor Training and Code of Conduct**	▪ The contractor is required to develop a labor code of conduct and translate it into local languages upon clearance from the Engineer. The code of conduct must be made available to all staff and displayed in the work site in local languages. *In some instances, the code of conduct will need to be translated into migrant worker's language (e.g., Bangla)* ▪ Labor awareness programs to educate the workers about the code of conduct, general conduct, the Environmental and Social Management Plan, Infection Control Norms and use of PPE, Occupational Health and Safety, contingency plan or other such measures for to address COVID-19 prevention and/or outbreak at the site, etc., will be conducted throughout the contract period as agreed in the contractual documents in line with the sub-project specific ESMP. *(Additional requirements relating to infection control relating to COVID-19) is presented below).* ▪ No labor under the age of 18 can be hired for work under this contract. ▪ All migrant workers will have valid work permits and all copies of labor identify cards issued by the GoM that clearly indicates the Date of Birth of *workers* will be photocopied and recorded for routine inspection by the project implementing agency.	Prior to commencing works on site and During construction	Engineering Cost	Contractor	PMU/MoH, EPA,IC
15.	**Special Infection Control During Covid-19**	▪ Contingency plans (or if relevant, extension of project emergency and preparedness plan or a standalone procedure for addressing COVID-19), will be prepared with arrangements for accommodation, care and treatment for: Workers self-isolating; Workers displaying symptoms; Getting adequate supplies of water, food and supplies. Inputs will be sought from local public health authority on the contingency plan (or other such measures for to address COVID-19 prevention and/or outbreak at the site). The contingency plan, detailed in writing with measures to be taken to address the risks, will be shared with the Project, either directly or through the Supervising Engineer.	Prior to commencing works on site and During construction	Engineering Cost	Contractor/HCF	PMU/HCF Management/MoH, EPA, HPA

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ The project, either directly or through the Supervising Engineer, may provide support in identifying appropriate mitigation measures to address any risks associated with COVID -19, particularly where these will involve interface with local services, in particular health and emergency services. ▪ For Workers working inside HCFs ○ Medical mask and gloves will be provided ○ All workers must maintain spatial distance of at least 1 m from HCWs. ○ Overseas, international and transient workers should adhere to national requirements and guidelines with respect to COVID-19 when travelling to or from worksites ▪ At all work sites the following has to be undertaken ○ Training should be conducted for all workers and staff on site on the signs and symptoms of COVID-19, how it is spread, how to protect themselves (including regular handwashing and social distancing) and what to do if they or other people have symptoms (for further information see WHO COVID-19 advice for the public). ○ Placing posters and signs around the site, with images and text in local languages. ○ Ensuring handwashing facilities supplied with soap, disposable paper towels and closed waste bins exist at key places throughout site, including at entrances/exits to work areas; where there is a toilet, canteen or food distribution, or provision of drinking water; in worker accommodation; at waste stations; at stores; and in common spaces. ○ Where handwashing facilities do not exist or are not adequate, arrangements should be made to set them up. Alcohol based sanitizer (if available, 60-95% alcohol) can also be used. ○ Review worker accommodations and assess them in light of the requirements set out in above. ○ Setting aside part of worker accommodation for precautionary self-quarantine as well as more formal isolation of staff who may be infected (see paragraph (f)).				

	Activities and Associated Environmental and Social Impact	**Protection and preventive measures**	**Timeline**	**Mitigation cost**	**Responsibility**	
					Implementation	**Monitoring**
		○ Continuing with the usual safety trainings, adding COVID-19 specific considerations. Training should include proper use of normal PPE. While as of the date of this note, general advice is that construction workers do not require COVID-19 specific PPE, this should be kept under review (for further information see *Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) Interim guidance issued on 19 March 2020 by WHO*). ○ Reviewing work methods to reduce use of construction PPE, in case supplies become scarce or the PPE is needed for medical workers or cleaners. ▪ This could include, e.g. trying to reduce the need for dust masks by checking that water sprinkling systems are in good working order and are maintained or reducing the speed limit for haul trucks. ○ Arranging (where possible) for work breaks to be taken in outdoor areas within the site. ○ Distance canteen layout with 1m distance in seating and mealtime phasing should be conducted to allow for social distancing and phasing access to and/or temporarily restricting access to leisure facilities that may exist on site. ■ The abovementioned preparation measures will be communicated not only to the workforce but also the local community, to reassure them that the movement of staff is controlled, and to ensure that stigma or discrimination is reduced in the event of an outbreak				
16.	**Removal of palm trees for expansion of existing HCFs and areas selected to be converted to quarantine facilities**	■ Avoid cutting of trees unless absolutely necessary. ■ Trees that are of rare endemic should not be removed. ■ During removing, attention maintain minimum disturbances to soil cover and care should be taken not to damage adjoining trees. ■ Compensation for the trees removed should be conducted at a 1:2 ratio at least.	Prior to commencing works on site and During construction	Engineering Cost	Contractor	PMU/MoH, EPA,IC
17.	**Demolition of existing infrastructure within existing HCFc and areas**	■ Management of Asbestos Cement (ACM) Based Material-Avoiding Exposure Risk ○ An inspection of building materials for the presence of asbestos and lead hazards must be conducted prior to initiating demolition projects.	During construction-	Engineering Cost	Contractor	PMU/MoH, EPA,IC

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
	selected to be converted to quarantine facilities	○ Removal of ACM roof sheeting requires trained and qualified personnel as damage to/or broken ACM during removal will have an exposure risk to demolition workers. ○ Thus, it is essential that workers have the necessary personal protective equipment, most importantly masks, safety boots, full suiting to cover body and hard hats. It is also recommended that High efficiency particulate air (HEPA) filters vacuum cleaners would be requiring to vacuum up any debris. These activities must be supervised by the engineer. ○ ACM Material should be removed prior to demolition of the structure, and transported immediately in a contained manner to an approved disposal site by the engineer. As there are no sites to accept hazardous waste material this will pose a challenge, it should be explored how best the material can be managed via EPA guidance on best practice. ○ No ACM material can be stockpiled off site. This should be fully prohibited. ■ Management of Environmental Impacts During Demolition Process. ○ The demolition works shall not cause any nuisance by way of noise, dust and vibration to the surrounding environment, by following the requirements as per the project Environmental Management Plan (ESMP). ○ Particular attention should be payed to ensure the following ▪ The site of works shall be fenced and screened to protect site from strong winds and to contain dust. ▪ The noise level during demolition works shall be within the permissible limits as per the Environmental Protection Agency(EPA) guidelines on noise. ▪ All hazardous wastes, including asbestos shall be disposed of as per the provisions laid out by the EPA ▪ The following measures shall be taken so as to abate the visual impacts during demolition works: ● Visual screening / fencing of works ● Proper location of equipment and machinery on site	demolition of existing facilities.			

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<tr><th rowspan="2"></th><th rowspan="2">Activities and Associated Environmental and Social Impact</th><th rowspan="2">Protection and preventive measures</th><th rowspan="2">Timeline</th><th rowspan="2">Mitigation cost</th><th colspan="2">Responsibility</th></tr>
<tr><th>Implementation</th><th>Monitoring</th></tr>
<tr><td></td><td></td><td>• No encroachment of demolition wastes on pavements and roads
▪ Demolition works within residential areas shall be carried out during normal working hours (8:00 – 17:00) only.
▪ The demolition wastes may be used as filler material as appropriate and approved by the engineer. Any excess wastes shall be disposed of to an authorized site as recommended by the
▪ No debris shall be burned on the site.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>18.</td><td>Information Disclosure among Stakeholders in inhabited islands.</td><td>▪ Discussions should be conducted with the residents who reside along the vicinity of the project site
○ Residents must be briefed of the project, purpose and design and outcomes via a documented community consultation session; this should be done immediately once the contractor is mobilized.
○ Local community should also be informed of the measures put in place to minimize the chances and contain the spread of the virus in order to reassure the community of controlled movement of workers, and ensure that stigma or discrimination is reduced in the event of an outbreak
○ The contractor should take note of all impacts, especially safety hazards that will be of concern to the residents and take necessary measures as stipulated in the ESMP to mitigate them.
▪ The contractor will maintain a log of any grievances/complains and actions taken to resolve them.
▪ A copy of the ESMP should be available always at the project supervision office on site.</td><td>During construction</td><td>Engineering Cost</td><td>Contractor</td><td>PMU/MoH, EPA,IC</td></tr>
<tr><td colspan="7">Construction Phase</td></tr>
<tr><td>19.</td><td>Site Clearance and Land Development</td><td>▪ Prevention of removal of palm trees should be maintained as far as possible.
▪ During removing, attention should be paid to maintain minimum disturbances to soil cover and also care should be taken not to damage adjoining trees. Degraded state land identified for forestry activities will be improved to compensate for the trees removed as 1:2 at least</td><td>During construction</td><td>Engineering Cost</td><td>Contractor</td><td>PMU/HCF Management/MoH, EPA,</td></tr>
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	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ Water spraying should be done at a regular interval to avoid dust generation due to site clearance				
20.	**Disposal of Debris and Spoil**	▪ All debris and residual spoil material including any left earth shall be disposed only at locations approved by the engineer and agreed with the relevant island/city council for such purpose and subjected to the following clauses: ▪ The contractor shall obtain the approval from the relevant island/city council and other government agencies (as required) for disposal and spoil at the specified location, as directed by the Engineer ▪ Private land cannot be selected for disposal should also require written consent from the landowner ▪ The debris and spoil shall be disposed in such a manner that; ○ Waterways and drainage paths are not blocked ○ Not disposed in any wetland areas or coastal areas such as lagoons or on beaches. ○ the disposed material should not be washed away by runoff and should not be a nuisance to the public ▪ All material that is reusable or recyclable shall be used for such purposes either by the contractor or through dealers. ▪ The debris and residual spoil material including any left earth shall be used, to refill the burrow areas as directed by the engineer, subjected to laying of topsoil as per recommendations for conservation and reuse of top soil provided below. ▪ Excavated earth materials and all debris materials shall be disposed immediately without allowing to stockpile at identified locations for debris disposal, recommended by the engineer. During transportation, dispose materials should be covered with tarpaulin. ▪ If approved by the engineer, contractor can dispose the debris and spoil as a filling material provided that the contractor can ensure that such material is used for legally acceptable purposes with disposed in an environmentally acceptable manner.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
21.	**Transport and Storage of construction materials**	▪ During intra and inter atoll transport of construction material: ○ Dhonies/speedboats should be operated During transportation as per acceptable speed limits.	During construction	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		○ Avoid overloading the vessel and over-stacking the vessels vertically. ○ Materials should be contained in gunny bags or sacks. ○ The bags should be covered with tarpaulin and secured to ensure spillage is avoided. ▨ During transport within islands: ○ The contractor should avoid over loading trucks that transport material to construction sites. ○ During transportation, materials should be covered with tarpaulin. ○ Peak hours in roads with moderate to high traffic should be avoided. ○ The contractor shall minimize possible public nuisance due to dust, traffic congestion, air pollution, etc., due to such haulage; ○ If local roads are used, routes are to be selected based on the truck load; loads should be divided to prevent damages to local roads and bridges. ○ Speed limits as nationality stipulated for haulage must be maintain ○ All vehicles used for haulage should be in good condition. ○ If there are damages to local roads and other utilities due to hauling in roads caused by the contractor. The contractor shall attend to repair all damaged infrastructure/ roads, if needed through relevant authorities				
22.	**Emission of Dust during cover application and construction.**	▨ All construction materials such as sand, soil, metal, 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, in order to 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 all laborers for the use at required times	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
23.	**Prevention of soil erosion during site preparation and run off into coastal environments.**	▪ Debris material shall be disposed in such a manner that waterways, drainage paths would not get blocked. ▪ Drainage paths associated with the infrastructure should be improved / erected to drain rainwater properly. ▪ Silt traps will be constructed to avoid siltation into water ways where necessary. ▪ To avoid siltation, drainage paths should not be directed to streams, other water bodies and sea directly and they should be separated from streams / other water bodies / sea ▪ Barricades such as humps will be erected at excavated areas for culverts, silt traps, toe walls, filling and lifting with roper sign boards, as some work in these sections will have to be stopped during heavy rains due to heavy erosion. To prevent soil erosion in these excavated areas, proper earth drain system should be introduced. ▪ Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces. These exposed slopes shall be graded and covered by grass or other suitable materials per the specifications. ▪ All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch. ▪ Work that lead to heavy erosion shall be avoided during the raining season. If such activities need to be continued during rainy season prior approval must be obtained from the Engineer by submitting a proposal on actions that will be undertaken by the contractor to prevent erosion. ▪ 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 work 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.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
24.	**Machinery Operation**	▪ Only experienced and well-trained workers should be used for the handling of machinery, equipment and material processing plants.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
25.	**Noise from vehicles, machinery, equipment and construction activities.**	▪ Noise generating work should be limited to day time within HCFs (6:00AM to 6:00PM). No work that generates excessive noise should be carried out during night hours (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[5] (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 the EPA noise control regulations ▪ All equipment should be in good serviced condition. Regular maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the EPA or relevant manufacture. ▪ Ideally noise generating work should not be carried out during public holidays and religious days. ▪ Labor gangs should be warned to work with minimum noise. Strict labor supervision should be undertaken in this respect. ▪ No nighttime residency of laborers on site should be encouraged, post work hours. ▪ Idling of temporary trucks or other equipment should not be permitted during periods of loading / unloading or when they are not in active use. ▪ The practice must be ensured especially near residential / commercial / sensitive areas. ▪ Stationary construction equipment will be kept at least 100m from the site periphery, which has proximity to households. All possible and practical measures to control noise emissions during drilling shall be Employed. ▪ Contractor shall submit the list of high noise/vibration generating machinery & equipment to the engineer for approval. ▪ Servicing of all construction vehicles and machinery must be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective will be replaced. ▪ Maintenance of vehicles, equipment and machinery shall be regular and up to the satisfaction of the Engineer to keep noise levels at the minimum.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

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[5] dB-Decibels

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
26.	**Pollution of Soil and Water via Fuel and Lubricants**	▪ The contractor shall ensure that all construction vehicle parking locations, fuel/lubricants storage sites, vehicle, machinery and equipment maintenance and refueling site shall be located away from any coastal areas, lagoons or wetland by least 200m away. ▪ 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 further 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.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
27.	**Preventing Loss of minor water sources and disruption to water users**	▪ Contractor should make Employees aware on water conservation and waste minimization in the construction process. ▪ Arrange adequate supply of water for the project purpose throughout the construction period. Not obtain water for project purposes, including for labor camps, from public or community water supply schemes without a prior approval from the relevant authority. ▪ Not extract water from ground water or surface water bodies without the permission from engineer & relevant authority. Obtain the permission for extracting water prior to the commencing of the project, from the relevant authority. ▪ Contractor shall protect sources of water (potable or otherwise) such as water sources used by the community so that continued use these water sources will not be disrupted by the work. In case the closer of such sources is required on temporary basis contractor shall provide alternative arrangement for supply. Alternative sources such as wells thus provided should be within acceptable distance to the original sources and accessible to the affected community. ▪ Contractor shall not divert, close or block existing canals and streams in a manner that adversely affect downstream intakes. If diversion or closure or blocking of	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		canals and streams is required for the execution of work, contractor must obtain the engineers approval in writing. ▪ In case the contractor's activities going to adversely affect the quantity or quality of water, the contractor shall serve notice to the relevant authorities and downstream users of water sufficiently in advance. ▪ Apply best management practices to control contamination of run-off water during maintenance & operation of equipment. ▪ Maintain adequate distance between stockpiles & water bodies to control effects to natural drainage paths.				
28.	**Preventing siltation into coastal water bodies**	▪ Contractor shall take measures to prevent siltation of water bodies because of construction work including, construction of temporary / permanent devices to prevent water pollution due to siltation and increase of turbidity. These shall include the measures against erosion highlighted in this ESMP ▪ Construction materials containing small / fine particles shall be stored in places not subjected to flooding and in such a manner that these materials will not be washed away by runoff. ▪ Temporary soil dumps should be placed at least 200m away from all water bodies ▪ If temporary soil piles are left at the site for a long time those piles should be covered with thick polythene sheets	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
29.	**Preventing contamination of water from construction wastes**	▪ The work shall be carried out in such a manner that pollution of natural water courses rivers, lagoons, sea and other minor stream paths located within construction areas or downstream. ▪ Measures as stipulated in this ESMP shall be taken to prevent the wastewater produced in construction from entering directly into streams, water bodies or the irrigation systems. ▪ Avoid / minimize construction works near / at such drainage locations during heavy rainy seasons ▪ The discharge standards promulgated under the National Environmental Act shall be strictly adhered to. ▪ All waste arising from the project is to be disposed in a manner that is acceptable to the engineer and as per the guidelines/instructions issued by the WMD and EPA.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
30.	**Public Safety**	▪ At all times the site will restrict the entry of public and HCFs workers on to the site. ▪ Safety signboards and signboards prohibiting entrance and risks, 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. ▪ Trenches should be progressively rehabilitated once work is completed. ▪ Material loading and unloading should be done only within the project site.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
31.	**Safety of Workers during general construction practices**	▪ Contractor shall comply with the requirements for safety of the workers as per the Construction Site Health and Safety Regulation (2019/R-156) and the Labor Management Plan of the project to extent that those are applicable to this contract. ▪ The contractor shall supply all necessary safety measures at site- including provision of First Aid Kids, Fire extinguishers. ▪ Signage providing instructions on first aid management, emergency contact and emergency operational procedures in local languages. ▪ Basic onsite safety training should be conducted for all laborers during the ESMP training prior to the start of the construction activities. ▪ The training to laborers should also include a brief on the risks of working on an open dump site. ▪ The contractor should obtain a Third-party insurance to compensate any damages, injuries caused to laborers during the construction period. ▪ 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 equipment such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staff.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ In addition, the contractor shall maintain in stock at the site office, gloves, earmuffs, 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 monthly and recorded.				
32.	**Prevention of COVID-19 spread during construction**	▪ During Routine Work Practices the following will be adopted. o The size of work teams should be decreased as much as possible Limiting the number of workers on site at any one time. o Changing rotation of workers to a 24-hour work rotation. ▪ Adapt or redesign work processes for specific work activities and tasks to enable social distancing, and training workers on these processes. ▪ Promote regular and thorough handwashing o Provide access to places for washing hands with soap and water o Place soap, hand-wash, sanitizing hand rub dispensers throughout the side, and refill them regularly o Display posters promoting handwashing combined with other communication measures such as guidance from occupational health and safety officers ▪ Promote good respiratory hygiene in the workplace o Display posters promoting respiratory hygiene (e.g., cough/sneeze in crook of elbow and/or in tissue and immediately throw the tissue way, avoid spitting, etc) combined with other communication measures such as guidance from occupational health and safety officers o Make available face masks and/or paper tissues available at site for those who develop cough and other ailments at work, along with closed bins for hygienically disposing them ▪ Brief workers, contractors and sub-contractors on contingency plan (or other such measures) for COVID-19 spread and procedures to be followed if in case of any systems of infection ▪ Inform workers on how to identify persons who may be at risk, and support them without inviting stigma and discrimination at the workplace	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ Require workers to keep at least 1m distance while working at the site where feasible ▪ Ensure that contracted workers have medical insurance, covering treatment of COVID-19				
33.	**Prevention of accidents**	▪ Prevention of accidents involving human beings or vehicles or accidents during construction period should be done via adequate training and guidance to all workers. ▪ A readily available first aid unit including an adequate supply of sterilized dressing materials and first aid supplies 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.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
34.	**Operation of labor camps**	▪ The Contractor shall establish and maintain all offsite labor accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing. ▪ A supply of sufficient quantity of potable water in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such provisions should be maintained. ▪ The sewage system for the offsite labor camp, if newly established, 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	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
35.	**Handling Environmental Issues during Construction**	▪ The Contractor will appoint a suitably qualified Environmental Officer following the award of the contract. The Environmental Officer will be the primary point of contact for assistance with all environmental issues during the pre-construction and construction phases. He/ She shall be responsible for ensuring the implementation of ESMP.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ The Contractor shall appoint a person responsible for community liaison and to handle public complaints regarding environmental/ social related matters. All public complaints will be entered into the Complaints Register. The Environmental Officer will promptly investigate and review environmental complaints and implement the appropriate corrective actions to arrest or mitigate the cause of the complaints. A register of all complaints is to be passed to the Engineer within 24 hrs. They are received, with the action taken by the Environmental Officer on complains thereof. ▪ Contractor shall prepare detailed Environmental Method Statement (EMS) clearly stating the approach, actions and manner in which the ESMP is implemented. It is required from the contractor to prepare the EMS for each work site, if work will be carried out at more than one site at once and time plan for implementation. The EMS shall be updated regularly and submit for Engineers review.				
36.	**Grievance Redress Mechanism during construction**	▪ Grievances are inevitable during the entire construction period; and grievances can be submitted verbally, in-writing, in-person through multiple intake channel as described in the ESMF and SEP ▪ Contact information of Engineer/ PMU/HCF/MOH in print form shall be available at the site ▪ Grievances submitted shall be referred to the PMU/HCF/MOH by the social or environmental officer of the Contractor through the Engineer. ▪ Grievances shall be submitted to the Engineer on the same day of receiving. It has to be recorded and the environmental/social officer of the Engineer shall ensure the timely redress through the PMU/HCF/MOH ▪ Workers at the site will be able to report work situations and/or workplace concerns which they believe are not safe or healthy, and to remove themselves from a work situation which they have a reasonable justification to believe presents an imminent and serious danger to their life or health (with no reprisal for reporting or removing themselves) ▪ Workers will be encouraged to use the existing project grievance mechanism to report concerns relating to COVID-19, preparations being made by the project to address COVID-19 related issues, how procedures are being implemented, and concerns about the health of their co-workers and other staff.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
37.	**Traffic Management**	▪ Travel routes for construction vehicles should be designed to avoid areas of congestion and communicated to drivers. ▪ If project vehicles will be entering and exiting the site and being operated after 6PM a lighting system should be maintained to ensure adequate on-site lighting and clear lighting to road uses, off the site access point. ▪ Contractor should supply traffic co-coordinators to manage vehicle movements to and from the project site at the entrance, as it is located off a main road directly.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
38.	**Surface Drainage and Possible Water Stagnation**	▪ The project interventions itself include and adequate storm water drainage system in the premises, which will discharge water to existing storm water drainage networks. ▪ During construction, the contractor will conduct overall storm water management in the premises during construction using temporary ditches, sand bag barriers etc. ▪ Proper drainage arrangements to be made, to avoid the overflowing of existing drainage paths to cutting, excavation and other activities	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
39.	**Fire Safety**	▪ Easily flammable materials should not be stored in construction site; they must be transported out of project site. ▪ Any activities, such as welding, that can lead to ignition should be conducted post the closure of the mound where possible to avoid risk of exposure to landfill gas. ▪ At all times the site should be equipped with appropriate firefighting and fire-retardant equipment to suppress any fires on the site. ▪ Fire extinguishers should be available at the site office for use in the case of emergencies. ▪ A supply of water should be available on site during the excavation period and construction period for firefighting purposes.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
40.	**Management of Chance found Archeological Property and Cultural Resources.**	▪ All fossils, coins, articles of value of antiquity and structures and other remains or things of geological or archaeological interest etc. discovered on the site and/or during construction work shall be the property of the Government of the Maldives and the Ministry of Culture will be contacted immediately. ▪ The contractor shall take reasonable precaution to prevent his workmen or any other persons from removing and damaging any such article or thing and shall, immediately upon discovery thereof and before removal acquaint the Engineer of such discovery and carry out the Engineer's instructions for dealing with the same,	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		awaiting which all work shall be stopped within 100m in all directions from the site of discovery. ▪ If directed by the Engineers the Contractor shall obtain advice and assistance from the relevant department of the Ministry of Arts, Culture and Heritage on conservation measures to be taken with regard to the artifacts prior to recommencement of work in the area.				
41.	**Chance found important Flora/Fauna**	▪ Flora ○ While any rare/threatened/endangered flora species will be identified and removed prior to construction, during construction if by chance such species are found, it shall be immediately informed to the PMU by the contractor. ○ All activities that could destroy such flora and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer's approval. Contractor shall carry out all activities and plans that the Engineer instructed him to undertake to conserve such flora and/or its habitat. ▪ Fauna ○ All works shall be carried out in such a manner that the destruction or disruption to the fauna and their habitats is minimum. ○ Construction workers shall be instructed to protect fauna including birds and aquatic life as well as their habitats. ○ Chance found important Fauna ○ During construction, if any faunal species is found, it shall be immediately informed to the PMU by the contractor. All activities that could destroy such fauna and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer's approval. Contractor shall carry out all activities and plans that the Engineer instructed him to undertake to conserve such fauna and/or its habitat.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
42.	**Site Closure and Demobilization**	▪ The contractor will remove all excess material, equipment, vehicles from the project site prior to complete demobilization. ▪ Coffer dams, if erected need to be completely removed and associated debris has to be cleared from the. ▪ All temporary site offices will be dismantled and removed from the site. ▪ If the parking site has been dilapidated in any way as per the evaluation of the engineer, the contractor will reinstate it to the original condition prior to demobilization.	During construction	Engineering Cost	Contractor	PMU/HCF Management/MoH, EPA,
Heath Care Facility Operation Phase						

43.	**Steps to be taken during patient care in HCFs and Quarantine centers**	▪ All patient care will be conducted as per the standard operating procedures issues by the Ministry of Health and Best Practice Guidance issues by the WHO as below.
		  ▪ *Infection prevention and control during health care when COVID-19 is suspected-Interim guidance issues on 19 March 2020 by WHO*
		  ▪ *Considerations for quarantine of individuals in the context of containment for coronavirus*
		  ▪ *disease (COVID-19) Interim guidance by WHO*
		19 March 2020
		The Novel Coronavirus Response Guideline 2020- Maldives HPA and MOH developed in line with WHO minimal requirements.
			During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs	HPA, MOH,

44.	**HCF operation - considerations for differentiated treatment for groups of higher sensitivity or vulnerable (potentially the elderly, those with preexisting conditions, or the very young)**	▪ HCFs will continue to provide services to the health needs of people with disabilities, existing conditions, elderly, etc ▪ Health information and government guidance will be provided in accessible formats to the extent feasible (e.g., explanations of what is happening during the time of care for deaf, blind, people with cognitive disabilities), including print materials in Braille or large print, sign language interpretation, captions, audio provision, and graphics ▪ Universal design principles will be adopted while expanding clinical care capacities, including refurbishing ICUs or inpatient HCFs ▪ Training to health workers, including community health workers, government officials, emergency planners and other stakeholders on interacting with vulnerable groups, including people with disabilities and how to support their needs	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ Sensitization and training of healthcare workers and other staff at the HCFs on GBV and SEA so that such cases can be identified and referred to relevant authorities and service providers.				
45.	**Ensuring the rights of Health workers during COVID-19 Response in HCFs**	▪ Health worker rights include the expectation that employers and managers of HCFs and are required to assume overall responsibility to ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks. o provide information, instruction, and training on occupational safety and health, including; o refresher training on infection prevention and control (IPC); o use, putting on, taking off and disposal of personal protective equipment (PPE); o provide adequate IPC and PPE supplies (masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity to those caring for suspected or confirmed COVID-19 patients, such that workers do not incur expenses for occupational safety and health requirements; o All PPE stipulated in the *Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) Interim guidance issued on 19 March 2020 by WHO*) should be procured accordingly where possible and provided. o familiarize personnel with technical updates on COVID-19 and provide appropriate tools to assess, triage, test, and treat patients, and to share IPC information with patients and the public; o provide appropriate security measures as needed for personal safety; o provide a blame-free environment in which health workers can report on incidents, such as exposures to blood or bodily fluids from the respiratory system, or cases of violence, and adopt measures for immediate follow up, including support to victims; o advise health workers on self-assessment, symptom reporting, and staying home when ill;	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		○ HCFs will be responsible for the implementation of occupational safety and health management systems to identify hazards and assess as per the following. assess risks to health and safety as per evolving information on the COVID-19 Pandemic, ○ implement IPC measures, ○ exercise zero-tolerance policies towards workplace violence and harassment. ○ maintain appropriate working hours with breaks; ○ consult with HCWs on occupational safety and health aspects of their work, and notify the labor inspectorate of cases of occupational diseases; ○ allow HCWs to exercise the right to remove themselves from a work situation that they have reasonable justification to believe presents an imminent and serious danger to their life or health, and protect HCWs exercising this right from any undue consequences; ○ not require HCWs to return to a work situation where there has been a serious danger to life or health until any necessary remedial action has been taken; ○ honor the right to compensation, rehabilitation, and curative services for health workers infected with COVID-19 following exposure in the workplace – considered as an occupational disease arising from occupational exposure; ○ provide access to mental health and counselling resources; and ○ enable cooperation between management and health workers and their representatives.				
46.	**Basic roles and responsibilities of HCWs when working in HCFs**	▪ During the COVID-19 pandemic HCWs should: ○ follow established occupational safety and health procedures (refer handwashing and infection control guidelines issues by the WHO and SOPs HPA of Maldives, avoid exposing others to health and safety risks, and participate in employer-provided occupational safety and health training; ○ use provided protocols to assess, triage, and treat patients; ○ treat patients with respect, compassion, and dignity;	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		○ maintain patient confidentiality; ○ swiftly follow established public health reporting procedures of suspected and confirmed cases; ○ provide or reinforce accurate IPC and public health information, including too concerned people who have neither symptoms nor risk; ○ put on, use, take off, and dispose of PPE properly as per Annex X; ○ self-monitor for signs of illness and self-isolate and report illness to managers, if it occurs; ○ advise management if they are experiencing signs of undue stress or mental health challenges that require supportive interventions; and ○ report to their immediate supervisor any situation which they have reasonable justification to believe presents an imminent and serious danger to life or health.				
47.	**Additional measure when Managing Exposed HCWs to COVID 19**	▪ The HCF will implement all provisions set forth in the R*isk assessment and management of exposure of health care workers in the context of COVID-19 Interim guidance Note issued on 19 March 2020 by the WHO.* ○ The standard form in the guideline should be completed for all HCWs who have been exposed to a patient with confirmed COVID-19, by the HCF immediately. ○ This tool aids in the risk assessment for HCWs after exposure and provides recommendations for their management.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs	HPA, MOH,
48.	**Laboratory Operations**	▪ All provisions stipulated in the Laboratory testing for coronavirus disease (COVID-19) in suspected human cases-Interim guidance issues on 19 March 2020 by the WHO must be followed when conducting testing. ▪ Laboratories operations should be conducted as per the Standard Operation Principles for Laboratories- presented in Annex 26 which summaries the required good practices with regard to safe handling of chemicals, which are to be followed by laboratory technicians.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs (Specifically laboratory workers)	HPA, MOH,
49.	**Collection, handling and movement of specimens, samples, reagents, medical**	▪ All provisions stipulated in the *Laboratory testing for coronavirus disease (COVID-19) in suspected human cases-Interim guidance issues on 19 March 2020 by the WHO* must be followed when conducting testing.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
	equipment, and infection materials.	○ All procedures Specimen collection and shipment should be governed by the processes outlined in this guideline. ▪ The *Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) Interim guidance issued on 19 March 2020 by WHO* should be used to guide the transfer and use of PPE equipment.				
50.	**Management of Health Care Waste Management**	▪ HCWM operations for the various waste streams will be conducted as per standard operating procedures outlined below at minimum: ○ *Water, sanitation, hygiene, and waste management for the COVID-19 virus* ○ *Interim guidance issues on 19 March 2020 by WHO.* ○ Management of Infectious *Waste: SOP for Infectious Waste Management issues in March 2020 by the HPA and MOH of the Maldives.* ○ Management of Municipal Solid Waste: *SOP for Management of MSW issued in April 2020 by HPA and MOH of the Maldives.* ○ Management of existing quarantine facilities- *Guideline for Environmental Management and infection control in tourist resort establishments.* ▪ For all World Bank project funded HCFs the facility specific Infection Control and Health Carew Waste Management Plan will be adopted (IC-HCWMP)- The generic plan in line with international best practice presented in Annex 10- provides detailed guidance on due procedures to be implemented. ▪ HCFs will be responsible to ensure. ○ Best practices for safely managing health care waste should be followed, including assigning responsibility and sufficient human and material resources to dispose of such waste safely. ○ All health care waste produced during the care of COVID 19 patients should be collected safely in designated containers and bags, treated, and then safely disposed of or treated, or both, preferably onsite in a 24-hour period. ○ If waste is handed to an external party for management- all relevant disposal measures should be in line with guidance provided above. ○ All workers handle health care waste should wear appropriate PPE (boots, apron, long-sleeved gown, thick gloves, mask, and goggles or a face	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs (Specifically cleaning staff)	HPA, MOH, EPA

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		shield) and perform hand hygiene after removing it as per basic hand hygiene practices. ○ Final disposal of all HCW should be in line with national regulatory guidance and international best practice where applicable. ○ All general waste should be disposed as per typical practices via the service provider of Island Council designated. The HCF has to ensure full vigilance that no cross contamination of general waste occurs and ensure waste segregation rules are fully adhered to.				
51.	**Management Contaminated Laundry in HCFs**	■ Basic Facility Provisions and Equipment Management ○ HCF management must ensure the launder all HCWs personal protective garments or uniforms that are contaminated with blood or other potentially infectious materials. ○ The facility should maintain a receiving area for contaminated textiles at negative pressure compared with the clean areas of the laundry. ○ Ensure that laundry areas have handwashing facilities and products and appropriate PPE available for workers. ○ Use and maintain (and dispose at end of lifecycle) laundry equipment according to manufacturers' instructions. ○ Damp textiles or fabrics should not be left in machines overnight to prevent microbial growth. ○ Disinfection of washing and drying machines in residential care is not needed as long as gross soil is removed before washing and proper washing and drying procedures are used. ■ Routine Handling of Contaminated Laundry ○ Use sterilized textiles, surgical drapes, and gowns for situations requiring sterility in patient care. ○ Use hygienically clean textiles (i.e., laundered, but not sterilized) in neonatal intensive care units. ○ Follow manufacturers' recommendations for cleaning fabric products including those with coated or laminated surfaces. ○ Do not use dry cleaning for routine laundering in health-care facilities.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs (Workers working in laundry department)	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		○ Handle contaminated textiles and fabrics with minimum agitation to avoid contamination of air, surfaces, and persons. ○ Bag or otherwise contain contaminated textiles and fabrics at the point of use. ○ Do not sort or precise contaminated textiles or fabrics in patient-care areas ○ Use leak-resistant containment for textiles and fabrics contaminated with blood or body substances. ○ Identify bags or containers for contaminated textiles with labels, color coding, or other alternative means of communication as appropriate. ○ If laundry chutes are used, ensure that they are properly designed, maintained, and used in a manner to minimize dispersion of aerosols from contaminated laundry. ○ Ensure that laundry bags are closed before tossing the filled bag into the chute. Do not place loose items in the chute. ○ Establish a facility policy to determine when textiles or fabrics should be sorted in the laundry facility (i.e., before or after washing) ▪ Laundering Process ○ If hot-water laundry cycles are used, wash with detergent in water ≥160°F (≥71°C) for ≥25 minutes. ○ Follow fabric-care instructions and special laundering requirements for items used in the facility. ○ Choose chemicals suitable for low-temperature washing at proper use concentration if low-temperature (<160°F [<71°C]) laundry cycles are used. ○ Package, transport, and store clean textiles and fabrics by methods that will ensure their cleanliness and protect them from dust and soil during interfacility loading, transport, and unloading. ▪ Microbiologic Sampling of Textiles ○ Use microbiological sampling during outbreak investigations if epidemiologic evidence suggests a role for health-care textiles and clothing in disease transmission, this has not been established for				

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		COVID-19 virus transfer so should be maintained as a contingency measure if new information virus transfer evolves.				
52.	**Management and Cleaning of contaminated Mattresses and Pillows**	- Keep mattresses dry; discard them if they become and remain wet or stained, particularly in burn units. - Clean and disinfect mattress covers using disinfectants that are compatible with the cover materials to prevent the development of tears, cracks, or holes in the cover. - Maintain the integrity of mattress and pillow covers. ○ Replace mattress and pillow covers if they become torn or otherwise in need of repair. ○ Do not stick needles into the mattress through the cover. - Clean and disinfect moisture-resistant mattress covers between patients using typical cleaning products. - If using a mattress cover completely made of fabric, change these covers and launder between patients. - Launder pillow covers and washable pillows in the hot-water cycle between patients or when they become contaminated with body substances.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs. Cleaning staff	HPA, MOH,
53.	**Management of Special Beds such as Airflow and special ICU beds used by patients**	- Always follow manufacturers' instructions for bed maintenance and decontamination. - On beds that contain polyester filter sheet, change them at least weekly or as indicated by the manufacturer. - Clean and disinfect the polyester filter sheet thoroughly, especially between patients using disinfectant. - Consult the HCF specialist and responsible persons in CHARGE to determine the proper location of air-fluidized beds in negative-pressure rooms.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs, Cleaning Staff	HPA, MOH,
54.	**Cleaning and Infection control of equipment and utensils used in the care of Covid-19 patients.**	- The following equipment types typically used in HCFs for patient care should be cleaned using the procedures recommended to ensure disinfection and use. ○ Bedpans ▪ Should be cleaned with hypochlorite at 0.5% after disposing of excreta and cleaning with a neutral detergent and water with a contact time maintained for at least 10 minutes.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs, Cleaning Staff	HPA, MOH

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		o Toilets and Washbasins ▪ Should be cleaned with hypochlorite at 0.5%. o All Reusable PPE should be cleaned at minimum using the following solutions. ▪ Boots and gloves- Should be cleaned with hypochlorite at 0.5%. ▪ Goggles- Soap and water/antibacterial soap solution and Ethyl alcohol- 70% o Reusable dedicated equipment (e.g., thermometers, stethoscope, BP cuffs) between uses ▪ Should be cleaned using 70% Ethyl alcohol solution o Reusable Metal equipment (Kidney trays, forceps, tweezers, utensils) ▪ All such material must be autoclaves prior to reuse. o Cleaning equipment used in care areas (mops/dustpan used near) ▪ Should be cleaned with hypochlorite at 0.5%. o Equipment carts, medical equipment and surfaces of metal furniture ▪ Should be cleaned with hypochlorite at 0.5%. o Vehicles used for patient transfer and ambulances ■ All surfaces should be cleaned with hypochlorite at 0.5%.				
55.	**Cleaning of Carpeting and Cloth Furnishings in HCFs that can be contaminate**	■ Vacuum carpeting in public areas of health-care facilities and in general patient-care areas regularly with well-maintained equipment designed to minimize dust dispersion. ■ Periodically perform a thorough, deep cleaning of carpeting by using a method that minimizes the production of aerosols and leaves little or no residue. ■ Avoid use of carpeting in high-traffic zones in patient-care areas or where spills are likely (e.g., burn therapy units, operating rooms, laboratories, and intensive care units). ■ Follow proper procedures for managing spills on carpeting. o Spot-clean blood or body substance spills promptly. o If a spill occurs on carpet tiles, replace any tiles contaminated by blood and body fluids or body substances. ■ Thoroughly dry wet carpeting to prevent the growth of fungi; replace carpeting that remains wet after 72 hours.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs, Cleaning Staff	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
		▪ Avoid the use of upholstered furniture and furnishings in high-risk patient-care areas and in areas with increased potential for body substance contamination. ▪ Maintain any upholstered furniture in good repair. o Maintain the surface integrity of the upholstery by repairing tears and holes. o If upholstered furniture in a patient's room requires cleaning to remove visible soil or body substance contamination, move that item to a maintenance area where it can be adequately cleaned with a process appropriate for the type of upholstery and the nature of the soil.				
56.	**Avoiding exposure and contamination from blood spills and bodily fluids during HCF operations and patient care.**	▪ Promptly clean and decontaminate spills of blood or other potentially infectious materials. ▪ Follow proper procedures for site decontamination of spills of blood or blood-containing body fluids as per WHO guidelines. ▪ Workers must use protective gloves and additional PPE appropriate for this task. ▪ If the spill contains large amounts of blood or body fluids, clean the visible matter with disposable absorbent material, and discard the contaminated materials in appropriate, labeled containment. ▪ Swab the area with a cloth or paper towels moderately wetted with disinfectant and allow the surface to dry. ▪ Use high grade hospital disinfectants in accordance with label instructions to decontaminate spills of blood and other body fluids. ▪ Sodium hypochlorite products should be used as preferred as per international best practice, however if such products are not available, generic versions of sodium hypochlorite solutions (e.g., household chlorine bleach) may be used. o Use a 1:100 dilution (500–615 ppm available chlorine) to decontaminate nonporous surfaces after cleaning a spill of either blood or body fluids in patient-care settings. o If a spill involves large amounts of blood or body fluids, or if a blood or culture spill occurs in the laboratory, use a 1:10 dilution (5,000–6,150 ppm available chlorine) for the first application of germicide before cleaning.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs, Cleaning Staff	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
57.	**Cleaning and Disinfecting Measures for Environmental Surfaces in Patient-Care Areas**	▪ All disinfectants use should be used in accordance with the manufacturer's instructions. ▪ Do not use high-level disinfectants/liquid chemical sterilant for disinfection of either noncritical instrument/devices or any environmental surfaces; such use is counter to label instructions for these toxic chemicals. ▪ Follow manufacturers' instructions for cleaning and maintaining noncritical medical equipment. ▪ In the absence of a manufacturer's cleaning instructions, follow certain procedures. ○ Clean noncritical medical equipment surfaces with a detergent/disinfectant. ○ Do not use alcohol to disinfect large environmental surfaces. ○ Use barrier protective coverings as appropriate for noncritical equipment surfaces that are ▪ touched frequently with gloved hands during the delivery of patient care; ▪ likely to become contaminated with blood or body substances; or ▪ difficult to clean (e.g., computer keyboards). ▪ Keep housekeeping surfaces (e.g., floors, walls, and tabletops) visibly clean on a regular basis and clean up spills promptly. ▪ Use registered hospital disinfectant/detergent designed for general housekeeping purposes in patient-care areas when ▪ Detergent and water are adequate for cleaning surfaces in nonpatient-care areas (e.g., administrative offices). ▪ Clean and disinfect high-touch surfaces (e.g., doorknobs, bed rails, light switches, and surfaces in and around toilets in patients' rooms) on a more frequent schedule than minimal touch housekeeping surfaces. ▪ Clean walls, blinds, and window curtains in patient-care areas when they are visibly dusty or soiled. ▪ Do not perform disinfectant fogging in patient-care areas as this can lead to high associated risks with COVID-19 patients and other patients with respiratory issues and allergies.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs, Cleaning Staff	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
58.	**General cleaning of other areas in HCF as a whole.**	■ Conduct regular and thorough cleaning of all site facilities, including offices, accommodation, canteens, common spaces. Review cleaning protocols for key construction equipment (particularly if it is being operated by different workers). This should include: ■ Providing cleaning staff with adequate cleaning equipment, materials and disinfectant. ■ Review general cleaning systems, training cleaning staff on appropriate cleaning procedures and appropriate frequency in high use or high-risk areas. ■ Where it is anticipated that cleaners will be required to clean areas that have been or are suspected to have been contaminated with COVID-19, providing them with appropriate PPE: gowns or aprons, gloves, eye protection (masks, goggles or face screens) and boots or closed work shoes. If appropriate PPE is not available, cleaners should be provided with best available alternatives. ■ Training cleaners in proper hygiene (including handwashing) prior to, during and after conducting cleaning activities; how to safely use PPE (where required); in waste control (including for used PPE and cleaning materials).	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs, Cleaning Staff	HPA, MOH,
59.	**WASH Management**	■ All water and sanitation measures should be undertaken as per the guidance provided in *Water, sanitation, hygiene, and waste management for the COVID-19 virus Interim guidance issues on 19 March 2020 by WHO.* ■ The HCFs typical WASH activities should continue as per normal. o As there are no specific records of transfer of COVID-19 via wastewater and human excreta, in addition to using supplemental treatment methods as remediation measures after inadvertent contamination of water systems, HCFs sometimes could use special measures to control water-borne micro-organisms on a sustained basis. o An environmental surveillance approach should be adopted involving periodic culturing of water samples from the hospital's potable water system to monitor the growth of organisms. ▪ If any sample is culture-positive, diagnostic testing is recommended for all patients. ▪ If >30% of the samples are culture-positive, decontamination of the facility's potable water system is warranted.	During HCF and Quarantine center operations	Operational Cost	HCF Management, HCWs,	HPA, MOH,

	Activities and Associated Environmental and Social Impact	Protection and preventive measures	Timeline	Mitigation cost	Responsibility	
					Implementation	Monitoring
Decommissioning of Temporary Facilities						
	Decommissioning of interim of quarantine facilities will lead to waste generation.	▪ Any temporary quarantine facilities will be decommissioned on notice and will be demolished as per the demolition management guidance provided above. The facility will be sprayed with disinfectant prior to demolition/dismantling and all demolition/dismantling waste will be managed as per the guidance of the EPA. ▪ All workers partaking in these activities will adhere to the typical occupational health and safety requirements outlined in the construction stage section of this ESMP and at minimum ensure adequate PPE is worn, including helmets, boots, gloves and masks.	During demolition and decommissioning	Operational Cost	HCF Management, HCWs,	HPA, MOH, EPA, IC
	Decommissioning of medical equipment	▪ All medical equipment will be decommissioned as per the manufactures requirements and disposed where relevant in accordance with the manufacturer’s requirements.	During decommissioning	Operational Cost	HCF Management, HCWs,	HPA, MOH,

ANNEX 10: GENERIC INFECTION CONTROL AND HEALTH CAREW WASTE MANAGENT PLAN (IC-HCWMP) FOR COVID-19 RESPONSEIN HCFS

The following detailed Infection Control and Health Care Waste Management Plan has been developed in line with guidance provided in the following documents and presents best practice measures to be incorporated into the preparation of facility level ICHCWMPs in order to ensure that sound practices are followed in terms of the management of HCW from the point of generation to final disposal. The plan outlines the typical procedures being followed in line with the country context of the Maldives and outlines measures that can be adopted by any HCF associated with providing response under the COVID-19 Pandemic. This Generic ICHCWMP can also be used to develop HCF specific plans for any facility as it covers the whole waste stream typically seen in HCFs and can be adopted in relevance to the operational processes, needs and context. Annex provides a template that can be used in combination with this ICHCWMP to be prepared facility specific plans. The plans will be subject to the review and endorsement of the HPA and World Bank Clearance for all project associated facilities.

Guidelines Used:

- Infection prevention and control Infection prevention and control (IPC) practices in communities and health facilities, The World Health Organization: March 2020 Presented in Annex 11
- Safe management of wastes from health-care activities-Second edition. The World Health Organization: 2014
- Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19) Interim guidance 27 February 2020
- Water, sanitation, hygiene, and waste management for the COVID-19 virus Interim guidance 19 March 2020
- Mainstreaming Environmental Management in the Health Care Sector Implementation Experience in India & A Toolkit for Managers-VOLUME I & II- The World Bank: 2012
- World Bank Group General Environmental Health and Safety Guidelines:2007
- World Bank Group Environmental, Health, and Safety Guidelines for Health Care Facilities: 2007

Additional pictorial guidance presented in Annex 29

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
1.	**Waste Generation in HCF at patient care station**					
1.1.	In emergency situations, all waste from patients arriving at a health-care facility should be classified as potentially infectious to minimize the transmission of secondary infection.	• Waste at the patient care station- I.e. Isolation room, wardroom, ICU station should be segregated on generation and placed in the appropriate bin as per the segregation rules presented in section 2.	Patients, Health Care Waste Workers (HCWWs), Visitors	On generation	HCW HCF Operational budget	HPA/EPA/MOH
1.2.	Direct exposure of HCF workers and HCWWs to infectious and biohazard waste	• All HCWs working directly with COVID-19 infected persons are required to ensure that they are attired in full PPE as per the	HCF Management, EPA and MOH	At all times within HCF when in	HCW HCF Operational budget	HPA/EPA/MOH

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
	from the generate source leading to risks of exposure to Covid-19 and other conditions.	guidance provided by WHO for COVID- 19 response-elaborate in Section X.		contact with patients.		
1.3.	Management and final disposal of HCW and the risk of comingling with general waste streams can have impacts on the environment such as toxic emissions of leachate and air emission and lead to exposure of communities to spread of infectious diseases via adhering to WHO guidance and following international best practice on management of HCW.	• All HCW generated should be categorized as hazardous waste as per the WHO guidelines, segregated and disposed as per the guidance provided in this Infection Control and Health Care Waste Management Plan.	HCWWs, Waste Collection Service Providers (WAMCO)	During waste management practices.	HCW HCF Operational budget	HPA/EPA/MOH
1.4.	Preparation of facility specific Infection Control and Health Care Waste Management Plan- IC-HCWM	• This Generic IC-HCWM plan for Covid-19 related HCFs will be used to prepare facility specific IC-HCWMPs as follows. • Until such time full adherence will be maintained to the following national Standard Operating Practices (SOPs) Developed by the HPA and MOH and endorsed by the WHO Maldives. ○ *Water, sanitation, hygiene, and waste management for the COVID-19 virus* ○ *Interim guidance issues on 19 March 2020 by WHO.* ○ Management of Infectious *Waste: SOP for Infectious Waste Management issues in March 2020 by the HPA and MOH of the Maldives.* ○ Management of Municipal Solid Waste: *SOP for Management of MSW issued in April 2020 by HPA and MOH of the Maldives.* ○ Management of existing quarantine facilities- *Guideline for Environmental Management and infection control in tourist resort establishments.* • The following timelines will be maintained in the preparation of IC-HCWMPs for each facility upon ESMF clearance by the World Bank. All plans will be subject to the review and clearance of the World Bank.	HCF, MOH, HPA	As defined under mitigation measures	MOH, HPA and HCF Operational Budget	WORLD BANK

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ For all HCFs treating positive Covid-19 patients- within 2 weeks ○ For all Quarantine centers in operation-within 1 month ○ For all flue clinics in operation- within 1 month ○ For all HCFs and quarantine centers designated to support covid-19 response in the medium and long term- within 3 months.				
1.5.	Looking at waste minimization, reuse, and recycling where possible and in the long term within the HCF. This will facilitate in the reduction of waste that needs to be handled, especially in smaller HCFs, more in the longer term.	• Facilities should consider practices and procedures to minimize waste generation, without sacrificing patient hygiene and safety considerations, including: ○ Source reduction measures: ▪ Consider options for product / material substitution to avoid products containing hazardous materials that require the product to be disposed as hazardous or special waste (e.g. mercury or aerosol cans). ▪ Selecting preferring products with less packaging or products that weigh less than comparable products that perform the same function. ▪ Use of physical rather than chemical cleaning practices (e.g. using microfiber mops and cloths), where such practices do not affect disinfection and meet relevant standards for hygiene and patient safety as per national and international guidelines. ○ Waste toxicity reduction measures such as; ▪ Consider options for product / material substitution for equipment containing mercury or other hazardous chemicals; products that may become hazardous waste when disposed; products made of polyvinyl chloride (PVC); halogenated compounds; products that off-gas	HCF, MOH, HPA	Long Term Planning of facility specific HCWPs	HCW HCF Operational budget	HPA/EPA/MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		volatile organic compounds (VOCs), or products that contain persistent, bio accumulative and toxic (PBT) compounds; products that contain substances which are carcinogenic, mutagenic or reproductive toxins (CMR). ○ Use of efficient stock management practices and monitoring (e.g. for chemical and pharmaceutical stocks), including: ▪ Small / frequent orders for products that spoil quickly and strict monitoring of expiry dates ▪ Complete use of old product before new stock is used ○ Maximization of safe equipment reuse practices, including: ▪ Reuse of equipment following sterilization and disinfection (e.g. sharps containers)				
2.	**Segregation and Storage Prior to Collection**					
2.1.	**Infectious Waste/ Biohazardous Waste:** All waste generated from care of COVID-19 patients will be placed under this category. This kind of waste is typically consisting of human tissues, body fluids, laboratory cultures, waste from isolation wards, tissues (swabs), materials or equipment that have been in contact with infected patients and containers or equipment containing fluid blood or fluids generated in patient care areas. Can spread infection to HCWs and lead to contamination unless properly	• All waste indicated here should be placed in red biohazard bags, labeled, “Biohazardous Waste” or with the international biohazard symbol and the word, “Biohazard”. • Full red bags must be tied so that leakage or expulsion of contents does not occur and should be contained in a rigid container. • Strong, leak-proof plastic bag, or container capable of being autoclaved should be used. • The container can be of any (preferred to be red) color with a tight-fitting lid and labeled “Biohazard,” readable from any lateral direction.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	segregated and stored. Such waste can Infectious and direct or indirect contact through a carrier can lead to infection as well as exposure to pathogens can result in contraction of HIV/ AIDS, Hepatitis B, Hepatitis C and other blood-borne diseases	• As COVID-19 associated waste has not been classified highly infectious. For any waste classified as highly infectious the following procedures must be adopted. ○ Yellow bags marked "HIGHLY INFECTIOUS", with the biohazard symbol must be used. Or Red Bag autoclavable bags market Universal Biohazard Symbol on the outside. ○ Strong, leak-proof plastic bag, or container capable of being autoclaved should be used.				
2.2.	**Sharps Waste:** Patient care and clinical support areas generate sharps that are infectious and can spread disease and cause minor injuries to HCWs unless properly handled . Sharps include hypodermic needles, hypodermic needles with attached syringes, needles with attached tubing, blades, broken glass, acupuncture needles, and pipettes, whether or not contaminated with biohazardous or pharmaceutical material. Via Direct contact this waste can cause HIV, HBV and physical injury.	○ Used sharps should be placed into the appropriate sharp's container immediately after use- contains must be puncture proof. ○ All sharps are disposed of in either a labeled sharps container or a pharmaceutical / chemo sharps container. ○ Containers should be labeled "SHARPS WASTE" or "BIOHAZARD," with the international biohazard symbol ○ Full sharps containers must be collected regularly and replaced with empty containers ○ All re-usable sharp containers must be disinfected prior to reuse and thoroughly cleaned.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH
2.3.	**Human Anatomical Waste and Human Surgical Specimens** : Human anatomical waste is generated from surgical and other interventional procedures which take place in designated, controlled areas. This waste category, which includes any recognizable human anatomical parts such as limbs, organs and larger tissue samples deemed non-infectious, is considered pathological waste. Human surgical specimen waste is generated from (1) surgical and other	○ Management of Human Anatomical Waste: ▪ The HCF proceeds with disposing of the remains as pathological waste if there is consent from the authorized person as per the religious beliefs. ▪ The cultural norms and religious regulations of the Maldives must be followed when disposing any human remains. ▪ Detailed guidance is presented via the *WHO-Infection Prevention and Control for the safe management of a dead body in the context of*	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	interventional procedures, performed in both in- and out-patient areas, and (2) Pathology and Laboratory Medicine, Clinical Labs areas. Human surgical specimens or tissues, removed at surgery or autopsy, are considered potentially contaminated with infectious agents known to be contagious to humans. This includes cultures and stocks of infectious agents, live attenuated vaccines and dishes and devices used to culture infectious agents. They are both considered pathological waste. Such waste can Infectious and direct or indirect contact through a carrier can lead to infection as well as exposure to pathogens can result in contraction of HIV/ AIDS, Hepatitis B, Hepatitis C and other blood-borne diseases	*COVID-19-Interim guidance-24 March 2020*, must be followed. ▪ Where consent is provided it can be segregated and stored as per norms for pathological waste segregation below. ○ All human anatomical waste, independent of where or how generated, is brought to the Pathology Department for possible analysis, processing and preparation for disposal during typical hospital operations. ○ All pathological waste should be placed into a bag which is appropriately tied, and then placed into a rigid container with a tight-fitting lid. Both the container and lid are to be labeled “Pathology Waste” or “PATH.” ○ A permitted contractor transports and incinerates human anatomical waste generated by the Health System.				
2.4.	**Pharmaceutical Waste:** Pharmaceutical waste and hazardous pharmaceutical waste are produced from most patient care and clinical support areas are not suitable to be disposed to the environment and can be toxic to living organisms. This category of waste includes, but is not limited to unused, partially used or expired prescription or over-the-counter medications (e.g. vials, tablets, capsules, powders, liquids, creams/ lotions, eye drops, suppositories), IV bags and tubing, full syringes, glass vials and ampules, narcotics and controlled substances in	• Pharmaceutical waste should be places in brown plastic bags or a rigid container, labelled with the appropriate hazards symbols • As per WHO guidance, they should be marked INCINERATION ONLY” so that it can be visible from any lateral direction. • Pharmaceutical waste, including empty vials and syringes, is placed into a sharp’s container or chemo container at the point of generation, stored in a utility room, and then transported to a central holding area at the loading dock. The processes outlined in point 2.2 for sharps management should be followed. • Bulk unused and expired pharmaceutical waste, independent of where generated, should be returned to the supplier as per	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	syringes, narcotic patches (cut in half), carpujets, and tubexes. Hazardous Pharmaceutical Waste: includes, but is not limited to, syringes, inhalers, tubexes or IV bags/piggybacks with residual (>5ml) of medication (i.e.: all cytotoxic drugs, cyclosporine, mycophenolate, oxytocin, coumadin, warfarin, epinephrine, and nitroglycerin tablets). This waste stream also includes items that may contain mercury, including vaccines, topical preparations, eye, ear and nose drops.	contractual requirements on cradle to grave provisions-the supplier will be responsible for disposal in according to procedures specific to the medication type				
2.5.	**Chemotherapeutic Waste:** Chemotherapeutic waste is a product of oncology patient care activities. There may be patients that require chemotherapy in parallel to covid-19 care. It’s generated from and managed by dedicated inpatient units, outpatient clinics and Pharmacy. Chemo waste consists of materials which previously contained or had contact with chemotherapeutic agents including tubing, empty bags, bottles, vials, syringes, gloves, masks, gowns and wipes. In addition, any materials used to clean up spills or otherwise contaminated through incidental contact. Trace Chemotherapeutic Waste: containers which previously held chemo agents are considered empty if (1) the liquid residue can no longer be poured or, (2) the solid material can no longer be removed by scraping.	• In the event that the HCF is offers chemotherapeutic care should follow the following processes. • All bulk chemo waste should be collected separately and processed separately from trace chemo waste which can be disposed as hazardous chemical waste (see section 2.6). • Chemo waste, independent of how or where generated, should be segregated from all other types of waste and placed in a bag or rigid container with a tight-fitting lid. • Both the container and the lid are to be labeled “Chemotherapy Waste” or CHEMO” so that it can be read from any lateral direction. • Bulk unused and or expired chemotherapeutic waste, independent of where generated, should be returned to the supplier as per contractual requirements on cradle to grave provisions-the supplier will be responsible for disposal in according to procedures specific to the medication type	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
2.6.	**Waste Mixed with Hazardous Chemicals:** Medical waste mixed with hazardous chemicals is generated primarily in Pathology and Laboratory Medicine areas from activities associated with tissue fixing and preservation. The chemicals are usually solvents such as alcohol and xylenes, or formalin. This waste is maintained within and under the control of Pathology and Laboratory Medicine. Disinfectants, laboratory chemicals and reagents, film developer and solvents. Mercury: found in thermometers, blood pressure gauges and dilators and contained hazardous chemical waste and Contact through proximity to such waste can lead to burns and severe skin reactions, poisoning, allergies and asthma. Substances such as mercury causes damage to nervous system and to kidney and urinary system, especially in fetuses and newborns. Contact through release into water bodies and atmosphere can cause serious harm.	In addition to the standard operating procedure for laboratories presented in Annex X. The following minimal norms of segregation should be employed. • waste should be places in brown plastic bags or a rigid container, labelled with the appropriate hazard's symbols	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH
2.7.	**While the Maldives has no facilities for radio therapy- in the event this is established the following guidance is provided.** **Radioactive Materials, Contaminated with** Medical waste contaminated with radioactive materials may be generated from any patient	• This type of mixed waste is usually in the form of excrement or materials which have had contact with excrement, from these patients. It is identified as waste when ○ initially generated or ○ at the loading dock when passed through a mounted radiation detector. • Typical management processes must be undertaken in HCFs that undertake these treatments.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	care area, originating from patients who recently underwent nuclear medicine procedures in parallel to treatment for Covid-19 in HCFs or via regular patients in either in- or outpatient. Direct or indirect contact through proximity to radioactive waste may causes Cancer, other diseases and possible genetic damage.	• All, radioactive medical waste must be segregated and stored in a placed in a designated, secure area and monitored until the activity level drops below threshold, at which point the waste can re-enter the typical HCWM system. • As there are no facilities in the Maldives via which Radioactive waste is currently produced there is no national system for management. If such treatment facilities are developed it should be with guidance from the EPA.				
2.8.	**General Waste generated**	• General health-care waste such as food waste will be also considered • General waste will be collected via a separate stream from all health care waste and will not be comingled under any circumstances.	HCWs, HCF operational staff, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH
3.	**Transport of HCW Within HCFs for Storage or Direct Final Treatment**					
3.1.	Onsite transport of waste from point of generation to storage needs to be managed in a planned manner in order to avoid environmental risks associated with cross contamination with general waste, accidental spillage and exposure of HCWs and patients as	• General requirements ○ Onsite transport should take place during less busy times whenever possible. Set routes should be used to prevent ○ exposure to staff and patients and to minimize the passage of loaded carts through patient care and other clean ○ areas. ○ Depending on the design of the HCF, the internal transport of waste should use separate floors, stairways	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		or elevators as far as possible. Regular transport routes and collection times should be fixed and reliable. ○ Associated staff should wear adequate personal protective equipment, gloves, strong and closed shoes, overalls and ○ masks. ○ Hazardous and non-hazardous waste should always be transported separately. • The following three different transport systems should be adopted in line with best practice: ○ Waste transportation trolleys for general waste should be painted black, only be used for non-hazardous waste types and labelled clearly “General waste” or “Non-hazardous waste”. ○ Infectious waste can be transported together with used sharps waste. Infectious waste should not be transported together with other hazardous waste, to prevent the possible spread of infectious agents. Trolleys should be colored in the appropriate color code for infectious waste (yellow) and should be labelled with an “Infectious waste” sign. ○ Pharmaceutical wastes should be transported separately in boxes to central storage sites. ○ The use of waste chutes in health-care facilities is not recommended, because they can increase the risk of transmitting airborne infections. • Transport trolleys ○ Health-care waste can be bulky and heavy and should be transported using wheeled trolleys or carts that are not used for any other purpose. ○ To avoid injuries and infection transmission, trolleys and carts should: • be easy to load and unload				

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
		• have no sharp edges that could damage waste bags or containers during loading and unloading • Other hazardous waste, such as chemical and be easy to clean and, if enclosed, fitted with a drainage hole and plug o be labelled and dedicated to a particular waste type o be easy to push and pull o not be too high (to avoid restricting the view of staff transporting waste) o be secured with a lock (for hazardous waste) o be appropriately sized according to the volumes of waste generated at a health-care facility. • Waste, especially hazardous waste, should never be transported by hand due to the risk of accident or injury from infectious material or incorrectly disposed sharps that may protrude from a container. • Spare trolleys should be available in case of breakdowns and maintenance. The vehicles should be cleaned and disinfected daily. • All waste bag seals should be in place and intact at the end of transportation.				
3.2.	Routing of the infected waste in HCFs should be maintained to minimize risks of exposure and accidents during operating hours.	Routing • Separate hazardous and non-hazardous routes should be planned and used. • A specific routing plan should be developed based on the lay out of the HCF. • A waste route should follow the general requirements below. o The route should start from the most hygienically sensitive medical areas (e.g. intensive care, dialysis, theatres). o A fixed route around other medical areas and interim storage locations should be followed.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ The frequency of collection should be refined through experience to ensure that there are no overflowing waste containers at any time. ○ Biologically active waste (e.g. infectious waste) must be collected at least daily. • A facility specific routing plan would be influenced by: ○ waste volume and number of waste bags or containers ○ waste types ○ capacity of the waste storage within medical areas and at interim storage areas ○ capacity of the transportation trolleys ○ transport distances and journey times between the collection points. ○ The route should be prepared with the facility specific layout.				
4.	**Storage of Waste within the HCF Premises or Storage of Treated Residuals**					
4.1.	Establishment of central storage areas within a health-care facility for safe retention of waste until it is treated onsite or collected for transport and treatment offsite. Improper storage of larger amounts of health care waste can lead to	• The following general requirements relevant to most types of HCFc where sufficient waste is produced and needs to be stored centrally. • **Note:** Waste storage for specific particular items (e.g. blood, radioactive substances, chemicals) are only likely to be required at and specialized medical centers. • Storage facilities should be built appropriate to the volumes of waste generated from the respective HCF. Annex 29 provides examples of typical best practice in the design of waste storage areas from South Asia as per WHO guidelines. ○ All areas designated for health care waste should: ○ have an impermeable, hard-standing floor with good drainage (away from watercourses); the floor should be easy to clean and disinfect; ○ include the facility to keep general waste separated from infectious and other hazardous waste;	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ have a water supply for cleaning purposes; ○ have easy access for staff in charge of handling the waste; ○ be lockable to prevent access by unauthorized persons; ○ have easy access for waste-collection vehicles; ○ have protection from the sun; ○ be inaccessible to rodents, other animals, insects and birds; ○ have good lighting and at least passive ventilation; ○ not be situated in the proximity of fresh food stores and food preparation areas; ○ have a supply of cleaning equipment, protective clothing and waste bags or containers located conveniently close to the storage area; ○ have a washing basin with running tap water and soap that is readily available for the staff; ○ be cleaned regularly (at least once per week); ○ have spillage containment equipment; • Storage facilities should be labelled in accordance with the hazard level of the stored waste. ○ show typical signs advising the hazard posed by waste. In general, there are four different kinds of waste-storage areas: ○ non-hazardous or general waste ○ hazardous waste (infectious and pathological waste, sharps waste) ○ chemical and hazardous pharmaceutical waste ○ radioactive waste				
4.2.	Specific measures for storage of Infectious waste such as those generate in association to care of Covid-19 Patients.	• The following specifications should be considered for the storage of all waste generated from the care of positive Covid-19 patients, in addition to the general requirements stipulated in point 2.5. ○ The storage place designated of waste storage must be identified as an infectious waste area by using the biohazard sign.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
		○ Floors and walls should be sealed or tiled to allow easy disinfection. ○ If present, the storage room should be connected to a special sewage system for infectious hospital wastewater. ○ The compacting of untreated infectious waste or waste with a high content of blood or other body fluids destined for offsite disposal (for which there is a risk of spilling) should not be permitted. ○ Sharps must be stored contained at all times. ○ All other infectious waste, including discarded PPE of HCWs, should be kept cool or refrigerated at a temperature preferably no higher than 3 °C to 8 °C if stored for a period more than a week. ○ Unless a refrigerated storage Infectious waste storage room is available, storage times for infectious waste (e.g. the time gap between generation and treatment) should not exceed the following periods for warm climates as per WHO guidelines. ▪ 24 hours during the hot season. ▪ 48 hours during the cooler season ○ For pathological waste, is susceptible to the growth of pathogens and is biologically active waste, and gas formation during storage should be expected, thus immediate treatment is recommended. • As the Maldivian culture, body parts are passed to the family for ritual procedures or are buried in designated places. They should be autoclaved and placed in sealed bags to reduce infection risks before release to the public.				
4.3.	Procedure for decontamination of Reusable storage containers and storage areas to prevent the risk of continuous contamination and residue accumulation.	• At all times cleaning staff should be equipped with the requisite PPE, including at minimum, masks, plastic puncture proof gloves and boots and covered clothing, including aprons.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ Discarded spoiled PPE should be included in the waste stream as part of hazardous waste. • Reusable secondary containers (garbage cans, bins, etc.) should be decontaminated each time they are emptied unless they are protected from contamination by disposable liners, bags, or other devices removed with the waste. • These containers should be maintained in a clean and sanitary manner. • Approved methods of decontamination include, but are not limited to, agitation to remove visible soil combined with one of the following procedures: ○ Exposure to hot water of at least 82 °C (180 °F) for a minimum of 15 seconds ○ Exposure to chemical sanitizer by rinsing with, or immersion in, one of the following for a minimum of 3-5 minutes at minimum: ▪ Hypochlorite solution (500 ppm available chlorine) ▪ Phenolic solution (500 ppm of active agent) ▪ Iodoform solution (100 ppm available iodine) ▪ Quaternary ammonium solution (400 ppm active).				
4.4.	Pharmaceutical waste should be segregated from other wastes and local regulations followed for final disposal. General, pharmaceutical wastes can be hazardous or non-hazardous, and liquid or solid in nature, and each should be handled differently. The classification should be carried out by a pharmacist or other expert on pharmaceuticals.	• Pharmaceutical waste with non-hazardous characteristics that can be stored in a non-hazardous storage area include the following. ○ ampoules with non-hazardous content (e.g. vitamins); ○ fluids with non-hazardous contents, such as vitamins, salts (sodium chloride), amino salts; ○ solids or semi-solids, such as tablets, capsules, granules, powders for injection, mixtures, creams, lotions, -- aerosol cans, including propellant-driven sprays and inhalers. • Hazardous waste that should be stored in accordance with their chemical characteristics and instructions specifically assigned as per regulations include (e.g. genotoxic drugs) or specific				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		requirements for disposal (e.g. controlled drugs or antibiotics), include the following. ○ controlled drugs (should be stored under government supervision); ○ disinfectants and antiseptics; ○ anti-infective drugs (e.g. antibiotics); ○ genotoxic drugs (genotoxic waste); ○ gels and suppositories; ○ ampoules with, for example, antibiotics. • Genotoxic waste is highly toxic and should be identified and stored carefully away from other formers of HCW in a designated secure location. It can be stored in the same manner as toxic chemical waste, although some cytotoxic waste may also carry a risk of infection.				
4.5.	Specific measures for hazardous chemical waste storage	• When planning storage places for hazardous chemical waste, the characteristics of the different chemicals to be stored and disposed of must be considered (inflammable, corrosive, explosive). ○ The storage place should be an enclosed area and separated from other waste storage areas. ○ When storing liquid chemicals, the storage should be equipped with a liquid- and chemical-proof sump. ○ If no sump is present, catch-containers to collect leaked liquids should be placed under the storage containers. ○ Spillage kits, protective equipment and first aid equipment (e.g. eye showers) should be available in the central storage area. ○ The storage area itself should have adequate lighting and good ventilation to prevent the accumulation of toxic fumes. ○ To ensure the safe storage of chemical wastes, the following separate storage zones should be available to prevent ○ dangerous chemical reactions.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
		○ The storage zones should be labelled according to their hazard class. If more than one hazard class is defined for a specific waste, use the most hazardous classification: ▪ explosive waste ▪ corrosive acid waste ▪ corrosive alkali waste (bases) ▪ toxic waste ▪ flammable waste ▪ oxidative waste ▪ halogenated solvents (containing chlorine, bromine, iodine or fluorine) ▪ non-halogenated solvents. • Liquid and solid waste should be stored separately. • If possible, the original packaging should be taken for storage too. • Packaging used to store, and transport chemical wastes offsite should also be labelled. ○ This label should have the following information: hazard symbol(s), waste classification, date, and point of generation (if applicable). • The storage area for explosive or highly flammable materials must be suitably ventilated above and below, with a bonded floor and constructed of materials suitable to withstand explosion or leakage.				
4.6.	Specific measures for storage of Radioactive Waste in order to mitigate exposure risks.	• Storage areas must be equipped with sufficient shielding material, either in the walls or as movable shielding screens. • The storage area must be clearly marked with “RADIOACTIVE WASTE”, and the international hazard label should be placed on the door and entry should be restricted unless for authorized personnel. • The storage place should be constructed in a manner that renders it flame-proof and should have such surfaces on floors, benches and walls that allow proper decontamination. • An air-extraction system and radioactive monitoring system should be put in place.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• The International Atomic Energy Agency provides comprehensive guidance on all aspects of the safety of radioactive waste management in the Safety Standards Series and should be referred to. • Storage within storage areas should follow the following best practice norms. ○ Radioactive waste should be stored in containers that prevent dispersion of radiation and stored behind lead shielding as indicated above. ○ Waste that is to be stored during radioactive decay should be labelled with the type of radionuclide, date, period of time before full decay and details of required storage conditions. ○ The decay storage time for radioactive waste differs from other waste storage, because the main target will be to store the waste until the radioactivity is substantially reduced and the waste can be safely disposed of as normal waste. ○ A minimum storage time of 10 half-life times for radioisotopes in wastes with a half-life of less than 90 days is a common practice. ○ Infectious radioactive waste should be decontaminated before disposal. ○ Liquids associated with solid materials, such as assay tube contents, should be decanted or removed by decay time. ○ Radioactive waste with a half-life of more than 90 days must be collected and stored externally in accordance with national regulations.				
4.7.	Documentation of the operation of storage places. Keeping clear records of the wastes stored and their treatment and disposal dates is important to ensure a good control of	• As best practice the following forms of additional documentation are suggested to be maintained. ○ a written spill contingency plan; ○ a weekly store inspection protocol;	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	waste management not only during Covid Response but during overall operations.	○ protocols for using, repairing and replacing emergency equipment; ○ training system and documentation (names of trained staff, job descriptions, form of training, date of training, date for refresher or revalidation training); ○ hazardous waste storage documentation; ○ collection of relevant material safety data sheets.				
5. Onsite Treatment and Disinfection of Waste Prior to Final Disposal						
5.1.	Recommended treatment options for various types of waste generated via the Covid-19 response and care activities as per WHO guidelines during an emergency.	• **Human Anatomical Waste** (Human tissues, organs, body parts) ○ Via Incineration at temperatures above 800°C • **Infectious Waste** (Wastes from clinical samples, pathology, bio-chemistry, hematology, blood bank, laboratory cultures, stocks or specimens of micro- organisms, live or attenuated vaccines, human cell culture, infectious agents, dishes and devices used for transfer of cultures, items contaminated with blood and body fluids including cotton, dressings, soiled plaster-casts, linen, bedding, other materials contaminated with blood Wastes generated from disposable items other than the waste sharps, such as tubing, hand-gloves, saline bottles with IV tubes, catheters, glass, intravenous sets etc. ○ Via Disinfection at source by chemical treatment or by autoclaving/microwaving followed by mutilation/shredding and after treatment final disposal in secured landfill or incinerated at temperatures above 800°C • **Waste Sharps** (Needles, glass syringes or syringes with fixed needles, scalpels, blades, glass, etc. that may cause punctures and cuts. This includes both used and unused sharps) ○ Disinfection by chemical treatment or destruction by needle and tip-cutters, autoclaving or microwaving	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		followed by mutilation or shredding, whichever is applicable, and final disposal through disposal in secured landfill, contained waste parallels that are sealed if open dumping is the only option in country or designated concrete waste sharps pit where possible. • **Discarded Pharmaceuticals** (Wastes comprising of outdated, contaminated and discarded medicines) ○ Disposal in secured land fill or incineration incinerated at temperatures above 800°C • **Hazardous Chemical Waste** (Chemicals used in production of biological toxins, chemicals used in disinfection, as insecticides etc.) ○ Chemical treatment and discharge into drains, meeting the norms specified below in Section X.				
5.2.	Disinfection via the use of Chemicals such as Characteristics of sodium hypochlorite (NaOCl), bleach and other substances may lead to irritation of skin, eyes and the respiratory track, and cause burns due to associated toxic properties and there need to be handled with care. Large quantities if disposed to water ways without	• Waste to be Autoclaved should not be chemically treated unless post autoclaving as an additional measure. • Disinfection via chemical substance should only be conducted in designated area or where not available a designated bathroom or lab area that has adequate ventilation and wash facilities available. ○ Storage and use areas as a best practice should have facilities should always have sinks or facilities and access to portable water for washing. • Only individuals trained to carry out chemical disinfection should be involved, and the chemicals should be handled, stored and disposed in line with the guidance provided by the manufacture. ○ Gloves and protective eyeglasses should be worn at all times during handling of such substances to protect skin and eyes. ○ In the case of contact with eyes, the eyes should be rinsed abundantly with water and due medical care provided.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• Storage and Disposal ○ Aqueous solutions of hypochlorite and other chlorine-based substances are corrosive to metals and should always be stored in plastic containers in well-ventilated, dark and leakage-proof rooms; ○ All Cleaning substances should be stored separately from acids. ○ Unused solutions should be reduced with substances such as sodium bisulfite or sodium thiosulfate and neutralized with acids before discharge into sewers as per the WHO guidelines for management. ○ Large quantities of concentrated solutions should be treated as hazardous chemical waste and treated as per the requirements of the EPA.				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
5.3.	Autoclave operation for disinfection of waste poses a number of potential risks which can impact operators. These include heat and steam burns, hot fluid scalds, injuries to hands and arms from the door, and bodily injury in the event of an explosion. Exposure to biohazardous material may occur if biohazardous waste is improperly packaged or manipulated.	• **General Operational Requirements** ○ Autoclaves should be operated only by trained personnel or certified operators. ○ Waste treated with hypochlorite should not be autoclaved, while it can be used to further disinfect waste post autoclaving. ○ Onsite training on how to use the autoclave properly and safely is essential for all new employees to prevent injury- should be conducted and documented (as a best practice training should be documented and training records should be maintained in an autoclave training log). ○ Autoclaves should be placed in designated areas with the HCF with hazard signage duly places with only authorized personnel allowed to enter. ○ Desktop autoclaves at waste management points should be placed in secure areas away from other equipment and care and testing areas. ○ The use of heat-insulating gloves, lab coat, and closed-toe shoes help prevent burns and scalds during loading and unloading the autoclave must be worn by all personnel prior to operation. ○ Follow the manufacturer's specific user manual and guidance and HCF laboratory SOPs (generic laboratory SOPs have been presented in Annex 26) for operating autoclaves. ○ Specific areas where autoclaves should be locked, and users should ensure the door is secure before starting a cycle. ○ Record cycle information on autoclave log sheet or logbook. • **Precautions during Loading**	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ The top of waste bags shall be handles as per the handling instructions. ○ Be sure that the autoclavable red bag or yellow Infectious waste bags can withstand the autoclave cycle without melting. ○ Inspection of the door gasket (seal) for any cracks or bulges should be conducted. *Typically, the gasket should be smooth and pliable.* ○ Ensure that the jacket has reached sufficient pressure to start a cycle ○ The following steps should be followed when loading ▪ Inspect for spills or debris inside the autoclave; ▪ Place items in an autoclave tub on rack. ▪ Never place items directly on the autoclave bottom or floor. ▪ Do not overload the autoclave. ▪ Allow sufficient space between items for steam. ▪ Always use secondary containment in case of spillover ○ Users should check about 20 minutes into the cycle to verify the respective autoclave being operated has reached sterilization temperature (typically 121°C). ○ The autoclave door during a cycle should not be opened during the process at all. ○ If it is necessary to open the door, the cycle should be aborted, and the time should be allowed for the chamber depressurizes. ○ If cycle fails immediate assistance from trained personnel or the manufacture should be taken as the waste inside may not be sufficiently decontaminated if the cycle did not complete. ○ If any problems are found, contact the responsible person before using the autoclave.				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• **Unloading and Repacking Waste** ○ During the unloading and packaging autoclaves waste the following steps must be taken by operated to ensure good management: ○ When the cycle is complete, verify that chamber temperature has dropped, and pressure is zero. ○ Wear appropriate PPE to protect yourself from heat and steam (e.g. heat-resistant gloves, lab coat, safety glasses). ○ The door should be opened slowly to allow steam to escape gradually. ○ At all times the face should be kept away from the door. ○ Allow items to stand in the autoclave for 10 minutes- both desktop and larger units- unless a specific time has been instructed in the manufactures Manuel. ○ Maintain caution when removing items, and place in a safe area to cool. ○ Do not agitate containers as boiling or superheated liquids can explode if moved too quickly. ○ Carefully move the remains of waste into the transport bins for final disposal. ○ Clean the drain screen of debris if necessary. ○ ○ Record cycle information on autoclave log sheet or logbook. ○ • **Maintenance Requirements** ○ A regular implementation schedule should be maintained to ensure safe operation. ○ The contact information for maintenance technician available should be recorded and made available near the units for emergencies.				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• **Management of Unforeseen Accidents-** in the event an accident occurs the following mediate measures will be undertaken at the HCF. ○ An Exposure Response Poster must be posted near the autoclave. ○ In the event of an accident, first aid should be immediately provided first aid and help should be taken in accordance with the according to the instructions on the poster immediately. ○ Report any accidents or near misses in the log and to hospital authorities, so that they can be investigated and hopefully prevented in the future. • **Personal protective equipment (PPE)** use for autoclave operation ○ Operators are required to always use PPE when using an autoclave. ○ The basic attire should be a lab coat, heat-resistant gloves, and safety glasses. ○ Workers must ensure via the attire that arms are covered by a lab coat and longer heat-resistant gloves to prevent burns from heat and steam. • **Precautions on Items that can be autoclaved and process** ○ Autoclave should not be used for sterilizing waterproof materials, such as oil and grease or dry materials, such as glove powder ○ Materials are loaded in, such a way that it allows efficient steam penetration (do not overfill the chamber). It is more efficient and safer to run two separate, uncrowded loads than one crowded one. ○ Wrapping objects in aluminum foil is not recommended because it may interfere with steam penetration. Articles				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		should be wrapped in materials that allow steam penetration. ○ Materials should not touch the sides or top of the chamber ○ The clean items and the wastes should be autoclaved separately. ○ Polyethylene trays should not be used as they may melt and cause damage to the autoclave. ○ Do not autoclave flammable, combustible, reactive, corrosive, toxic, or radioactive materials. ○ Contact EH&S for disposal of hazardous materials. ○ Check that plastics are compatible with the autoclave as not all plastics can be autoclaved. ○ Prior to loading inspect glassware for cracks. Do not autoclave cracked or compromised glassware when disinfecting for reuse. ○ For liquids, leave caps loose or cover with foil to allow steam penetration and prevent explosion. ○ For bagged items, loosely tape or tie closed. ▪ Leave an opening for steam to penetrate the bag.				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
5.4.	Management of Liquid Medical Waste such a chemical as improper management of liquid waste can lead to exposure risks and contamination of marine and land environments.	• Treated medical waste in liquid or semi-liquid state can be discharged to the sanitary sewer, i.e. a sewer that leads to a treatment facility if available if it is not a mixed waste containing radioactive, hazardous, or untreated medical waste. • Medical waste of the following types must be treated by a chemical disinfection if the medical waste is liquid or semi-liquid and the chemical disinfection method as per Infection Control guidance. • The medical waste that may be treated by chemical disinfection includes, but not limited to, the following: ○ Cultures and stocks of infectious agents from research and industrial laboratories. ○ Wastes from the production of bacteria, viruses, and spores, discarded live and attenuated vaccines used in human health care or research, and discarded animal vaccines. • Disposal of Disinfectants ○ Only hypochlorite bleach has been pre-approved for disposal down the drain for discharge into the public sewer system as per best practice standards. ○ Other disinfectants may be approved on a case-by-case basis. It should be verified that the disinfectant is a certified, approved method. The default mode of disposal (for disinfectants other than bleach) is as chemical hazardous aqueous waste ○ All other chemical disinfectants or waste with any additional hazardous properties must be included for disposal as hazardous waste, unless otherwise approved. ○ Prior approval must be obtained prior to disposing of these solutions down the sink by the relevant authority such as the MNDF. There is a list of chemicals that can be imported without permit and a list of chemicals that needs permit under Hazardous Chemicals Regulation (2019/R-1057). For disposal of hazardous chemicals, it has to be	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		handed over to MNDF there is a special form contained in the regulation. • Liquid medical waste containing biotoxins on the select agent list will be autoclaved and then disposed of as chemically hazardous waste, via the processes outlined in the HCWMP.				

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
5.5.	Wastewater Disposal- Most hospitals in Male are connected to a sewer line- liquid hazardous waste can impact marine environments	The following actions should be only carried out if no other way of hazardous waste disposal is available or during an emergency situation • The use of appropriate PPE is of utmost importance in all situations: ○ Body fluids and the contents of suction systems from non-infectious patients from places such as operating theatre should be discharged via the drain by staff wearing PPE and with all possible further precautions to avoid fluid splashing. ○ Stool, vomit and mucus from highly infectious patients (e.g. cholera patients) should be collected separately and thermally treated before disposal (e.g. by an autoclave reserved for waste treatment). Lime milk (calcium oxide) can be used during emergencies and if no appropriate autoclave or other disinfectant is available. ○ Blood can be emptied into a septic or sewerage system if safety measures are followed (e.g. PPE and precautions against spatter). ○ Other options for expired blood bags include disposal at a controlled land-disposal site, or treatment in a high-temperature incinerator (1100 °C) if available or in an autoclave that has a special liquid treatment program cycle. • Collection and disposal of wastewater another secure location. ○ • Solid health-care waste, especially solid hazardous waste (pharmaceuticals, chemicals), should not be mixed into wastewater. ○ Liquid laboratory hazardous waste (colorants, formalin) should be collected separately.	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ Adsorbent (e.g. sawdust) should be used for easier handling. ○ The solid mass should be rendered immobile or encapsulated. ○ Chlorine-based disinfectant should be diluted to reach a concentration of <0.5% active chlorine, and should be disposed of directly in a soak away pit. ○ Chlorine-based disinfectant should not be disposed of in a septic tank, because it will harm the biodegradation process. ○ Liquid pharmaceuticals in vials (but not cytotoxic materials) can be crushed in a closed bucket, mixed with sawdust, and the solid mass incinerated or encapsulated. ○ Glutaraldehyde should be stored after use and can be neutralized using glycine. Subsequently, it can be slowly disposed of via a soak away pit. • **Note:** that sludge and sewage from health-care facilities generated by a basic wastewater-management system should never be used for agricultural or aquaculture purposes and should be disposed via incarnation. • Effluents from the basic treatment should not be discharged into the ocean unless the wastewater standards of the EPA have been achieved.				
6. Transport of Health Care Waste by Service Providers for Treatment in another HCF or For End Disposal						
6.1.	Transport of Health Carew Waste for Incineration in Thilafushi or other locations by Waste Service Providers. Can pose both workers and communities on risk if not transported and managed as per standards	• **Standards for Suitable Vehicles/Vessel** ○ Any vehicle used to transport health-care waste should fulfil several design criteria: ▪ The body of the vehicle should be of a suitable size commensurate with the design of the vehicle.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	from the collection point to final disposal. A fundamental requirement is for the vehicle transporting hazardous waste to be roadworthy and labelled to indicate its load, and its payload to be secured to minimize the risk of accidents and spillages. The current vehicles being used are 2 trucks (750 kg capacity) to services capital Male' and 1 dump truck (4-ton capacity) to service Hulhumale'. These vehicles are owned by WAMCO.	▪ There should be a bulkhead between the driver's cabin and the vehicle body, which is designed to retain the load ▪ if the vehicle is involved in a collision. ▪ There should be a suitable system for securing the load during transport. ▪ Empty plastic bags, suitable protective clothing, cleaning equipment, tools and disinfectant, together with ▪ special kits for dealing with liquid spills, should be carried in a separate compartment in the vehicle. ▪ The internal finish of the vehicle should allow it to be steam-cleaned and internal angles should be rounded to ▪ eliminate sharp edges to permit more thorough cleaning and prevent damage to waste containers. ▪ The vehicle should be marked with the name and address of the waste carrier. ▪ An international hazard sign should be displayed on the vehicle and containers, as well as an emergency telephone number. ▪ The driver should be provided with details of the waste being carried. The transport vehicle should be labelled according to the type of waste that is being transported. • **Vehicle/Vessel Operators** ○ Drivers of vehicles carrying hazardous health-care waste should have appropriate training about risks and handling ○ of hazardous waste. Training on the following issues should be included: ▪ relevant legal regulations ▪ waste classifications and risks				

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
		▪ safe handling of hazardous waste ▪ labelling and documentation ▪ emergency and spillage procedures. ○ In addition, drivers should be declared medically fit to drive vehicles and have valid licenses for waste vehicle operation. ○ In case of accident, contact numbers or details of the emergency services and other essential departments should be carried in the vehicles. ○ For safety reasons, vaccination against tetanus and hepatitis A and B is recommended and vaccination and training details of staff should be recorded. • **Vehicle/Vessels Operations** ○ Vehicles should be operated as per the speed regulations of the country. ○ A routing plan via routes that avoid densely populated areas and high traffic zones where possible should be used.				
7. Final Disposal and Waste Management Sites						
7.1.	Final disposal of Health Care waste generated via the Covid 19 operations is conducted via incineration and or via contained burning via vessel incinerators in areas where more state-of-the-art Incinerators are not available. Incineration of waste using a Medical Waste Incinerator will commence for the Male' Region with an Incinerator (Addfield MP 200 Medical Waste Incinerator) being located in the industrial and waste island at Thilafushi. Incinerators can be major source of emissions to air and wastewater while it is still more	**Operational Requirements for MWIs** • MWI should have permits issued by authorized regulatory agencies such as the EPA prior to operation. • The MWI must be operated and maintained by trained employees to ensure proper combustion temperature, time, and turbulence specifications necessary for adequate combustion of waste. • All infectious waste brought to the site must be immediately incinerated and not stored. Infectious waste has to be fully managed within a period of 24 hours from point of generation to final disposal via incineration.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
	suitable in comparison to open burning which is currently being practiced across the Maldives. Medical waste incinerator (MWI) emitted from MWIs include: Heavy metals; organics in the flue gas, which can be present in the vapor phase or condensed or absorbed on fine particulates; Various organic compounds which are generally present in hospital waste or can be generated during combustion and post-combustion processes are known toxins to human and environmental health as well as fly and bottom ash and contaminated water residue that needs to be treated.	• This includes implementation of standard operational controls including combustion and flue gas outlet temperatures (combustion temperatures should be above 850 °C while flue gases need to be quenched very quickly to avoid formation and reformation of POPs) as well as use of flue gas cleaning devices meeting international standards. • Secondary air pollution control measures for MWIs should be ensured in the unit used and include the following, this should be verified when selecting units and documented: ○ Wet scrubbers to control acid gas emissions (e.g. hydrochloric acid [HCl)], sulfur dioxide [SO2, and fluoride compounds]). A caustic scrubbing solution will increase the efficiency for SO2 control; ○ Control of particulate matter may be achieved through use of cyclones, fabric filters, and or electrostatic precipitators (ESP). ○ Efficiencies depend on the particle size distribution of the particulate matter from the combustion chamber. ○ Particulate matter from hospital incinerators is commonly between 1.0 to 10 micrometers (μm). ESPs are generally less efficient than baghouses in controlling fine particulates and metals from HWI; ○ Control of volatile heavy metals depends on the temperature at which the control device operates. Fabric filters and ESP typically operate at relatively high temperatures and may be less effective than those that operate at lower temperatures. ○ Venturi quenches and venturi scrubbers are also used to control heavy metal emissions. The volatile heavy metals usually condense to form a fume (less than 2 μm) that is only partially collected by pollution control equipment;				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• The unit should contain emission monitoring devices or hand held mobile emission monitoring devices should be monitored in line with the Standards in Incinerator emissions which have been issued by the EPA and are in line with US EPA and EU standards which are referred to in the WBGs General and Hazardous Waste Environmental Health and Safety Guidelines. • Management of incineration residues such as fly ash, bottom ash and liquid effluents from flue gas cleaning as a hazardous waste may contain high concentrations of POPs and need to be managed as per specific guidance below • Further guidance and technical information on the proper operation and maintenance of hospital • waste incinerators may be obtained from WHO (1999) Chapter 8 and the US EPA Handbook on the Operation and Maintenance of Medical Waste Incinerators (2002). **Operational Logging** • A strict operational and maintenance schedule should be managed for the incinerator operation with a log. • Maintenance log can include tasks such as the following: ○ Loading amounts, temperatures, names of daily operators, emission records should be logged. ○ As Maintenance activities the status of the following timely actions should be logged in ▪ Hourly: inspect ash removal conveyor and water levels in quench pit ▪ Daily: check opacity, oxygen and temperature monitors; clean underfired airports, ash pit and sump; inspect limit switches and door seals ▪ Weekly: clean heat recovery boiler tubes, blower intakes, burner flame rods and sensors, heat				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		recovery induced draft fan; lubricate latches, hinges, hopper door pins, etc. –				
7.2.	Recommended Measures for disposal of residuals from treatment processes via MWIs- Ash and Wastewater.	**Types of final disposal options for residuals in line with best practice guidance by the WHO and World Bank** • Incineration ash – Secured sanitary landfill or fully encapsulated and sealed in containers for testing and safe disposal in a municipal sanitary landfill. • Treated solid waste – incinerated and ash stored as per above guidance. • Wastewater from incineration process should be collected in a concreted leachate collection pit via adequate drainage facilitation if there is no link to wastewater treatment facilities. • Mobile leachate treatment options should be explored. • Plastic waste and sharp after disinfection and shredding – Recycling or municipal sanitary landfill • Sharps, after disinfection- fully encapsulated –Municipal sanitary landfill • Treated wastewater – Sewer/drain or recycling • Oil and grease residue – Incineration **Encapsulation and storage of Residual Ash** • Disposal of incinerator ash in municipal landfills is less advisable unless the waste is fully encapsulated. • At Thilafushi on the operation of the MWI, the residual and cleaned ash should be encapsulated and stored until it can be tested for toxicity and then an appropriate final disposal site is selected, i.e. the lined landfill in Vandhoo Regional Waste Management Center or Thilafushi. • Encapsulation involves filling containers with waste, adding an immobilizing material, and sealing the containers. The process	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		uses either cubic boxes made of high-density polyethylene or metallic drums. • Encapsulation can be filled three-quarters filled with sharps and chemical or ash residue. • The containers or boxes are then filled up with a medium • such as plastic foam, bituminous sand, cement mortar, or clay material. • After the medium has dried, the containers are sealed they have to be stored in a housed location within the facility until further disposal can be attained. • This process is relatively cheap, safe, and particularly appropriate for establishments that practice minimal programs for the disposal of sharps and chemical or ash residues. • Encapsulation alone is not recommended for non-sharp infectious waste but may be used in combination with burning of such waste and residue.				
8. Occupational Health and Safety Management for Health Care Waste Workers						
8.1.	Management of exposure to infectious waste from Covid-19 patient care, other forms of toxic health care waste, chemicals, and partaking in risky activities such as operation of autoclaves and incinerators during the health care waste management cycle to workers involved on Health Care Waste Management.	• Adequate awareness and training should be provided in line with Section X. • Only trained personnel should be allowed to operate machinery such as autoclaves and incinerators as these reduce the risk operational injuries. • Minimum PPE ○ Gloves should be worn at all times during HCWM operations to protect from exposure to blood, other potentially infectious materials and chemicals; particulate masks (respirators) to protect from respiratory infections hazards and particulates from	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		burning waste; and boots for waste handlers to protect from sharps injuries to the foot. ○ Industrial boots with thick soles should be worn as they offer protection in the storage area, as a precaution from spilt sharps, and where floors are slippery. ○ As it is likely that health-care waste bags will come into contact with workers' legs during handling, leg protectors may also need to be worn (Annex 29 provides a depiction of typical attire). ○ Workers should have access to soap and water, and alcohol hand rub, for hand hygiene are also important to maintain cleanliness and inhibit the transfer of infection via dirty hands. • The type of protective clothing used will depend to an extent upon the risk associated with the health-care waste, but the following should to be made available to all personnel who collect or handle waste: ○ obligatory disposable gloves (medical staff) or heavy-duty gloves (waste workers) ○ industrial aprons ○ overalls (coveralls) ○ leg protectors and/or industrial boots ○ depending on type of operation eye protectors (safety goggles) ○ face masks (if there is a risk of splash into eyes) ○ helmets, with or without visors. • The following preventive measures can also be implemented during an emergency response phase such as the Covid-19 Response to reduce public and occupational health risks (in an emergency response period, some activities, such as awareness raising, may not be implemented):				

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ Provide hepatitis B vaccination to all health-care staff and waste handlers. ○ Encourage hand hygiene (washing, preferably followed by disinfection) (please see guidance in Annex 29) ○ Raise the awareness of staff about simple post exposure prophylaxis in the event of an occupational injury (e.g. needle-stick injury). ○ Contain and promptly clean up spillages of infectious materials and disinfect quickly to avoid pathogen transmission. ○ Conduct onsite awareness-raising activities (whenever possible) to remind health-care staff about occupational exposures and the safe practices for managing health-care waste.				
8.2.	Reporting accidents and incidents	• All health care management staff at the HCFs and WAMCO should be trained in emergency response and made aware of the correct procedure for prompt reporting. • Accidents or incidents, including near misses, spillages, damaged containers, inappropriate segregation and any incidents involving sharps, should be reported to the waste-management officer (if waste is involved) or to another designated person. • The report should include the following details of: ○ the nature of the accident or incident ○ the place and time of the accident or incident ○ the staff who were directly involved ○ any other relevant circumstances. • The cause of the accident or incident should be investigated by the waste-management officer (in case of waste) or other responsible officer, who should also take action to prevent recurrence.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• The records of the investigation and subsequent remedial measures should be maintained at the HCF and by WAMCO where relevant.				
8.3.	Staff Training-In order to ensure good implementation once the ICHCWMP is developed or where time permits during the development phase itself HCF managers, medical staff producing the waste (doctors, nurses and lab technicians), waste workers and waste handlers and teams involved in final disposal should be trained. Nurses and waste handlers are key personnel to instill a disciplined approach in the day-to-day management of wastes.	• The training of waste handlers and nurses managing medical areas should be more thorough and focus on practical procedures outlined in the HCF specific IC-HCWMP. • Training programs should be practical and undertaken at their own place of work or somewhere similar. • Training and awareness programs help in changing the mindset of the HCF teams and workers towards health-care waste. Regular and ongoing training and awareness programs for all the staff members – • from the top administrator to the housekeeping staff should be organized to reinforce the message of proper waste management practices. • Training for HCWs should be conducted as soon as the ICHCWMP is completed as least via a quick awareness program taking into consideration the nature of operations. • As all HCFs in the Maldives have at least one HCW personnel as per the MoH, this training can be conducted remotely via video conference or via online reading material. • Training programs should broadly include the following topics: ○ COVID-19 Related Infection Control Protocols ○ Hazards of health-care waste ○ Infection control measures ○ Bio-Medical Waste (Management and Handling) Rules ○ Waste management steps: waste collection, segregation, transportation, storage, treatment and disposal ○ Liquid waste management ○ Cleaning of spills ○ Waste minimization ○ Alternatives to hazardous chemicals	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		○ Occupational safety issues. • More in-depth face to face training must be conducted immediately after the rapid response phase • Periodic repetition of courses will provide an opportunity to instruct new employees, and "refresher" courses for existing employees can remind them of practices and inform about changes or new responsibilities. • Online based modules are offered by the WHO with already pre-prepared training material that can be used.				
9. Emergency Preparedness Plans						
9.1.	Biohazard, Infectious material and chemical spills.	• Only staff members who are trained and competent regarding the proper procedures, that have the appropriate spill clean-up equipment and personal protective equipment, are allowed to clean up blood or other potentially infectious materials. • Department heads of the HCF are responsible for ensuring that staff members have been trained regarding spill response procedures for biological materials to which they may be exposed. • Alert people in immediate area of spill to keep away and not to touch the material or walk near it. • Staff trained, need to put on protective equipment including gloves, gown and face and eye protection. • The following management steps needs to be followed: ○ Cover spill with paper towels or other absorbent material. ○ Carefully pour a hospital-approved germicide around the edges of the spill and then into the spill. Avoid splashing. Avoid making the spill significantly larger. ○ Wipe up the spill with towels, absorbent material and dispose properly.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	**Proposed Mitigation Measures**	**Responsibilities**	**Timeline**	**Budget**	**Monitoring Responsibility**
		○ Follow other applicable departmental procedures. ○ Exposed individuals should be immediately referred to the Occupational/Employee Health Facility or Emergency Department within the HCF and provided with due care. ○ All actions should be documented in operational logs				
9.2.	Contingency Measures for Disruption of Service – Transport and Treatment and/or final disposal by a service provider.	• In the event that service by the health care waste transporter and/or treatment/disposal contractor is interrupted for any reason, the following actions would be implemented: ○ Determine when regular service from regular transport and treatment contractor can be resumed. Inquire if contractor has alternative transportation, storage and disposal plan that can be implemented. ○ Notify the HPA and MOH senior officials and HCF management for guidance on next steps. ○ If the service provider cannot provide services within a reasonable time, then the following actions will be implemented: ▪ Attempt to secure the services of an alternate service provider who may be able to transport and dispose of waste until regular service is restored. ▪ Implement disinfection and contained storage for a minimal period of 48 hours. ▪ Section X below suggests further storage and containment options where equipment for storage as per permissible standards, such as deep freezers and refrigerated areas are available.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH
9.3.	Potential Equipment Failure within HCFs	• If the primary equipment fails, there should always be an alternate machine or facility identified. • Health care waste will be handled by one of the following methods:	HCWs, HCWWs,	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

	Activity and Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget	Monitoring Responsibility
		• Complete the sterilization at the other autoclave if possible or immediate chemical disinfection • Medical waste can be stored at temperatures greater than 32 °F (0°C) for up to 7 days prior to treatment if refrigeration facilities for waste is available within the facility. • The medical waste may also be stored frozen for up to 90 days. Attempts will be made to complete repair within this time.				
9.4.	Hinderance to regular operations due to Natural Disasters	• In the event of a natural disaster, all activities generating medical waste should follow guidance on longer storage. • It is recommended that for larger HCFs refrigerators should be explored as a storage option in the event of emergencies. • In the event of an electrical or other problem related to natural disasters, the lab users need to coordinate with the relevant authorities to ensure power supply. • Having a backup power supply such as a generator is recommended such as auxiliary generators to provide backup power to autoclaves or solar based BESS systems.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH
9.5.	Potential closure of a waste treatment facility	• Upon closure of the facility, all equipment, facilities, and non-disposable items used in the operation of the treatment process will be decontaminated either by steam sterilization or by disinfection with a commercial quaternary ammonium salt disinfectant, mixed and used per the manufacturer’s directions.	HCWs, HCWWs, WAMCO	On generation	HCW HCF Operational budget	HCF Management, HPA, EPA, MOH

ANNEX 11: INFECTION CONTROL AND PREVENTION PROTOCOL

(adapted from the CDC Interim Infection Prevention and Control Recommendations for patients with confirmed COVID-19 or persons under investigation for COVID-19 in Healthcare Settings)

HEALTH CARE SETTINGS

1. Minimize Chance of Exposure (to staff, other patients and visitors)

- Upon arrival, make sure patients with symptoms of any respiratory infection to a separate, isolated and well-ventilated section of the health care facility to wait, and issue a facemask
- During the visit, make sure all patients adhere to respiratory hygiene, cough etiquette, hand hygiene and isolation procedures. Provide oral instructions on registration and ongoing reminders with the use of simple signs with images in local languages
- Provide alcohol-based hand sanitizer (60-95% alcohol), tissues and facemasks in waiting rooms and patient rooms
- Isolate patients as much as possible. If separate rooms are not available, separate all patients by curtains. Only place together in the same room patients who are all definitively infected with COVID-19. No other patients can be placed in the same room.

2. Adhere to Standard Precautions

- Train all staff and volunteers to undertake standard precautions - assume everyone is potentially infected and behave accordingly
- Minimize contact between patients and other persons in the facility: health care professionals should be the only persons having contact with patients and this should be restricted to essential personnel only
- A decision to stop isolation precautions should be made on a case-by-case basis, in conjunction with local health authorities.

3. Training of Personnel

- Train all staff and volunteers in the symptoms of COVID-19, how it is spread and how to protect themselves. Train on correct use and disposal of personal protective equipment (PPE), including gloves, gowns, facemasks, eye protection and respirators (if available) and check that they understand
- Train cleaning staff on most effective process for cleaning the facility: use a high-alcohol based cleaner to wipe down all surfaces; wash instruments with soap and water and then wipe down with high-alcohol based cleaner; dispose of rubbish by burning etc.

4. Manage Visitor Access and Movement

- Establish procedures for managing, monitoring, and training visitors
- All visitors must follow respiratory hygiene precautions while in the common areas of the facility, otherwise they should be removed
- Restrict visitors from entering rooms of known or suspected cases of COVID-19 patients Alternative communications should be encouraged, for example by use of mobile phones. Exceptions only for end-of-life situation and children requiring emotional care. At these times, PPE should be used by visitors.
- All visitors should be scheduled and controlled, and once inside the facility, instructed to limit their movement.
- Visitors should be asked to watch out for symptoms and report signs of acute illness for at least 14 days.

CONSTRUCTION SETTINGS IN AREAS OF CONFIRMED CASES OF COVID-19

1. Minimize Chance of Exposure

- Any worker showing symptoms of respiratory illness (fever + cold or cough) and has potentially been exposed to COVID-19 should be immediately removed from the site and tested for the virus at the nearest local hospital

- Close co-workers and those sharing accommodations with such a worker should also be removed from the site and tested
- Project management must identify the closest hospital that has testing facilities in place, refer workers, and pay for the test if it is not free
- Persons under investigation for COVID-19 should not return to work at the project site until cleared by test results. During this time, they should continue to be paid daily wages
- If a worker is found to have COVID-19, wages should continue to be paid during the worker's convalescence (whether at home or in a hospital)
- If project workers live at home, any worker with a family member who has a confirmed or suspected case of COVID-19 should be quarantined from the project site for 14 days, and continued to be paid daily wages, even if they have no symptoms.

2. **Training of Staff and Precautions**
   - Train all staff in the signs and symptoms of COVID-19, how it is spread, how to protect themselves and the need to be tested if they have symptoms. Allow Q&A and dispel any myths.
   - Use existing grievance procedures to encourage reporting of co-workers if they show outward symptoms, such as ongoing and severe coughing with fever, and do not voluntarily submit to testing
   - Supply face masks and other relevant PPE to all project workers at the entrance to the project site. Any persons with signs of respiratory illness that is not accompanied by fever should be mandated to wear a face mask
   - Provide handwash facilities, hand soap, alcohol-based hand sanitizer and mandate their use on entry and exit of the project site and during breaks, via the use of simple signs with images in local languages
   - Train all workers in respiratory hygiene, cough etiquette and hand hygiene using demonstrations and participatory methods
   - Train cleaning staff in effective cleaning procedures and disposal of rubbish
3. **Managing Access and Spread**
   - Should a case of COVID-19 be confirmed in a worker on the project site, visitors should be restricted from the site and worker groups should be isolated from each other as much as possible;
   - Extensive cleaning procedures with high-alcohol content cleaners should be undertaken in the area of the site where the worker was present, prior to any further work being undertaken in that area.

ANNEX 12: 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								
	Decommissioning Phase								

Important to note the following when using this ESMP template:

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 13: ENVIRONMENTAL AND SOCIAL CLEARANCE PROCEDURE WITH THE EPA

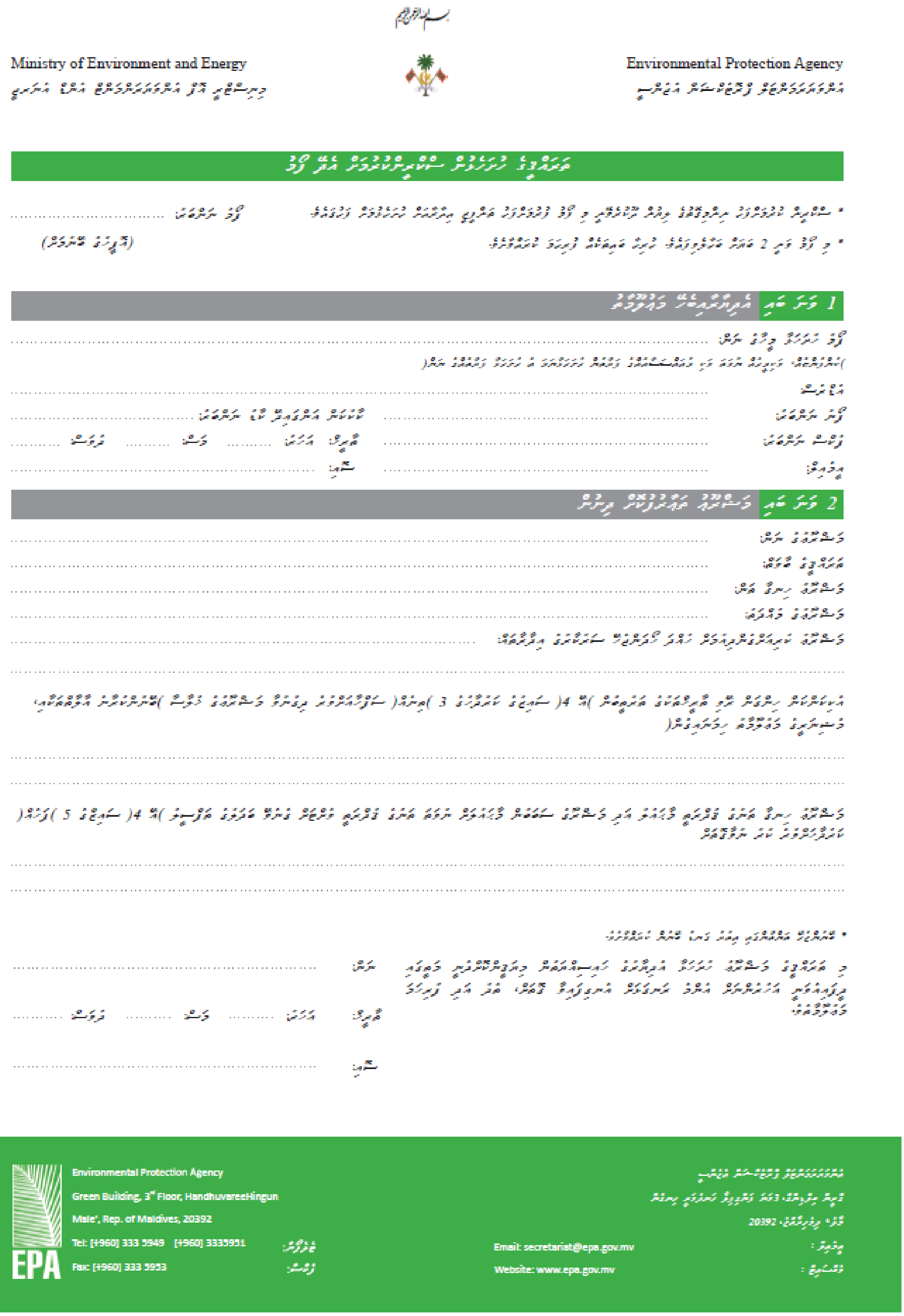
It is recommended that each proponents/investor go through the environmental clearance process for their subprojects. All the planned installations that fall under a sub-project can be lumped together as a single project.

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 14: EPA EIA SCREENING FORM AND TRANSLATED VERSION



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National Emblem

Ministry of Environment and Energy Environmental Protection Agency

DEVELOPMENT PROPOSAL SCREENING FORM

Form No: ____________
(Office Use)

A Development Proposal Screening Decision will be issues 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 15: 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 prepare 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 widows 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 an 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 16: RESOURCE LIST: COVID-19 GUIDANCE

Given the COVID-19 situation is rapidly evolving, a version of this resource list will be regularly updated and made available on the World Bank COVID-19 operations intranet page (http://covidoperations/).

WHO Guidance

Advice for the public

- WHO advice for the public, including on social distancing, respiratory hygiene, self-quarantine, and seeking medical advice, can be consulted on this WHO website: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

Technical guidance

- Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected, issued on March 19, 2020
- Recommendations to Member States to Improve Hygiene Practices, issued on April 1, 2020
- Severe Acute Respiratory Infections Treatment Center, issued on March 28, 2020
- Infection prevention and control at health care facilities (with a focus on settings with limited resources), issued in 2018
- Laboratory biosafety guidance related to coronavirus disease 2019 (COVID-19), issued on March 18, 2020
- Laboratory Biosafety Manual, 3rd edition, issued in 2014
- Laboratory testing for COVID-19, including specimen collection and shipment, issued on March 19, 2020
- Prioritized Laboratory Testing Strategy According to 4Cs Transmission Scenarios, issued on March 21, 2020
- Infection Prevention and Control for the safe management of a dead body in the context of COVID-19, issued on March 24, 2020
- Key considerations for repatriation and quarantine of travelers in relation to the outbreak COVID-19, issued on February 11, 2020
- Preparedness, prevention and control of COVID-19 for refugees and migrants in non-camp settings, issued on April 17, 2020
- Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, issued on March 18, 2020
- Oxygen sources and distribution for COVID-19 treatment centers, issued on April 4, 2020
- Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response, issued on March 16, 2020
- Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19), issued on March 19, 2020
- Operational considerations for case management of COVID-19 in health facility and community, issued on March 19, 2020
- Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19), issued on February 27, 2020
- Getting your workplace ready for COVID-19, issued on March 19, 2020
- Water, sanitation, hygiene and waste management for COVID-19, issued on March 19, 2020
- Safe management of wastes from health-care activities, issued in 2014
- Advice on the use of masks in the community, during home care and in healthcare settings in the context of the novel coronavirus (COVID-19) outbreak, issued on March 19, 2020
- Disability Considerations during the COVID-19 outbreak, issued on March 26, 2020

WORLD BANK GROUP GUIDANCE

- Technical Note: Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings, issued on March 20, 2020
- Technical Note: Use of Military Forces to Assist in COVID-19 Operations, issued on March 25, 2020

- ESF/Safeguards Interim Note: COVID-19 Considerations in Construction/Civil Works Projects, issued on April 7, 2020
- Technical Note on SEA/H for HNP COVID Response Operations, issued in March 2020
- Interim Advice for IFC Clients on Preventing and Managing Health Risks of COVID-19 in the Workplace, issued on April 6, 2020
- Interim Advice for IFC Clients on Supporting Workers in the Context of COVID-19, issued on April 6, 2020
- IFC Tip Sheet for Company Leadership on Crisis Response: Facing the COVID-19 Pandemic, issued on April 6, 2020
- WBG EHS Guidelines for Healthcare Facilities, issued on April 30, 2007

ILO GUIDANCE

- ILO Standards and COVID-19 FAQ, issued on March 23, 2020 (provides a compilation of answers to most frequently asked questions related to international labor standards and COVID-19)

MFI GUIDANCE

- ADB Managing Infectious Medical Waste during the COVID-19 Pandemic
- IDB Invest Guidance for Infrastructure Projects on COVID-19: A Rapid Risk Profile and Decision Framework
- KfW DEG COVID-19 Guidance for employers, issued on March 31, 2020
- CDC Group COVID-19 Guidance for Employers, issued on March 23, 2020

ANNEX 17: GUIDANCE NOTE FOR MANAGING OCCUPATIONAL HEALTH AND SAFETY PLAN FOR SOLAR PV INSTALLATION AND BESS INSTALLATION 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 harness 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 an 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-energystorage-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	• Falling from roof top • Falling from ladder • Falling through ceiling space	• 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	• Contact with energized conductors • Exposure to poor air quality such as fiberglass, coal dust, lead dust and other harmful substances • Exposure to loose- • fill asbestos • Exposure to extreme heat • Falling, trips • Vermin, snakes, spiders and insects	• Electric shocks, electrocution Respiratory disease • Cancer • Mesothelioma, asbestosis • Exhaustion, fatigue, heat stress Trauma, broken bones • Stings, bites and • disease • Death • Skin irritation, rash, increased mucus production and watery eyes	**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* **PPE:** Wearing appropriate, well maintained and correctly fitted personal protective equipment when working in dusty ceiling spaces, including: • a respirator • a head covering and goggles, to avoid eye irritation • long-sleeved, loose-fitting clothing and gloves
Working with and installing electrical equipment	• Contact with energized conductors • Accidental short • circuit	• Electric Shocks, electrocution Arc flash, burns • Death	**Isolate:** Lockout Tagout. Test for deenergized (DEAD) Do not work energized **Admin:** Current LVR/CPR training **PPE:** Wear arc rated neck to wrist to ankle clothing with a minimum ATPV of 4cal^{m2}. Wear protective glasses and gloves

Working outdoors	• Exposure to the sun	• Sun burn, skin cancer • Exhaustion, fatigue, heat stress	**Eliminate:** Reorganizing work schedules where possible so that outdoor tasks are done before 10 am and after 3 pm
			Substitute: Rotating tasks that involve direct sun exposure Increasing amount of shade available – use gazebos
			PPE: Slip on clothing, slop on SPF 30+ sunscreen, slap on a hat, slide on sunglasses. Drink plenty of water
Work involves, or is likely to involve, disturbing asbestos	• Inhalation of asbestos fibers	• Mesothelioma, asbestosis or cancer	**Eliminate:** Do not proceed with job until asbestos-containing material removed by license contractors
			Substitute: Replace asbestos switchboard with new upgraded switchboard. Follow safe working procedures

ANNEX 18: 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.

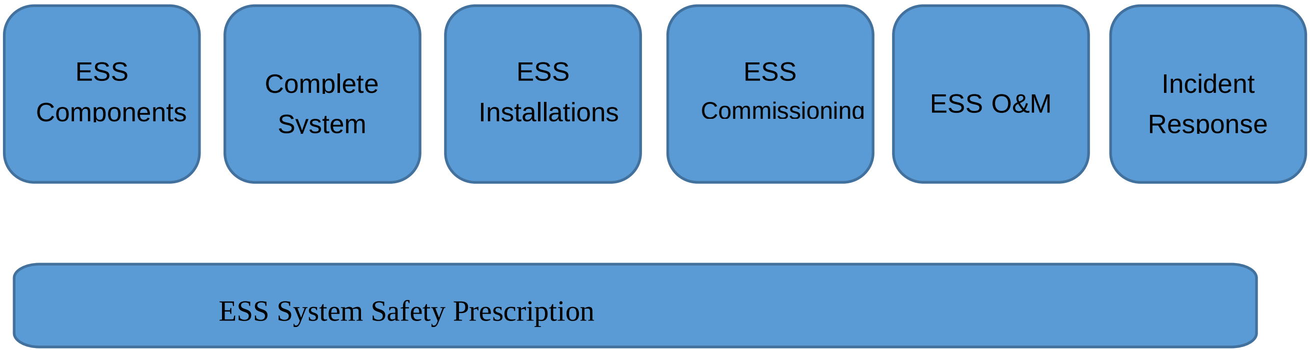
E. Addressing Safety in Decommissioning

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	UL 489
Enclosures	
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 behavior.

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 19: 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 management plan	c) Main and local road; job site	c) Inspection	c) unannounced inspections during work		c) NA	c) minimal	c) Contractor	Construction Supervising Engineer and

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		
									Environmental Officer
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		
d) Traffic disruption during construction activity	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
a) Reduced access due to project activities	a) Provided alternative access	c) Job site	b) Observation	a) During construction		a) NA	a) minimal	a) Contractor	Construction Supervising Engineer and Environmental Officer
b) Vehicle and pedestrian safety	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
c) Water and soil pollution from improper material storage, management and usage building and auxiliary materials	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		
a) Potential contamination of soil and water from improper maintenance and fuelling of equipment	a) Water and soil quality (suspended solids, oils, fuel, lubricants, organic compounds, heavy metals, pH value, conductivity); procedures of work	*h)* Job site; equipment maintenance facilities	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
h) Labour Health and Safety	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 20: TEMPLATE INFECTION CONTROL AND HEALTH CARE WASTE MANAGEMENT PLAN (ICHCWMP)

Infection Control and Health Care Waste Management Plan (ICHCWMP) Template for Health Care Facility (HCF Name)

1. Introduction

1.1 Describe the project context and components

1.2 Describe the targeted healthcare facility (HCF):

- Type: E.g. general hospital, clinics, inpatient/outpatient facility, medical laboratory, quarantine or isolation centers;
- *Special type of HCF in response to COVID-19: E.g. existing assets may be acquired to hold yet-to-confirm cases for medical observation or isolation;*
- Functions and requirement for the level infection control, e.g. biosafety levels;
- Location and associated facilities, including access, water supply, power supply;
- Capacity: beds

1.3 Describe the design requirements of the HCF, which may include specifications for general design and safety, separation of wards, heating, ventilation and air conditioning (HVAC), autoclave, and waste management facilities.

2. Infection Control and Waste Management

2.1 Overview of infection control and waste management in the HCF

- Type, source and volume of healthcare waste (HCW) generated in the HCF, including solid, liquid and air emissions (if significant)
- Classify and quantify the HCW (infectious waste, pathological waste, sharps, liquid and non-hazardous) following WBG EHS Guidelines for Healthcare Facilities and pertaining GIIP.
- *Given the infectious nature of the novel coronavirus, some wastes that are traditionally classified as non-hazardous may be considered hazardous. It's likely the volume of waste will increase considerably given the number of admitted patients during COVID-19 outbreak. Special attention should be given to the identification, classification and quantification of the healthcare wastes.*
- Describe the healthcare waste management system in the HCF, including material delivery, waste generation, handling, disinfection and sterilization, collection, storage, transport, and disposal and treatment works
- Provide a flow chart of waste streams in the HCF if available
- Describe applicable performance levels and/or standards
- Describe institutional arrangement, roles and responsibilities in the HCF for infection control and waste management

2.2 Management Measures: *The ESMF and all guidance presented in it should be used to deduce appropriate management measures. Annex X provided a detailed Generic ICHCWMP developed with the context of COVID-19 Response and the regulatory requirements and country context of the Maldives in mind. This document also presents additional reference to Good International Implementation Practice (GIIP) have been used and can be referred to for further guidance. Annex X presents pictorial guidance on typical associated measures with ICHCWMPs.*

- Waste minimization, reuse and recycling: HCF should consider practices and procedures to minimize waste generation, without sacrificing patient hygiene and safety considerations.
- Delivery and storage of specimen, samples, reagents, pharmaceuticals and medical supplies: HCF should adopt practice and procedures to minimize risks associated with delivering, receiving and storage of hazardous medical goods.
- Waste segregation, packaging, color coding and labeling: HCF should strictly conduct waste segregation at the point of generation. Internationally adopted method for packaging, color coding and labeling the wastes should be followed. The Generic ICHCWMP provides additional guidance on this
- Onsite collection and transport: HCF should adopt practices and procedures to timely remove properly packaged and labelled wastes using designated trolleys/carts and routes. Disinfection of pertaining tools and spaces should be routinely conducted. Hygiene and safety of involved supporting medical workers such as cleaners should be ensured.
- Waste storage: A HCF should have multiple waste storage areas designed for different types of wastes. Their functions and sizes are determined at design stage. Proper maintenance and disinfection of the storage areas should be carried out. Existing reports suggest that during the COVID-19 outbreak, infectious wastes should be removed from HCF’s storage area for disposal within 24 hours.
- Onsite waste treatment and disposal (e.g. an incinerator): Many HCFs have their own waste incineration facilities installed onsite. Due diligence of an existing incinerator should be conducted to examine its technical adequacy, process capacity, performance record, and operator’s capacity. In case any gaps are discovered, corrective measures should be recommended. For new HCF financed by the project, waste disposal facilities should be integrated into the overall design and ESIA developed. Good design, operational practices and internationally adopted emission standards for healthcare waste incinerators can be found in pertaining EHS Guidelines and GIIP.
- Transportation and disposal at offsite waste management facilities: Not all HCF has adequate or well-performed incinerator onsite. Not all healthcare wastes are suitable for incineration. An onsite incinerator produces residuals after incineration. Hence offsite waste disposal facilities provided by local government or the private sector are probably needed. These offsite waste management facilities may include incinerators, hazardous wastes landfill. In the same vein, due diligence of such external waste management facilities should be conducted to examine its technical adequacy, process capacity, performance record, and operator’s capacity. In case any gaps are discovered, corrective measures should be recommended and agreed with the government or the private sector operators.
- Wastewater treatment: HCF wastewater is related to hazardous waste management practices. Proper waste segregation and handling as discussed above should be conducted to minimize entry of solid waste into the wastewater stream. In case wastewater is discharged into municipal sewer sewerage system, the HCF should ensure that wastewater effluent comply with all applicable permits and standards, and the municipal wastewater treatment plant (WWTP) is capable of handling the type of effluent discharged. In cases where municipal sewage system is not in place, HCF should build and properly operate onsite primary and secondary wastewater treatment works, including disinfection. Residuals of the onsite wastewater treatment works, such as sludge, should be properly disposed of as well. There’re also cases where HCF wastewater is transported by trucks to a municipal wastewater treatment plant for treatment. Requirements on safe transportation, due diligence of WWTP in terms of its capacity and performance should be conducted.

3. Emergency Preparedness and Response

Emergency incidents occurring in a HCF may include spillage, occupational exposure to infectious materials or radiation, accidental releases of infectious or hazardous substances to the environment, medical equipment failure, failure of solid waste and wastewater treatment facilities, and fire. These emergency events are likely to seriously affect medical workers, communities, the HCF's operation and the environment.

Thus, an Emergency Response Plan (ERP) that is commensurate with the risk levels is recommended to be developed. The key elements of an ERP are defined in ESS 4 Community Health and Safety (para. 21).

4. Institutional Arrangement and Capacity Building

A clearly defined institutional arrangement, roles and responsibilities should be included. A training plan with recurring training programs should be developed. The following aspects are recommended:

- Define roles and responsibilities along each link of the chain along the cradle-to-crave infection control and waste management process;
- Ensure adequate and qualified staff are in place, including those in charge of infection control and biosafety and waste management facility operation.
- Stress the chief of a HCF takes overall responsibility for infection control and waste management;
- Involve all relevant departments in a HCF, and build an intra-departmental team to manage, coordinate and regularly review issues and performance;
- Establish an information management system to track and record the waste streams in HCF; and
- Capacity building and training should involve medical workers, waste management workers and cleaners. Third-party waste management service providers should be provided with relevant training as well.

5. Monitoring and Reporting

Many HCFs in developing countries face the challenge of inadequate monitoring and records of healthcare waste streams. HCF should establish an information management system to track and record the waste streams from the point of generation, segregation, packaging, temporary storage, transport carts/vehicles, to treatment facilities. The HCF is encouraged to develop an IT based information management system should their technical and financial capacity allow.

As discussed above, the HCF chief takes overall responsibility, leads an intra-departmental team and regularly reviews issues and performance of the infection control and waste management practices in the HCF. Internal reporting and filing systems should be in place.

Externally, reporting should be conducted per government and World Bank requirements.

6. All Associated Annexes

Annex: ICWMP Implementation Matrix

Activities	Potential E&S Issues and Risks	Proposed Mitigation Measures	Responsibilities	Timeline	Budget
General HCF operation – Environment	General wastes, wastewater and air emissions				
General HCF operation – OHS issues	- Physical hazards; - Electrical and explosive hazards; - Fire; - Chemical use; - Ergonomic hazard; - Radioactive hazard.				
HCF operation - Infection control and waste management plan					
Waste minimization, reuse and recycling					
Delivery and storage of specimen, samples, reagents, pharmaceuticals and medical supplies					
Storage and handling of specimen, samples, reagents, and infectious materials					
Waste segregation, packaging, color coding and labeling					
Onsite collection and transport					
Waste storage					
Onsite waste treatment and disposal					
Waste transportation to and disposal in offsite treatment and disposal facilities					
HCF operation – transboundary movement of specimen, samples, reagents, medical equipment, and infectious materials					
Emergency events	- Spillage; - Occupational exposure to infectious; - Exposure to radiation;	Emergency response plan			

	- Accidental releases of infectious or hazardous substances to the environment; - Medical equipment failure; - Failure of solid waste and wastewater treatment facilities; - Fire; - Other emergent events				
Operation of acquired assets for holding potential COVID-19 patients					
To be expanded as relevant and needed					

ANNEX 21: ENVIRONMENTAL SAFEGUARDS PREPARATORY TASKS TRACKING SHEET

ENVIRONMENT AND SOCIAL PREPRATORY TASKS FOR SUB-PROJECTS STATUS TRACKING SHEET

i #	IMPLEMENTATION SCHEDULE	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	Tentative Date for Tender	Date safeguards instrument sent	ESHS Clauses in Contract (Indicate via use of tick mark)			Status as at (Date sheet is updated)	Status Related Comments
			Environmental Screening Report	ESMP/ESIA	IC-HCWMP	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																
Component 2																
Comp 2.1																
Phase 2																

ANNEX 22: ENVIRONMENTAL AND SOCIAL COMPLIANCE MONOTORING CHECKLIST FOR SUBPROJETS IN IMPLEMENTATION

Title of project :

Proponent :

Contractor's Name :

Monitoring Date :

Monitor's Name & :

Designation

Issue	**Proposed mitigation measures (from the ESMP/ICHWMP)**	**Implementing Responsibility**	**Compliance** **Yes/No**	**Reason for non-compliance**	**Follow up Action**

Photo-documentation of Issue Identified Above

Issue # (from description above)	Date of photograph	Photograph depicting issue

Tips on Tools for Monitoring

It is recommended that a free remote survey-based tool such as the following is used as I allow the checklist to be populated and used for remote mobile monitoring and geo reference data.

- **KoBo Toolbox:** is a free open-source tool for mobile data collection, available to all. It allows you to collect data in the field using mobile devices such as mobile phones or tablets, as well as with paper or computers.
    - More Info: https://support.kobotoolbox.org/en/articles/751575-welcome-to-kobotoolbox
- **I-Auditor:** iAuditor is a free inspection app used to empower your workers in the field. Combined with the web platform, iAuditor can be used as an inspector software that provides visibility and insights to help raise safety and quality standards across an organization
    - More Info: https://support.safetyculture.com/

ANNEX 23: SPECIAL MONITORING CHECKLIST FOR ENSURING SAFE CONDITIONS FOR WORKERS AND PUBLIC DURING CONSTRUCTION PROJECTS

Date inspection conducted: **Location:**

Name(s) of those participating in this inspection:

INDICATE EITHERS:

A = Acceptable/Yes; U = Unacceptable/No; N/A = Not Applicable

No.	Safety Title	A	U	N/A	Action Taken
1	PERSONAL PROTECTIVE EQUIPMENT:				
	Foot protection worn as required?				
	Hand protection used/worn as required?				
	Safety glasses and/or goggles available + being used?				
	Hearing protection worn where required?				
	Hard hats worn when falling object hazard is present?				
	Dust masks used when needed?				
	Traffic vests being worn where needed?				
2	EMERGENCY ITEMS:				
	Emergency phone numbers posted and known by all?				
	Emergency eyewash and/or shower units accessible?				
	First aid kit available at work site?				
3	ELECTRICAL SAFTEY ISSUES: if required				
4	CONSTRUCTION SAFETY & HEALTH ISSUES:				
	100% fall protection in place above 6-5... feet in height?				
	Excavation? Protection from cave-ins for >5 feet deep				
	Hand tools are kept in safe				
	Employees instructed in proper use of all power tools? If available				
	Employees below protected from falling objects?				

	Proper access provided for workers and surrounding community?				
	Trenches Excavation and Shoring:				
	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 Maintaine at Site level:				
	Unsafe Acts or Practices Observed:				
	Comments:				
	Signature: ______________________________ Date: ______________				

ANNEX 24: 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	
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	Laptop, Multimedia projector, Flip charts & Pens	

No	**Subject**	**Purpose**	**Time**	**Session Structure**	**Materials**	**Aids**	**Potential Resource Person**
					Specifications for subprojects		
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.

ANNEX 25: 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.

Infection Control- All guidance presented in Annex 32 must be adhered to

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 outsides 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 26: STANDARD OPERATING PROCEDURES FOR LABORATORIES

Extracted from the World Bank "Mainstreaming Environmental Management in the Health Care Sector: Implementation Experience in India and a Tool-kit for Managers- Volume 2-2012

Laboratories are unique workplaces where a wide variety of chemicals are handled on a routine basis. This section briefly outlines the required good practices with regard to safe handling of chemicals, which are to be followed by laboratory technicians.

1. General guidelines

i. Carefully read the label before using a chemical.
ii. The manufacturer's or supplier's Material Safety Data Sheet (MSDS) will provide special handling information.
iii. Be aware of the potential hazards existing in the laboratory and the appropriate safety precautions.
iv. Know the location and proper use of emergency equipment, the appropriate procedures for responding to emergencies, and the proper methods for storage, transport and disposal of chemicals within the facility.
v. Employees should not work alone in the laboratory.
vi. Anyone considering running an experiment unattended should consider the possible hazards that could occur as a result of failures, malfunctions, operational methods, environments encountered, maintenance error and operator error.
vii. Label all chemical containers with appropriate identification and hazard information.
viii. Use only those chemicals for which there are appropriate exposure controls (such as a chemical fume hood) and administrative programs/ procedures (training, restricted access, etc.).
ix. Always ensure that there is adequate ventilation when working with chemicals.
x. Operations using large quantities (500 milliliters) of volatile substances with workplace standards at or below 50 ppm should be performed in a chemical fume hood.
xi. Use hazardous chemicals and all laboratory equipment only as directed or for their intended purpose.
xii. Inspect equipment or apparatus for damage before use and before adding a hazardous chemical.
xiii. Do not use damaged equipment. integrity or proper functioning before use.
xiv. Inspect personal protective apparel and equipment for integrity or proper functioning before use.
xv. Malfunctioning laboratory equipment (hood) should be labeled or tagged "out of service" so that others will not inadvertently use it before repairs are made.
xvi. Handle and store laboratory glassware with care.
xvii. Do not use damaged glassware.
xviii. Use extra care with Dewar flasks and other evacuated glass apparatus; shield or wrap them before-hand to contain chemicals or fragments should implosion occur.
xix. Do not purchase or dispense more of a hazardous chemical than is needed for immediate use.

2. Protective clothing and laboratory safety equipment

Personal protective clothing and equipment should be selected carefully and used in situations where engineering and administrative controls cannot be used or while such controls are being established. These devices are viewed as less protective than other controls because they rely heavily on each employee's work-practices and an effective training. The engineering and administrative controls which should always be considered first when reducing or eliminating exposures to hazardous chemicals include:

- Substitution by a less hazardous substance
- Scaling down the size of experiment
- Isolation of the operator or the process

- Local and general ventilation (e.g., use of fume hoods)

The Material Safety Data Sheet (MSDS) will list the Personal Protective Equipment (PPE) recommended for use with the chemical. The MSDS addresses worst case conditions. Therefore, all the equipment shown may not be necessary for a specific laboratory scale task.

The Environment Health Safety Officer (EHS Officer) can assist in determining which personal protective devices are required for each task.

Remember, there is no harm in being overprotected.

Appropriate personal protective equipment should be put on by employees.

3. Laboratory safety equipment

In the laboratory, the chemical hood is the primary means of controlling inhalation exposures. Hoods are designed to retain vapors and gases released within them, protecting the laboratory employee's breathing zone from the contaminant.

This protection is accomplished by having a curtain of air (approximately 100 linear feet per minute) move constantly through the face (open sash) of the hood. Chemical hoods can also be used to isolate apparatus or chemicals that may present physical hazards to employees. The closed sash on a hood serves as an effective barrier to fires, flying objects, chemical splashes or spattering and small implosions and explosions. Hoods can also effectively contain spills, which might occur during dispensing procedures, particularly if trays are placed in the bottom of the hoods. When using a chemical fume hood keep the following principles of safe operation in mind:

- Keep all chemicals and apparatus at least six inches inside the hood (behind sash).
- Hoods are not intended for storage of chemicals. Materials stored in them should be kept to a minimum.
- Stored chemicals should not block vents or alter air flow patterns.
- Keep the hood sash at a minimum height (4 to 6 inches) when not manipulating chemicals or adjusting apparatus within the hood.
- When working in front of a fume hood, make sure the sash opening is appropriate. This can be achieved by lining up to arrows placed on the sash door and hood frame. This sash opening will ensure an adequate air velocity through the face of the hood.
- Do not allow objects such as paper to enter the exhaust ducts. This can clog ducts and adversely affect their operation.

4. Chemical storage in the laboratory

i. Carefully read the label before storing a hazardous chemical.
ii. The MSDS will provide any special storage information as well as information on

5. Chemical procurement, distribution and storage

Procurement

iii. Before a new substance that is known or suspected to be hazardous is received, information on proper handling, storage, and disposal should be known to those who will handle it.
iv. It is the responsibility of the supervisor to ensure that the laboratory facilities in which the substance will be handled are adequate, and that those who will handle the substance have received the proper training.
v. The necessary information on proper handling of hazardous substances can be obtained from the
vi. Material Safety Data Sheets that are provided by the vendor.
vii. Because storage in laboratories is restricted to small containers, order small container lots to avoid hazards associated with repackaging.
viii. No container should be accepted without an adequate identifying label.

Distribution

i. When hand-carrying open containers of hazardous chemicals or unopened containers with corrosive or highly acute or chronically toxic chemicals, place the container in a secondary container or a bucket.
ii. Rubberized buckets are commercially available and provide both secondary containment as well as "bump" protection.
iii. If several bottles must be moved at once, the bottles should be transported on a small cart with a substantial rim to prevent slippage from the cart.
iv. Wherever available, a freight elevator should be used to transport chemicals from one floor to another.

Chemical storage in the laboratory

i. Carefully read the label before storing a hazardous chemical.
ii. The MSDS will provide any special storage information as well as information on incompatibilities.
iii. Do not store un-segregated chemicals in alphabetical order.
iv. Do not store incompatible chemicals in close proximity to each other.

6. Emergency preparedness program

In case of an emergency like fire, spill, electrical shock or natural disaster immediately follow these procedures:

i. Call the required help (fire department, medical department, etc.).
ii. Activate the building alarm. If not available or operational, verbally notify the people in the building.
iii. Isolate the area immediately.
iv. Shut down all the equipment if possible.
v. Evacuate to the exit point and follow the instructions of the Supervisor or the person in charge.
vi. Notify about the hazard and emergency to the concerned team of rescue/help.

7. Chemical spills & accidents

i. Try to anticipate the types of chemical spills that can occur in the laboratory and obtain the necessary equipment (spill kits and personal protective equipment) to respond to a minor spill.
ii. Learn how to safely clean up minor spills of the chemicals used regularly.
iii. A MSDS contains special spill clean-up information and should also be consulted.
iv. Chemical spills should only be cleaned up by knowledgeable and experienced personnel.
v. If the spill is too large to handle, is a threat to health safety or the environment, or involves a highly toxic or reactive chemical, call CHO/ EHS Officer for assistance immediately.

8. Fire and fire-related emergencies

If a fire or fire-related emergency such as abnormal heating of material, a flammable gas leak, a flammable liquid spill, smoke, or odor of burning is noticed, the procedures mentioned below must be followed:

i. Notify the Fire Department.
ii. Activate the building alarm (fire pull station). If not available or operational, verbally notify people in the building.
iii. Isolate the area by closing windows and doors and evacuate the building.
iv. Shut down equipment in the immediate area, if possible.
v. Use a portable fire extinguisher to:
    a. Assist oneself to evacuate;
    b. Assist another to evacuate; and
    c. Control a small fire, if possible.
vi. Provide the fire/police teams with the details of the problem upon their arrival.

9. Pesticides and disinfection

The laboratory area should be free from the pests like rodents, cockroaches, termites, etc. These pests cause a variety of diseases and may lead to a mishap resulting in injury or illness. The rodents cause illnesses like rat bite fever and Weil's disease. To make the laboratory pest-free a pesticide program should be in place. The disinfection of laboratory equipment should be done by less or non-hazardous chemicals and only WHO approved pesticides can be used. .

Pesticide and disinfection programs should be as follows:

i. Before carrying out pesticide or disinfection programs the laboratory staff should be informed.
ii. The person using the pesticides should be well-trained and qualified in the use of the pesticides.
iii. The person should wear all the required personal protective equipment while using the pesticides in the laboratory.
iv. Only non-hazardous or less hazardous pesticides should be used in the laboratory.
v. Borax powder is a good pesticide which may be used against German Cockroaches.
vi. The disinfection of the laboratory should be done using 1% – 10% hypochlorite solution as required.
vii. The person carrying out disinfection should know how to prepare the solution of hypochlorite as required.

ANNEX 27: 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.

ANNEX 28: 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.

ANNEX 29: EXAMPLES OF INFORMATION POSTERS AND BEST PRACTICE EXAMPLES ON HEALTH CARE WASTE MANAGEMENT.

The following guidelines have been extracted from best practice guidelines

Example of Waste Segragation Poster and Guidance on Segragation- Source WHO

SHARPS
Red Sharps Container

- √ Needles
- √ Ampules
- √ Broken Glass
- √ Blades
- √ Razors
- √ Staples
- √ Trocars
- √ Guide Wires
- √ Other Sharps

BIOHAZARD
Red Container or Red Liner in Container

- √ Infectious Waste
- √ Blood Products (albumin etc)
- √ Contamminated Personal Protective Equipment (PPE)
- √ IV Tubing
- √ Cultures, Stacks

TRACE CHEMO
Yellow Container

- √ Empty vials, ampules
- √ Empty Syringes, Needles
- √ Empty IVs
- √ Gowns
- √ Gloves
- √ Tubing
- √ Aprans
- √ Wipes
- √ Packaging

RCRA HAZARD
Black Container

- √ Hazardous meds (RCRA)
- √ Half/Partial doses (RCRA)
- √ Hazardous bulk meds
- √ P-listed drugs, packaging
- √ Bulk chemo
- √ Pathological Waste (Incineration Only)

PHARMACEUTICAL
Blue Container

- √ Pills
- √ Injectables
- √ Antibiotics

RADIOACTIVE
Shielded Containers with Radioactive Symbol

- √ Fluorine-18 (F-18). 110 minutes half-life.
- √ Technetium-99 (T-99m). 6 hours half-life.
- √ Iodine-131 (I-131). 8 days half-life.
- √ Strontium-89 (Sr-89). 52 days half-life.
- √ Iridium-192 (Ir-192). 74 days half-life.
- √ Cobalt-60 (Co-60). 53 years half-life.

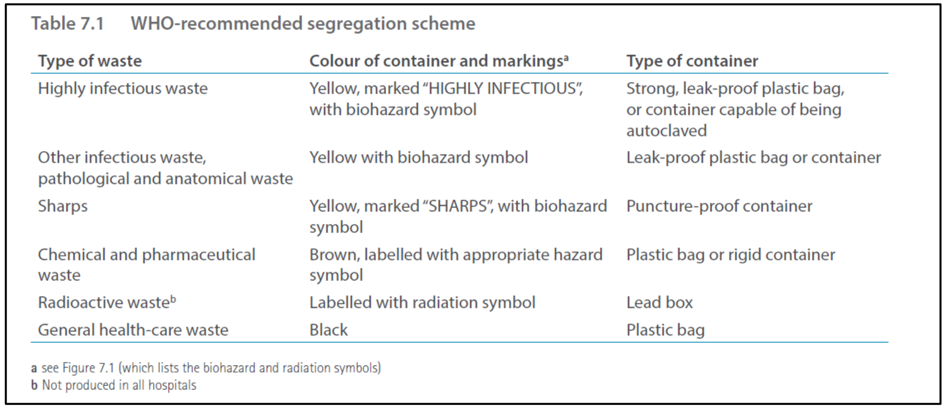


Table 7.1 WHO-recommended segregation scheme

Type of waste	Colour of container and markings[a]	Type of container
Highly infectious waste	Yellow, marked "HIGHLY INFECTIOUS", with biohazard symbol	Strong, leak-proof plastic bag, or container capable of being autoclaved
Other infectious waste, pathological and anatomical waste	Yellow with biohazard symbol	Leak-proof plastic bag or container
Sharps	Yellow, marked "SHARPS", with biohazard symbol	Puncture-proof container
Chemical and pharmaceutical waste	Brown, labelled with appropriate hazard symbol	Plastic bag or rigid container
Radioactive waste[b]	Labelled with radiation symbol	Lead box
General health-care waste	Black	Plastic bag

a see Figure 7.1 (which lists the biohazard and radiation symbols)
b Not produced in all hospitals

Pictoral Guidance on Immediate Disposal and Storage: Source WHO, Sericycle-USA,


Proper disposal of used syringes into a designated sharps container

A proper cardboard sharps container

Sharps box in a Peruvian hospital

Photo sources: (left to right) Susan Wilburn, Maxwell Tucker, Susan Wilburn

Figure 7.3 Cardboard safety boxes

How to Prepare Your Waste Container for Pickup

1

Corrugated Boxes:

- Turn over and seal bottom flaps with tape
- Auto-locking boxes, engage bottom flaps

No set up required for reusable containers

2

Line the container or box with red bag**

3

Tie bag when box or container is full

4

Don't put loose sharps in liners.

Don't let bags stick out of boxes or containers.

Reusable Containers:

- Secure lid on container
- Ensure all closure and/or locking mechanisms are engaged

Corrugated Boxes:

- Seal top of box with tape
- Auto-locking boxes, engage top flaps

5

Check markings

- Federal markings (see picture above)
- Additional state and local regulations may apply
- Apply barcode label where available

Close bag with a single overhand knot: ✓

Do not close by crossing tabs (“bunny or dog-ear” method) ✗

Guidance on Appropriate Signage Implementation for Health Care Waste Management Practices and Infrastructure- Source WHO

Biohazard symbol Old radiation symbol New radiation symbol

Note: The new radiation symbol was adopted by the United Nations in 2007, but the older symbol is still widely recognized and expected to remain in common use for many years.

Figure 7.1 Biohazard, radiation and chemical hazard symbols

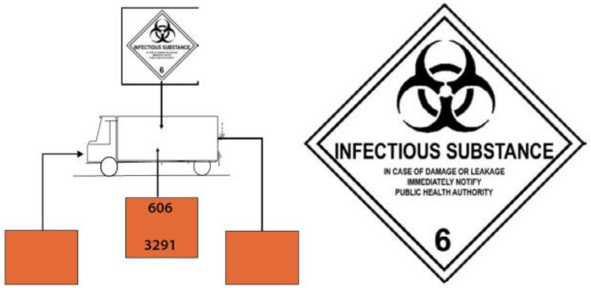
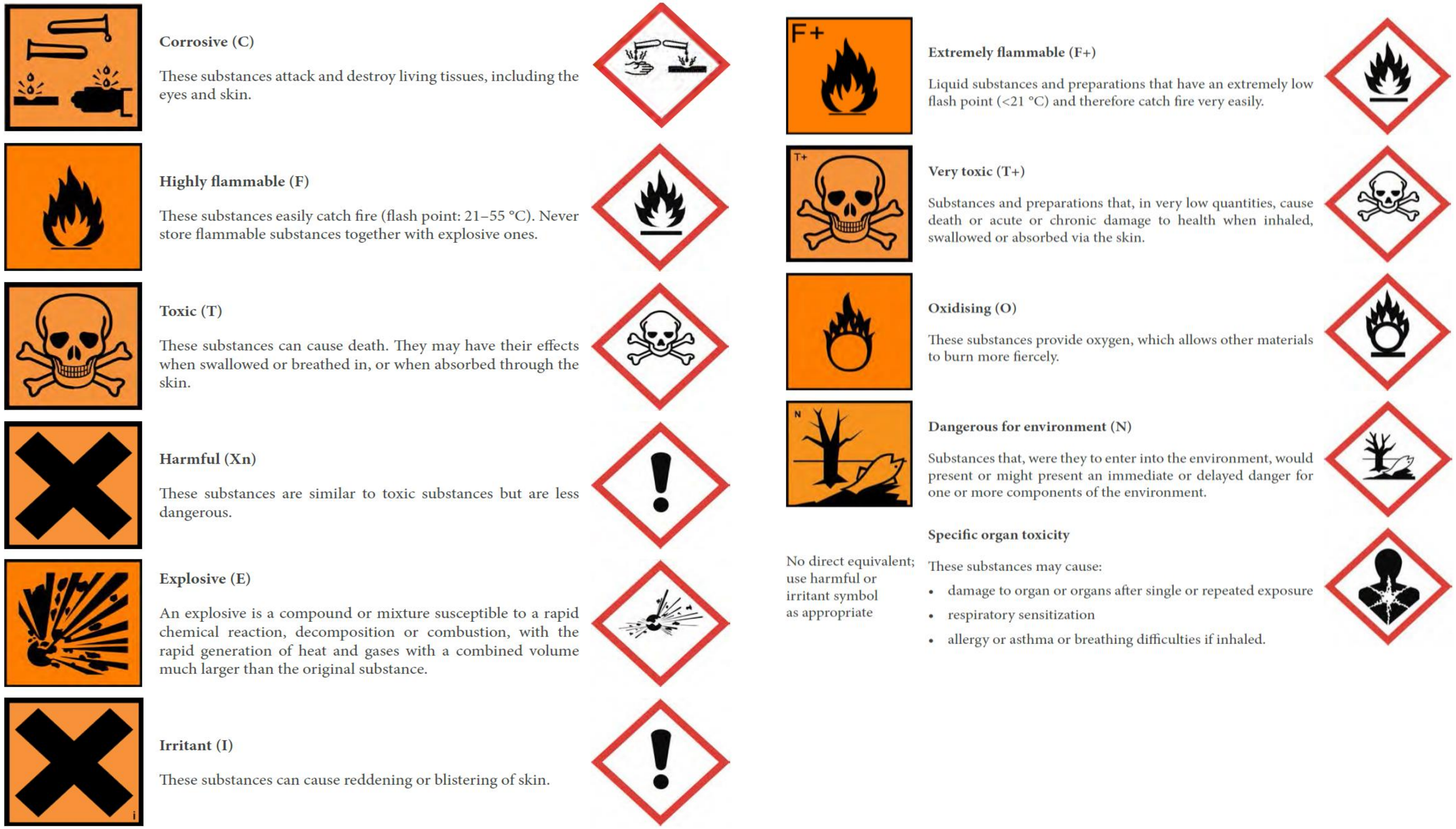


Figure 7.15 Specifications for placards (e.g. UN 3291 Infectious [Biomedical] Waste)

Table 7.3 Selected United Nations packaging symbols

UN class	Name	Description of symbol	Symbol
3.1	Flammable Liquids	Black symbol: flame Background: red Class "3" in bottom corner	
5.1	Oxidizing Substances	Black symbol: flame over circle Background: yellow Class "5.1" in bottom corner	
6.1	Toxic Substances	Black symbol: skull and crossbones Background: white Class "6" in bottom corner	



Corrosive (C)

These substances attack and destroy living tissues, including the eyes and skin.

Highly flammable (F)

These substances easily catch fire (flash point: 21–55 °C). Never store flammable substances together with explosive ones.

Toxic (T)

These substances can cause death. They may have their effects when swallowed or breathed in, or when absorbed through the skin.

Harmful (Xn)

These substances are similar to toxic substances but are less dangerous.

Explosive (E)

An explosive is a compound or mixture susceptible to a rapid chemical reaction, decomposition or combustion, with the rapid generation of heat and gases with a combined volume much larger than the original substance.

Irritant (I)

These substances can cause reddening or blistering of skin.

Extremely flammable (F+)

Liquid substances and preparations that have an extremely low flash point (<21 °C) and therefore catch fire very easily.

Very toxic (T+)

Substances and preparations that, in very low quantities, cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin.

Oxidising (O)

These substances provide oxygen, which allows other materials to burn more fiercely.

Dangerous for environment (N)

Substances that, were they to enter into the environment, would present or might present an immediate or delayed danger for one or more components of the environment.

No direct equivalent; use harmful or irritant symbol as appropriate

Specific organ toxicity

These substances may cause:

- damage to organ or organs after single or repeated exposure
- respiratory sensitization
- allergy or asthma or breathing difficulties if inhaled.

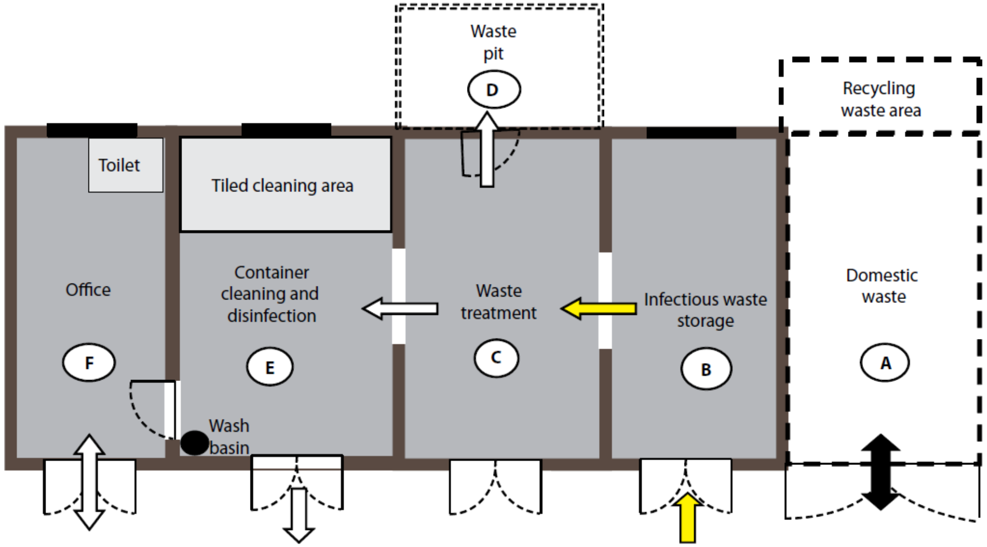
Figure 7.2 Comparison of common hazardous waste symbols

Guidance on design of HCW Storage Areas- Soure WHO

7.6.3 Layout of waste-storage areas

If new health-care waste-management systems are developed and if new infrastructure is planned, a "waste yard" should be built. A waste yard is where all the relevant waste-management activities are brought together. To concentrate certain tasks, it is best to set up multifunctional buildings (waste-storage area), including a fenced storage area for general waste (A), a room for infectious waste (B), a treatment room (C), a fenced area with an ash or sharps pit (D), a container cleaning room (E) and a clean office with lockers and toilets (F).

A sample design of a storage room for chemical waste is presented in Figures 7.12 and 7.13.



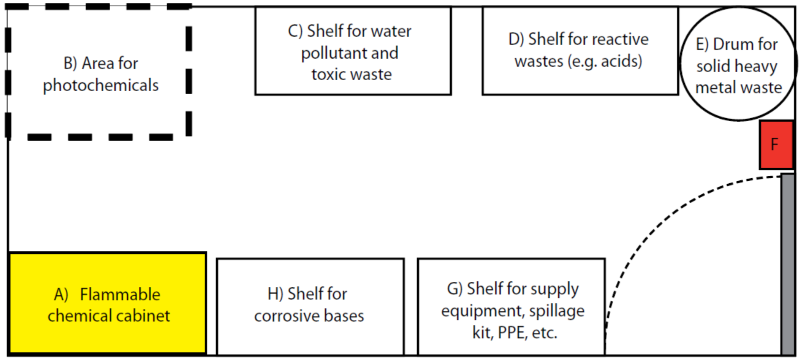
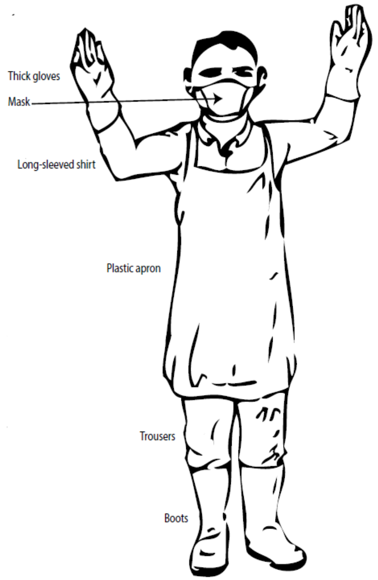


Figure 7.13 Sample outline of chemical storage room

Guidance on Appropriate Use of PPE for Cleaning Staff and HCW Workers-Source WHO



Source: Ministry of Health (1995) (adapted with permission)

Figure 11.1 Recommended protective clothing for health-care waste transportation in small hospitals in Thailand

Guidance on Prcoess of Handwashing and Use of Hand Sanirizer-Source WHO

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the entire procedure: 40–60 seconds

0 Wet hands with water

1 Apply enough soap to cover all hand surfaces

2 Rub hands palm to palm

3 Right palm over left dorsum with interlaced fingers and vice versa

4 Palm to palm with fingers interlaced

5 Backs of fingers to opposing palms with fingers interlocked

6 Rotational rubbing of left thumb clasped in right palm and vice versa

7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

8 Rinse hands with water

9 Dry hands thoroughly with a single use towel

10 Use towel to turn off faucet

11 Your hands are now safe

World Health Organization | Patient Safety A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

May 2009

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

Duration of the entire procedure: 20–30 seconds

1a 1b Apply a palmful of the product in a cupped hand, covering all surfaces

2 Rub hands palm to palm

3 Right palm over left dorsum with interlaced fingers and vice versa

4 Palm to palm with fingers interlaced

5 Backs of fingers to opposing palms with fingers interlocked

6 Rotational rubbing of left thumb clasped in right palm and vice versa

7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

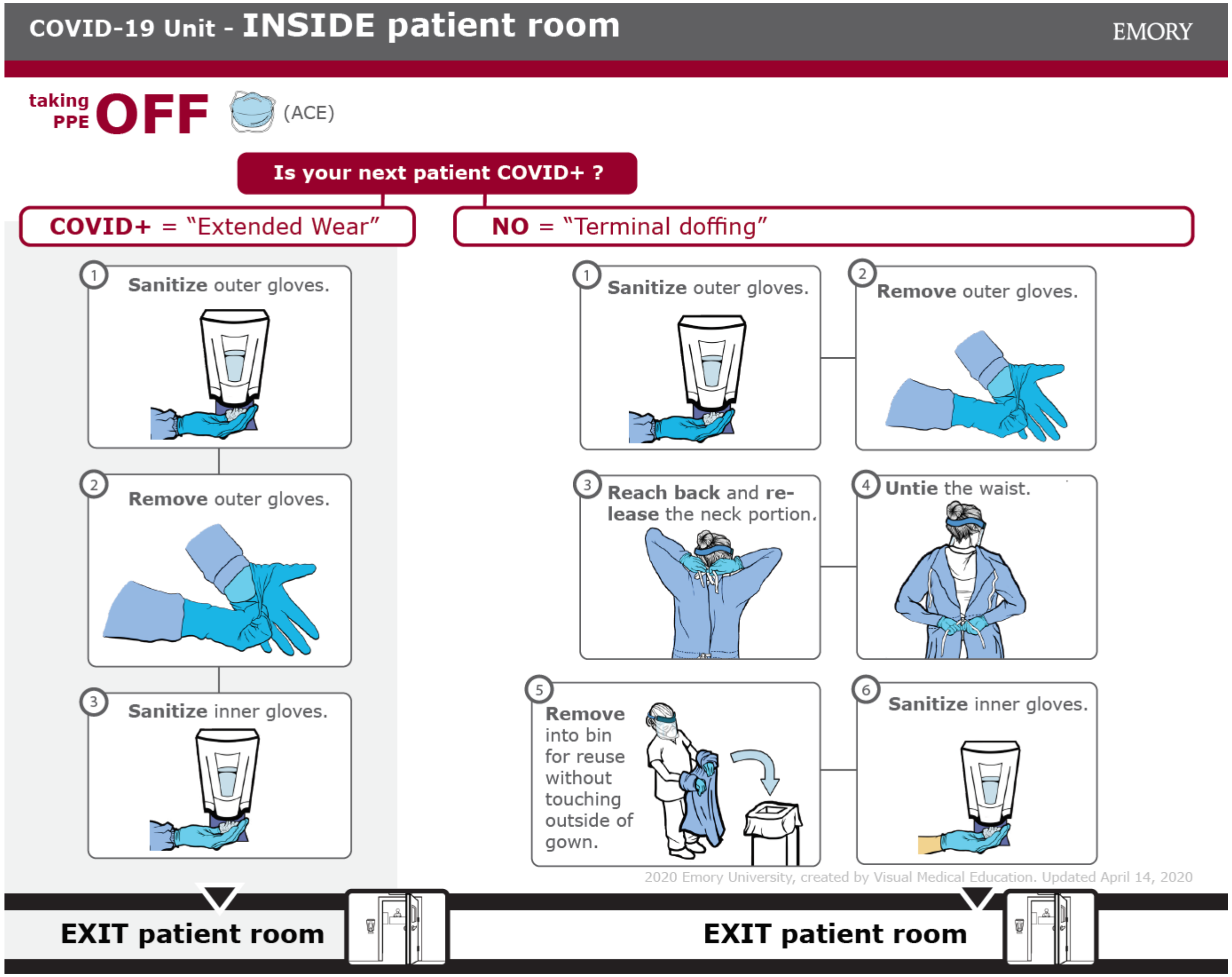
8 Once dry, your hands are safe

World Health Organization | Patient Safety A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

May 2009

Source: WHO (2009)

Guidance on Use, Management and Disposal of PPE in line with WHO Guidelines for Health Care Workers partaking in COVID-19 Response: Source Emory University



COVID-19 Unit - INSIDE patient room

EMORY

taking PPE **OFF** (ACE)

Is your next patient COVID+ ?

COVID+ = "Extended Wear"

① **Sanitize** outer gloves.

② **Remove** outer gloves.

③ **Sanitize** inner gloves.

EXIT patient room

NO = "Terminal doffing"

① **Sanitize** outer gloves.

② **Remove** outer gloves.

③ **Reach back** and **release** the neck portion.

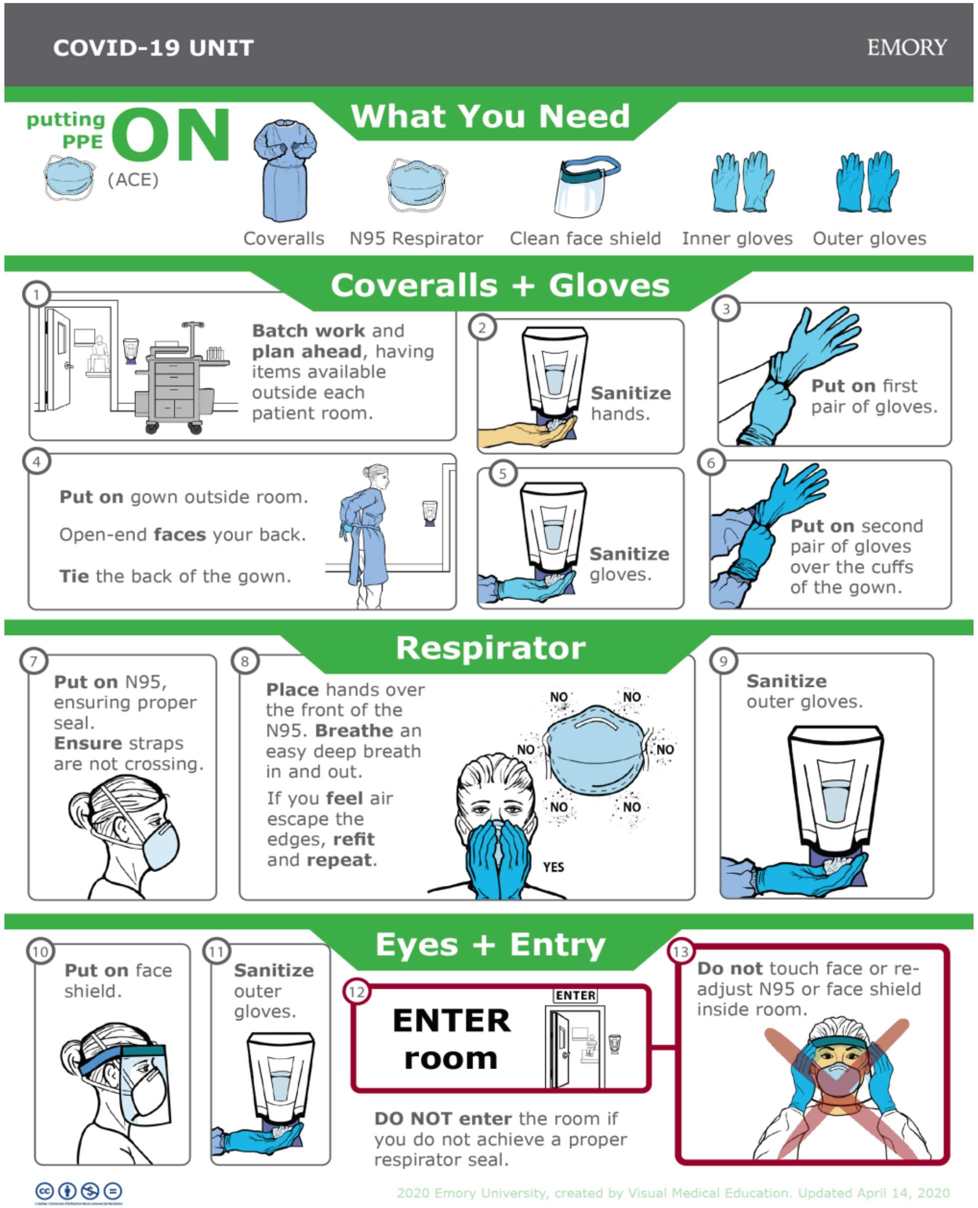
④ **Untie** the waist.

⑤ **Remove** into bin for reuse without touching outside of gown.

⑥ **Sanitize** inner gloves.

EXIT patient room

2020 Emory University, created by Visual Medical Education. Updated April 14, 2020



COVID-19 UNIT

EMORY

putting PPE ON (ACE)

What You Need

Coveralls

N95 Respirator

Clean face shield

Inner gloves

Outer gloves

Coveralls + Gloves

1. **Batch work** and **plan ahead**, having items available outside each patient room.
2. **Sanitize** hands.
3. **Put on** first pair of gloves.
4. **Put on** gown outside room. Open-end **faces** your back. **Tie** the back of the gown.
5. **Sanitize** gloves.
6. **Put on** second pair of gloves over the cuffs of the gown.

Respirator

7. **Put on** N95, ensuring proper seal. **Ensure** straps are not crossing.
8. **Place** hands over the front of the N95. **Breathe** an easy deep breath in and out. If you **feel** air escape the edges, **refit** and **repeat**.
9. **Sanitize** outer gloves.

Eyes + Entry

10. **Put on** face shield.
11. **Sanitize** outer gloves.
12. **ENTER room**

DO NOT enter the room if you do not achieve a proper respirator seal.

13. **Do not** touch face or re-adjust N95 or face shield inside room.

COVID-19 Unit - **OUTSIDE patient room**

EMORY

taking PPE OFF (ACE)

EXTENDED WEAR

Next patient: COVID+

Gloves

After outer glove removal in the patient room, exit and...

1. **Sanitize** inner gloves.
2. **Put on** fresh outer gloves.

Walking

3. **Walk** to next patient with confirmed COVID-19 (marked) while **remaining** in marked zone.
4. **Do not touch** your face, the walls, rails, or anybody else until reaching the next room.

Entry

5. **Sanitize** gloves.
6. **Enter** NEXT COVID-19 patient room.

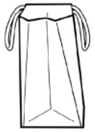
7. **Do not** touch face or re-adjust N95 or face shield inside room.

store your N95

What you need

View the PPE videos at med.emory.edu/PPE

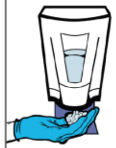
N95 Respirator



Paper storage bag with handles

Removal

1. **Sanitize** gloves.



2. **Pinch** bottom strap and **pull** far over head.

Do not let straps touch your face.

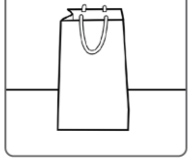
3. **Pinch** top strap and **pull** far over head.

Do not let straps touch your face as you **remove** the N95.

4. **Position** and hold N95 facedown.

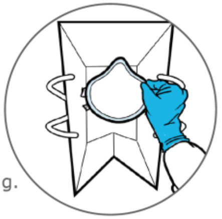
Storage

5. **Place** storage bag on clean, flat surface.

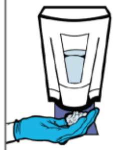


6. **Place** N95 facedown into the storage bag.

Avoid touching inside or outside of bag.

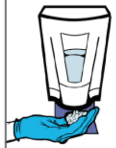


7. **Sanitize** gloves.



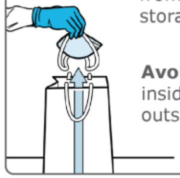
Retrieval

8. **Sanitize** gloves.



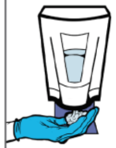
9. **Remove** N95 from the storage bag.

Avoid touching inside or outside of bag.



10. **Put on** N95, ensuring proper seal. **Ensure** straps are not crossing.

11. **Sanitize** gloves.



EMORY

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taking PPE OFF

(DICE)

Gown + Gloves

View the PPE video at med.emory.edu/PPE

1. **Sanitize** gloves.

2. Cross arms and **grip** gown on shoulders.

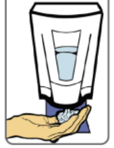
Pull and **break** gown in controlled fashion.

3. **Roll** the gown towards your hands.

Remove the gloves with the gown.

Dispose of gloves and gown.

4. **Sanitize** hands.



EXIT patient room | **EXIT patient room**

Eyes

5. **Put on** new gloves.

6. **Sanitize** gloves.

7. **Do not** touch face.

8. **Remove** face shield by the **strap** over your head without touching your skin.

Mask

9. **Sanitize** gloves.

10. **Pinch** loops and **pull** them back and off of your ears.

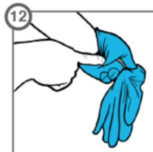
Do not let loops touch your face.

11. **Pull** loops off without touching your face with them or your hands.

Remove the mask.

Wash

12. **Remove** gloves.



13. **Head immediately** to handwashing station.

Wash hands with soap and water.

EMORY

Examples of Development of Standard Precautions in Health Care- Source WHO

AIDE-MEMOIRE

OCTOBER 2007 **INFECTION CONTROL**

Standard precautions in health care

Background

Standard precautions are meant to reduce the risk of transmission of bloodborne and other pathogens from both recognized and unrecognized sources. They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients.

Hand hygiene is a major component of standard precautions and one of the most effective methods to prevent transmission of pathogens associated with health care. In addition to hand hygiene, the use of **personal protective equipment** should be guided by **risk assessment** and the extent of contact anticipated with blood and body fluids, or pathogens.

In addition to practices carried out by health workers when providing care, all individuals (including patients and visitors) should comply with infection control practices in health-care settings. The control of spread of pathogens from the source is key to avoid transmission. Among source control measures, **respiratory hygiene/cough etiquette**, developed during the severe acute respiratory syndrome (SARS) outbreak, is now considered as part of standard precautions.

Worldwide escalation of the use of standard precautions would reduce unnecessary risks associated with health care. Promotion of an **institutional safety climate** helps to improve conformity with recommended measures and thus subsequent risk reduction. Provision of adequate staff and supplies, together with leadership and education of health workers, patients, and visitors, is critical for an enhanced safety climate in health-care settings.

Important advice

- Promotion of a safety climate is a cornerstone of prevention of transmission of pathogens in health care.
- Standard precautions should be the minimum level of precautions used when providing care for all patients.
- Risk assessment is critical. Assess all health-care activities to determine the personal protection that is indicated.
- Implement source control measures for all persons with respiratory symptoms through promotion of respiratory hygiene and cough etiquette.

✓ Checklist

Health policy

- Promote a safety climate.
- Develop policies which facilitate the implementation of infection control measures.

Hand hygiene

- Perform hand hygiene by means of hand rubbing or hand washing (see detailed indications in table).
- Perform hand washing with soap and water if hands are visibly soiled, or exposure to spore-forming organisms is proven or strongly suspected, or after using the restroom. Otherwise, if resources permit, perform hand rubbing with an alcohol-based preparation.
- Ensure availability of hand-washing facilities with clean running water.
- Ensure availability of hand hygiene products (clean water, soap, single use clean towels, alcohol-based hand rub). Alcohol-based hand rubs should ideally be available at the point of care.

Personal protective equipment (PPE)

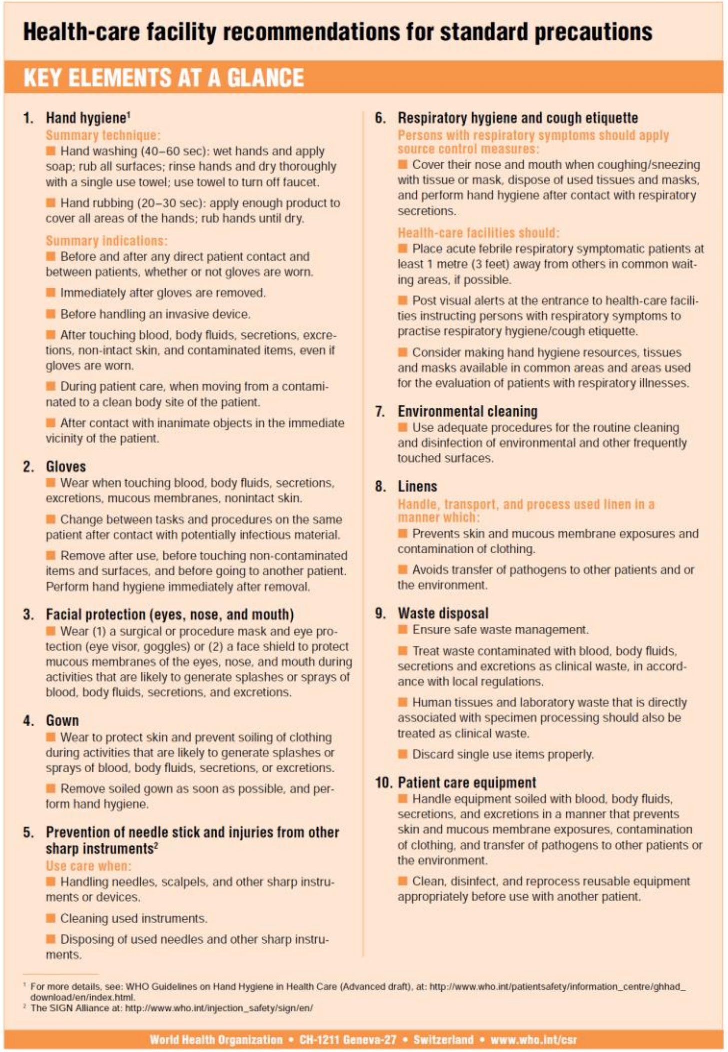
- ASSESS THE RISK of exposure to body substances or contaminated surfaces BEFORE any health-care activity. **Make this a routine!**
- Select PPE based on the assessment of risk:
  - clean non-sterile gloves
  - clean, non-sterile fluid-resistant gown
  - mask and eye protection or a face shield.

Respiratory hygiene and cough etiquette

- Education of health workers, patients and visitors.
- Covering mouth and nose when coughing or sneezing.
- Hand hygiene after contact with respiratory secretions.
- Spatial separation of persons with acute febrile respiratory symptoms.

EPIDEMIC AND PANDEMIC ALERT AND RESPONSE

World Health Organization



Health-care facility recommendations for standard precautions

KEY ELEMENTS AT A GLANCE

1. **Hand hygiene**[1]

   Summary technique:
   - Hand washing (40–60 sec): wet hands and apply soap; rub all surfaces; rinse hands and dry thoroughly with a single use towel; use towel to turn off faucet.
   - Hand rubbing (20–30 sec): apply enough product to cover all areas of the hands; rub hands until dry.

   Summary indications:
   - Before and after any direct patient contact and between patients, whether or not gloves are worn.
   - Immediately after gloves are removed.
   - Before handling an invasive device.
   - After touching blood, body fluids, secretions, excretions, non-intact skin, and contaminated items, even if gloves are worn.
   - During patient care, when moving from a contaminated to a clean body site of the patient.
   - After contact with inanimate objects in the immediate vicinity of the patient.

2. **Gloves**
   - Wear when touching blood, body fluids, secretions, excretions, mucous membranes, nonintact skin.
   - Change between tasks and procedures on the same patient after contact with potentially infectious material.
   - Remove after use, before touching non-contaminated items and surfaces, and before going to another patient. Perform hand hygiene immediately after removal.

3. **Facial protection (eyes, nose, and mouth)**
   - Wear (1) a surgical or procedure mask and eye protection (eye visor, goggles) or (2) a face shield to protect mucous membranes of the eyes, nose, and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.

4. **Gown**
   - Wear to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
   - Remove soiled gown as soon as possible, and perform hand hygiene.

5. **Prevention of needle stick and injuries from other sharp instruments**[2]

   Use care when:
   - Handling needles, scalpels, and other sharp instruments or devices.
   - Cleaning used instruments.
   - Disposing of used needles and other sharp instruments.

6. **Respiratory hygiene and cough etiquette**

   Persons with respiratory symptoms should apply source control measures:
   - Cover their nose and mouth when coughing/sneezing with tissue or mask, dispose of used tissues and masks, and perform hand hygiene after contact with respiratory secretions.

   Health-care facilities should:
   - Place acute febrile respiratory symptomatic patients at least 1 metre (3 feet) away from others in common waiting areas, if possible.
   - Post visual alerts at the entrance to health-care facilities instructing persons with respiratory symptoms to practise respiratory hygiene/cough etiquette.
   - Consider making hand hygiene resources, tissues and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.

7. **Environmental cleaning**
   - Use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces.

8. **Linens**

   Handle, transport, and process used linen in a manner which:
   - Prevents skin and mucous membrane exposures and contamination of clothing.
   - Avoids transfer of pathogens to other patients and or the environment.

9. **Waste disposal**
   - Ensure safe waste management.
   - Treat waste contaminated with blood, body fluids, secretions and excretions as clinical waste, in accordance with local regulations.
   - Human tissues and laboratory waste that is directly associated with specimen processing should also be treated as clinical waste.
   - Discard single use items properly.

10. **Patient care equipment**
    - Handle equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of pathogens to other patients or the environment.
    - Clean, disinfect, and reprocess reusable equipment appropriately before use with another patient.

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[1] For more details, see: WHO Guidelines on Hand Hygiene in Health Care (Advanced draft), at: http://www.who.int/patientsafety/information_centre/ghhad_download/en/index.html.

[2] The SIGN Alliance at: http://www.who.int/injection_safety/sign/en/

World Health Organization • CH-1211 Geneva-27 • Switzerland • www.who.int/csr

ANNEX 30-STANDARD POSITIVE LIST OF GOODS, SERVICES AND WORKS AND PROHIBITED ACTIVITIES AS PER THE WORLD BANK CERC OPERATIONAL MANUEL TEMPLATE

Table 4 of the CERC Operation Manuel Template

Positive list of goods, services and works *Needs to be discussed and agreed with the CERC implementing agency*

Item
Goods
• Medical equipment and supplies • Non-perishable foods, bottled water and containers • Tents for advanced medical posts, temporary housing, and classroom/daycare substitution • Equipment and supplies for temporary housing/living (gas stoves, utensils, tents, beds, sleeping bags, mattresses, blankets, hammocks, mosquito nets, kit of personal and family hygiene, etc.) and school • Gasoline and diesel (for air, land and sea transport) and engine lubricants • Spare parts, equipment and supplies for engines, transport, construction vehicles • Lease of vehicles (Vans, trucks and SUVs) • Equipment, tools, materials and supplies for search and rescue (including light motor boats and engines for transport and rescue) • Tools and construction supplies (roofing, cement, iron, stone, blocks, etc.) • Equipment and supplies for communications and broadcasting (radios, antennas, batteries) • Water pumps and tanks for water storage • Equipment, materials and supplies for disinfection of drinking water and repair/rehabilitate of black water collection systems • Equipment, tools and supplies for agricultural, forestry, and fisheries • Feed and veterinary inputs (vaccines, vitamin tablets, etc.) • Construction materials, equipment and industrial machinery • Water, air, and land transport equipment, including spare parts • Temporary toilets • Groundwater boreholes, cargos, equipment to allow access to affected site, storage units • Any other item agreed on between the World Bank and the Recipient (as documented in an Aide-Memoire or other appropriate formal Project document)
Services
• Consulting services related to emergency response including, but not limited to urgent studies and surveys necessary to determine the impact of the disaster and to serve as a baseline for the recovery and reconstruction process, and support to the implementation of emergency response activities • Feasibility study and technical design; • Works supervision • Technical Assistance in developing TORs, preparing Technical Specifications and drafting tendering documents (Bidding Documents, ITQ, RFP). • Non-consultant services including, but not limited to drilling, aerial photographs, satellite images, maps and other similar operations, information and awareness campaigns • Non-consultant services to deliver any of the activities described in the “Goods” section of this table (e.g., debris removal, dump trucks, drones survey)
Works
• Repair of damaged infrastructure including, but not limited to water supply and sanitation systems, dams, reservoirs, canals, roads, bridges and transportation systems, energy and power supply, telecommunication, and other infrastructure damaged by the event • Re-establish of the urban and rural solid waste system, water supply and sanitation (including urban drainage) • Repair of damaged public buildings, including schools, hospitals and administrative buildings • Repair, restoration, rehabilitation of schools, clinics, hospitals • Removal and disposal of debris associated with any eligible activity.

Training
• Conduct necessary training related to emergency response including, but not limited to the Implementation of EAP • Training on rapid needs assessment and other related assessments
Emergency Operating Costs
• Incremental expenses by the Government for a defined period related to early recovery efforts arising as a result of the impact of an eligible emergency. This includes, but is not limited to costs of staff attending emergency response, operational costs and rental of equipment

i. The following uses for goods and equipment financed by the CERC are prohibited, which also applies to use and storage for DRM-related activities including hazard monitoring, disaster preparedness, and future response to natural disasters *Needs to be discussed and agreed with the CERC implementing agency.*

ii. Activities of any type classifiable as Substantial and High Risk pursuant to the Association's Environmental and Social Framework.

iii. Activities that would lead to conversion or degradation of critical forest areas, critical natural habitats, and clearing of forests or forest ecosystems

iv. Activities affecting protected areas (or buffer zones thereof), other than to rehabilitate areas damaged by previous natural disasters.

v. Land reclamation (i.e., drainage of wetlands or filling of water bodies to create land)

vi. Land clearance and leveling in areas that are not affected by debris resulting from the eligible crisis or emergency

vii. River training (i.e., realignment, contraction or deepening of an existing river channel, or excavation of a new river channel)

viii. Activities that will result in the involuntary taking of land, relocation of households, loss of assets or access to assets that leads to loss of income sources or other means of livelihoods, and interference with households' use of land and livelihoods

ix. Construction of new roads, realignment of roads, or expansion of roads, or rehabilitation of roads that are currently located on communal lands but will be registered as government assets after rehabilitation

x. Use of goods and equipment on lands abandoned due to social tension / conflict, or the ownership of the land is disputed or cannot be ascertained

xi. Use of goods and equipment to demolish or remove assets, unless the ownership of the assets can be ascertained, and the owners are consulted

xii. Uses of goods and equipment involving forced labor, child labor, or other harmful or exploitative forms of labor

xiii. Uses of goods and equipment for activities that would affect indigenous peoples, unless due consultation and broad support has been documented and confirmed prior to the commencement of the activities

xiv. Uses of goods and equipment for military or paramilitary purposes

xv. Uses of goods and equipment in response to conflict, in any area with active military or armed group operations

xvi. Activities related to returning refugees and internally displaced populations

xvii. Activities which, when being carried out, would affect, or involve the use of, water of rivers or of other bodies of water (or their tributaries) which flow through or are bordered by countries other than the Borrower/Recipient, in such a manner as to in any way adversely change the quality or quantity of water flowing to or bordering said countries.

G – E and S Compliance

1. All activities financed through the CERC are subject to World Bank safeguards policies, keeping in mind that paragraph 12 of the IPF Policy applies once the CERC is triggered. The ESMF of the Project should include a section on the CERC, to align with the ERM, and to supplement the existing Project's environmental and social safeguards instruments, where needed[6]. This "CERC-ESMF" will outline a screening process built

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[6] A sample CERC section to the Project's ESMF is in Annex 9 of this manual

around the positive list for key environmental and social issues and risks. This will be linked to identifying institutional arrangements for oversight of any required additional Environmental and Social (E&S) due diligence and monitoring. In addition, the CERC-ESMF will include generic emergency civil works "sector" guidance identifying key E&S issues with practical Environmental and Social Management Plan (ESMP) type checklists. All activities financed through the CERC are subject to the WB's Environmental, Health and Safety (EHS) Guidelines[7].

2. Content of the CERC section in the Project ESMF will include:
    1. Description of the potential emergencies and the types of activities likely to be financed;
    2. Potential risks and general mitigation measures associated with the potential activities;
    3. Identification of Vulnerable locations and/or groups;
    4. Environmental and Social Assessment (screening) and the environmental and social requirements (studies, plans, etc.) to comply with the Bank's requirements and the national law;
    5. An ECOP (Environmental Code(s) of Practice) for the positive list of goods;
    6. Assessment to guide emergency responses (e.g. what existing social conflicts could be exacerbated by an emergency); and
    7. Institutional arrangements for environmental and social due diligence and monitoring.

Activities financed under the CERC will be limited to provision of critical goods and services, as well as rehabilitation and reconstruction of damaged infrastructure outlined in a positive list in this ERM (Table 4). Land acquisition leading to involuntary resettlement and/or restrictions of access to resources and livelihoods is not anticipated. It is further not anticipated to support activities which might have adverse impacts on ethnic groups considered indigenous people under the World Bank's Operational Policy on indigenous people (OP 4.10). It is also unlikely that changes to the existing safeguards instruments of the project will be required. However, if necessary, the safeguards instruments will be updated if the EAP do not fall within the scope of the existing instruments. It is unlikely that emergency works will trigger new safeguards policies, however, if required, new instruments will be prepared, consulted upon and disclosed; per the requirements of the Bank's Investment Financing Policy, a restructuring would be prepared.

name of the CERC implementing agency through the environmental and social specialist, will identify based on the activities and works proposed in the EAP, the potential environmental and social negative impacts, and the studies or plans required for the environmental and social management. This will be done by completing the Environmental and Social Screening, annexed to the ESFM, from for each activity.

3. In the case of the procurement of works requirement the mobilization of civil works contractors, the bidding documents will include standard codes of conduct for workers and supervisors, specifying appropriate conduct and sanctions related to community relations, gender-based violence, child protection, human trafficking, and sexual exploitation and abuse.

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

ANNEX 31: EXAMPLE OF STANDARD DISCLOSURE ADVERTISEMENT FOR ENVIRONMENTAL AND SOCIAL INSTRUMENTS

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. -

ANNEX 32: COVID-19 CONSIDERATIONS IN CONSTRCUTION/CIVIL WORKS PROJECTS

This note was issued on April 7, 2020 and includes links to the latest guidance as of this date (e.g. from WHO). Given the COVID-19 situation is rapidly evolving, when using this note it is important to check whether any updates to these external resources have been issued.

1. INTRODUCTION

The COVID-19 pandemic presents Governments with unprecedented challenges. Addressing COVID-19 related issues in both existing and new operations starts with recognizing that this is not business as usual and that circumstances require a highly adaptive responsive management design to avoid, minimize and manage what may be a rapidly evolving situation. In many cases, we will ask Borrowers to use reasonable efforts in the circumstances, recognizing that what may be possible today may be different next week (both positively, because more supplies and guidance may be available, and negatively, because the spread of the virus may have accelerated).

This interim note is intended to provide guidance to teams on how to support Borrowers in addressing key issues associated with COVID-19, and consolidates the advice that has already been provided over the past month. As such, it should be used in place of other guidance that has been provided to date. This note will be developed as the global situation and the Bank's learning (and that of others) develops. This is not a time when 'one size fits all'. More than ever, teams will need to work with Borrowers and projects to understand the activities being carried out and the risks that these activities may entail. Support will be needed in designing mitigation measures that are implementable in the context of the project. These measures will need to take into account capacity of the Government agencies, availability of supplies and the practical challenges of operations on-the-ground, including stakeholder engagement, supervision and monitoring. In many circumstances, communication itself may be challenging, where face-to-face meetings are restricted or prohibited, and where IT solutions are limited or unreliable.

This note emphasizes the importance of careful scenario planning, clear procedures and protocols, management systems, effective communication and coordination, and the need for high levels of responsiveness in a changing environment. It recommends assessing the current situation of the project, putting in place mitigation measures to avoid or minimize the chance of infection, and planning what to do if either project workers become infected or the work force includes workers from proximate communities affected by COVID-19. In many projects, measures to avoid or minimize will need to be implemented at the same time as dealing with sick workers and relations with the community, some of whom may also be ill or concerned about infection. Borrowers should understand the obligations that contractors have under their existing contracts (see Section 3), require contractors to put in place appropriate organizational structures (see Section 4) and develop procedures to address different aspects of COVID-19 (see Section 5).

2. CHALLENGES WITH CONSTRUCTION/CIVIL WORKS

Projects involving construction/civil works frequently involve a large work force, together with suppliers and supporting functions and services. The work force may comprise workers from international, national, regional, and local labor markets. They may need to live in on-site accommodation, lodge within communities close to work sites or return to their homes after work. There may be different contractorpermanently present on site, carrying out different activities, each with their own dedicated workers. Supply chains may involve international, regional and national suppliers facilitating the regular flow of goods and services to the project (including supplies essential to the project such as fuel, food, and water). As such there will also be regular flow of parties entering and exiting the site; support services, such as catering, cleaning services, equipment, material and supply deliveries, and specialist sub-contractors, brought in to deliver specific elements of the works.

Given the complexity and the concentrated number of workers, the potential for the spread of infectious disease in projects involving construction is extremely serious, as are the implications of such a spread. Projects may experience large numbers of the work force becoming ill, which will strain the project's health facilities, have implications for local emergency and health services and may jeopardize the progress of the construction work and the schedule of the project. Such impacts will be exacerbated where a work force is large and/or the project is in remote or under-serviced areas. In such circumstances, relationships with the community can be strained or difficult and conflict can arise, particularly if people feel they are being exposed to disease by the project or are having to compete for scarce resources. The project must also exercise appropriate precautions against introducing the infection to local communities.

3. DOES THE CONSTRUCTION CONTRACT COVER THIS SITUATION?

Given the unprecedented nature of the COVID-19 pandemic, it is unlikely that the existing construction/civil works contracts will cover all the things that a prudent contractor will need to do. Nevertheless, the first place for a Borrower to start is with the contract, determining what a contractor's existing obligations are, and how these relate to the current situation.

The obligations on health and safety will depend on what kind of contract exists (between the Borrower and the main contractor; between the main contractors and the sub-contractors). It will differ if the Borrower used the World Bank's standard procurement documents (SPDs) or used national bidding documents. If a FIDIC document has been used, there will be general provisions relating to health and safety. For example, the standard FIDIC, Conditions of Contract for Construction (Second Edition 2017), which contains no 'ESF enhancements', states (in the General Conditions, clause 6.7) that the Contractor will be required:

- to take all necessary precautions to maintain the health and safety of the Contractor's Personnel
- to appoint a health and safety officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorized to enter and or work on the site and to take protective measures to prevent accidents
- to ensure, in collaboration with local health authorities, that medical staff, first aid facilities, sick bay, ambulance services and any other medical services specified are available at all times at the site and at any accommodation
- to ensure suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics

These requirements have been enhanced through the introduction of the ESF into the SPDs (edition dated July 2019). The general FIDIC clause referred to above has been strengthened to reflect the requirements of the ESF. Beyond FIDIC's general requirements discussed above, the Bank's Particular Conditions include a number of relevant requirements on the Contractor, including:

- to provide health and safety training for Contractor's Personnel (which include project workers and all personnel that the Contractor uses on site, including staff and other employees of the Contractor and Subcontractors and any other personnel assisting the Contractor in carrying out project activities)
- to put in place workplace processes for Contractor's Personnel to report work situations that are not safe or healthy
- gives Contractor's Personnel the right to report work situations which they believe are not safe or healthy, and to remove themselves from a work situation which they have a reasonable justification to believe presents an imminent and serious danger to their life or health (with no reprisal for reporting or removing themselves)
- requires measures to be in place to avoid or minimize the spread of diseases including measures to avoid or minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent contract-related labor
- to provide an easily accessible grievance mechanism to raise workplace concerns

Where the contract form used is FIDIC, the Borrower (as the Employer) will be represented by the Engineer (also referred to in this note as the Supervising Engineer). The Engineer will be authorized to exercise authority specified in or necessarily implied from the construction contract. In such cases, the Engineer (through its staff on site) will be the interface between the PMU and the Contractor. It is important therefore to understand the scope of the Engineer's responsibilities. It is also important to recognize that in the case of infectious diseases such as COVID-19, project management – through the Contractor/subcontractor hierarchy – is only as effective as the weakest link. A thorough review of management procedures/plans as they will be implemented through the entire contractor hierarchy is important. Existing contracts provide the outline of this structure; they form the basis for the Borrower to understand how proposed mitigation measures will be designed and how adaptive management will be implemented, and to start a conversation with the Contractor on measures to address COVID-19 in the project.

4. WHAT PLANNING SHOULD THE BORROWER BE DOING?

Task teams should work with Borrowers (PMU) to confirm that projects (i) are taking adequate precautions to prevent or minimize an outbreak of COVID-19, and (ii) have identified what to do in the event of an outbreak. Suggestions on how to do this are set out below:

- The PMU, either directly or through the Supervising Engineer, should request details in writing from the main Contractor of the measures being taken to address the risks. As stated in Section 3, the construction contract should include health and safety requirements, and these can be used as the basis for identification of, and requirements to implement, COVID-19 specific measures. The measures may be presented as a contingency plan, as an extension of the existing project emergency and preparedness plan or as standalone procedures. The measures may be reflected in revisions to the project's health and safety manual. This request should be made in writing (following any relevant procedure set out in the contract between the Borrower and the contractor).

- In making the request, it may be helpful for the PMU to specify the areas that should be covered. This should include the items set out in Section 5 below and take into account current and relevant

guidance provided by national authorities, WHO and other organizations. See the list of references in the Annex to this note.

- The PMU should require the Contractor to convene regular meetings with the project health and safety specialists and medical staff (and where appropriate the local health authorities), and to take their advice in designing and implementing the agreed measures.

- Where possible, a senior person should be identified as a focal point to deal with COVID-19 issues. This can be a work supervisor or a health and safety specialist. This person can be responsible for coordinating preparation of the site and making sure that the measures taken are communicated to the workers, those entering the site and the local community. It is also advisable to designate at least one back-up person; in case the focal point becomes ill; that person should be aware of the arrangements that are in place.

- On sites where there are a number of contractors and therefore (in effect) different work forces, the request should emphasize the importance of coordination and communication between the different parties. Where necessary, the PMU should request the main contractor to put in place a protocol for regular meetings of the different contractors, requiring each to appoint a designated staff member (with back up) to attend such meetings. If meetings cannot be held in person, they should be conducted using whatever IT is available. The effectiveness of mitigation measures will depend on the weakest implementation, and therefore it is important that all contractors and sub-contractors understand the risks and the procedure to be followed.

- The PMU, either directly or through the Supervising Engineer, may provide support to projects in identifying appropriate mitigation measures, particularly where these will involve interface with local services, in particular health and emergency services. In many cases, the PMU can play a valuable role in connecting project representatives with local Government agencies, and helping coordinate a strategic response, which takes into account the availability of resources. To be most effective, projects should consult and coordinate with relevant Government agencies and other projects in the vicinity.

- Workers should be encouraged to use the existing project grievance mechanism to report concerns relating to COVID-19, preparations being made by the project to address COVID-19 related issues, how procedures are being implemented, and concerns about the health of their co-workers and other staff.

5. WHAT SHOULD THE CONTRACTOR COVER?

The Contractor should identify measures to address the COVID-19 situation. What will be possible will depend on the context of the project: the location, existing project resources, availability of supplies, capacity of local emergency/health services, the extent to which the virus already exist in the area. A systematic approach to planning, recognizing the challenges associated with rapidly changing circumstances, will help the project put in place the best measures possible to address the situation. As discussed above, measures to address COVID-19 may be presented in different ways (as a contingency plan, as an extension of the existing project emergency and preparedness plan or as standalone procedures). PMU and contractors should refer to guidance issued by relevant authorities, both national

and international (e.g. WHO), which is regularly updated (see sample References and links provided in the Annex).

Addressing COVID-19 at a project site goes beyond occupational health and safety, and is a broader project issue which will require the involvement of different members of a project management team. In many cases, the most effective approach will be to establish procedures to address the issues, and then to ensure that these procedures are implemented systematically. Where appropriate given the project context, a designated team should be established to address COVID-19 issues, including PMU representatives, the Supervising Engineer, management (e.g. the project manager) of the contractor and sub-contractors, security, and medical and OHS professionals. Procedures should be clear and straightforward, improved as necessary, and supervised and monitored by the COVID-19 focal point(s). Procedures should be documented, distributed to all contractors, and discussed at regular meetings to facilitate adaptive management. The issues set out below include a number that represent expected good workplace management but are especially pertinent in preparing the project response to COVID-19.

6. ASSESSING WORKFORCE CHARACTERISTICS

Many construction sites will have a mix of workers e.g. workers from the local communities; workers from a different part of the country; workers from another country. Workers will be employed under different terms and conditions and be accommodated in different ways. Assessing these different aspects of the workforce will help in identifying appropriate mitigation measures:

- The Contractor should prepare a detailed profile of the project work force, key work activities, schedule for carrying out such activities, different durations of contract and rotations (e.g. 4 weeks on, 4 weeks off).
- This should include a breakdown of workers who reside at home (i.e. workers from the community), workers who lodge within the local community and workers in on-site accommodation. Where possible, it should also identify workers that may be more at risk from COVID-19, those with underlying health issues or who may be otherwise at risk.
- Consideration should be given to ways in which to minimize movement in and out of site. This could include lengthening the term of existing contracts, to avoid workers returning home to affected areas, or returning to site from affected areas.
- Workers accommodated on site should be required to minimize contact with people near the site, and in certain cases be prohibited from leaving the site for the duration of their contract, so that contact with local communities is avoided.
- Consideration should be given to requiring workers lodging in the local community to move to site accommodation (subject to availability) where they would be subject to the same restrictions.
- Workers from local communities, who return home daily, weekly or monthly, will be more difficult to manage. They should be subject to health checks at entry to the site (as set out above) and at some point, circumstances may make it necessary to require them to either use accommodation on site or not to come to work.

a. ENTRY/EXIT TO THE WORK SITE AND CHECKS ON COMMENCEMENT OF WORK

Entry/exit to the work site should be controlled and documented for both workers and other parties, including support staff and suppliers. Possible measures may include:

- Establishing a system for controlling entry/exit to the site, securing the boundaries of the site, and establishing designating entry/exit points (if they do not already exist). Entry/exit to the site should be documented.
- Training security staff on the (enhanced) system that has been put in place for securing the site and controlling entry and exit, the behaviors required of them in enforcing such system and any COVID - 19 specific considerations.
- Training staff who will be monitoring entry to the site, providing them with the resources they need to

document entry of workers, conducting temperature checks and recording details of any worker that is denied entry.

- Confirming that workers are fit for work before they enter the site or start work. While procedures should already be in place for this, special attention should be paid to workers with underlying health issues or who may be otherwise at risk. Consideration should be given to demobilization of staff with underlying health issues.
- Checking and recording temperatures of workers and other people entering the site or requiring self-reporting prior to or on entering the site.
- Providing daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures, using demonstrations and participatory methods.
- During the daily briefings, reminding workers to self-monitor for possible symptoms (fever, cough) and to report to their supervisor or the COVID-19 focal point if they have symptoms or are feeling unwell.
- Preventing a worker from an affected area or who has been in contact with an infected person from returning to the site for 14 days or (if that is not possible) isolating such worker for 14 days.
- Preventing a sick worker from entering the site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days.

b. GENERAL HYGIENE

Requirements on general hygiene should be communicated and monitored, to include:

- Training workers and staff on site on the signs and symptoms of COVID-19, how it is spread, how to protect themselves (including regular handwashing and social distancing) and what to do if they or other people have symptoms (for further information see WHO COVID-19 advice for the public).
- Placing posters and signs around the site, with images and text in local languages.
- Ensuring handwashing facilities supplied with soap, disposable paper towels and closed waste bins exist at key places throughout site, including at entrances/exits to work areas; where there is a toilet, canteen or food distribution, or provision of drinking water; in worker accommodation; at waste stations; at stores; and in common spaces. Where handwashing facilities do not exist or are not adequate, arrangements should be made to set them up. Alcohol based sanitizer (if available, 60-95% alcohol) can also be used.
- Review worker accommodations, and assess them in light of the requirements set out in IFC/EBRD guidance on Workers' Accommodation: processes and standards, which provides valuable guidance as to good practice for accommodation.
    c. Setting aside part of worker accommodation for precautionary self-quarantine as well as more formal isolation of staff who may be infected (see paragraph (f)).\

CLEANING AND WASTE DISPOSAL

Conduct regular and thorough cleaning of all site facilities, including offices, accommodation, canteens, common spaces. Review cleaning protocols for key construction equipment (particularly if it is being operated by different workers). This should include:

- Providing cleaning staff with adequate cleaning equipment, materials and disinfectant.
- Review general cleaning systems, training cleaning staff on appropriate cleaning procedures and appropriate frequency in high use or high-risk areas.
- Where it is anticipated that cleaners will be required to clean areas that have been or are suspected to have been contaminated with COVID-19, providing them with appropriate PPE: gowns or aprons, gloves, eye protection (masks, goggles or face screens) and boots or closed work shoes. If appropriate PPE is not available, cleaners should be provided with best available alternatives.
- Training cleaners in proper hygiene (including handwashing) prior to, during and after conducting cleaning activities; how to safely use PPE (where required); in waste control (including for used PPE and cleaning materials).
- Any medical waste produced during the care of ill workers should be collected safely in designated containers or bags and treated and disposed of following relevant requirements (e.g., national, WHO). If open burning and incineration of medical wastes is necessary, this should be for as limited a duration as possible. Waste should be reduced and segregated, so that only the smallest amount of waste is incinerated (for further information see WHO interim guidance on water, sanitation and waste management for

COVID-19).

d. ADJUSTING WORK PRACTICES

Consider changes to work processes and timings to reduce or minimize contact between workers, recognizing that this is likely to impact the project schedule. Such measures could include:

- Decreasing the size of work teams.
- Limiting the number of workers on site at any one time.
- Changing to a 24-hour work rotation.
- Adapting or redesigning work processes for specific work activities and tasks to enable social distancing, and training workers on these processes.
- Continuing with the usual safety trainings, adding COVID-19 specific considerations. Training should include proper use of normal PPE. While as of the date of this note, general advice is that construction workers do not require COVID-19 specific PPE, this should be kept under review (for further information see WHO interim guidance on rational use of personal protective equipment (PPE) for COVID-19).
- Reviewing work methods to reduce use of construction PPE, in case supplies become scarce or the PPE is needed for medical workers or cleaners. This could include, e.g. trying to reduce the need for dust masks by checking that water sprinkling systems are in good working order and are maintained or reducing the speed limit for haul trucks.
- Arranging (where possible) for work breaks to be taken in outdoor areas within the site.
- Consider changing canteen layouts and phasing meal times to allow for social distancing and phasing access to and/or temporarily restricting access to leisure facilities that may exist on site, including gyms.
- At some point, it may be necessary to review the overall project schedule, to assess the extent to which it needs to be adjusted (or work stopped completely) to reflect prudent work practices, potential exposure of both workers and the community and availability of supplies, taking into account Government advice and instructions.

e. PROJECT MEDICAL SERVICES

Consider whether existing project medical services are adequate, taking into account existing infrastructure (size of clinic/medical post, number of beds, isolation facilities), medical staff, equipment and supplies, procedures and training. Where these are not adequate, consider upgrading services where possible, including:

- Expanding medical infrastructure and preparing areas where patients can be isolated. Guidance on setting up isolation facilities is set out in WHO interim guidance on considerations for quarantine of individuals in the context of containment for COVID-19). Isolation facilities should be located away from worker accommodation and ongoing work activities. Where possible, workers should be provided with a single well-ventilated room (open windows and door). Where this is not possible, isolation facilities should allow at least 1 meter between workers in the same room, separating workers with curtains, if possible. Sick workers should limit their movements, avoiding common areas and facilities and not be allowed visitors until they have been clear of symptoms for 14 days. If they need to use common areas and facilities (e.g. kitchens or canteens), they should only do so when unaffected workers are not present, and the area/facilities should be cleaned prior to and after such use.
- Training medical staff, which should include current WHO advice on COVID-19 and recommendations on the specifics of COVID-19. Where COVID-19 infection is suspected, medical providers on site should follow WHO interim guidance on infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected.
- Training medical staff in testing, if testing is available.
- Assessing the current stock of equipment, supplies and medicines on site, and obtaining additional stock, where required and possible. This could include medical PPE, such as gowns, aprons, medical masks, gloves, and eye protection. Refer to WHO guidance as to what is advised (for further information see WHO interim guidance on rational use of personal protective equipment (PPE) for COVID-19).
- If PPE items are unavailable due to world-wide shortages, medical staff on the project should agree on alternatives and try to procure them. Alternatives that may commonly be found on constructions sites include dust masks, construction gloves and eye goggles. While these items are not recommended, they should be used as a last resort if no medical PPE is available.

- Ventilators will not normally be available on work sites, and in any event, intubation should only be conducted by experienced medical staff. If a worker is extremely ill and unable to breathe properly on his or her own, they should be referred immediately to the local hospital (see (g) below).
- Review existing methods for dealing with medical waste, including systems for storage and disposal (for further information see WHO interim guidance on water, sanitation and waste management for COVID-19, and WHO guidance on safe management of wastes from health-care activities).

f. LOCAL MEDICAL AND OTHER SERVICES

Given the limited scope of project medical services, the project may need to refer sick workers to local medical services. Preparation for this includes:

- Obtaining information as to the resources and capacity of local medical services (e.g. number of beds, availability of trained staff and essential supplies).
- Conducting preliminary discussions with specific medical facilities, to agree what should be done in the event of ill workers needing to be referred.
- Considering ways in which the project may be able to support local medical services in preparing for members of the community becoming ill, recognizing that the elderly or those with pre-existing medical conditions require additional support to access appropriate treatment if they become ill.
- Clarifying the way in which an ill worker will be transported to the medical facility, and checking availability of such transportation.
- Establishing an agreed protocol for communications with local emergency/medical services.
- Agreeing with the local medical services/specific medical facilities the scope of services to be provided, the procedure for in-take of patients and (where relevant) any costs or payments that may be involved.
- A procedure should also be prepared so that project management knows what to do in the unfortunate event that a worker ill with COVID-19 dies. While normal project procedures will continue to apply, COVID-19 may raise other issues because of the infectious nature of the disease. The project should liaise with the relevant local authorities to coordinate what should be done, including any reporting or other requirements under national law.

g. INSTANCES OR SPREAD OF THE VIRUS

WHO provides detailed advice on what should be done to treat a person who becomes sick or displays symptoms that could be associated with the COVID-19 virus (for further information see WHO interim guidance on infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected). The project should set out risk-based procedures to be followed, with differentiated approaches based on case severity (mild, moderate, severe, critical) and risk factors (such as age, hypertension, diabetes) (for further information see WHO interim guidance on operational considerations for case management of COVID-19 in health facility and community). These may include the following:

- If a worker has symptoms of COVID-19 (e.g. fever, dry cough, fatigue) the worker should be removed immediately from work activities and isolated on site.
- If testing is available on site, the worker should be tested on site. If a test is not available at site, the worker should be transported to the local health facilities to be tested (if testing is available).
- If the test is positive for COVID-19 or no testing is available, the worker should continue to be isolated. This will either be at the work site or at home. If at home, the worker should be transported to their home in transportation provided by the project.
- Extensive cleaning procedures with high-alcohol content disinfectant should be undertaken in the area where the worker was present, prior to any further work being undertaken in that area. Tools used by the worker should be cleaned using disinfectant and PPE disposed of.
- Co-workers (i.e. workers with whom the sick worker was in close contact) should be required to stop work, and be required to quarantine themselves for 14 days, even if they have no symptoms.
- Family and other close contacts of the worker should be required to quarantine themselves for 14 days, even if they have no symptoms.
- If a case of COVID-19 is confirmed in a worker on the site, visitors should be restricted from entering the site and worker groups should be isolated from each other as much as possible.
- If workers live at home and has a family member who has a confirmed or suspected case of COVID- 19, the worker should quarantine themselves and not be allowed on the project site for 14 days, even if they

have no symptoms.

- Workers should continue to be paid throughout periods of illness, isolation or quarantine, or if they are required to stop work, in accordance with national law.
- Medical care (whether on site or in a local hospital or clinic) required by a worker should be paid for by the employer.

h. CONTINUITY OF SUPPLIES AND PROJECT ACTIVITIES

i.

Where COVID-19 occurs, either in the project site or the community, access to the project site may be restricted, and movement of supplies may be affected.

- Identify back-up individuals, in case key people within the project management team (PMU, Supervising Engineer, Contractor, sub-contractors) become ill, and communicate who these are so that people are aware of the arrangements that have been put in place.
- Document procedures, so that people know what they are, and are not reliant on one person's knowledge.
- Understand the supply chain for necessary supplies of energy, water, food, medical supplies and cleaning equipment, consider how it could be impacted, and what alternatives are available. Early pro-active review of international, regional and national supply chains, especially for those supplies that are critical for the project, is important (e.g. fuel, food, medical, cleaning and other essential supplies). Planning for a 1-2-month interruption of critical goods may be appropriate for projects in more remote areas.
- Place orders for/procure critical supplies. If not available, consider alternatives (where feasible).
- Consider existing security arrangements, and whether these will be adequate in the event of interruption to normal project operations.
- Consider at what point it may become necessary for the project to significantly reduce activities or to stop work completely, and what should be done to prepare for this, and to re-start work when it becomes possible or feasible.

j. TRAINING AND COMMUNICATION WITH WORKERS

Workers need to be provided with regular opportunities to understand their situation, and how they can best protect themselves, their families and the community. They should be made aware of the procedures that have been put in place by the project, and their own responsibilities in implementing them.

- It is important to be aware that in communities close to the site and amongst workers without access to project management, social media is likely to be a major source of information. This raises the importance of regular information and engagement with workers (e.g. through training, town halls, tool boxes) that emphasizes what management is doing to deal with the risks of COVID-19. Allaying fear is an important aspect of work force peace of mind and business continuity. Workers should be given an opportunity to ask questions, express their concerns, and make suggestions.
- Training of workers should be conducted regularly, as discussed in the sections above, providing workers with a clear understanding of how they are expected to behave and carry out their work duties.
- Training should address issues of discrimination or prejudice if a worker becomes ill and provide an understanding of the trajectory of the virus, where workers return to work.
- Training should cover all issues that would normally be required on the work site, including use of safety procedures, use of construction PPE, occupational health and safety issues, and code of conduct, taking into account that work practices may have been adjusted.
- Communications should be clear, based on fact and designed to be easily understood by workers, for example by displaying posters on handwashing and social distancing, and what to do if a worker displays symptoms.

k. COMMUNICATION AND CONTACT WITH THE COMMUNITY

Relations with the community should be carefully managed, with a focus on measures that are being implemented to safeguard both workers and the community. The community may be concerned about the presence of non-local workers, or the risks posed to the community by local workers presence on the project site. The project should set out risk-based procedures to be followed , which may reflect WHO guidance (for further information see WHO Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response). The following good practice should be considered:

- Communications should be clear, regular, based on fact and designed to be easily understood by community members.
- Communications should utilize available means. In most cases, face-to-face meetings with the community or community representatives will not be possible. Other forms of communication should be used; posters, pamphlets, radio, text message, electronic meetings. The means used should take into account the ability of different members of the community to access them, to make sure that communication reaches these groups.
- The community should be made aware of procedures put in place at site to address issues related to COVID-19. This should include all measures being implemented to limit or prohibit contact between workers and the community. These need to be communicated clearly, as some measures will have financial implications for the community (e.g. if workers are paying for lodging or using local facilities). The community should be made aware of the procedure for entry/exit to the site, the training being given to workers and the procedure that will be followed by the project if a worker becomes sick.
- If project representatives, contractors or workers are interacting with the community, they should practice social distancing and follow other COVID-19 guidance issued by relevant authorities, both national and international (e.g. WHO).

7. EMERGENCY POWERS AND LEGISLATION

Many Borrowers are enacting emergency legislation. The scope of such legislation, and the way it interacts with other legal requirements, will vary from country to country. Such legislation can cover a range of issues, for example:

- Declaring a public health emergency
- Authorizing the use of police or military in certain activities (e.g. enforcing curfews or restrictions on movement)
- Ordering certain categories of employees to work longer hours, not to take holiday or not to leave their job (e.g. health workers)
- Ordering non-essential workers to stay at home, for reduced pay or compulsory holiday

Except in exceptional circumstances (after referral to the World Bank's Operations Environmental and Social Review Committee (OESRC)), projects will need to follow emergency legislation to the extent that these are mandatory or advisable. It is important that the Borrower understands how mandatory requirements of the legislation will impact the project. Teams should require Borrowers (and in turn, Borrowers should request Contractors) to consider how the emergency legislation will impact the obligations of the Borrower set out in the legal agreement and the obligations set out in the construction contracts. Where the legislation requires a material departure from existing contractual obligations, this should be documented, setting out the relevant provisions.

ANNEX

WHO Guidance

Advice for the public

- WHO advice for the public, including on social distancing, respiratory hygiene, self-quarantine, and seeking medical advice, can be consulted on this WHO website: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

Technical guidance

- Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected, issued on 19 March 2020
- Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, issued on 18 March 2020
- Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response, issued on 16 March 2020
- Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19), issued on 19 March 2020

- Operational considerations for case management of COVID-19 in health facility and community, issued on 19 March 2020
- Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19), issued on 27 February 2020
- Getting your workplace ready for COVID-19, issued on 19 March 2020
- Water, sanitation, hygiene and waste management for COVID-19, issued on 19 March 2020
- Safe management of wastes from health-care activities issued in 2014
- Advice on the use of masks in the community, during home care and in healthcare settings in the context of the novel coronavirus (COVID-19) outbreak, issued on March 19, 2020

ILO GUIDANCE

- ILO Standards and COVID-19 FAQ, issued on March 23, 2020 (provides a compilation of answers to most frequently asked questions related to international labor standards and COVID-19)

MFI GUIDANCE

- IDB Invest Guidance for Infrastructure Projects on COVID-19: A Rapid Risk Profile and Decision Framework
- KfW DEG COVID-19 Guidance for employers, issued on 31 March 2020
- CDC Group COVID-19 Guidance for Employers, issued on 23 March 202

ANNEX 33: THE WORLD BANK'S ENVIRONMENTAL AND SOCIAL STANDARDS IN SUMMARY

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:
  - 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.

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. Additionally, the ESS2 further highlights that 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. Accordingly, Borrowers are required to develop and implement written labor management procedures (LMP) 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.

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.

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.

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.

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.

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 also 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.

ESS 5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

ESS5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood), or both. The term “involuntary resettlement” refers to these impacts. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement.

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.

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.

Protected Areas

Where the project occurs within or has the potential to adversely affect an area that is legally protected[8] designated for protection, or regionally or internationally recognized[5], 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. Annex 2 of this report provides a full list of protected areas in the Maldives.

ESS 7- Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

This ESS applies to a distinct social and cultural group possessing the following characteristics in varying degrees: (a) Self-identification as members of a distinct indigenous social and cultural group and recognition of this identity by others; and (b) Collective attachment6 to geographically distinct habitats, ancestral territories, or areas of seasonal use or occupation, as well as to the natural resources in these areas; and (c) Customary cultural, economic, social, or political institutions that are distinct or separate from those of the mainstream society or culture; and (d) A distinct language or dialect, often different from the official language or languages of the country or region in which they reside..

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 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

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[8] 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.

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

ESS 9 – Financial Intermediaries

ESS9 recognizes that strong domestic capital and financial markets and access to finance are important for economic development, growth and poverty reduction. The Bank is committed to supporting sustainable financial sector development and enhancing the role of domestic capital and financial markets. FIs are required to monitor and manage the environmental and social risks and impacts of their portfolio and FI subprojects, and monitor portfolio risk, as appropriate to the nature of intermediated financing. Given the nature of the project, this standard is Not Relevant as there will not be any financial intermediaries that will be involved in the project.

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.